



European Aviation Safety Agency  
**Comment-Response Document 2013-16**

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Appendix  
to ED Decision 2016/028/R

RELATED A-NPA: 2013-16 — RMT.0583 (MDM.003(c)) — 15.12.2016

**Table of contents**

1. Summary of the outcome of the consultation.....	2
1.1. Overview of comments .....	2
1.2. Statistics of comments .....	3
1.3. Review of comments — data and arguments analysis.....	5
1.4. Review of comments — conclusions.....	7
2. Next steps.....	8
3. Individual comments.....	9
4. Attachments.....	221



## 1. Summary of the outcome of the consultation

In the Advance Notice of Proposed Amendment (A-NPA) 2013-16 'Lead Flight Test Engineer Licence'<sup>1</sup>, which was published on the EASA website on 13 August 2013 and was open for consultation until 13 November 2013, EASA examined the need for a lead flight test engineer (LFTE) licence, and the following options were proposed:

- **Option 0: No licence.** The qualifications/experience of the LFTE remain as per Annex I (Part 21).
- **Option 1: Create a licensing scheme for the LFTE.**

### 1.1. Overview of comments

There was a considerable number of commenters who provided feedback on the A-NPA and expressed their views.

**262 commenters** representing:

- individual opinions;
- their organisations (SNPAC, GIFAS);
- aircraft manufacturers (Airbus, Airbus Helicopters, Leonardo (AgustaWestland), Dassault, Pilatus, Diamond);
- engine and avionics manufacturers (Rolls-Royce, Snecma, Turbomeca, Thales);
- training schools;
- national aviation authorities (NAAs) (France, UK, Germany, the Netherlands, Sweden);
- others (military, etc.).

**433 comments:**

- submitted from various countries in Europe (France, Italy, UK, Germany, the Netherlands, Spain, Switzerland, Sweden); and
- some of the comments were submitted from manufacturers or organisations outside Europe (Honda aircraft, SFTE (USA)).

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<sup>1</sup> <https://www.easa.europa.eu/document-library/notices-of-proposed-amendments/npa-2013-16>



## 1.2. Statistics of comments

The A-NPA contained 11 questions.

**1.2.1.** The first 6 questions were addressed specifically to national aviation authorities (NAAs).

No	Question	French NAA	Swedish NAA	British NAA	Dutch NAA	German NAA
1	Do you have flight test activities in your country as defined in Part-21?	Yes	Yes	Yes	n/a	no comm
2	Do you have a system for licences (or equivalent e.g. rating, authorisations) for crew members other than pilots for the purpose of flight test?	Yes	No	no	n/a	no comm
	Please provide the rationale for having (or not) a licensing scheme for crew members other than pilots for the purpose of flight test.	Provided	n/a	n/a	n/a	no comm
3	How many LFTE/FTE licences (or equivalent) do you have in your country?	200-300	0	0 (20 eligible)	n/a	no comm
4	How many people that would qualify as LFTEs are employed by the NAAs?	100	N/A	4	n/a	no comm
5	Do you anticipate TC or STC activities in your territory in the future?	Yes	Yes	Yes	n/a	no comm
6	If a LFTE licence requirement would be introduced in your country how would you estimate the impact of the additional administrative cost?	No cost	High	To be recovered from applicant	n/a	no comm
<b>Option preferred</b>		1	0	n/a	0	n/a

While 1 NAA (DGAC/DGA) expressed a clear preference for an LFTE licensing scheme, 2 NAAs (CAA Sweden and CAA-NL) opted for Option 0 (No licence), and 1 NAA (UK CAA) stated that more information is required in order to select an option.

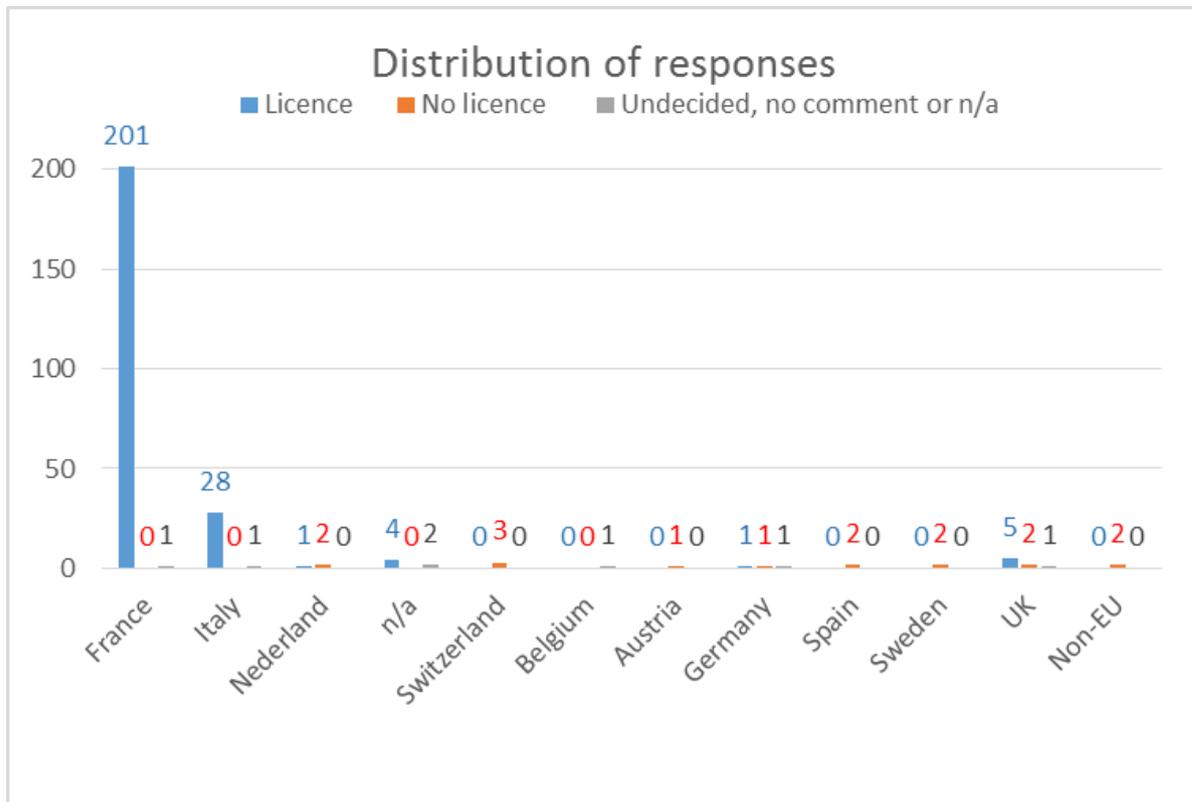
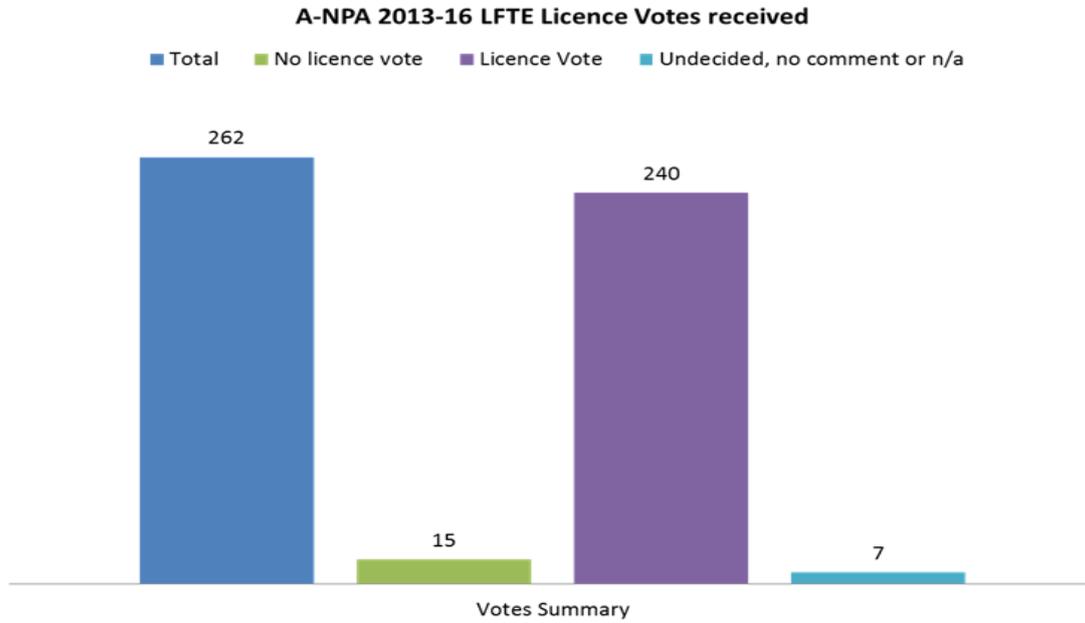
**1.2.2.** The next 4 questions were addressed to all the stakeholders and enquired into:

- the number of persons with flight test engineering duties: the responses indicated that there are up to 3 000 persons;
- the number of the potential LFTEs as per the Annex I (Part 21) definition: the responses indicated that there are over 400 persons;
- 11 of the LFTEs were identified as currently operating independently;
- the number of persons holding a licence: the responses indicated that there are between 300 to 350 licensed LFTEs.



1.2.3. The last question enquired into the choice for **Option 0 (no licence)** or **Option 1 (licence)**, as well as the rationale to support the choice.

The result of the votes is provided in the graph below.



The graph above presents the number of comments received, grouped per State where the commenters were most probably employed, with the intention to illustrate the geographical distribution of the commenters and to provide an indication of whether the issue raised is State-



specific or European-wide. Since in many cases the State where the comment was submitted from was not clearly stated in the response nor was it easy to determine it, the graph should only be viewed as an estimate.

During the revision carried out by the A-NPA 2013-16 Review Group<sup>2</sup>, some of its members noted that this graph would not provide a complete picture and requested to also include an analysis of the citizenship of the commenters, irrespective on the State where they are employed. As EASA did not request nor collect data on the citizenship of the commenters, data was provided by some industry group members. Based on the industry assessment, it may be noted that although the majority of the commenters who responded to the A-NPA (and supporting the licensing scheme) were French or Italian nationals, some other commenters in favour of a licensing scheme were of other nationality, even if mostly employed in France (thus accounted for in the column for France).

To summarise, the majority of the answers are in favour of an LFTE licensing scheme. These answers were provided mainly by commenters from two States; few responses have been received from States other than France and Italy.

### 1.3. Review of comments — data and arguments analysis

With regard to the rationale for opting for an LFTE licensing scheme or not, some large aeroplane/rotorcraft manufacturers and some NAAs provided the following arguments in support of the option in favour of a licensing scheme:

- An LFTE licensing scheme would improve the crew resource management (CRM) commonality with the pilots, which would be essential especially in the critical phases of flight test. If an LFTE is trained in-house and a pilot is trained at an approved training organisation (ATO), a difference in the CRM may be possible.
- An LFTE licensing scheme would imply that training would be completed at an ATO, thus ensuring a better training harmonisation. Additionally, medical checks will be clearly defined and standardised and will be under the responsibility of organisations properly overseen by the competent authority.
- If the licensing scheme requirement is not re-established, the LFTEs (currently licensed) would face a loss of social status and privileges (pension rights and insurance), which may lead to social tensions.

Some CS-23 manufacturers and some NAAs instead provided arguments against an LFTE licensing scheme:

- An LFTE licensing scheme would not add a clear safety benefit. Once the competency and training requirements for the LFTE have been regulated (as already defined in Annex I (Part 21)), a licence brings very limited added safety benefit. Companies holding a design organisation approval (DOA)/production organisation approval (POA) should be those overall responsible for the qualification of their staff. Proper oversight of LFTE competence and training is ensured by the competent authority as part of the oversight of the organisation.

<sup>2</sup> [https://www.easa.europa.eu/system/files/dfu/rulemaking-docs-nga-rg-A-NPA-Review-Group-RMT.0583-\(MDM.003\(c\)\)--Issue-1.pdf](https://www.easa.europa.eu/system/files/dfu/rulemaking-docs-nga-rg-A-NPA-Review-Group-RMT.0583-(MDM.003(c))--Issue-1.pdf)



- A licensing scheme would place unnecessary financial and administrative burden on organisations and NAAs. The burden consists of higher training costs (training would need to be delivered at an ATO) and administrative costs. The main argument for some NAAs is the burden resulting from the responsibility of the Member State to set up a licensing scheme for LFTEs, regardless if there is flight test activity or not in that Member State.

In addition to the statistics, the Review Group debated on the substantive arguments brought forward. Two Review Group meetings were organised to further understand and debate on the comments and divergent positions received during the A-NPA 2013-16 (Lead Flight Test Engineer Licence) and the NPA 2008-20 (Flight Testing)<sup>3</sup> consultation period on the subject of LFTE licensing scheme.

Taking into account the comments received, the Review Group meetings focused on the identification of the benefits and costs associated with an LFTE licensing scheme.

It was considered that Annex I (Part 21) has been already amended by Commission Regulation (EU) No 2015/1039<sup>4</sup>, introducing new, sufficient requirements to harmonise flight test crew qualifications. Moreover, it was noticed that Regulation (EC) No 216/2008<sup>5</sup> does not provide the legal basis for a European LFTE licensing scheme. In case the European LFTE licensing scheme option was selected, Regulation (EC) No 216/2008 would have to be updated. Therefore, a licensing scheme would add little benefit.

Cost was further analysed based on the feedback received from various Review Group members.

- Cost to Member States:

All Member States would need to develop or adapt their licensing scheme to include the LFTE licence, even if there will be no application for such an LFTE licence in the majority of the Member States. Ideally, a future LFTE regulation would allow only States that need such a licence to develop a suitable licensing scheme based on the requirements laid down in Annex I (Part 21). However, such a solution would be difficult to be justified since in all other licensing areas the principle is that an applicant could apply for the issue of a licence to any authority of their choice.

The licence-issuing and record-keeping would have an initial cost for the NAAs, and then a recurring annual cost for administration and oversight.

- Cost to DOAs/POAs/ATOs

The training cost, due to the necessity to conduct training at an ATO, is generally foreseen to increase. This may affect in particular some CS-23 aircraft manufacturers (if they need an LFTE), where the headcount is reduced and where 4 or 6 months up to 1 year of training outside the company will have an increased effect. The high cost of resources availability (aircraft, trainers) may determine some cost differences between the initial training conducted at or outside an ATO.

<sup>3</sup> <https://www.easa.europa.eu/document-library/notices-of-proposed-amendments/npa-2008-20>

<sup>4</sup> Commission Regulation (EU) 2015/1039 of 30 June 2015 amending Regulation (EU) No 748/2012 as regards flight testing (OJ L 167, 1.7.2015, p. 1).

<sup>5</sup> Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).



#### **1.4. Review of comments — conclusions**

EASA re-evaluated the comments received on the A-NPA and the outcome of the Review Group discussions.

It was determined that the changes to Annex I (Part 21), introduced with Regulation (EU) No 2015/1039 which defines the experience and competency requirements for LFTEs, provide flight test organisations and competent authorities with the means to ensure that LFTEs are properly qualified through their own certification/approval and surveillance systems.

The introduction of an LFTE licensing scheme comes with a burden for some organisations and possibly many NAAs. Additionally, a new rulemaking task (RMT) would be required for the LFTE licensing scheme, which would in turn require the update of the Basic Regulation.

While it is possible to quantitatively estimate the burden, the safety benefit of the LFTE licensing scheme cannot be quantified due to the lack of relevant flight test data on incidents and accidents.

Based on the arguments provided, and mainly due to the fact that an LFTE licensing scheme would add complexity and additional burden, EASA does not favour the creation of an LFTE licensing scheme without establishing first a clear safety benefit.

However, the review of the comments and the Review Group discussions have shown that some Member States have in place a national licensing scheme for LFTEs related to Annex II activities or other activities outside the scope of Regulation (EC) No 216/2008. EASA agrees that such a national system may be recognised as a means for design organisations to demonstrate compliance with the LFTE competency/experience requirements under Annex I (Part 21).



## 2. Next steps

Based on the arguments above, EASA will not establish a European licensing scheme for LFTEs.

However, in order to address the concerns raised by the stakeholders, EASA will expand the AMC to Annex I (Part 21). Holding a national LFTE licence issued by a Member State that has a national licensing scheme in place could be considered sufficient for a flight test training organisation to demonstrate compliance with the LFTE requirements. Similarly, a certificate of course completion issued by an ATO under its privilege, that is ORA.ATO.355 'Flight test training organisations' of Regulation (EU) No 1178/2011<sup>6</sup>, could be considered sufficient for a flight test training organisation to demonstrate compliance with the LFTE initial training requirements. This proposal addresses the concerns raised during the public consultation of the A-NPA, allowing the currently licensed LFTEs to maintain their social status and privileges, and also benefit from training LFTEs at ATOs.

RMT.0583 (MDM.003(c)) is terminated, and the proposed changes to the AMC to Annex I (Part 21) shall be included in the scope of RMT.0031 'Regular update of AMC and GM to Part 21'.

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<sup>6</sup> Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1).



### 3. Individual comments

#### Table of comments

(General Comments)		-
comment	8	comment by: <i>Ryanair</i>
	Can you advise how this A-NPA integrates with NPA 2012-08 'Maintenance check flights' the term 'test flight does exist in this NPA it only mentions level A and B. We have developed a training program for our B1 engineers who participate in 'MCF' which is controlled by a very robust process.	
response	—	
comment	13	comment by: <i>EUROCONTROL</i>
	The EUROCONTROL Agency has no comments to make.	
response	—	
comment	52	comment by: <i>Jean-Paul Lambert</i>
	I am in favour with option 1: LFTE licence required.	
	The LFTE is requested to assist the pilot in taking actions on main aircraft systems with a direct impact on the flight and environmental safety, especially while degraded A/C configuration are tested in flight.	
	This imposes a formal training, level of knowledge, experience and medical ability very similar to the requirements in force for the pilots.	
	A formal licence is the right way to manage, monitor and summarize all these requirements in a common, homogeneous and international document.	
response	—	
comment	159	comment by: <i>Didier LOISEAU</i>
	I work, as civil LFTE, for the flight tests centre of the Direction Générale de l'Armement (DGA - France) for over 20 years. I was trained and graduated from the EPNER. I have a French LFTE licence.	
	<b>My response to question 11 : I prefer the option 1 (licence requirement).</b>	
	As a number of colleagues, I conduct armament flight tests in back seat of two-seater fighters, in crew with experimental test pilots. During these flight tests, I have to act on the commands and the basic systems of the aircraft because the main functions of arms are highly integrated (HOTAS controls). I often take control of the radio communications to talk with the specialists who follow the test on ground with telemetry and the air traffic control for the flight profile.	
	I assist the test pilot as expert on the new systems. I control the test facilities and the	



activation of the new systems that are always highly integrated in a fighter. My actions are coordinated with the pilot because they can have an impact on the pilotage of the test-bed aircraft : prelaunch weapon preparation that change aerodynamics, cruise missile engine start before firing, activation of release mechanism and calculators connected to aircraft mechanical and electrical systems, possibly including hot gas protection system for fighter reactors...

I prepare normal and emergency procedures related to these new weapons and their test firing from the plane. In accordance with the test pilot, I applied my part of those check-lists in flight. As part of crew, I also handle basic systems of the aircraft that are not totally accessible to the pilot as the inertial navigation units, radar and detection systems which also concern security. In situation of aircraft basic systems failure, I help the pilot with cross-check.

I feel concerned about the flight safety as much as the pilot. I assist him to this fundamental task in a test environment that can be extremely complex.

To perform my duties, I am regularly subject to medical expertise in a specialized aviation medical centre. I attended specific training courses for flight personnel concerning the aircraft that I practise. I am subject to various mandatory and regular training for emergency procedures, including the use of ejection seats. My national licence allows that and gets insurance and pension for my flight test activities.

I desire to keep a LFTE licence. I think that a LFTE EASA licence allow strengthening the mutual recognition of qualifications and the freedom of circulation in Member States. It would broaden the scope of expertise for all DOA / POA in Europe. It would be a favourable factor for flight tests teams' cohesion in major European aerospace programs. It would recognize and distinguish competences within DOA / POA, in addition to the defined FTE / POA function. Finally, it would encourage the independence and the critical thinking necessary for that specific activity and that has a fundamental impact on flight safety.

I think administrative costs (licensing system already exists for pilots) or regulation inconveniences induced are finally low relative to those objectives.

response

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comment

169

comment by: *Deshayes/DGA EV Istres*

My choice is for option 1

response

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comment

216

comment by: *Manfred BIRNFELD*

I am in the position of a Senior Lead Flight Test Engineer. I am licenced and I act as a flight test director with flight critical functions on board of large aircraft performing research, certification and development flight test. I am also an instructor for lead flight test engineer candidates.

I am in this position since 1990, for now over 23 Years.

I prepare flight test profiles and scenarios in detail, taking into account mandatory safety assurance, the test objectives, certification and specification requirements, eventual



opportunities, engine and aircraft limits, system performance, physical constraints, weather conditions, aircraft and instrumentation characteristics, possible failure scenarios, air traffic control requirements, flight test environmental particularities, time constraints and program priorities.

The flight test pilots, and fellow flight test engineers, with whom I work on board in very close relationship as a team to achieve the test flight's ambitions, trust in me because I have a very similar or in some cases even more elevated test school background as they have themselves.

During my work on board of the flight test aircraft, I frequently not only give safety critical flight test manoeuvre instructions, to be executed by the flight test pilot, but also handle safety critical test installations which may seriously affect e.g. engine operation, flight controls characteristics, fuel system behavior or cabin pressurization. I am also in the position to make an analysis of the aircraft's condition and to decide, together with the Captain of the flight, whether a flight test may be continued or not. Besides operating the safety devices of the aircraft, like arming the doors or activating the evacuation hatch, I also operate the Flight Test Installation, including devices which increase electrical power consumption, smoke generators, fluid or dust discharging apparatus etc.

I am able to do this, and I feel comfortable doing this, because I have been through a very thorough syllabus of training, teamed with Experimental Test Pilots and Test Flight Engineers, at a renown flight test school, one out of four great, recognized schools, delivering a diploma certifying the completion of the (Flying) Flight Test Engineer's course.

Within my responsibilities, I serve as the prime interface between my company and EASA flight test witnesses participating in selected flight tests. I teach them on the aircraft and the test to perform, and I watch for their personal safety on board the aircraft during the test flight.

The knowledge acquired throughout my studies and the experience in engineering, together with that diploma, allowed me to obtain my Flight Test Engineer Licence. My licence reflects the degree of training and specialised education I have been given and grants the privileges for the execution of my job as part of a flight test crew, in the category of the test flight undertaken.

I also go every year for my very thorough and complete medical check, which ensures that I am mentally and physically fit to perform my work on board of the test aircraft; that I can endure the physical challenges and do not faint away in an undesirable phase of the test flight. I need to pass this check to maintain my license.

I am a crew member, I am integral part of that team of highly specialized aviation experts who operate the flight test aircraft.

It therefore comes without any doubt, that only a Licence Requirement will guarantee that future candidates will receive the mandatory training and the medical health checks necessary for the work - on board - as a Lead Flight Test Engineer.

The licence is mandatory to guarantee safety. Option 1 is preferred. It allows the monitoring it deserves, by the competent authority.

It is also important to distinct the Lead Flight Test Engineer from the engineers performing any job in conjunction with flight tests. "Lead" may not be the best expression describing the function, but it may serve well for the time being. A better name may be found once the principle of a European Flight Test Engineer's Licence is accepted.

It may also be said here that the licenced Lead Flight Test Engineer, taking large responsibilities throughout a development and certification flight test program, is able to grant efficiency. Lower level of responsibilities and lower level of education will unavoidably



lead to inefficiency.

Furthermore, let's mention here that only an EASA licence will establish a Europe-wide quality level and the associated recognition of the Lead Flight Test Engineer. This is utmost important as Europe will grow together. Flight Test Safety must become a European subject of size. The licence will grant that the engineer has the level of education required to perform in the category of test he is executing, that he has the physical fitness necessary and thus that safety is at its value.

Crew members also need licences in order to be recognized as flight crew when passing airport security or when dealing with airport or customs authorities. The Flight Test Engineer's Licence would therefore also be required to grant the engineer access to his flight test vehicle and ease the formalities at airports.

Licences exist for many other functions in aviation, some of them with no or far less involvement in flight safety critical functions. Given the level of intervention on a test flight, it seems therefore only natural that the Lead Flight Test Engineer must be in the possession of a license.

I really hope that the EASA will find that the existence of this licence is not only acceptable, but that it is mandatory, really required to uphold flight test safety and quality. - Manfred Birnfeld, Flight Crew Member, Senior Flight Test Engineer

response

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comment

232

comment by: *Philippe BAGUR*

In the present situation applicable in France and used also in Germany, Spain (by EUROCOPTER or AIRBUS) or Italy (by AGUSTA WESTLAND), the need of a license for a LFTE is mandatory to be authorized to perform the corresponding job in flight, especially onboard aircrafts not yet registered like prototypes or those performing their first flights at the assembly line output. This gives the flexibility for LFTE's to be recognized for this function not only in their company but in all companies or agencies applying this rule.

Indeed the fact to own a valid license is a not disputable proof that the concerned person has followed a specific training, has succeeded in this training, has performed a minimum number of flight test as LFTE during the last months to maintain his qualification and has a medical check recently validated.

In a few years all the flight test community in Europe shall switch to a new system driven by EASA and which will be the result of this NPA questioning.

I am one hundred percent in favor of the answer 1 to question 11, i.e. licence requirement. If EASA would decide to choose the option 0 (qualification but no licence), the final situation would be in contradiction with the basic right of all European civilians: freedom to practice one's job in any European country. It would not be possible to move in good conditions from a French company to an Italian one for example because the concerned person would have difficulties to produce evidences of his recurrent training and of his medical fitness. The licence is the only mean to avoid this blank. The no licence situation would create an excessive dependency of a person to his company, which would induce a high pressure on him not compatible of his charge.

The case of pilots is a good illustration to understand the situation. They need a basic training, a recurrent training and a medical fitness: all this is synthetized in a license.

I am presently in charge of a 10 people team including 5 LFTE and I witness every day that they are performing their job in the best possible conditions because their situation is recognized inside and outside the company, in front of customers or foreign partners or



response	<p>agencies, thanks to their licence.</p> <p>—</p>
comment	<p>243 <span style="float: right;">comment by: <i>in my own name</i></span></p> <p>Working since 17 years as a FTE, I am personally strongly in favour of a licence for all Flight test engineers for the following reasons :</p> <p>1- A FTE is not generally performing his duties on ground in a telemetry room, but flying on board of the aircraft, he must therefore be fully considered as a flying crew member</p> <p>2 - To be in accordance with the ICAO ANNEX 1 which states clearly <b>“A person shall not act as a flight crew member of an aircraft unless a valid licence is held .....”</b> therefore without any licence a FTE will never be considered as a flight crew member as per ICAO ANNEX1 <b>“Flight crew member : A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period”</b>. From my own experience when I am performing a test flight especially when testing aircraft systems, I am not only taking notes or monitoring data, but I am directly involved in aircraft operation either by operating those systems themselves or by changing their settings through a flight test installation. Those tasks are considered as essential for the realisation of the test flight, some of them cannot even be performed by the test pilots because they do not have any access to the installation.</p> <p>3 – Being in charge of the technical follow up of a test aircraft during its development phase, the FTE is responsible for checking the technical status of the aircraft before flight and even accepting the aircraft on behalf of the captain, computing weight and CG data, performing his own pre-flight inspection, and after the flight filling in the technical logbook. All those tasks are typical duties performed by a flight crew member.</p> <p>4 – I cannot understand that a licence could be mandatory for all professional and non professional flying people even for maintenance engineers or other ground personnel working in the aviation world, but not for a FTE who has a real technical function on board. This appears for me to be a lack of consideration from the rest of the aeronautical community regarding the status of the FTE.</p> <p>5 - The test flights are not limited to national airspace, they can be conducted anywhere for test purpose. When operating outside his own country or the European community, having a licence is the only way for the FTE to be recognized as part of the crew by local authorities and to have all correspondent privileges ( ie customs, etc...).</p> <p>6- Having a licence is the best way for the FTE to be in accordance with a European quality standard that Europe should demonstrate in all directions if we want to be considered seriously by the rest of the world.</p> <p><b>CONCLUSION :</b></p> <p>From my point of view any kind of people declared to be employed by its company as a FTE, and flying, should have a licence whatever the type of flights performed. This licence should be called simply “Flight Test Engineer licence”. The holder of this licence should be allowed to perform only a given type of test flight according to the ratings mentioned on this</p>



response	document. Those ratings will provide the privileges in accordance with the appropriate training. —
comment	245 <span style="float: right;">comment by: <i>Paul Muller</i></span> Option 1 is the only one acceptable to guarantee and maintain a good safety and professionalism level in flight tests.
response	—
comment	250 <span style="float: right;">comment by: <i>DGA French flight test center</i></span> Please find below comments and answers from <b>DGA Flight Test Centre</b> , identified as the national aviation authority in charge of french flight test activities, to A-NPA 2013-16 .  1- We do have flight test activities in France, as defined in Part-21. 2- We do have a system for licences for test pilots and other flight test crew members. The rationale for having such a licensing scheme is explained in the answer of question 11 below. The keystone is that our flight test methods and procedures, based on lessons learned from decades of flight test activities and taught in our country, depend on a strong flight test crew coordination between a pilot and an engineer, both belonging to the aircrew. 3- In France, we have currently 280 LFTE/FTE licences 4-We estimate that around 200 people in France could be eligible to a LFTE licence. 5- France accommodate a large aeronautical industry and we will have TC or STC activities in the future. 6-Since the french licencing scheme is already existing and operative, there would be no extra cost generated by a LFTE licence requirement. 7- DGA flight test centre has 110 people performing flight test engineering duties to conduct its own activities. 8- Considering their scope of activities, most of them would qualify as LFTE. 9- We don't have freelancers. 10- All of them have a licence  <b>11- DGA Flight Test Centre promote the adoption of OPTION 1, namely the implementation by the EASA of an european licensing scheme for the LFTE.</b>  The argument leans on three pillars:  <ul style="list-style-type: none"> <li>• Operational risk management</li> </ul> Given its possible actions on the primary flight controls, engine and power circuits of the tested aircraft, LFTE is a major player in the security of this aircraft , in the same way as the pilot. In the global aeronautical system , all the leading players of the flight safety ( pilots, controllers , cabin crew , ... ) are subject to a licensing scheme (which presides over formation, training , continuous assessment , medical supervision, ... ). He thus has to be true for LFTE because the same reasons apply (and that would be consistent with the ICAO



Convention).

- Social impact

In France , the profession of aircrew has a specific legal status and a special social treatment : labor regulations, specific allowances, dedicated pension fund and insurance...

The French flight test engineers currently benefit from this social scheme. Loss of license could get them out of that scheme , which would lead to serious trouble to the personal level. These individual difficulties would be doubtless badly felt and social movements would probably ensue , which could significantly disrupt the activity of industrial players in the European aerospace industry.

- Recognition of skills and right to work

The license allows a shared recognition of skills and expertise, allowing LFTE mobility between different employers. Loss of license could create a serious obstacle to this free choice of employment. It is also feared that dependence on a single DOA/POA holder could lead to a potential loss of objectivity in the technical assessments expressed toward this only possible employer, which in an activity such as flight testing could impact on the safety of aircrafts and passengers.

Moreover, in our opinion, the current baseline scenario implementing the qualifications of the LFTE on Part 21 regulations shows several weak points :

- The “LFTE” group includes in fact people with a diverse level of expertise: engineers, technicians, mechanics... A licensing scheme could help identifying more accurately the actual skills of people involved in flight testing
- Being under DOA/POA regulations, no national authority covers LFTE activities.
- LFTE instructor qualification or rating are not mentioned.
- If the requirements for LFTE formation, medical and training are already defined , why not go a little step further to the license?

In the end, a LFTE licensing scheme would allow countries having a strong working culture based on crew coordination for flight testing to continue according to their taught and proven methods, without bringing of constraint for the other nations which adopt different working principles, because we totally agree with the rule stating the presence of a licensed LFTE on board will be imposed on no account.

response

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comment

267

comment by: *Luftfahrt-Bundesamt*

The LBA has no comments on A-NPA 2013-16.

response

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comment

268

comment by: *Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck*

After reviewing NPA 2013-16 and the comments to CRD 2008-20 the following comments are given in summarizing our concerns:

1. The proposed license will affect only a limited number of people. The cost/benefit ratio is not considered and a direct effect on safety is not demonstrated. Standardization and harmonization do not lead necessarily to higher safety. A demand driven by industry cannot conclude from comments to CRD 2008-20.

2. With this licensing scheme, the agency and the NAAs will enter a new field for that aviation authorities are neither equipped nor experienced yet. The agency is not part of the system approved to award engineering licenses and neither the agency nor the NAAs are authorized to approve training curricula for that. For this purpose dedicated accreditation agencies are installed under European and national law. So the approach of the agency in total will not contribute to harmonization in Europe and should be aligned to European policies.

3. There is no QM-plan presented yet, how to administer this type of license European-wide. New staff has to build up at the agency and the European NAAs to administer the approval and supervision of respective TOs. This will require transition time before mature processes are established. Transition periods have inherent risks of misunderstanding and failures. No risk consideration and measures for that are presented yet.

4. The scope and variety of FTE tasks is so broad that it will be unlikely to capture that in 1-2 course schemes for engineers. The roles and functions of FTEs vary significant by the scope and specialization of the flight test team and the specific situation of an applicant. Therefore role assignments should be better made in the FTOM or even sortie-wise as this allows more flexible and more precise specifications.. This is a proven and established procedure and superior to license approaches to master specific challenges and risk associated with the application rather a universal licensing scheme. So a license brings no improvement for the established flight test procedures. Possible interferences between the licensing-scheme and the applicant-approach are not yet considered in the published material.

5. It is not convincing that lead FTE functions will be transferrable between companies by a license. A lead FTE from AIRBUS for example will not change in an equivalent lead function say with PILATUS just by holding a license. Vice versa a lead FTE from Pilatus will hardly move direct in a leading FTE function with AIRBUS on basis of having just a license. This would seriously interfere established and proven promotion schemes in industry. Therefore the appointment of FTE functions and the assignment of required training needs should be left to applicants. The argument that a license would harmonize the exchange of personnel will be invalid in most cases.

6. Employers rights to decide on leadership functions and rights to lead derived from a license are not compatible. If a LFTE insists on leading function referring to his LFTE license and employers nominate other persons without this license, conflicts are programmed. The right to assign executive functions should remain allocated to employers. This is practice in industry and in line with business law. Any other rules will cause confusion or even conflicts which is not appropriate for flight tests.



7. The term LFTE is not scalable: if there are more than one LFTE license holder in a team, it will be unclear, who is the "real" leading FTE. So the licensing approach must be expanded by a "top LFTE" license in some years to remain in line with the intention. This will require continuous rulemaking and adaptation effort for the agency and the NAA's. Ever changing rules are not desirable.

8. The LFTE definition presented is not consistent. The name suggests an executive function, whereas the descriptive part of the definition talks about assisting functions to the pilot. Inconsistent definitions are useless, even hazardous, as they may cause confusion. Confusion is a safety issue in aviation and should be avoided in any case. So name and description of a definition should be consistent.

9. The FTE definition is also confusing. Why any engineer involved in test flights should be called a FTE, even if tasks and qualifications are very different? There are good reasons to define different tasks and roles in flight tests requiring also different qualifications and responsibilities. The benefit of this egalitarianism is not evident. This definition needs a total revision to be applicable.

10. It remains undefined in the published documents whether a LFTE license is based on an engineering degree awarded by a HEI or is intended as a stand-alone degree. The boundaries between HEIs and ATOs are not defined. Many last minute changes in NPA 2008-17 are still unexplained (f.e. suppression of BA/MA-degrees as entry requirements originally being part of the NPA, but later "suppressed").

11. Reading the comments from CRD 2008-20 it is significant, that the perception of rights and privileges necessary to an LFTE is not homogeneous. It ranges from traditional FTE-tasks on systems to the request that FTE have to be authorized to in-flight decisions in critical situations. It is agreed that flight test often require close interactions between the pilots and the engineers on board and on the ground. It is also agreed that their observations and opinions are very valuable for flight decision making. But there are also requests to expand the authority of FTEs on in-flight decision making. This is something different! The authority for in-flight decision making is up to the PIC and should never deteriorate. If the LFTE-license leads to debates on board, who has the decision authority, this license is definitely the wrong way to go. As long as it is not fully clear to everyone in the flight-test community that flight decision making is solely to the PIC, no attempts should be made to introduce a license blurring decision authority. As the discussion in CRD 2008-20 shows that this is not (yet) clear to everyone. In this situation a "license in between" with blurred rights is the least we need. Even a flight test director is not allowed to interfere pilot's decision. The accident of Smolensk in 2010 is a memorial for that.

12. As outlined there are still significant risks and uncertainties related to NPA 2013-16. According to the golden rule in risk management not to proceed if risks are not resolved or not fully understood our recommendation is to halt this project. There is no stringent need for a license presented and the implementation may cause several effects, which will cause less safety.

response —

comment 269

comment by: *Stephan HAAS*

[As a non-licensed flight test engineer currently involved in helicopter production flight tests I](#)



strongly recommend the introduction of the proposed EASA Lead Flight Test Engineer (LFTE) License in order to define the formal requirements for obtaining and maintaining a certain training standard (e.g. ground run training, type certificate theorie and some hours of formal flight and simulator training including emergency procedures) when performing duties as an aircraft crew member.

The proposed LFTE license should also be internationally recognized by other civil aviation authorities (e.g. FAA, Transport Canada) and if possible by military authorities. Once issued it can be presented as proof of qualification and currency of aircrew members during an audit or investigation.

A formal EASA LFTE license will make flight test crew exchange within the company as well as performing test flights at different locations worldwide easier.

Stephan HAAS

response

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comment

271

comment by: UK CAA

**Page No:** N/A

**Paragraph No:** General comment

**Comment:** The UK would welcome a discussion of this A-NPA at the Rulemaking Advisory Group (RAG). We consider it fully in keeping with the important role of RAG in addressing potentially significant issues well upstream in the rulemaking process that subjects such as this should be discussed at an early stage so that the Agency, Commission and Member States can together assess whether to add this new task to the current rulemaking programme.

The points that could usefully be addressed seem to us to include the following:

- A fuller discussion of the safety case for a licensing scheme and the LFTE competence and training requirement already captured in CRD 2008-20 and subsequently Opinion 07/2013.
- Examination of the evidence concerning the effect of medical incapacitation of an LFTE that could form the basis for a set of medical requirements leading to medical certification. Are there already offsetting operational procedures in place/required?
- Whether all the implications and associated costs have been identified e.g. would a new LFTE Instructor Rating also need to be developed?
- A fuller discussion of the costs associated with requiring a licensing and medical certification system in all 28 Member States.
- How the social issues identified can be assessed alongside the cost burdens and the 'safety case'?

We consider that a high-level discussion on these and other issues that may interest other Member States would be very helpful to the Agency.



response

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comment

291

comment by: *Jean-Philippe NICOLAS*

I think it is important to create a license (option 1) for leading flight test engineers (LFTE) for the following reasons :

- - Every person who has a direct influence on the flight safety, flight path or handling of an aircraft, has to have a license as pilots, flight engineers and controllers do. Now, the actions or the instructions of a LFTE often have immediate consequences either on the flight path and/or the handling of the aircraft (for example by changing the flight control law of an aircraft or by having actions on the engines). Thus, the actions of the LFTE have a direct impact on flight safety. So it would be logical for the LFTE to be subject to the same rule which would require him to have a license;
- - If the LFTE were to have a license, it would be logical to train them with the other crewmembers (test pilots, test flight engineers). This would most probably facilitate the inflight relations amongst the test crews and further add to the existing flight safety;
- - Without a license, the skills of a LFTE are only acknowledged by his employer. The fact of having a license would allow a LFTE's skills to be acknowledged Europe-wide and eventually worldwide. That would allow LFTE to work more easily through Europe for different employers or certification authorities with the assurance that he possesses the proper skills and medical requirements.
- - Lastly, for the countries which already provide licenses for their flight test engineers (France and Italy), the absence of a European license would constitute a social regression.

response

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comment

329

comment by: *Karl LINDAHL*

I believe that it is essential to give the LFTE an official framework through a license, in order to secure:

- Harmonized and adequate level of initial and recurrent training.
- Medical status and follow up.
- Freedom of movement within the European Union.

response

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comment

363

comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*Attachment [#1](#)

For SCAA comments, please see attached document.

response

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comment

374

comment by: *Swiss International Airlines / Bruno Pfister*

As an operator, Swiss Intl Air Lines is not affected by the NPA 2013-16 and therefore teakes notice of the NPA without further comments.



response

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comment

384

comment by: *PRESIDENT & SECRETAIRE GENERAL DU SYNDICAT*Attachments [#2](#) [#3](#)

Comments by SNPAC

response



comment

432

comment by: *Turbomeca*Attachment [#4](#)

Turbomeca comments

response



comment

433

comment by: *Michael BARTLETT*Attachment [#5](#)

Comments by Mr Michael F. Bartlett

response

**Advance Notice of Proposed Amendment 2013-16**

p. 1

comment

353

comment by: *LERENARD*

Hello

The licence of Flight Test Engineer is obtained following an important experiment in flight and one year of study at EPNER.

A flight engineer knows perfectly the laws of aeronautics and the mechanics of the flight. It controls the abnormal conditions of flight of an aircraft and its qualification of tests enables him to check the behaviors of a plane under test without apprehension.

This work is a work of flight crew and also of professional and would not be for no reason reserved for a person not having any professional aeronautical qualification.

To grant a licence LFTE to other people that professionals flying personnel of aeronautics is very serious and I am very afraid which these people who will come from manufacturers will think more of selling their material to ensure the safety which they will not have acquired by not carrying out the EPNER.

Claude LERENARD (Flight Tests Engineer)

Medal of Aeronautics

response

**Lead Flight Test Engineer Licence RMT.0583 (MDM.003C) — EXECUTIVE SUMMARY**

p. 1

comment

7

comment by: *jacky joye*

This ANPA discusses the matter of a licence for Lead Flight Test Engineers in a narrow way, which is limited to, mainly, regulatory aspects and, subsidiarily, safety aspects.

It seems to me that the core of the matter is to debate whether Flight Test personnel should play an essential part in the definition of an aircraft, on a par with the contribution of the Design Office, or whether they are rather to be considered as skilled workers in flight testing, whose main merit is to be inside the becher which is the locus of the experiment.

The former approach is the French way, the latter approach is the Anglo-Saxon way. One attracts people formed in the elite schools, whereas individuals are often recruited by means of small ads in the other one.

Both ways have their pros and cons. But what would the French aeronautical industry be like today without the contribution of people like Bernard Ziegler, Etienne Tarnowski, Roger Beteille or Henri Perrier ? Would Airbus aircraft look the same if those people had spent their formative years tightening bolts on an assembly line rather than attending top engineering schools? Obviously not: they would be more conventional, less sophisticated, less innovative, less "engineers' airplanes".

In this context, If we want to proceed along the same lines in the future, it is essential that the Flight Test Engineers receive a training equivalent to that of the Test Pilots. How could a Flight Test Engineer be a "Test Conductor" if he does not possess the same theoretical knowledge as the rest of the crew ? Without it, he will be little more than a "scribe", like it is the case in the Unites States. And, to be granted a training of that magnitude implies that it is sanctioned by a licence. It is a matter of coherence.

In the end, the choice is somewhat philosophical and is summarized in that question: what part should Flight Test people play in the definition of future aircraft ?

Jacky Joye  
Former Flight Test Engineer at Airbus and SNECMA

response



comment

15

comment by: NIEUTIN Jean-Christophe / DGA-EV Cazaux

**It is obvious that the creation of a license of LFTE is ESSENTIAL.**

**Why ?**

**My point of view :**

**1) Operation and flight safety:**

The LFTE acts on the main commands of the aircraft and participates in the conduct of the flight just as much as the pilot. He is a key figure of the flight safety and all the reasons which preside over the delivery of licenses for a pilot apply also to the LFTE in fact.

**2) Social difficulties:**

The national plans of insurance and retreat require to have an aeronautical title of civil professional flight crew. Without this license, the individual will undergo an important loss and social movements will be likely.

**3) Recognition and independence:**

The absence of license would constitute an obstacle in the free circulation of the employees because there would be no mutual gratitude between holders of DOA/POA DOA/POA and the change of company would be made difficult.



Besides, the current freedom of movement allows to guarantee a certain independence of judgment which goes to the direction of the flight safety.

**For all these reasons, a LFTE necessarily has to possess a license.**

response



comment

43

comment by: *DGA Essais en vol , Flight test center*

I choose option 1

Saisissez du texte, l'adresse d'un site Web ou importez un document à traduire.

Annuler

Essayez avec cette orthographe : je participe

I participate in the conduct of the flight so that the pilot is on the flight controls, I am a prominent player of flight safety

Alpha

Cette traduction est-elle meilleure que celle d'origine ?

Oui, envoyer la traduction

Merci de votre envoi.



Cliquer ici pour apporter des modifications et voir d'autres traductions

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response



comment

155

comment by: *Airbus*

Please note that I support the requirement of a licence for the LFTE in the futur. The main reasons are:

. Homogeneity of qualifications

. Ensurance of capability follow up

. Official check and registration of required knowledge



response	Regards 
comment	215 <span style="float: right;">comment by: <i>Poonam Richardet</i></span> Attachment <a href="#">#6</a> Please See comments from Cessna Aircraft Company on the following NPA:  "NPA2013-16: <u>Lead Flight Test Engineer Licence.</u> "  Thank you. <b><a href="#">Poonam Richardet</a></b> <b>Analyst Engrg Procedures</b> <b>Regulatory Affairs/Dept.-381</b> <b><a href="#">Cessna Aircraft Company</a></b> <b>316-517-5395 (office)</b> <b>316-218-8638 (cell)</b>
response	
comment	218 <span style="float: right;">comment by: <i>Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck</i></span>  1. The document shows some structural weaknesses: So the document is not based on a study or systematic research on the current situation, but presents some opinions without specifying the sources. The facts and figures are presented without references, so it not possible to proof the argumentation and to elaborate on this.  2. Although the subject of the document is on licensing of engineers there are no references in the paper on discussions and directives of the European Parliament. Relevant directives regarding this subject like directive 2005/36/EG are not reflected. The document shows little knowledge and interest on existing structures and processes on engineering education within the European Commision and in the European member countries. There is no argumentation found on this in the document.  3. The document reflects not at all that engineering education is the domain of universities and other HEI. Disregarding universities and their experiences in engineering education leads to the question whether the agency lacks ability to cooperate. This leads to the next question how many people in the agency have experience in curriculum development for engineering education?
response	
comment	233 <span style="float: right;">comment by: <i>Alain LEMANSKI</i></span>  Option 1 As a pilot it's important for me to have a second membership able to conduct a test flight. During such points the pilot is not able to release the control and it's the responsibility of the second member to manage the command of the different systems or engine controls. The



response	<p>license is the guaranty to have someone qualified and updated in these competences. Secure coherent level of initial and recurrent training are only possible with the option 1. This is the lonely way to be coherent with the specifications of our job.</p>
comment	<p>251 <span style="float: right;">comment by: <i>Feydy jean michel</i></span></p> <p>for me the option to choose is n°1. The pilot need an help during tests and acceptances flights. It should be unbealivable to have a none specialist on the left seat. It will be very important that the LFTE follow a dedicate formation in a dedicate school. It permit to learn how they can manage a test flight, can work with the pilot, and if a problem appears during the flight they can help the pilot. Today for me it's mandatory to have on board a LFTE for the safety and a team spirit. For all these reasons ii will be mandatory for the LFTE to have a licence.</p>
response	<p></p>
comment	<p>342 <span style="float: right;">comment by: <i>MNE</i></span></p> <p>j'ai participé à des essais de consommation de carburant.Pour lesquels le conducteur d'essais coupe l'arrivé du reservoir pour alime,ter le circuit à partir d'une bonbonne graduée. Pour une stabilisation le conducteur d'essai chronometre le temps d'une consomation calibrée puis retablit le circuit d'alimentation normal. ces opérations justifient l'option 1</p>
response	<p></p>
comment	<p>352 <span style="float: right;">comment by: <i>MNE</i></span></p> <p>j'ai participe a des essais pilote automatique grande vitesse basse altitude. je donnais les tops debut et fin de panne et j'etais charge de la conduite des moteurs ce travail tres dangereuxnous amenais a conduire ces essais en equipage reduit</p> <p>je choisis donc l'option1</p> <p>pierre beauvois mecanicien navigant d'essais et de reception</p>
response	<p></p>
comment	<p>356 <span style="float: right;">comment by: <i>MNE</i></span></p> <p>J'ai effectué en tant que Mecanicien Navigant d'Essais, le tout premiers vols d'essais de Zero-2g sur Caravelle, j'ai mis au point une procedure qui permettait d'avoir le maximum de securité et d'efficacité, car ce type de vol sur cet avion n'ayant jamais été réalisé. Durant l'essai, j'ai assisté le pilote dans la conduite tres particuliere des reacteurs, en fonction des differantes phases de vol. choix option 1.</p>
response	<p></p>



comment	<p>359</p> <p style="text-align: right;">comment by: P. GAILLON</p> <p>To my general point of view, as a test pilot using capabilities of FTE, deliver a LFTE licence it's a question of safety in flight. How to be sure that the FTE is able to interfere with the behaviour of the aircraft if he didn't follow a specific cursus? Remember that during a test flight, the pilot could delegate a task to the FTE, now you can do it if the FTE is a CREW member.</p> <p>In the same way, a lot of different players involved in a flight have to possess a licence : pilots, ground engineer, Air traffic controllers, why an FTE would not have one? This licence is also a question of insurance in the medical and technical capabilities of FTE. My comments are voluntary general but it seems unquestionable that this LFTE Licence is necessary to keep a high level of safety and efficiency in tests flights.</p> <p>P. GAILLON Helicopter Experimental Test Pilot/ DGA EV / France</p>
response	

comment	<p>412</p> <p style="text-align: right;">comment by: Direction de la sécurité de l'aviation civile (DSAC)</p> <p>DGAC comment will promote the adoption of Option1, namely the establishment of the EASA licensing procedure for Lead Flight Test Engineers. The argument is based on three pillars:</p> <ul style="list-style-type: none"> <li>- Operational risk management</li> <li>- Given its possible effect on the main flight controls of the aircraft testing, LFTE is a major operator in the safety of the aircraft , as well as the pilot. In the global aviation system, all the major operators of the Flight Safety ( pilots, controllers , cabin crew , ... ) are subject to a system of licensing. It must also be true for the same reasons as LFTE apply (training, training , continuous assessment , medical surveillance, ... ) .</li> <li>- Social impact</li> </ul> <p>In France, the profession of flight is a profession that has status which receive a social special treatment : labor regulations, specific allowances, pension fund dedicated ... The current French flight engineers benefit from these possibilities. Loss of license could get them out of that status, which would lead to serious problems to the personal level. These individual problems would be probably bad resented and social movements would follow, which could significantly disrupt the activity of industrial operators in the European aerospace industry.</p> <ul style="list-style-type: none"> <li>- Recognition skills and freedom to work</li> </ul> <p>The license allows a shared recognition of skills and expertise, allowing LFTE mobility between different employers. The loss of the license creates a serious obstacle to that freedom and it is feared that it could lead eventually to a loss of objectivity in the technical report to the employer, and that in an activity such as testing flight that would not be with no impact on the safety of aircraft and passengers.</p>
response	

<b>Table of contents</b>	p. 2
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comment	<p>80</p> <p style="text-align: right;">comment by: Garcia</p>
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The LFTE is a crew member. During a flight, principally during a test flight he can adjust or check some important parameters. His different actions can have a direct influence on the flight. For example during a flight test with armament the LFTE can be the gunner. So it's necessary that the gunner is a professional member with a very good experience of the flight, of the tests and of the armament aspects. Only a professional licence can guarantee a good level for all the aspects. And the pilot must trust the gunner.

response



comment

376

comment by: *VINCENTI Robert*

It would be quite difficult to consider a test or a production flight without a LFTE who does not take any effective action on a relevant equipment or control.

Every time we go in the air for a test or production flight the LFTE is acting in a task of checking and setting systems and controls as "in flight engine shutdown or relight, a manual governing, hydraulic isolating etc...".

In addition the LFTE in certain circumstances is the one who can act in the event of an engine failure during max Ng for restoring the power of the engine alive or a similar surrounding.

This MCC's work is the guarantee of a flight safety.

Therefore the crew must be competent in this field, which means having a certificate of competency and a license (by reference of Chicago convention, article 32).

Consequently the option N°1 is the only one valid.

response



### 1. Procedural information — 1.1. The rule development procedure

p. 3

comment

192

comment by: *PRIEUR/atr*

Who? i mean what are the skills and qualification of the people that are involved in the rule making group. Are there any test pilots, flight test engineer, i mean people who know what flight safety is, not only through documents but in flight in a real situation ?

response



### 1. Procedural information — 1.2. The structure of this A-NPA and related documents

p. 3

comment

162

comment by: *Pascal DAUSSIN*

What about TFE, Test Flight Engineer ?

response



### 1. Procedural information — 1.3. How to comment on this A-NPA

p. 4



comment	92	comment by: <i>Jean-François Daniel</i>
	I am in favor of option 1 / LFTE for the following reasons:	
	1) I'm currently part of the crew of aircraft operation because i assist the pilot during flight test activities	
	2) I want to have a license to be recognized throughout Europe and that will allow me to be less dependent on a single employer and thus allow me to keep my objectivity in my professional decisions. These decisions often have to do with flight safety.	
	3) I would not understand after having passed the examination in 1993 EPNER with Italian, Spanish, German and English colleagues, my license will not become European.	
	4) Non granting LFTE license may generate conflicts in the current business with strike movements.	
response		

comment	127	comment by: <i>Reyss Marc</i>
	I am in favor of option 1 / LFTE for the followings reasons:	
	The LFTE acts on the main controls of the aircraft.	
	He is involved in the conduct of the flight as the pilot.	
	He is a leading player in the flight safety.	
	All the reasons that govern the issuance of licenses for a pilot also apply to LFTE.	
response		

## 2. Explanatory Note and key questions for stakeholders — Background

p. 5

comment	32	comment by: <i>Thierry Lewandowski</i>
	The rationale for implementing a pilot licensing scheme and corresponding endorsement on a licence was (as stated in item 1):	
	<i>The main reason was that the training required is not specific to the organisation for which the pilot works.</i>	
	The same applies to LFTE bound to conduct category 1 and 2 flight tests.	
response		
comment	109	comment by: <i>Fabrice CRESSIOT</i>
	For complex flight test, when safety can be engaged through FTE actions, it is also of high interest that majors actors (Pilots but not only) shares a common and comprehensive approach of the way to proceed. FTE from different origins can be included in the same A/C to operate it. Ex: for twin seater A/C or H/C, crew can be one industry pilot and one regulation agency FTE. Beyond a common knowledge of the A/C they must share a common comprehensive way to share task as a crew (radio communication, emergency check list	



response	<p>application, use of command &amp; controls by FTE if temporarily required by pilot, actions on armaments or avionics such as navigation tools etc.)</p>	
comment	163	comment by: <i>Pascal DAUSSIN</i>
response	<p>Flight Engineers (Part-FCL) FCL 4</p>	
comment	193	comment by: <i>PRIEUR/atr</i>
response	<p><b><u>This comment is available for page 5 to 8</u></b>          What is important ?          To perform Flight test activity and insure flight safety. How ?:          In my former job, i was Weapon system officer (WSO) on Double seat aircraft Mirage 2000N (Strike version) and the wso has a licence that allow him the benefit of mutual recognition in the French Air Force. WSO are fully involved in the flight safety as crew and there are also, when flight qualification is granted, responsible of the aircraft when the pilot in command have less flight experiences and mission commander (endorse lead of lot of aircraft). To make the parallele with my former life, Lead Flight test engineer must have a specific Licence (i mean a licence with all the package: specific training, exams etc.....) to lead or not flight test fully involved in the crew and to have the good skills. We can deal also with Human factors. If you don't give a specific licence to flight test enginner, you could have bad Crew ressources managment depending the characters of the two pilots, autocratic, easy doing.....it will be increase bad consideration from pilot if the Engineer on board have no licence and is not qualified.          I Ask a question. How do we must take in account the technical flight that the airlines perform without any frame ?          my way of thinking is that this notion of technical flight must be taken in account and a crew of pilots and LFTE must be rise. Nowadays, too much airlines engineers "play" Lead flight test engineer and believe me it is time to manage this point. There is a big potential risk of accident in airlines compare to the manufacturer. The EASA LFTE is one of the mean to improve flight safety in airline, considering that pilots in airlines are not test pilot.          You must cancel the notion of Flight test engineer under part 21 subpart P. We can accept on board, if the Flight conditions are in accordance with, an engineer that is a technical observer but the notion of flight test engineer is confusing with Lead flight test engineer.</p>	
comment	219	comment by: <i>Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck</i>
response	<p>The agency argues in chapter 2. (1) and (2) that different regimes should applied, depending whether training required is specific to the organization for which a pilot works or not. Consequently a licensing approach was applied for Cat. 1 &amp; Cat. 2 flight tests, whereas for Cat. 3 and Cat. 4 training requirements were assigned as responsibility of the employer.</p> <p>Although we have some doubts that this distinction fully covers the reality in Europe, we take this distinction for the moment as granted adequate, as we assume that this distinction is based on empirical research and can be easily justified by studies of the agency. But taken</p>	



this reasoning it becomes immediately evident that for a Lead Flight Test Engineer the licensing regime should **not** be applied.

This can be justified as follows: The term Lead FTE, in comparison to FTE suggests that a LFTE has a leading function in flight tests and this is the essential difference between a FTE and a LFTE. If this is correctly understood this means that an LFTE belongs to the executive staff of a company. But according to organizational theory and business law the right to assign leading function is up to the employer. The employer decides who belongs to the executive staff and it's up to the employer to install training and promotion schemes for his executive staff. But someone, who is member of the executive staff in one company is not automatically member of the executive staff in another company as the requirements vary between companies. Finally it always the authority of an employer to decide on executive functions and there are no transferable rights from that. On the other hand there are no licenses for executive functions. You cannot study CEO and you cannot request to be employed as an executive having a license for this. Consequently it is up to the employer to determine who will be the Lead FTE and this should be documented in the FTOM rather in a license. From the reasoning of page 5 of RMT.0583 follows that for a LFTE a licensing approach is not applicable. Otherwise the rules are not consistent.

response



comment

220

comment by: *Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck*

Regarding chapter 2 (3) NPA 2013-16

1. The agency is absolutely right that the competence for regulating qualifications is limited to maintenance staff (part 66) pilots (part FCL). The authority for Traffic Controllers is stated here, but not referenced by a regulation. The agency should either catch up to show the reference here or correct this paragraph. It is not correct in the document that the agency is authorized to license maintenance engineers. Licensing of engineers is the domain of universities and other HEI authorized by appropriate national authorities. The agency belongs not to the authorities authorized for this. If this is not correct the agency should state in the CRD to this NPA on what legal basis she is authorized to award the degree as an engineer. Otherwise this should be corrected here. Part-66 regulates certifying staff in the Categories A,B and C. But this is technician level. Even Cat C is technician level. An engineer can be belonging to Cat. C certifying staff, but not vice versa.

2. The education of engineers and the award of the engineering degrees "Bachelor of Engineering" or "Master of Engineering" is the domain of universities and other HEI approved by the competent national authorities. The recognition and approval of academic degrees within the European Union is subject of various regulations rooted in the Bologna treaty and confirmed in the Lisbon treaty. The agency is not part of this system. Nevertheless the agency may cooperate with universities in order to offer training programmes, which can be recognized in engineering curricula. But the agency is not allowed to award engineering degrees and should make this clear all times.

3. It is well known that the term "engineer" is not a protected title in all European countries. Nevertheless there are some European countries where this term is protected by law. Germany is one the countries, where this protected by federal laws and that dedicated chambers are installed monitoring proper use of this professional degree. Although the approval of academic curricula is the assignment of specific accreditation agencies in Europe,



the approval to be a legal title “Ingenieur” is still up to the chambers of engineers. This leads to a specific requirement for the agency, if she continues this licensing approach. The requirement is that the agency should provide proper measures and a quality management system to ensure that the translation into the national languages is done properly. We are aware that in aviation English is the lingua franca. Nevertheless the EU has decided that all regulations have to be translated into the national languages in Europe. And these translations and only the translations are the legal basis of a regulation. This requires that translations are properly done and it is the liability of the agency to take care that the translations are properly done. We mention this here as we have seen translation of EASA regulations, who were not properly translated and even sometime misleading. Misunderstandings in aviation are a safety issue and therefore the agency and the commission has to place sufficient effort and procedures to inhibit this. As we can easily show on several examples this is still lacking quality. With regard to the question of the professional title “engineer” it should be anticipated that the DG translation will of course translate the term “engineer” into the German “Ingenieur” as well as in the equivalent terms in other European languages. This in turn will lead to the expectation in the member countries that someone, who holds a title of an engineer has done an academic study of three to five years and is therefore well educated to solve engineering tasks on level. Compared to this level someone who attended some short courses will be unable to cope on this level. Apart from legal issues this may cause safety issues by overstrained leading staff in flight tests. Therefore an appropriate wording to avoid misunderstandings in translation and reception is essential. The term engineer has obviously the potential to be misleading. Therefore designations like “Flight Test Person” or “Certified Flight Test Person” would be more appropriate from a safety perspective.

4. The justification to widen the scope of aviation personnel regulated by the agency usurping engineers as flight crew members is not acceptable. As stated in another comment here, the role of a flight test engineer is usually not to be part of the crew, but someone, who coordinates the team involved to flight tests. Especially leading flight test engineers usually execute this function on the ground – supported by telemetry – as this usually offers more degrees of freedom rather than sitting in a plane dependent from the pilot. To introduce now a regime that a FTE should be member of the flight in order to regulate them is not the right approach. Experience show that in flight tests there are many people on board, who have distinct and valuable duties, but their orientation and understanding is usually not being a member of the crew allowed to interfere pilot duties. This will cause safety issues if roles and duties are not clearly assigned in a crew. If a Flight test engineer will act as a crew member he should obtain a test pilot license. That is clarity.

5. But we fully understand that there might be a need to have additionally to the pilot someone on board, who is trained in engineering issues and has relevant theoretical knowledge in aeronautical engineering. But we consider this as a self-made problem of the agency in the course of part-FCL development. Here we observed that the agency has downgraded the test pilot to someone, who has some flying skills, but theoretical knowledge limited to one or two short courses provided by a ATO usually outside universities. Up to the last draft of the part-FCL it was even considered to be sufficient to have a PPL as entry requirement for the theoretical background of a test pilot. At least the agency released the requirement of an academic degree in engineering as a requirement for test pilot license. In the CRD to the NPA 2008-20 it is even stated as a response “Reference to bachelor or equivalent university standards was suppressed” (CRD page 188). Therefore the qualification



of a test pilot is now lowered well below university standard, by whatever reasons. But this in turn leads to the consequence that a test pilot and the involved engineers of a DOA have nothing in common. In former times – at least in Germany – when test pilots and flight engineers were required to have an academic degree an engineer, both had this education in common and from experience this has eased communication and mutual understanding in the team involved in test flights. This might be the reason, why the agency will introduce a FTE as additional crew member. But this is not convincing as there will be an additional crew member, who is neither a qualified pilot nor a qualified engineer. A better solution would be to return to the former scheme, which has proven successful and was/is applied by relevant test pilot schools in Europe and the US. It is a curiosity and needs justification why the agency has lowered the qualification requirements of these licenses in times where knowledge and higher education is considered as the key element for future development.

response



comment

304

comment by: Yann FORESTIER

Page 5 : §2, Point 1 : The rationale for creating a flight test qualification for pilots in categories 1 and 2 can also be applied to LFTEs : for these categories of flight test, “the training required is not specific to the organization for which the [LFTE] works” : it is general and related to the category of flight test to perform.  
Consequently, option 1 is the best option for dealing with flight test qualifications for LFTEs in a consistent manner with what was done for the pilots.

response



comment

321

comment by: Jean-Louis RABILLOUD

The rationale developed for pilots conducting category 1 and 2 flight tests is mostly applicable also to LFTE, since their training is also not specific to the organisation for which the LFTE works.  
Therefore it makes sense for employers and responsible managers to rely on a common and generic competence recognised by a license.

response



comment

332

comment by: AH

Sub Para 3. The community has competence in the licensing of flight test engineers as discussed later in the document. Two Member States (Italy and France) already have existing licensing under national procedures. As identified these 2 states have significant flight test activity and therefore it could be consider flight test engineer licensing is best practice amongst the existing national regulatory frameworks.

response



comment

362

comment by: Association of Flight Engineers for Testing

2.3 Maintenance engineers are required to be licensed as their job can have an impact on the flight safety.  
The work of a FTE performing production flight testing (cat.3) on a helicopter can also have



more impact on the flight safety, as He/She performs critical adjustments on the rotors by operating the pitch rods and or other mechanical/aerodynamics devices. If the adjustments are not made correctly, they can lead to an out of tolerance vibrations level in flight. The same considerations are to be done for adjustments on engines. Why a cat.3 FTE is not considered to need a license?

response



comment

382

comment by: AIC owner

Concerning § 3 ... the scope of community competence is ...

### My Lead Flight Test Engineer Work Experience

Lead Flight Test Engineer License (obtained in July 1965).

**5.000 (Five Thousand Flight Test hours) in 20 (Twenty) Years** of Flight Tests in North Atlantic, Africa, USA and South America for the CEV

Certification for DGA (Atlantic Mark2 / DC8 New Motorization)

Certification of Airbus A300 Equipment for CEV

So, from 1965 up to 1980 I was LFTE. Writing, Signing Flight Test Order, acting inside cockpit with Flight Test Crew Member and now I found out that my job is not in order to act? This seems to me incredible for myself and friends of mine crashed down during Flight test. THIS IS INCREDIBLE!

response



comment

385

comment by: AIC owner

Page 6/ 16

LFTE has been defined ...  
The meaning of the phrase 'assisting the pilots' should be ...  
So, we must find a solution less than three seconds before ejection. So, You writte that the LFTE has to ask the pilot to correct the plane? INCREDIBLE and no professional feeling

response



comment

386

comment by: AIC owner

Page 7/ 16

FTEs are Flying people. Not Flying is an Enginer, period!  
In France firstly Ingénieur (with letter "I") who want begin LFTE is from the then best French School of Ingenieur (Polytechnique, Sup Aero, Supelec for instance)  
Secondly, he has to win an entrance examination, not an exam  
Thirdly two he has a Pilot licence and two hundred Flight Hours and two years in Flight Test center (CEV) Fourthly He has to pass an final exam after then school months in TOA EPNER  
And of course be Medical OK

response



comment	<p>387</p> <p>Page 8/ 16</p> <p>Conclusion: The Agency has not select a preferred option ...</p> <p>I would like to know Who are the people (Flight Test hours, qualification, professional, etc.) deciding opportunity of option 1 or option 2.</p> <p>In French TOA EPNER inside my promotion were CEO Airbus industry among any others top people and I was number one of Supelec before integrating CEV.</p>	comment by: <i>AIC owner</i>
response		

comment	<p>392</p> <p>Section 2.</p> <p><b>Agreement of intent:</b> The proposal for FTE licensing would provide a demonstrable commitment to high standards and professionalism. It has the potential to provide recognition to FTEs that they are a valuable asset to their organisation, the wider flight test community (through skill interchange and deploy-ability between flight test organisations and sharing of common safety and technical lessons), and it provide a clear basis of recognition for the unique and scarce training and experience FTEs have.</p> <p><b>LFTE Definition:</b> The proposal appears to be exclusively focussed towards large aircraft and helicopters flight test where the engineer has the option of flying on the aircraft. There are many Flight Test professionals in our organisation that are regarded as (Lead) FTEs who do not fly in the aircraft. They act as test director remotely (e.g. from telemetered Control Rooms, on flying command deck on ship) monitoring data with highly instrumented aircraft (often on higher risk trials where minimum aircrew on aircraft is a mitigation to reduce exposure to risk). In so doing, they are responsible for safe trials progression decision making. Furthermore, in order to future proof this proposal, consideration should be given to include FTEs who work on unmanned air vehicles which are not discussed.</p> <p>There is a concentration in the EASA discussion on the definition of an LFTE as someone affecting the aircraft safety by means of operation of aircraft controls. The intent of limiting the LFTE role to those operating critical aircraft systems is to ensure that only a suitably qualified LFTE conducts activity with the potential to endanger the aircraft in flight. We believe that reference to the potential endangerment is a firmer basis for the discussion than reference to aircraft systems as it will capture exceptions such as those discussed above. In our organisation operation of aircraft controls or via systems directly affecting aircraft control without pilot interface, is rigorously controlled with appropriate qualification, if not, actions performed by qualified aircrew themselves.</p> <p>In summary, the scope of the LFTE role description must incorporate personnel who do not fly on the aircraft and consider all personnel who are responsible for safe flight test direction and conduct.</p> <p><b>Route to licensing (experience and qualification):</b> We would support issue of a A-NPA to discuss creation of a licensing scheme for LFTEs, which must consider other viable routes to competence or equivalence to training from approved organisations.</p>	comment by: <i>QinetiQ Trials Engineering</i>
response		



**2. Explanatory Note and key questions for stakeholders — Discussion on licensing requirements for flight test engineers in the flight test review group**

p. 6-8

comment	27	comment by: <i>Andrew Roberts</i>
	<p>The definitions for LFTE and FTE still require further clarification.</p> <p>For example, would engineers who use test systems to modify engine control software in flight fall under the definition of LFTE as they are "significantly interfering with engine controls"? On some programmes control systems specialists perform this role under the supervision of an experienced FTE. LFTE training for these personnel would not be appropriate.</p> <p>Also, would Flight Engineers fall under the LFTE category as no separate Test Flight Engineer licence has been proposed even though FE licencing arrangements exist?</p>	
response		
comment	46	comment by: <i>P.Malot</i>
	<p>In the CRD2008-20 document, it is mentioned a transition period up to end of 2016. In the A-NPA203-16, which refer to this CRD, it is noted end of 2017. Is end of 2017 confirmed?</p>	
response		
comment	110	comment by: <i>Fabrice CRESSIOT</i>
	<p>Sharing a LFTE licence also means a common recognition of competence for high level tasks having impact on A/C safety, but also on the overall environment of the tests, as overflown populations.</p> <p>I agree with LFTE perception which is commonly shared in DGA flight testings.</p> <p>Worksharing between pilote and FTE is part of safety, especially on twin seats H/C &amp; A/C. Ex : low level flight tests (day &amp; night).</p> <p>FTE can also interfere with fly by wire laws during development tasks with potential high level safety impacts. Ex : development of fly by wire commands for Air to Air refueling functions (contacts with provider). See MRTT or A400M programmes, including participation of FT crew from industry &amp; other organisms.</p>	
response		
comment	111	comment by: <i>Fabrice CRESSIOT</i>
	<p>LFTE licence is also a guarantee of independance for individuals: it is a guarantee that the specific competence can be used in other industry company, or in another national regulation authority. FTE is not fully dependent on the company which delivered the clearance to fly.</p>	
response		
comment	122	comment by: <i>ITAF</i>
	<p><i>A_NPA20013-16 definition of tasks and duties of LFTE "assisting pilots in the operation of the aircraft and its systems" show that LFTE is an "operating crew member" according to article 32 of Chicago Convention. The Convention is requesting that "the pilot of every aircraft and</i></p>	



*the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

response



comment

158

comment by: *Georges Varin*

A LFTE is essential during any test flight. He must have like for the test pilot an identical formation to increase the SAFETY first and better use of the time in flight.

This function must be recorded on an OFFICIAL document which will certify a complete and adequate formation.

This can be done only by delivering a LICENCE which can be checked at any time and eventually be improved. The actual position of the flight testing in France through the EPNER must be maintained and applied in the European rules.

Having been involved in several test programs in different countries I can say that this licence has always been appreciated (England, Germany and USA).

response



comment

164

comment by: *Pascal DAUSSIN*

Add explanation when Test Flight Engineer is LFTE during a flight. No need to have an extra license.

In case of LFTE is F/O in some aircraft (ATR), with aircraft type rating, MCC... is it necessary to have extra license ?

What about Test Flight Engineer, with aircraft type rating, ATPL, MCC, CPL IR with the LFTE role ?

response



comment	188	comment by: Yves ZUNDEL
	Please note also that an experienced FTE (as should be all LFTE) should be able to identify a pilot disease (for example, following an oxygen anomaly: hypoxia) and have enough authority and knowledge to convince the pilot to follow simple orders (heading, descent,...), should the FTE be on the ground or on board the aircraft	
response		
comment	189	comment by: CRD
	Je propose l'adoption de l'option 1 J'ai participé à des essais en vol d'atterrissages automatiques pour lesquels le conducteur d'essai INE ou ENE modifiait les paramètres de descente et d'arrondi le pilote et le mécanicien n'assurant que la surveillance du bon déroulement de l'opération	
response		
comment	202	comment by: Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck
	<b>These duties and privileges could allow LFTEs, for example, to shut down engines without any action of the pilots through controls that are not even accessible to the pilots.</b>	
	This argument is not convincing and shows that the different roles of pilots and engineers are not understood. A pilot is a pilot educated and licensed to fly a specific aeroplane and an engineer is an engineer educated to design and assess (technical) systems. An engineer should never be allowed to fly an aeroplane without an adequate pilot licence or even shut down engines independent from the pilot and if relevant controls are not accessible to the pilot an aeroplane is simply not airworthy. If an engineer will act as a pilot, he should hold the appropriate license. On the other hand a pilot cannot replace an engineer as he has not the education and degree to act as an engineer and the knowledge and experience to design and assess technical systems. This should be clearly distinguished. A "licence in between" is dangerous as it can blur duties and responsibilities on board of an aeroplane. This paragraph is already an example for this as the author obviously is not aware on the concept of PIC.	
response		
comment	262	comment by: Matthias Queck
	Engineers not trained, so my experience as an instructor, very often don't know what they are testing. Especially they don't understand the safety aspect in a test conducted.	
response		
comment	302	comment by: Pilatus
	<b>Introduction</b> Pilatus support EASA's aim to improve safety in flight testing and recognises the value in establishing guidelines for flight test operations and to standardise the minimum qualifications and experience of flight test crews. To this aim, Pilatus Aircraft Ltd. reviewed and provided their response to:	



1. EASA Notice of Proposed Amendment (NPA) No. 2008-17b, NPA No. 2008-20
2. Comment Response Document (CRD) to NPA 2008-20.

Pilatus are genuinely concerned about the introduction of the LFTE in general and are convinced that the associated training syllabus is more than excessive. It does not consider the size, structure and working practices of the organisation and it is not appropriate to CS-23 class aircraft.

Pilatus believes that the adoption of such a LFTE and training policy will prove to be a significant burden on the majority of aircraft manufacturers today and in the future. This burden will have a negative influence on all aspects of the flight test community leading to difficulties in daily operations, flight crew allocation, increased financial burden, fostering of elitism leading to social tensions and, indeed, could have a negative effect on social harmonization, free circulation of personnel and, contrary to the prime function of EASA, it could consequently have a negative effect on flight safety.

Pilatus believes that the current system has worked well in the past and continues to work well. Pilatus sees no added value by changing the current system.

Despite the negative response to NPA No. 2008-20 from the majority of the world's Flight Test community, EASA has now issued A-NPA 2013-16 which potentially takes the concept of LFTE even one step further with the idea that the LFTE should require a licence. Pilatus believes that licensing LFTEs would only serve to exacerbate all the negative effects identified above and would bring no additional benefit.

response



comment

306

comment by: Yann FORESTIER

Page 6 : Consistency with ICAO Annex 1, "which also does not specifically refer to FTE" : ICAO Annex 1 chapter 2 describes pilots licences. Chapter 3 of ICAO annex 1 deals with flight crew licences other than licences for pilots, including Flight engineers' licences. Neither chapter 2 nor chapter 3 specifically refer to flight test qualifications : in particular, chapter 2 does not refer specifically to flight test rating for pilots. LFTEs' licences would therefore be of the same level of consistency as flight test rating (FTR) for pilots with regards to ICAO annex 1.

In conclusion, option 1 is the best solution for consistency with ICAO annex 1 : since a test rating has been recognized for pilots, it would be inconsistent not to deal at the same level with test qualifications for other recognized flight crew, especially when they are as much involved in flight safety as the LFTEs are - by definition of their function.

response



comment

307

comment by: Yann FORESTIER

Page6 : LFTE definition :

By definition, LFTEs are in charge of conducting the flight, thus making decisive in-flight decisions together with the pilot. Depending on the aircraft and flight instrumentation installation, they can also modify crucial aircraft configurations or parameters during the flight. LFTEs are therefore crew members having a high level of involvement in safety



management as well as in aircraft configuration in flight. Since flight tests have been included into the scope of EASA through the Flight Test Rating for the pilots, it would not be coherent for the European Aviation Safety Agency to minimize the level of proficiency required for other crew members having such an impact on safety as LFTEs. Even if it requires a change in the Basic Regulation...

This level of involvement in safety management in flight requires a training at the same kind of level as the one demanded for a pilot – also meaning : in an ATO. Moreover, requiring a training in ATOs for both pilots and LFTEs allows them to be trained together as a team and to learn in a structured manner the specificities of flight tests and flight tests crew management. This way of teaching LFTEs and test pilots as a team has already proven it is highly beneficial for both flight test efficiency and safety management.

Allowing the LFTEs' formation to be entirely done within a DOA/POA cannot guaranty the level of proficiency that could be reached within an ATO – this is why ATOs exist. This could lead to safety issues in flight.

Therefore Option 1 is the only option taking properly into account the LFTEs' high level of involvement in the conduct of flight and in safety management.

response



comment

312

comment by: *Fokker Services*

1. Fokker does not agree on the definition of flight test engineer as proposed by the A-NPA 2013-16. The definition is too weak and impoverishes the profile of the Flight Test Engineers who, although not in posses of a licence perform the duties mentioned as under the responsibility of the LFTE. Fokker proposes a further subdivision as follows:

Test Engineer (Flight Test) - any engineer involved in flight test operations, either on the ground or in flight

Flight Test Engineer (FTE) - test engineer assigned for duties in an aircraft for the purpose of conducting flight tests or assisting the pilot in the operation of the aircraft and its systems during flight test activities - company internally or externally trained

Lead Flight Test Engineer (LFTE) - test engineer assigned for duties in an aircraft for the purpose of conducting flight tests or assisting the pilot in the operation of the aircraft and its systems during flight test activities - trained at specific recognized organizations and/or owner of a licence.

2. There should not be any difference between FTE's and LFTE's for what concerns the possibility and allowance to operate systems and controls.
3. From the provided document it does not appear clear what should be the involvement and authority (accepting/veto,...) of the LFTE in the preparations before flight, especially in the matters of risk analysis and choice of mitigations (actions or provisions). Such items could have a serious impact on the execution of a test program both in terms of safety and financial issues. According to Fokker Services opinion the LFTE should have the authority to stop an ongoing activity in any moment (including flight readiness, pre-flight briefing etc.) if he judges that safety could be compromised.

response



comment

324

comment by: *Jean-Louis RABILLOUD*

Not only the LFTEs are acting generally as test director and may be the one making in-flight decisions, but they always are part of the decision making process at almost each sequence of the flight, thanks to the major information they seek and get from the on-board instrumentation.

The LFTE is most of the time the only crew member able to access complex and varied in flight parameters and taking initiative to select adequate ones. They also have the duty to define and select before and during the flight the adequate configuration of the instrumentation and flight test displays.

For these reasons, they are fully part of the flight test crew in charge of conducting the flight.

response



comment

334

comment by: AH

Page 6 : It is stated that most comments on the proposal have been received from crews in countries that have a national licensing scheme. As a Test Pilot based in a country without such scheme, I also have experience operating in other Member states both with and without licensing schemes and I don't believe the issue can be simplified to one of 'those with licences want to keep them'. My experience is that with licensing comes a further level of professionalism which is maintained through an independent authority rather than through the respective DOA.

Page 8 : When conducting Flight Test outside the UK, the LFTE with whom I work, have a fundamental role in the flight safety of the aircraft. Whether this is covered by the ICAO Annex 1 or the Basic Regulation is, in my opinion, largely irrelevant to the discussion. The duty of the authority should surely be to maintain the highest professional standards and hence flight safety. For other key individuals in the flight safety chain - aircrew, controllers, maintainers, Medical Examiners the authority achieves this through licensing. It would appear appropriate therefore that licensing is the correct method for Lead Flight Test Engineers.

Page 9 : The regulation needs to cover the activity of all LFTE within the member states, whether they have different scopes of activity or otherwise. To some extent the different scope of activity is covered by the division between LFTE and FTE. However, the regulation should cover the worst case which I believe is those countries where the LFTE is required to manipulate controls (Engines, AFCS Test Equipment etc).

response



comment

364

comment by: Association of Flight Engineers for Testing

It is idea of the "Italian Association of Flight Engineers for Testing" that a FTE involved in any flight test (cat.1, 2, 3, 4), flying in the cockpit as test conductor, operating controls which interfere with engines, flight controls, autopilots, FMS, etc., directly or, for example, by resetting circuit breakers of those same systems, both for test procedure or to recover a failure of them, must be designated as LFTE.

Likewise other systems such as a rescue hoist or a SONAR on a helicopter, must be considered having significant impact on the flight safety.

Those systems are normally operated by a crew member in the rear cabin without a direct control by the pilot.

Therefore the role of a FTE performing production testing on aircrafts equipped with those kind of systems is paramount for the safety of the flight as well as cat.1 or cat.2 testing.



response	
comment	<p>398 <span style="float: right;">comment by: PHILIPPE LIMACHER</span></p> <p>The crew in flight test or acceptance test is based on on 2 or 3 crew members :                  1 test pilot and 1 LFTE for a 1 pilot A/C or 2 test pilots and LFTE for 2 pilots A/C</p> <p>The LFTE takes an active part in control machine by action on the system command (action on Push Button one the overhead panel for example) and in the safety of theflight by the monitoring parameters (he is authorize to announce a failure on takeoff which would lead to a Rejected T/O, for example)                  It makes a full crew member automatically of it.                  This crew member must thus have a license</p> <p>Moreover his status must be “autonomous “ with regards to his employer for to secure a technical impartiality on the lead and the results of the test flights /acceptance                  With a status protected by European License this impartiality is guaranteed to him and he is recognized de facto in manner official and international</p>
response	

**2. Explanatory Note and key questions for stakeholders — 2.1. What is the issue or problem that may require an action? — 2.1.1.What is the regulatory framework?** p. 8-9

comment	<p>190 <span style="float: right;">comment by: Yves ZUNDEL</span></p> <p>A licence gives also some help when asking for sometimes costly and time consuming safety training !</p>
response	
comment	<p>263 <span style="float: right;">comment by: Matthias Queck</span></p> <p>Having no licence scheme will not assure std. basic level of training. Best example is the 'Perpignan' accident.</p>
response	
comment	<p>283 <span style="float: right;">comment by: christophe BERTRAND</span></p> <p>Compared to Boeing, for Airbus flight tests, decision making &amp; actions are done more onboard aircraft, thanks to pilot/LFTE crewing, with support of telemetry (support from ground).</p>
response	
comment	<p>308 <span style="float: right;">comment by: Yann FORESTIER</span></p> <p>Page8 §2.1.1 (b) : The Chicago Convention applies by definition to international air traffic. However, when dealing with the flight test ratings for pilots, EASA has de facto broadened its</p>



scope to flight tests. "Article 32 Licenses of personnel" of the Chicago convention clearly states that a license is required for "the pilot of every aircraft and the other members of the operating crew of every aircraft". If the scope has been extended from international air traffic to flight tests for the pilots, it would be inconsistent not to require a license for the "other members of the operating crew" as demanded in article 32. By definition, LFTEs clearly belong to the "other members of the operating crew".  
 In conclusion, Option 1 is the only option that would be compliant with the requirements for a license for all operating crews by the Chicago convention now that the scope of application at EASA level has been broadened from international air traffic to flight tests for the pilots.

response 

comment 335 comment by: AH

I don't necessarily agree that the main driver is not the safety aspect, and independent licensing provides a greater degree of oversight than under the Part 21 DOA. Neither should the mutual recognition of qualifications across Europe be dismissed as of less importance. This is a fundamental tenet of European Harmonisation.

response 

comment 393 comment by: QinetiQ Trials Engineering

Section 2.1.1

**LFTE Definition:** The proposal appears to be exclusively focussed towards large aircraft and helicopters flight test where the engineer has the option of flying on the aircraft. There are many Flight Test professionals in our organisation that are regarded as (Lead) FTEs who do not fly in the aircraft. They act as test director remotely (e.g. from telemetered Control Rooms, on flying command deck on ship) monitoring data with highly instrumented aircraft (often on higher risk trials where minimum aircrew on aircraft is a mitigation to reduce exposure to risk). In so doing, they are responsible for safe trials progression decision making. Furthermore, in order to future proof this proposal, consideration should be given to include FTEs who work on unmanned air vehicles which are not discussed.

There is a concentration in the EASA discussion on the definition of an LFTE as someone affecting the aircraft safety by means of operation of aircraft controls. The intent of limiting the LFTE role to those operating critical aircraft systems is to ensure that only a suitably qualified LFTE conducts activity with the potential to endanger the aircraft in flight. We believe that reference to the potential endangerment is a firmer basis for the discussion than reference to aircraft systems as it will capture exceptions such as those discussed above. In our organisation operation of aircraft controls or via systems directly affecting aircraft control without pilot interface, is rigorously controlled with appropriate qualification, if not, actions performed by qualified aircrew themselves.

In summary, the scope of the LFTE role description must incorporate personnel who do not fly on the aircraft and consider all personnel who are responsible for safe flight test direction and conduct

response 



**2. Explanatory Note and key questions for stakeholders — 2.1. What is the issue or problem that may require an action? — 2.1.2. What are the underlying drivers of the problem?**

p. 9

comment	112	comment by: <i>Fabrice CRESSIOT</i>
	<p>I do agree there is a risk of loss of social status for people already having an LFTE licence. Note that is is not only a question of social position in the company, but also a question of social position in the crew. LFTE licence with a common based training with test pilots also guarantees a position recognition of the FTE during flight (also refer to crew work sharing considerations in the Crew Ressource Management approach. Ex: old and strong character FT pilots in crew with young home made FTE; which confidence of the FTE in the crew?).</p>	
response		
comment	186	comment by: <i>Yves ZUNDEL</i>
	<p>It is also to mention that a licensed FTE will be periodically subject to medical control; if not really important for ground-working people, it is mandatory for flying people.</p>	
response		
comment	191	comment by: <i>Yves ZUNDEL</i>
	<p>A well-trained FTE will be more efficient, from the ground as well as on board the aircraft; if some specialists have of course to be involved in a flight test program, the global efficiency obtained through highly trained people is of great value to get the best value for money achieving a simple flight test as well as a complete flight test program; the experience and authority of these people are sustained by a licence</p>	
response		
comment	204	comment by: <i>Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck</i>
	<p>Loss of licence and the consideration of people, who are already authorized to act as FTE are relevant issues. But it is scaring to justify the introduction of a new licensing scheme with a possibly loss of licence for more than 300 people in Europe. A license should be justified by clear operational needs and not by taking care on people. This does not mean that it isn't relevant to take care of people and traditions. We explicit advote to do so. But there may be other and better means available rather to invent a new licence to cope with. Therefore the header of this paragraph adresssing this as the "driver of the problem" is somewhat scaring. In the process of the European Union there are many examples that favoured national degrees are replaced by new schemes. The Bologna process and the European wide introduction of the Bachelor/Master-scheme in Higher Education is a prominent example for this. Nevertheless any justification should be oriented to future needs and benefits. If the driver of the licencing is to take care of existing FTE this initiative is not acceptable.</p>	
response		

**2. Explanatory Note and key questions for stakeholders — 2.3. Overview of the options**

p. 9-10

comment	14	comment by: <i>ENE DGA EV Istres</i>
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	<p>- I am for the option number 1.</p> <p>- For me, LFTE must have the same training as the test pilots for the safety during flight test. It is the only way to speak the same language in flight and that is has no confusion during test flight I think that the licence is necessary for all the test crew to assure the flight safety in air space civil and military.</p> <p>- If I don't have a licence anymore, I can lose a part of my salary and I don't know if can continue to pay the contribution in my pension fund CRPN. It is very important for me.</p> <p>- Without licence which will be my professionnall gratitude face to face other aeronautical industrialists ?</p> <p>- I am very worried on the quality of the test flight futur if we don't supervise the training LFTE whith a test licence.</p>
response	
comment	44 <span style="float: right;">comment by: <i>DGA Essais en vol , Flight test center</i></span>
	I SHOOSE OPTION 1
response	
comment	53 <span style="float: right;">comment by: <i>EXP</i></span>
	I'm for the <u>option 1</u> . I'm a french flight test engineer licenced at the EPNER flight test pilot's school in 1998.
response	
comment	64 <span style="float: right;">comment by: <i>Gregoire BREHON</i></span>
	The option 1 is really the only way for securityu and performance, for 3 reason :
	1. In France, the LFTE is on board as a crew member, and for some test, he has to act on the flight command (engine for instance). He is the one who lead the flight and for this reason he have the as responsibility as the pilot for the flight security and for the flight.
	2. Du to the organisation of the flight test in France, without any licence, the LFTE will lose a big amount of his incomes. So, if this should happen, lot's of trouble will happen in the french aeroonautic community and industry.
	3. Having a licence, give to the LFTE the independance and the authority needed to insure the security and the performance.
response	
comment	105 <span style="float: right;">comment by: <i>Thierry CHABROUX</i></span>
	Option 1 is the good solution. A license must be created for LFTE. The LFTE is a crew member because he can operate some commands in the aircraft, if needed for the test. His function is



very important for the flight safety, so his activity must be recognized with a license.

Another point : with a license, a LFTE can easily join a new compagny, because his function is recognized by all the flight test community. This ability to move from one compagny to another is positive and permits LFTE to be more independant, and to enhance safety.

response



comment

150

comment by: *Thibaud Chalvidan*

most relevant is Option 1:

As “LFTE”, we must act in coordination with the Pilot to realize the flight tests in accordance with test orders. LFTE Actions lead in the same way as the pilot's actions to engage the safety of the aircraft: those Actions are direct or indirect on the system under test, or on the aircraft, and include decisions taken during the flight to test specific items. This synergy needed in the crew must be acquired through special training leading to a recognized license.

response



comment

152

comment by: *Philippe BAULLERET*

Option 1: need for a licence, ensuring standardized, dedicated and mandatory training for LFTE. This will clearly ensure proper level of safety when conducting flight test as a crew team.

response



comment

154

comment by: *Lars Bensch*

OPTION 1: A license scheme is needed and mandatory to ensure a professional education and qualification to conduct the flight safely. Part of the a LFTE job is to ensure the technical status, configuration control and readiness of the aircraft before, during and after the flight. Part of his job includes actions delegated on behalf of the captain.

response



comment

160

comment by: *DEMOURANT*

Je désire que l'option 1 soit retenue pour les raisons suivantes :

- Je suis convaincu que notre métier d'ingénieur navigant d'essais est métier à part entière.
- Je suis persuadé que la formation au travail en équipe dans un centre agréé débouchant sur un diplôme et une licence reconnue ainsi que l'harmonisation des formations sont une bonne chose.
- Il est indispensable de tenir compte de l'impact social que peut avoir une licence, caisse de retraite, assurance....Toute modification peut avoir des conséquences très graves.
- Je suis persuadé de l'importance de la liberté d'expression qu'apporte une licence et de la liberté de circulation qu'elle procure, en ne dépendant pas du bon vouloir de l'employeur.



response	<p>Merci de tenir compte de mes remarques.</p>
comment	<p>200 <span style="float: right;">comment by: <i>MARUEJOLS</i></span></p> <p>Question 11 : Option 1.</p> <ul style="list-style-type: none"> <li>- The LFTE have an important function in an aircraft for the purpose of conducting flight tests, actions on engine, systems, automatic pilot, navigation system, and assisting the pilot in the operation of aircraft and its systems, that is why there has a law incompatibility with article 32 to the Chicago convention. Indeed, for this job a license is mandatory. In addition, many tests flights can be realize in customer country for example: flight demonstration, delivery flight ..... The engineers are then employed in international navigation flight.</li> <li>- The LFTE license is recognition of this job. This is a security for the engineer, because he doesn't depending only to the DOA of a company and he doesn't depending of a conjuncture company. This license will permit to move and change of company into the European countries.</li> <li>- To finish, if a license is create, is easier to have a good structure to define the level necessary to a access at the license, to define the training to maintain this level and to define the medical aspect.</li> </ul>
response	
comment	<p>206 <span style="float: right;">comment by: <i>Thomas BERNERD</i></span></p> <p>Option 1 is much more adapted to this very specific and noncommon field which is flight testing, where a minor mistake could lead to major and dramatic consequences.</p> <p>Option 1 gives to flight testing security guarrantee with :</p> <ul style="list-style-type: none"> <li>- legislated and harmonised medical follow-up care</li> <li>- supervised and harmonised flight test training</li> <li>- essential need to be trained and experienced with crew working and consequences of every action upon the well of the flight leading</li> </ul>
response	
comment	<p>225 <span style="float: right;">comment by: <i>DASSAULT AVIATION</i></span></p> <p>French experimental flight test pilot and former director of EPNER (until semptember 2012), I'm very attached to the inflight work in team.</p> <p>I deeply recommend the option 1 for those reasons :</p> <p><b><u>1- Flight safety</u></b></p> <p>During a flight test, a LFTE :</p> <ul style="list-style-type: none"> <li>- participates to flight safety monitoring,</li> <li>- uses the radio,</li> <li>- operates the flight test instrumentation which could have consequences on the safty or handling qualities of the aircraft (inflight modification of FBW gains, unique surveillance of specific parametres which are essential for safety, etc.),</li> <li>- could activates the flight controls for example during engine shut down and relight test</li> </ul>



points, or to change the configuration of the aircraft...  
For those reasons, to comply with OACI / annexe 1, an LFTE must have a licence.

### **2- Credibility**

It's also important to have a official "flying title" (like a licence) to have credibility when expressing a technical opinion in a flight report.

### **3- Insurance**

For insurance and legal protection in case of accident, a LFTE must have a flying licence to be recognized as a crew member in any flight test categories (even category 1 during flight envelope openings during which the crew is strictly restraint).

This licence garantees skills, experience, training, recurent training (for licence prorogation), etc.

response



comment

228

comment by: *Nicolas CERTAIN*

### **Needs of LFTE license**

#### Flight safety aspect:

LFTE is "assisting pilots in the operation of the aircraft and its systems".

That means, in accordance with the pilot, for the need of test itself:

- acting for example on: engine controls, automatic pilot modes, hydraulic system, electric system, radio, radio navigation, mission system,
- having possibility to modify behavior of important systems like engine governor via FADEC tests configurations, Automatic Pilot via parameters modification device.

Also LFTE is conducting the test, means that his role has a paramount effect in the management of level of risk during the flight test.

For flight safety and good level of cross crew work, LFTE has to comply with:

- Approved initial training (today described in Part 21)
- Approved initial medical check
- Following of competence conditions : flight activity and medical

Those three requirements constitute the description of an aviation license.

#### Legal aspect:

LFTE description of activities in "A-NPA LFTE license" is clearly in the scoop of an "operating crew member".

Also flight test Cat 1 and Cat 2 request flight activities all over the world.

For Cat 1, due to certification requirements, where range of altitudes and temperatures of flight envelope to be demonstrated lead to perform test during dedicated cold, hot, altitude campaigns.

For Cat 1 and Cat 2, due to marketing demonstration with aircraft without Type Certificate.

Those two points show a perfect applicability of the OACI rule described in Annex1 of Chicago Convention to LFTE duties.

Not to create a LFTE license will lead to a non-conformity of Basic Regulation of EASA versus OACI.



Free circulation of people within UE:

LFTE Training under DOA/POA responsibility described today in CRD Part 21 for flight Cat 1 and 2 will lead to have differences between the different organizations. This will increase difficulties for LFTE to move to other organization.

Social Protection:

Medical requirement not covered by precise and harmonized legal text like Part MED will lead to not protect correctly an employee versus his employer.

**LFTE license and FTE (CDR-Part 21) compatibility**

**FTE:** engineer involved in flight test operations either on ground or in flight.

They participate to flight Cat 3 and 4 with pilot or (pilots for multi-pilot aircrafts) and as assistant for Cat 1 and 2.

This is possible due to the fact that pilot manage totally the flight test and the operation of the aircraft.

Their activities are not linked to the scope of Chicago Convention.

People are managed at DOA/POA level based on experience.

**LFTE:** lead flight test engineer

They are assigned for duties in an aircraft for the purpose of conducting flight tests or assisting the pilot in the operation of the aircraft and its systems during flight test activities.

They can act on Cat 1 or Cat 2 flights.

People get a license with a harmonized level of competence at European level (training, medical and following of competence conditions).

**Specificities of light aviation:**

For flight tests performed on light aircrafts, as flight test all Cat (1, 2, 3, 4) can be managed by one pilot due to their simplicity, FTE can be used if needed.

This possibility is defined at the DOA/POA of the organization who performs the test.

Notes that today when flight test is Cat 1 (for example Height/Speed diagram tests for helicopter or spinning tests for plane), generally test pilot is the only occupant of the aircraft, considering that level of risk is no more compatible to the competence and the level of insurance protection of a FTE.

Considering those definitions current flight test activities ongoing in Europe are compatible.

Moreover, costs impact will be low for states that already get national licensing.

For states using FTE or for states without flight test activity there will be no cost impact.

response



comment

241

comment by: *France - Ministère de la Défense- DGA Essais en vol*

A license is considered necessary for the LFTE (option 1 of this A-NPA) :

Basically, the flight-tests require special precautions related to flight conditions and risks. The LFTE, because of the interventions that he performs on the controls or on the aircraft systems, impacts the overall flight-test safety : these interventions must be done in coordination with the pilot in command. The distribution of tasks between the LFTE and the



pilot must be carefully briefed and actually performed in the air. The test can only be successful and safe if the pilot and the LFTE lead all together the required actions.

This coordination between the pilot and the LFTE is necessary for the realization of the flight-test point, but also for monitoring the flight instruments, for the application of emergency procedures if necessary, for the look out, for radio contacts, etc.

Consequently, the LFTE must be considered part of the aircrew.

Essential jobs that contribute to aviation safety are covered by licenses: staff responsible for maintenance, cabin crew, air traffic controllers, and obviously crew members. Why not LFTE, while his actions contribute to an essential part of aviation safety ?

The license for LFTE will ensure a unique level of reference in terms of skill needed for flight testing, of medical fitness, training, skills follow-up, etc : consequently for the aviation safety.

The license for LFTE will enable mutual recognition between private but also public organizations employing LFTE. It will also have an important social impact : the recognition of professional skills and increased ability to change employer.

response



comment

248

comment by: *Manfred BIRNFELD*

Option one is preferred.

response



comment

286

comment by: *CAA-NL*

The Netherlands is in favour of option 0, we currently don't have and do not see a safety need to introduce a licence for Lead flight test engineers. The amendment to 748-2012 as proposed with EASA opinion 2013-07 on flight testing will give adequate safeguards when implemented thru the requirements on the DOA. Also without the licence Europe will still be in compliance with ICAO and the level of harmonisation with the main trading partners will not be adversely influenced.

When we see the argument on the possible negative social impact for some when losing their licence, we feel that the professional recognition is in performing the job, and not holding the license. This perception could be differently for those already holding the license. Still we think that EASA should focus on 'safety regulations' and social arguments should not be the main driver behind new regulation.

response



comment

292

comment by: *PEXH, French Army Aviation*

Create a licensing scheme for the LFTE is a common sense decision.

According to the analysis (paragraph 2.4), the main reasons are :

- 1) Contribute to the flight safety ;
- 2) Obtain a standardization of training course ;
- 3) Guarantee a minimum training level.



response	<p>Flight tests are a particular activity that requires an adapted training, recognized by all. A license is a good way to formalize all.</p> <p>As PEXH, it seems to me very important.</p>
comment	<p>322 <span style="float: right;">comment by: <i>Eric Vincent</i></span></p> <p>option 1</p>
response	<p></p>
comment	<p>333 <span style="float: right;">comment by: <i>D Uhring</i></span></p> <p>Option 1 seems to be the correct option.</p> <p>The duty of a LFTE is not only to write down parameters and exploit them afterwards. He also has to operate either the engines or the aircraft systems; doing so, he modifies the aircraft status and behaviour.</p> <p>Fortunately, most of the time things go well, but failures or abnormal behaviours may occur, such as engine stall or flame-out or bearing collapsing while performing acceleration tests or top rating checks. During such a situation, the pilot has to manage the aircraft rotor speed and its trajectory, and so he has no time and too much workload to reconfigure the helo or restart the remaining engine. The only crew available to reconfigure the aircraft is the LFTE who has been trained, theoretically and practically, to face these situations.</p> <p>Such a level of training, including test performances and aircraft operation is longlasting and quite complicated, and then has to be awarded by a licence garantiing a standard, a referenced level of knowledge and skills. With a licence, this standard will be recognised by industries and nations and will provide a high level of safety EU-wide.</p>
response	<p></p>
comment	<p>345 <span style="float: right;">comment by: <i>François GARCEY</i></span></p> <p><i>Option 1</i></p> <p><i>A license could be approached the LFTE function serenely. Indeed the most delicate in this function is the flight test.</i></p> <p><i>This flight can't be improvised and need some unavoidable act:</i></p> <ul style="list-style-type: none"> <li>• <i>Strict flight preparation to the ground with test pilot to limit unforeseen events;</i></li> <li>• <i>Assist the test pilot during the flight test (supervision of the flight test installation, verification of the mechanical parameters and performances and management of equipment failure);</i></li> </ul>



- *Be effective to reduce the flight time.*

*Only a formation in constituted team with a definite program (EPNER type) would permit to create a real synergy inside the crew.*

*This essential condition makes sure to realize the flight in full security.*

*Furthermore the creation of a license would give weight to the conclusions established by the LFTE.*

*That could avoid the possible pressure of the DOA/POA.*

response



comment

346

comment by: *Christine Piette*

LFTE designates a flight test engineer assigned for duties in an aircraft for the purpose of conducting flight tests or assisting the pilot in the operation of the aircraft and its system during flight test activities. This is the definition of LFTE given in the A-NPA 20113-16.

The LFTE function leads him to control the different primary aircraft systems such as engines, hydraulics, electrical and autopilot.

The LFTE conducts flight test on the principal aircraft systems and manages the flight, analysing in real time the parameters provided by the Flight test instrumentation or the aircraft systems. The LFTE takes an active role in deciding to continue or cease the test activity to ensure safe flight.

Moreover when the aircraft in test is a military one the LFTE controls the weapon system and may even be the sole aircrew to have control of the weapon system (my experience on the Tiger helicopter).

These different tasks demonstrate that LFTE plays major role in maintaining safety during the flight test and so shall be considered as an operating crew member.

To be compliant with Chicago convention (article 32): "the pilot of every aircraft and other members of the operating crew... shall be provided with certificate of competency and license", the license for LFTE is then mandatory.

On the contrary, if there is no license for LFTE and the LFTE regulation is only managed by Part 21, qualification and medical criteria will be defined by different DOA from different industry organisations.

- It will result in no harmonisation for initial and on-going training between LFTE (from different origin) and it could lead to a loss of competency and affect flight safety.

- Concerning the medical criteria, the medical examination requirements will be managed also by the DOA (LFTE employer) with all interpretation you can have in this case. So again no harmonisation in Europe concerning medical fitness for a person that is a major contributor to safety during flight test.

To resume, option 0 is definitely not an option and I am convinced that the only reasonable option is the option 1: creating a licensing scheme for LFTE.

response



comment

383

comment by: *Bernard VAUTHIER*

My Name is Bernard Vauthier



Agree with OPTION NB 1 (ONE)

For the following reasons:

Safety impact

- LFTE licensing would promote adequate common standardization level as I worked during my Flight Test career development.

- LFTE licensing be under the responsibility of national competent authorities

- Training and medical fitness be under the responsibility of approved organizations overseen by the NAA

- Experiences show that an identical formation for pilots improves

the crew cockpit management resources (CRM) and therefore has beneficial influence on safety

the crew cooperation

the crew coordination during certification Flight Tests and so reduce time

Social impact

- Main impact

No change for countries that already have LFTE license

LFTE licensing enable LFTEs to be recognized throughout Europe, freedom of circulation of people

- Additional impact

Improve recognition of crew privilege concerning medical fitness necessities

Economic impact

- Training costs

LFTE licensing with identical formation for CRM, crew cooperation and coordination, will be a need for an ATO (as EPNER in

Istres France area) or additional approval structure.

- Administrative costs

LFTE licensing related to the issue of license by the Member State with Flight Testing activity, to establish administrative



requirements, may be translated from the state formerly, to reducing these.

Proportionality issues

- Actual situation shows that a minimal impact will be necessary about LFTE licensing activities

Impact on "better regulation " and harmonization

- A new necessary amendment would need but wit a new safety, harmonization and freedom of people, for safety and

efficiently

- Effectively selected foreign as USA, Canada and Brazil will be in relatively situation, but these countries accept yet their Flight

Test crew to follow French ATO into EPNER.

- Hope that a majority of LFTE licensing countries will be the new future of European Harmonization for Young people.

This is my point of view.

My Lead Flight Test Engineer Work Experience

J'ai été Responsable Avion et Conducteur d'Essais pour de multiples homologations :

- Commande vocale Mirage III B

Combinaison NBC Alpha Jet

Correction du boîtier de contrôle de déroulement intempestif du trim de profondeur du Jaguar, à la

suite d'un accident mortel de l'équipage

Au cours du vol d'essais, j'ai permis au pilote d'essais de récupérer le vol qui avait été perturbé par le

blocage mécanique du manche pilote, en prenant les commande de vol à partir du poste arrière. Les

instructions étant écoutées en temps réel par la voie G au poste d'écoute au Centre d'Essais en Vol

entre autres



En conclusion, c'est grâce à la formation dispensée à l'Ecole du Personnel d'Essais et de Réception (l'EPNER)

qui centralise, harmonise les équipages d'essais en vol au complet : le pilote d'essais qui exécute l'essai,

l'ingénieur d'essais qui analyse, rédige et signe l'Ordre d'Essais, l'expérimentateur qui réalise le système

d'essais et le maintien en vol et le mécanicien d'essais qui contrôle le bon fonctionnement des engins en

connaissant parfaitement leurs limites temporelles et leurs possibilités de dépassement pour sauver l'équipage

et l'essai, que l'aéronautique pourra progresser en évitant d'être « constructeur et évaluateur » de l'avion qui

devrait répondre aux souhaits du client.

About my carrer development

Expérimentateur Navigant d'essais en vol EPNER 1967

License of Private Pilot

Retired

response



comment

394

comment by: *QinetiQ Trials Engineering*

### Section 2.3

**Option 0:** This approach is currently implemented within our organisation and provides a demonstrably robust competence management system

response



comment

417

comment by: *BETHENCOURT*

I choose option n°1.  
 I'm test flight engineer, graduated from Epner and working for DGA.  
 For my own, 2 main ways :  
 -Improvement of flight safety.

A LFTE could be directly involved in the safety. As an example, I take my personal experience: during acceptance flight, I could take place on the right seat as a PNF, or in the center seat as flight engineer, depending on aircraft type. Among other things, my job is to shut down and restart the engines. Because it has a safety issue in the flight, according to ICAO Annex 1, I have to be licensed.



-Promote standardisation and recognition.

You are licensed only if you successfully followed an APPROVED training program inside an APPROVED training center, by an APPROVED organization and authority(ies), like pilots are.

In this case, an licensed LFTE (if any) won't be linked for life to his DOA/POA; and could (for example), looking for job in another company in the EU space.

response



comment

418

comment by: *alat*

Question n°11: Please indicate which of the options 0 or 1 (license requirement) is preferred and provide a justification for your choice.

è **I prefer Option 1 (license requirement)**

I'm a French Army LFTE (MNE) specialized on helicopter testing.

I obtained my license (category A) after one year of studies in a Flight Test School (EPNER) in 2010. We received a common formation with pilots and learned crew work before, during and after flights. This year taught me to lead a flight test efficiently and particular in safety.

**1. LFTE participates efficiently with flight safety**

- Flight safety is improved because the formation is common between pilot and LFTE.
- Flight safety is improved because the LFTE have a global approach and knowledge of flight.
- Flight safety is improved because I work about differents aircraft and conditions in the army before to working in a flight test center to Airbus, Eurocopter, or another one for example.

**2. LFTE assists the pilot in the operation of the aircraft**

- I performed regularly about different systems during test flight:
  - engine test: cut off and restart in-flight or manual regulation;
  - radio test: radio management for radio test; IFF; radio navigation;
  - management of FMS;
  - control of system or equipment as FLIR, auto-pilot with mini-stick for hoist in hover;
  - performed device on the landing gear in flight in normal and emergency procedures,
  - performed emergency procedures if necessary with the pilot,
  - ...
- LFTE have to take decisions in flight according to the situation (weather, air traffic, crew, differents person on board to perform the flight test, mass and balance ...):
  - to validate flight point;
  - to continue or stop the test flight if necessary,
  - to modify flight chronology or start conditions of test point;
  - ...

response



comment

20

comment by: *Sacchi olivier*



response	<p>Personnaly i am for the option 1.</p> <p>The reasons are simples</p> <p>The lead flight test engeneers contribute at the air safety when he use the controls of aircraft. Without a licence, the person will lose money and the strikes are foreseeables.</p>
comment	<p>54 <span style="float: right;">comment by: EXP</span></p> <p>The safety in flight test depends principlaly of the qualification level of the crew. To maintain safety in the world of fly tests, it seems to me very important to maintain a training performed by a specific school like EPNER and to valid these capabilities with a dedicated license.</p>
response	<p>—</p>
comment	<p>59 <span style="float: right;">comment by: Perlato Patrice</span></p> <p>I chose option 1. The LFTE acts on the main controls of the aircraft and participate in the conduct of the flight as well as the pilot.</p>
response	<p>—</p>
comment	<p>67 <span style="float: right;">comment by: Stephane GARNERET</span></p> <p>As describe in this A-NPA, the LFTE role consist in "conducting flight test or assisting the pilot in the operation of the aircraft", it seems obvious that <u>the LFTE require a licence</u> (option 1) for the reason that the actions the LFTE will perform may be critical for flight safety, so a very clear definition of the formation the LFTE received is mandatory. As the pilot's license "prove" that he is able to fly an aircraft, the LFTE license will prove that :</p> <ul style="list-style-type: none"> <li>• he is able to <u>assist a pilot</u> as like as a <u>licensed copilot</u> assist or conduct the flight,</li> <li>• he is able to make actions which would have determining effects on flight safety (engine cut-off, flight controls tuning, etc).</li> </ul> <p><b>The LFTE role is in many cases close to a copilot role, for this reason the LFTE license should exist and be similar to a copilot's one.</b></p>
response	<p>—</p>
comment	<p>84 <span style="float: right;">comment by: DGA Essais en Vol</span></p> <p><b>Operation and aviation safety</b> The ICAO annex 1 specifies that each person in an aircraft that has a function which could affect the aircraft safety must have a licence.</p>



response	<p>The LFTE acts on the main controls of the aircraft and in the conduct of the flight as much and as fully as the pilot.</p> <p>He has a leading role in the aviation safety and the very same reasons that govern the licensing for a pilot have also to apply to LFTE. A function on board provided by a person without a license would seriously undermine the work of the crew and will impact the aircraft safety.</p>
comment	<p>90 <span style="float: right;">comment by: <i>B Pons - DGA Flight Test</i></span></p> <p>On this impact, option 1 is to be preferred: gain for safety of flight test, it is essential to have flight crew training pilot and engineer for crew coordination and safety. Lead Flight Test Engineer are leading test flights and therefore are active participant for safety of the flight test as they may ask act on aircraft safety margin by parameter monitoring or on flight controls through specific Flight Test Instrumentation.</p> <p>Independant license for LFTE allows also independance of judgement and harmonisation between applicants.</p> <p>In addition for and for LFTE from authority LFTE from the authority, A independant license will allow adequate recognition towards applicant.</p>
response	
comment	<p>102 <span style="float: right;">comment by: <i>Jean BILGER</i></span></p> <p>I choose the <b>option 1</b>.</p> <p>I think the LFTE is a link in the flight test safety chain. As an example, during some test flights the LFTE is susceptible to monitor a Flight Test Instrumentation which can be intrusive on the flight controls of the aircraft. In this case the LFTE directly participates in flight safety. As a consequence he has to be considered part of the crew and of course needs to have a license for that.</p> <p>Also, a license can be a reference level for people who need to work outside European countries even if this license is only valid in Europe.</p>
response	
comment	<p>115 <span style="float: right;">comment by: <i>conio chris</i></span></p> <p>I think, it is important for the conduct of one tries during flight, to know that every person in the plane is a professional who will know how to react correctly according to the evolution of the flight. Even in phase the most critical who will have been seen during a recognized and awarding a diploma formation</p>
response	
comment	<p>145 <span style="float: right;">comment by: <i>LEBRE Christophe</i></span></p> <p>An LFTE can act on the helicopter main controls and participates in the flight lead (he can operate the engines controls in flight test certification points for instance...). He is a safety partner and all the reasons leading to pilot licences deliveries are applicable for the FTE.</p>



response



comment

149

comment by: *Thibaud Chalvidan*

As “LFTE”, we must act in coordination with the Pilot to realize the flight tests in accordance with test orders. LFTE Actions lead in the same way as the pilot's actions to engage the safety of the aircraft: those Actions are direct or indirect on the system under test, or on the aircraft, and include decisions taken during the flight to test specific items. This synergy needed in the crew must be acquired through special training leading to a recognized license.

response



comment

161

comment by: *Diresction Générale pour l'Armement / Essais en Vol*

This is the only solution in order to provide a satisfactory safety level to cat 1 and 2 flights. Indeed, LFTE participate to this kind of flight by:

- shutting down engines, restarting engines in flight
- modifying parameters on FADEC / EECU / ECMU engines in order to check their behaviour with particular failures.
- modifying parameters on AFCS in order to improve aircraft handling qualities.

All these actions have flight safety consequences if they are not conducted properly. More over, during particular tests, LFTE can make up for radio trafic with ATC. As a conclusion, LFTE take an active part to flight safety and flight driving.

response



comment

165

comment by: *Deshayes/DGA EV Istres*

The LFTE is part of the crew and as such participates beneficially to flight safety => Option 1 leads to an improvement of the crew cooperation.

response



comment

182

comment by: *Eric Toquoy*

Improvement of crew cooperation through CRM seems really inappropriate to us due to the fact that we often have flights for engine testing purpose with crews from H/C manufacturers, depending on a separate organization.

LFTE licensing with a common training (common with other LFTEs and pilots) seems to be the best solution for overall safety with mixed crew. **Option 1** is definitely my favorite here.

response



comment

208

comment by: *Di bianca*

Option 0 is to be removed due to degradation of safety compared to option 1 for following reason:

- During flight test a part of critical data are not visible by the test pilot and he has to rely on the capability to react quickly and good analyze from the LFTE which is onboard. An error, a delay or lack of reaction could have catastrophic consequences for the crew and overflown



population. Licensing is the only guarantee that the LFTE will have an adapted and standardized behavior in the flight test environment which is stressful and can make some individual lose their capability. Such clear sightedness can make the difference between accident and successful flight test.

Option 0 is to be removed due to legal responsibility of the pilot as a captain of the career:  
 - delegation of critical responsibility by the pilot to the LFTE in flight (as for instance real time monitoring of several limitations, test point request following ground analyze...) is a kind of delegation of legal responsibility. The legal involvement of the captain following any event in flight is a fact. Flight test pilot must have a guarantee that their trust is given to a person which is at the same level of licensing and responsibility.

response



comment

213

comment by: Patrick Rimlinger

Mainly involved in engine flight testing, LFTEs in Turbomeca frequently have direct actions toward engines and/or engine controls systems with significant consequences. Considering this, Turbomeca's LFTEs are really crew members who have a direct influence on flight test safety, requiring a licensing scheme comparable to the pilots.

In addition TM LFTEs are often flying in mixed crew when working with the H/C manufacturers. An identical training is a guarantee of safety improvement.

response



comment

223

comment by: ..

Option 1 is my selection.

Why?base on the last 60 years of experience,flying with a LFTE licence is a sign of formals rules learnt and shared with other crew members,mainly with pilots.  
 It is the spirit of the Chicago convention edited by OACI.

This is also sign of social and economic of licenced members.

In test flights,and more in experimental one,where importants consequences are possible by LFTE actions on majors systems,the neccessity to be trained on the same 'feet' as other crew is motre evident.Test Training,is necessary to speak the same language.

We don't have to forget that this task is added on the basic task knowed as 'flight drive':external checks to maintain safety,normal and emergency procedures.Forget it will be an error.

This two last paragraphs are essentials for LFTE licence and it will be the parrallel of test pilot licence.

Medicals will follow the same rules than pilots rules and will permit to maintain the same standards of conditions.

On Economic point of view,the experience showed that it's possible to executed Class 1&2



response	<p>test flights with one pilot and one or two LFTE,rather than 2 pilots+ 1 LFTE.</p> <p>A common LFTE licence in ECE will permit to anyone in ECE to exercise this activitie,with same training.</p>
comment	<p>224 <span style="float: right;">comment by: <i>Augustin DUPUIS</i></span></p> <p>According to Lead Flight Test Engineer definition, LFTE will be authorized to carry out actions on controls to modify aircraft trajectory or controllability.</p> <p>So, in such cases LFTE will perform some actions as a copilot would. For these “copilot like ” functions, If LFTE formation is issued and granted by DOA which may be a small organization, how to insure that LFTE proficiency will be in line with EASA safety requirement as it is done for copilot (and pilot) through specific organizations ?</p>
response	<p></p>
comment	<p>229 <span style="float: right;">comment by: <i>Christian HOMMAGE</i></span></p> <p>In my opinion, only option 1 must be applied</p> <p>A test flight realized by a test pilot and a LFTE allows to guarantee flight safety and to return opinions and directly exploitable results.</p> <p>The license of the LFTE would allow the recognition of a flight crew essential to test flights:          -crewmembers trained by a school specialized (special training to technical flight test with adapted means )          -physical and mental health checked by specialist and independent doctors          -crewmember acquires some experience during every test flight</p> <p>The LFTE stays main support to the pilot during the execution of normal, emergency or particular procedures.</p> <p>Option 0 is not professional.</p>
response	<p></p>
comment	<p>231 <span style="float: right;">comment by: <i>DGA AS332 / AS532</i></span></p> <p>Flight test engineer is a crew member and has an active participation in the safety actions on the aircraft.</p> <p>For example, I am FTE specialized in the integration of weapons system on helicopter. During the flights, my job is to use the weapon (torpedo, missile, gun...). Shooting is my responsibility during flight tests. My actions have a direct influence on the safety of the test flight and I am part of the crew.</p>
response	<p></p>
comment	<p>238 <span style="float: right;">comment by: <i>Carolyn BREEDEN</i></span></p> <p>In Australia, the military (Army and Air Force) uses a Categorisation system for its aircrew</p>



(from uncategorised through to highly experienced). Flight Test Engineers are required to maintain the same medical requirements as pilots, and are subject to a slightly adapted Categorisation System. A Category is reviewed each year with set requirements (currency, proficiency, ongoing training) needing to be met. So, although Australia does not have a licencing system, the military does apply a similar level of control. Industry flight test personnel are required to maintain equivalent levels of competency and training when working in or with Defence.

Without this stipulation (as has occurred in the past), personnel / organisations may not meet the training requirements, and may be subject to reduced medical and other standards. With different training and backgrounds, crew resource management and hence safety can be impacted.

As Industry is, by nature, trying to make money, without adequate justification, items such as aircrew training budgets can be reduced, or shortcuts taken, which has a direct impact on safety and crew co-ordination.

Based on personal experience, the FTE has a more active part in the flight test / aircraft preparation, flight conduct, and changes to the aircraft and its systems in Eurocopter compared to the Australian Army where the Test Pilot holds the main responsibility. Despite this, the FTE still plays an active role in controlling the flight and test conduct in a safe manner, and will act on numerous aircraft and system controls during the flight.

A licencing (or equivalent system) that manages FTEs in a similar manner to Test Pilots is logical and consistent, and enables minimum standards / requirements to be enforced. Even with licencing, variations can exist.

The primary benefit of a licencing system is a consistent set of requirements applied across the board, ensuring maintenance of consistent minimum standards.

Regulation and control is an important factor in the safe conduct of aviation activities. Given the integral role of the LFTE in the safe conduct of flight test

response



comment

246

comment by: *Hervé PAUTREC*

A license for LFTE is mandatory (option 1).

A LFTE is responsible for conducting flight tests or assisting the pilot in the operation of aircraft during test activities. He is a main actor of flight safety and needs a specific formation in a approved training organisation and a license as a test pilot has.

I also do agree with the standardisation of medical requirements for that kind of activity.

response



comment

253

comment by: *Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck*

1. In NPA 2013-16 and the CRD 2008-20 the distinction between training and education is not sufficiently considered. Training means practicing skills whereas education means to convey knowledge, methods and confidence in a meaningful process. You can train an engineer to operate a CAD-system; education of good design engineers is very different from that. Education is also not a linear process driven by the schedule of a training schedule, but evolves by structured problem solving. Depending on the subject education processes may last many years or even a whole working life until understanding is gained. Finally the application areas of a flight test engineer are so broad and different that a training of the



whole scope of Flight Test Engineering is unlikely to achieve in one or two courses. The testing of a new propulsion system, or a new wing design or the introduction of a new controls system are so different in scope that very different knowledge and experience is required to engineer this properly. Basic technical knowledge may be sufficient for pilots, for engineers this is sufficient. The processes developed by engineering companies to promote engineering education beyond graduation are superior to training methods as they are continuously, adaptive and focusing. This means the agency should consider this limited value of training as a method of learning and that FTE cannot be generated by training. This does not mean that training is not useful for FTE's. A sea survival training or an emergency evacuation training may certainly be useful for FTEs. Also a course to learn how to handle a software system may be beneficial, but you cannot be trained to become an LFTE, nor trained to become a managing director nor trained to become a professor. You cannot learn this - you must be educated for this by heading the appropriate migration path. Here the world of pilots and the world of engineers may be very different and concepts useful for pilots are not necessarily transferable to engineers. Therefore we doubt that the concept of LFTE production by one or two training courses is applicable.

2. As stated in comment 221 already the job of an LFTE is not adequately described as someone who has to sit in the plane during flight tests. In most cases the work is primarily done on the ground. Very often the main task of an LFTE is to coordinate the whole certification process between aircraft designers, instrumentation engineers, the fire brigade, ATC, the ground crew and systems engineers from different suppliers of component's build in an aeroplane for testing. His job is often to take care that the interfaces are well elaborated and well-coordinated. Furthermore a LFTE is often in charge for coordination the planning and evaluation of Flight test. Of course it may be useful that an LFTE sometimes is attending flight tests in an aeroplane to be tested, especially if flight tests required in areas remote from the location of the DOA. But this are special cases and therefore the curriculum and regulations published so far are biased towards practical flight training necessary only for a minority of LFTEs. Obviously the training is derived from military training and certainly proven in this area. But we don't talk about military training in this licensing process. Instead the education of an LFTE is based on successful and systemic accomplishment of delegated tasks, empowerment of responsibility and intensive discussion with colleagues on appropriate solutions. An LFTE will not be qualified if he sits as much as possible in an aeroplane. Therefore major elements of the approach for licensing are misleading.

3. The syllabi presented so far consist in a list of useful, but very general subjects and to a wide extent a replication of learning contents probably already well known to many applicants. Reiteration is often useful, but for a new license the specific added value in knowledge should be visible in syllabus. This is not evident so far. We know that the famous test pilot schools here are much more specific and able to provide a distinct complementary training on a very high level. But with the introduction of this license the agency opens a new market with the immediate consequence that new competitors will enter this market and apply for approval. That may lead to the situation that the existing schools become under pressure as new competitors show up to fill market niches. If then the market demands primarily low price schools there will be such schools come up somewhere in Europe. As long as the agency has just a syllabus for assessment of applicants, the risk will arise that low level applicant will succeed to be approved somewhere in Europe as neither the agency nor the NAA's are equipped and experienced to assess the quality of a course and an applicant. NAAs are used to check the fulfillment of formal requirements, but not the quality of engineering courses. As the agency did not present a quality management system for the



approval process aligned and coordinated through all NAA's in Europe, the risk will be that quality will go down rather up. The syllabus is not sufficient for quality assessment and the agency must build up a very sophisticated quality management system to avoid this. This is not reflected in the documents so far and therefore the proposal should be considered as incomplete. Universities would save lot of work and effort if education quality could be assessed by a syllabus. It is not that easy it's much more complex to do this. It is therefore probably better for the agency and for the existing schools to leave the system as it is. If the schools offer the training needed by the market that will be fine. There is no licensing scheme needed to regulate this.

response



comment

256

comment by: AIC owner

### Option ONE and aNewgenuine Flight Test Story

#### De l'équipage d'essais en vol

Le rapport d'essais en vol était sur le bureau du Directeur ce jour là. « Je voudrais bien me rendre compte par moi-même de ces affirmations qui discréditent nos équipements embarqués ! ». Monsieur le Directeur s'étant exprimé aussi clairement, il ne restait plus à son département qu'à trouver l'avion et le vol d'essais qui aurait l'honneur de faire voler le Directeur d'une société française située à la tête du CAC40.

C'est ainsi que nous avons vu débarquer par un froid matin, sur la base d'essais en vol, un quidam en costume-cravate, que nous avons prié poliment mais fermement de bien vouloir revêtir la combinaison de vol et de montrer son certificat médical attestant qu'il pouvait le faire, avant de franchir l'échelle de coupée de notre avion de mesures et d'observation. Une plateforme confortable, propulsée par quatre moteurs et pouvant abriter un équipage d'essais d'une douzaine d'expérimentateurs, en plus de l'équipage de conduite.

Le vol d'essais prévoyait un convoyage à une altitude de croisière confortable puis une descente vers la zone de test, pour des essais à l'altitude de travail, c'est-à-dire entre les vagues du Golfe du Lion et le premier étage de la Tour Eiffel pour fixer les idées du profane. Et ce, avec un vent de Nord, le Mistral, frôlant le maximum autorisé, mais conforme aux clauses techniques de cet équipement.

« Vous voyez, Monsieur le Directeur, ces traces qui masquent l'écho sur l'écran ... » Le silence qui avait suivi la remarque pertinente de l'ingénieur navigant d'essais en vol, qui dirigeait ce vol d'essais l'avait fait se retourner. Ce qu'il vit, l'obligea à éviter que l'écran de contrôle en cause, ne fut totalement masqué par les remontées gastriques de son passager exceptionnel, plus habitué aux premières classes avec hôtesse et whisky. Il avait certainement oublié qu'un avion pouvait être chahuté à ce point, surtout au raz des crêtes des vagues. Or, c'était là, que ses équipements devaient donner toutes leurs capacités opérationnelles. D'où les critiques constructives qu'il était venu vérifier par lui même.

Le deuxième sac rempli, l'ingénieur, avait demandé le retour en zone arrière, moins chahutée, de l'illustre visiteur, afin de continuer l'exécution de l'ordre d'essais qu'il avait rédigé et signé. Après tout, le Directeur n'aurait qu'à lire les conclusions et leur faire confiance, dans le rapport d'essais que cet ingénieur s'appropriait à rédiger, pendant le vol de retour vers la base.

Ainsi, plus jamais les conclusions d'un rapport d'essais en vol n'ont été mises en cause et les équipements de cet industriel ont subi les modifications qui en ont fait l'un des meilleurs, sinon le meilleur radar embarqué européen.

**« Ne fais pas des essais en vol, qui veut. Il faut encore le pouvoir, car la sécurité de**



***l'équipage et de la machine, dépendent de la qualité professionnelle de chacun de ses membres*** ». Dont acte.

Cette histoire est authentique. Mais, certains de ses exécutants étant encore en vie, j'ai volontairement occulté les dates et les noms. Cependant, ils seraient à la disposition de ceux qui en douteraient encore.

response



comment

310

comment by: Yann FORESTIER

Page 10 §2.4.1. Safety impact : Option 1 is the only option that would allow dealing with safety in the same manner as it has been dealt with for the pilots. LFTEs having a high involvement in safety management in flight, they should be trained and followed medically the same way the other crews treated by EASA are. This implies the existence of a license for LFTEs and thus option 1.

response



comment

313

comment by: Yann FORESTIER

If option 0 is chosen, the countries having a licensing scheme (or equivalent) will have to abandon their licensing (or equivalent) structure, which will necessarily lead to a decrease in the level of proficiency of the LFTEs compared to the previously higher standard expected from them. This will potentially lead to a decrease in the safety level in these countries that are also very experienced countries as far as flight testing is concerned.

On the contrary if option 1 is chosen, the countries using LFTEs will be able to continue having a structured licensing scheme and training process for their LFTEs, while the countries using FTEs will be able to continue to do so without any additional constraint for them due to the lighter requirements linked to their status by definition.

In conclusion, choosing Option 1 is the only way to allow all countries to continue managing flight tests the way they previously did and to maintain at least the same level of safety in all the countries with regards to flight testing.

response



comment

330

comment by: Jean-Louis RABILLOUD

Speaking of flight test safety, standardisation of practice between crew members is paramount. Initial training via an ATO or additional approval and competence currency are therefore essential.

Option 1 would clearly and significantly enhance this aspect.

response



comment

365

comment by: Association of Flight Engineers for Testing



It is opinion of the "Italian Association of Flight Engineers for Testing" that a training and medical fitness standardized to a common regulation that result in the achievement of a license, is the correct path to ensure a high improvement of flight safety and, at the same time, to allow a movement of personnel between member states, based on the mutual recognition of the profession.

response



comment

389

comment by: *POULTEAU*

Safety impact: Option 1- LFTE licensing would ...  
 This paragraph is fully supported. Recent european military programs under European agencies (OCCAR, NAHEMA) showed an immediate benefit for having a common system of reference between involved Nations. XTest Pilot and Flight Test Engineer with License were required to guarantee an immediate and appropriate level of safety and efficiency and to ease mutual recognition (Nation responsibility in each test activity can be shared by others with no doubt)

response



comment

395

comment by: *QinetiQ Trials Engineering*

#### Section 2.4.1

**Route to licence (experience):** The proposal states that FTE training will be provided by approved training organisations. In our experience, FTE graduates require a significant period of consolidation of skills and experience following completion of such training prior to leading Category 1 or 2 flight test activities. This does not appear to be acknowledged or reflected in the consultation document.

Additionally, there are numerous highly competent FTEs who have not had the opportunity to undertake formal long course training. EASA must therefore recognise that there are other routes to achieving competence than such 'recognised' training courses. A combination of experience through "grandfather rights", and alternative qualifications, should be considered to be an acceptable means of compliance.

An omission from the proposal is a demonstrable method of controlling and maintaining currency thereby retaining the key skills and competency required to act in the role of a LFTE.

response



comment

403

comment by: *Eurocopter*

Option 1 increase safety most of the time.  
 - Licensing is a guarantee the good level of LFTE.  
 - The crew cockpit management give the opportunity to achieve the best level of safety.  
 - Option 0 LFTE could be worst than just a pilot on board because the pilot has to manage him.  
 - Option 0 is acceptable for light aviation because aircraft are simpler.

response



comment	411	comment by: <i>French Flight test center</i>
	LFTE licensing would promote also a common Flight test "language"" used by the test pilot and test controller, before, during and after the test flight.	
response		
comment	415	comment by: <i>Sylvain GUIRAUD</i>
	option 0: In the case of an freelancer, it will be very hasardous to evaluate the training level. As there will be no standardisation, there will be a risk to encounter a lot of differencies relative to the origin of the engineer.	
response		
comment	416	comment by: <i>French Army aviation ALAT</i>
	The option 1 (licence requirement) is preferred.	
	L'option 1 est choisie par le rédacteur de ce document.	
	Que se soit pour les vols d'essai industriels cat 1 à cat 4, pour les développements particuliers à des systèmes ou pour la certification d'un appareil (pratiqués communément par états et industriels), les entreprises ainsi que les états sont responsables de la sécurité des vols. Pour ce faire, ils éditent des règlements garantissant sur l'ensemble du domaine d'application, la sécurité des personnes et des aéronefs. L'EASA deviendra <b><u>responsable de la sécurité des vols en établissant le nouveau cadre législatif.</u></b>	
	Quel que soit le principe de formation des LFTE ( par DOA/POA ou par états), l'existence d'une licence garantie le <b>respect d'un cadre de formation ainsi que l'impartialité vis à vis de l'employeur.</b> En effet, que la formation soit fournie au sein d'une entreprise ou par une école étatique, l'obtention d'une licence devrait répondre aux aspects suivants : - - Sanction d'un cycle de formation par un examen homogène pour tous les états sous responsabilité EASA et amendable par la procédure des CRD, - - Connaissances de l'ensemble des LFTE <u>européens standardisées et contrôlées par un seul et unique examen</u> exempt des conditions d'emplois des prétendants.	
	La légitimité des LFTE provient essentiellement des points suivants : - - <u>Connaissances globales des aéronefs</u> , contrairement au FTE, garantissant une vue d'ensemble sur les conséquences d'une action en tant que membres d'équipages. Ces connaissances font l'objet d'une formation complète au même titre que les pilotes d'essai. La culture globale permettant une approche synthétique d'une phase d'essai est directement liée à la sécurité des vols autant que la technique d'essai proprement dite. - - <u>Les actions de conduite de l'appareil</u> menée par les LFTE peuvent engager la sécurité	



des vols : arrêt/rallumage d'un moteur sur l'ensemble des types d'aéronef, action sur les pilotes automatiques par le biais des systèmes (opération de treuillage sur les hélicoptères de transport avec commandes de vol déportées, orientation de viseurs qui déplacent l'appareil afin de le mettre en condition de tir sur l'axe de lacet, confirmation des désignations de cibles lors des essais de tir, calcul ou contrôle d'un calcul automatique de performance ( VNE ...) etc.)

- Formation LFTE comportant plusieurs axes notamment le travail en équipage d'essai (CRM) et management d'une équipe d'essai au sol/vol. Ce travail en équipage peut être décomposé en plusieurs phases dans lesquelles la sécurité des vols est primordiale. Les phases au sol sont essentiellement composées par la rédaction des programmes, déroulement chronologique de vols d'essais pour lesquels la sécurité des vols peut être directement impactée. De la même manière, le travail en équipage est capital pour la sécurité pendant les vols et passe essentiellement par la communication et la répartition de la charge de travail. Cette dernière peut amener les LFTE à surveiller des paramètres cruciaux engageant directement la sécurité du vol : plancher d'essai, limitations moteurs, limitations particulières définies lors de la préparation au sol autorisant/annulant la poursuite d'une phase d'essai. D'autre part, le découpage d'un vol d'essai comprend plusieurs phases de briefing dans lesquelles des points importants de sécurité des vols sont rappelés à l'ensemble de l'équipage d'essai. Ces points sont intimement liés à la connaissance globale de l'appareil ainsi qu'à la formation type CRM.

La pratique de ce travail en équipage d'essai doit être normalisée et cadrée par EASA en liaison avec les différents intervenants.

- Le travail des LFTE au sol est parfois postérieur aux essais en vols. Ce domaine est aussi lié à la sécurité des vols par la rédaction de consignes de vol générales pour un appareil ou bien particulières à un système nouvellement implanté. Le manuel de vol d'une flotte peut se voir améliorer par l'adjonction de ces consignes et donc engager la sécurité de tous. Bien entendu, les LFTE ne sont pas les seuls rédacteurs mais participent au même niveau que les FTR.

response



comment

419

comment by: French Army aviation ALAT

the option 1 is preferred.

L'option 1 est choisie par le rédacteur de ce document.

Que se soit pour les vols d'essai industriels cat 1 à cat 4, pour les développements particuliers à des systèmes ou pour la certification d'un appareil (pratiqués communément par états et industriels), les entreprises ainsi que les états sont responsables de la sécurité des vols.

Pour ce faire, ils éditent des règlements garantissant sur l'ensemble du domaine d'application, la sécurité des personnes et des aéronefs.

L'EASA deviendra responsable de la sécurité des vols en établissant le nouveau cadre législatif.

Quel que soit le principe de formation des LFTE ( par DOA/POA ou par états), l'existence d'une licence garantie le respect d'un cadre de formation ainsi que l'impartialité vis à vis de l'employeur. En effet, que la formation soit fournie au sein d'une entreprise ou par une école



étatique, l'obtention d'une licence devrait répondre aux aspects suivants :

- Sanction d'un cycle de formation par un examen homogène pour tous les états sous responsabilité EASA et amendable par la procédure des CRD,
- Connaissances de l'ensemble des LFTE européens standardisées et contrôlées par un seul et unique examen exempt des conditions d'emplois des prétendants.

La légitimité des LFTE provient essentiellement des points suivants :

- Connaissances globales des aéronefs, contrairement au FTE, garantissant une vue d'ensemble sur les conséquences d'une action en tant que membres d'équipages. Ces connaissances font l'objet d'une formation complète au même titre que les pilotes d'essai. La culture globale permettant une approche synthétique d'une phase d'essai est directement liée à la sécurité des vols autant que la technique d'essai proprement dite.

- Les actions de conduite de l'appareil menée par les LFTE peuvent engager la sécurité des vols : arrêt/rallumage d'un moteur sur l'ensemble des types d'aéronef, action sur les pilotes automatiques par le biais des systèmes (opération de treuillage sur les hélicoptères de transport avec commandes de vol déportées, orientation de viseurs qui déplacent l'appareil afin de le mettre en condition de tir sur l'axe de lacet, confirmation des désignations de cibles lors des essais de tir, calcul ou contrôle d'un calcul automatique de performance ( VNE ...) etc.)

- Formation LFTE comportant plusieurs axes notamment le travail en équipage d'essai et management d'une équipe d'essai au sol/vol. Ce travail en équipage peut être décomposé en plusieurs phases dans lesquelles la sécurité des vols est primordiale. Les phases au sol sont essentiellement composées par la rédaction des programmes, déroulement chronologique de vols d'essais pour lesquels la sécurité des vols peut être directement impactée. De la même manière, le travail en équipage est capital pour la sécurité pendant les vols et passe essentiellement par la communication et la répartition de la charge de travail. Cette dernière peut amener les LFTE à surveiller des paramètres cruciaux engageant directement la sécurité du vol : plancher d'essai, limitations moteurs, limitations particulières définies lors de la préparation au sol autorisant/annulant la poursuite d'une phase d'essai. D'autre part, le découpage d'un vol d'essai comprend plusieurs phases de briefing dans lesquelles des points importants de sécurité des vols sont rappelés à l'ensemble de l'équipage d'essai. Ces points sont intimement liés à la connaissance globale de l'appareil ainsi qu'à la formation type CRM.

La pratique de ce travail en équipage d'essai doit être normalisée et cadrée par EASA en liaison avec les différents intervenants.

- Le travail des LFTE au sol est parfois postérieur aux essais en vols. Ce domaine est aussi lié à la sécurité des vols par la rédaction de consignes de vol générales pour un appareil ou bien particulières à un système nouvellement implanté. Le manuel de vol d'une flotte peut se voir améliorer par l'adjonction de ces consignes et donc engager la sécurité de tous. Bien entendu, les LFTE ne sont pas les seuls rédacteurs mais participent au même niveau que les FTR.

response



comment

426

comment by: French Army aviation ALAT

the otpion 1 is preferred



response



comment

428

comment by: French Army aviation ALAT

The option 1 is preferred.  
L'option 1 est choisie par le rédacteur de ce document.

Que se soit pour les vols d'essai industriels cat 1 à cat 4, pour les développements particuliers à des systèmes ou pour la certification d'un appareil (pratiqués communément par états et industriels), les entreprises ainsi que les états sont responsables de la sécurité des vols.

Pour ce faire, ils éditent des règlements garantissant sur l'ensemble du domaine d'application, la sécurité des personnes et des aéronefs.

L'EASA deviendra responsable de la sécurité des vols en établissant le nouveau cadre législatif.

Quel que soit le principe de formation des LFTE ( par DOA/POA ou par états), l'existence d'une licence garantie le respect d'un cadre de formation ainsi que l'impartialité vis à vis de l'employeur. En effet, que la formation soit fournie au sein d'une entreprise ou par une école étatique, l'obtention d'une licence devrait répondre aux aspects suivants :

- Sanction d'un cycle de formation par un examen homogène pour tous les états sous responsabilité EASA et amendable par la procédure des CRD,
- Connaissances de l'ensemble des LFTE européens standardisées et contrôlées par un seul et unique examen exempt des conditions d'emplois des prétendants.

La légitimité des LFTE provient essentiellement des points suivants :

- Connaissances globales des aéronefs, contrairement au FTE, garantissant une vue d'ensemble sur les conséquences d'une action en tant que membres d'équipages. Ces connaissances font l'objet d'une formation complète au même titre que les pilotes d'essai. La culture globale permettant une approche synthétique d'une phase d'essai est directement liée à la sécurité des vols autant que la technique d'essai proprement dite.

- Les actions de conduite de l'appareil menée par les LFTE peuvent engager la sécurité des vols : arrêt/rallumage d'un moteur sur l'ensemble des types d'aéronef, action sur les pilotes automatiques par le biais des systèmes (opération de treuillage sur les hélicoptères de transport avec commandes de vol déportées, orientation de viseurs qui déplacent l'appareil afin de le mettre en condition de tir sur l'axe de lacet, confirmation des désignations de cibles lors des essais de tir, calcul ou contrôle d'un calcul automatique de performance ( VNE ...) etc.)

- Formation LFTE comportant plusieurs axes notamment le travail en équipage d'essai et management d'une équipe d'essai au sol/vol. Ce travail en équipage peut être décomposé en plusieurs phases dans lesquelles la sécurité des vols est primordiale. Les phases au sol sont essentiellement composées par la rédaction des programmes, déroulement chronologique de vols d'essais pour lesquels la sécurité des vols peut être directement impactée. De la même manière, le travail en équipage est capital pour la sécurité pendant les vols et passe essentiellement par la communication et la répartition de la charge de travail. Cette dernière peut amener les LFTE à surveiller des paramètres cruciaux engageant directement la sécurité du vol : plancher d'essai, limitations moteurs, limitations particulières définies lors



de la préparation au sol autorisant/annulant la poursuite d'une phase d'essai. D'autre part, le découpage d'un vol d'essai comprend plusieurs phases de briefing dans lesquelles des points importants de sécurité des vols sont rappelés à l'ensemble de l'équipage d'essai. Ces points sont intimement liés à la connaissance globale de l'appareil ainsi qu'à la formation type CRM.

La pratique de ce travail en équipage d'essai doit être normalisée et cadrée par EASA en liaison avec les différents intervenants.

- Le travail des LFTE au sol est parfois postérieur aux essais en vols. Ce domaine est aussi lié à la sécurité des vols par la rédaction de consignes de vol générales pour un appareil ou bien particulières à un système nouvellement implanté. Le manuel de vol d'une flotte peut se voir améliorer par l'adjonction de ces consignes et donc engager la sécurité de tous. Bien entendu, les LFTE ne sont pas les seuls rédacteurs mais participent au même niveau que les FTR.

response



comment

429

comment by: *j-m delorme*

Since the LFTE may have actions on controls, he needs a licence to be compliant with the Icao rules.

response



**2. Explanatory Note and key questions for stakeholders — 2.4. Analysis of impacts — 2.4.3.Social impact**

p. 10-11

comment

28

comment by: *Andrew Roberts*

Option 1 will not enhance the freedom of circulation of people once the grandfather right period expires.

Currently FTEs who have graduated from one of the recognised schools do not face significant barriers to employment in countries that employ licencing systems. Option 1 will only increase the mobility of those covered by the grandfather right arrangements. Once these arrangements expire only those that have qualifications from an ATO will be able to work as an LFTE which could be considered to be even more restrictive than in todays environment.

response



comment

45

comment by: *DGA Essais en vol , Flight test center*

I SHOOSE OPTION 1

response



comment

51

comment by: *xxxxxxxxxx*

my choise is "OPTION1":

1- The LFTE is a active actor in the Driven plane. It has an impact on the safety.



response	<p>2- I have a particular pension fund. Without licence, I lose that and my pension will be much smaller.</p> <p>3- If i want to change my employeur, my competence must be recognized by the outside companies.</p>
comment	<p>60 <span style="float: right;">comment by: <i>Perlato Patrice</i></span></p> <p>I'm for keeping the option 1 because without this license, the person will suffer a significant loss of wages and social movements are likely.</p>
response	<p>—</p>
comment	<p>85 <span style="float: right;">comment by: <i>DGA Essais en Vol</i></span></p> <p><b>Social difficulties</b> The national systems of insurance and pension require having an aeronautic title of civilian professional navigation crew. Without this license, the individual will suffer a significant financial loss and social movements are likely to occur.</p>
response	<p>—</p>
comment	<p>91 <span style="float: right;">comment by: <i>B Pons - DGA Flight Test</i></span></p> <p>Option 1 is to be preferred. As in France, one of the major country in Europe for flight test, LFTE are recongnized for insurance and retirement organization through their official aeronautical title. Removing their title will remove them from their retirement authority and will obviously cause social protest and major disturbance for the aeronautical industry.</p>
response	<p>—</p>
comment	<p>116 <span style="float: right;">comment by: <i>conio chris</i></span></p> <p>Within the framework of internationnaux tries a license(Bachelor's degree) acquired with a recognized school shall facilitate largely the tries of a point of view reconnaissance of competence and insurances to be signed</p>
response	<p>—</p>
comment	<p>120 <span style="float: right;">comment by: <i>ITAF</i></span></p> <p><i>Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For ITAF Flight Test Center this represents 6 people.</i></p> <p><i>It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.</i></p> <p><i>Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European</i></p>



response		<i>license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.</i>
comment	146	comment by: <i>LEBRE Christophe</i>
response		In case of accident or in retreat position, the LFTE will notice a huge loss of money without any professional licence. We can fear numerous strikes in Europe.
comment	166	comment by: <i>Deshayes/DGA EV Istres</i>
response		The licence will enable LFTEs to be recognised throughout Europe, for any organisation : DOA or <u>government agencies</u> => Option 1 is better.
comment	167	comment by: <i>Deshayes/DGA EV Istres</i>
response		Licensing should also allow a better monitoring of the crew's medical fitness by defining more robust requirements (and it is the same for flight test experience). It would mean that the option 0 can not ensure as high quality engineers as the licensed ! => option 1 is also better.
comment	184	comment by: <i>Eric Toquoy</i>
response		Once more, as I'm mostly flying outside my company, my <b>license</b> is a door opener that is <b>not questionable</b> by a third party like a H/C manufacturer (civilian) or a government organization more on the military side (DGA/EV in France, FMV in Sweden, etc.)  The absence of license would be highly detrimental to interoperability of LFTEs. Option 1 goes towards an improvement of free circulation and recognition of certificates.  In addition, option 0 would increase the leverage of employers over their employees. <b>Option 1</b> is, to my mind, the only <b>true recognition</b> of crew privileges.  I must add that I'm really worried about the effect of Option 0 on the pension scheme already in place.
comment	214	comment by: <i>Patrick Rimlinger</i>



response	<p>The licence is the best and simplest way for employers such SAFRAN to recognize the ability of LFTEs to perform flight testing and to provide them the right status. This is the main reason to explain why I'm favorable to OPTION 1</p>
comment	<p>239 <span style="float: right;">comment by: Carolyn BREEDEN</span></p> <p>The Australian military Categorisation / French licencing systems have facilitated the continued progress of the flight test activities required on the Australian Tiger and MRH90 aircraft during the acquisition process – French crew have been able to show equivalence to the Australian Categorisation system, and Australian crew have been able to show equivalence to the French licencing system.</p> <p>In my personal case, it was this equivalence that greatly facilitated my employment by Eurocopter and the subsequent allocation of a French licence.</p>
response	<p></p>
comment	<p>247 <span style="float: right;">comment by: Hervé PAUTREC</span></p> <p>Social impacts (option 1) :</p> <p>A LFTE license validates a qualification and grants national privileges, the loss of this will have an impact on specific retreat plans or insurance contracts. This could lead to social movements.</p> <p>A European license will guarantee the recognition of LFTE's qualification and experience, that is the best way to allow free circulation of employes between European countries.</p> <p>These arguments go for a LFTE's license.</p>
response	<p></p>
comment	<p>301 <span style="float: right;">comment by: Pilatus</span></p> <p><b><u>Social and Safety</u></b></p> <p>Pilatus operates a formal, fair, transparent and open grading system based on several defined criteria. Seniority is transparent and rewarded fairly based on performance and level of contribution to the company's published goals. There are no extremes of grading or reward and there are no elite / class culture. Due to this openness and fairness, Pilatus has an excellent record of staff contentment and retention. Pilatus promotes this policy because it has proven experience that staff contentment and retention brings significant benefits in the following:</p> <ul style="list-style-type: none"> <li>• Safety through continuity and retainment of knowledge, building on lessons learnt and experience,</li> <li>• Subsequent increased efficiency;</li> <li>• Internal training and mentoring of staff;</li> <li>• Naturally earned seniority and respect;</li> <li>• Enhanced pension rights, bonus schemes, holidays and other perks;</li> <li>• Social harmonization and stability within the company, family and local community.</li> </ul>



response	<p>Member states already providing LFTE licenses could be allowed to continue to do so. Their current pension and insurance schemes could be retained if it solves their “social” issues. Other member states should not be burdened by the negative issues of fellow member states. Rather, those issues should be addressed by learning and adopting the best practises from the worlds Flight Test community that do not have such issues.</p>
comment	<p>326 <span style="float: right;">comment by: <i>Jean-Louis RABILLOUD</i></span></p> <p>Speaking of social impact, what matters is not the number of Members States involved in either Option, but clearly the number of individuals having to change their current practice.</p>
response	<p>—</p>
comment	<p>396 <span style="float: right;">comment by: <i>QinetiQ Trials Engineering</i></span></p> <p><b>Section 2.4.3</b></p> <p><b>Social Impact:</b> The principle driver for licensing appears not to be flight safety, as EASA recognises that existing controls have captured this, but rather the social needs of the existing licensed LFTEs. There is however, no mention of preserving the social status of existing FTEs who have not undertaken formal training but have many years of experience. If these experienced professionals were excluded from the LFTE licensing opportunity these individuals would be impacted personally (status, career and financially), and the flight test organisation may be impacted (cost and time) requiring either to replace these individuals (although experience cannot be immediately replaced) and/or undertake additional training.</p> <p><b>FTE professionals:</b> The philosophy of having a recognised pan European license to demonstrate the high standards and professionalism, and the associated status and financial recognition that should be in place for our profession is applauded.</p>
response	<p>—</p>
comment	<p>399 <span style="float: right;">comment by: <i>Michel GIGOT</i></span></p> <p>§ 2.4.3 Option 1</p> <ul style="list-style-type: none"> <li>- OK with the same medical monitoring for all crew members</li> <li>- opt 1 permit freedom of circulation trough Member States for crew members especially in case of conflict with DOA /POA.</li> </ul> <p>The license stays even if there is contracts' rupture.</p> <p>.</p>
response	<p>—</p>
comment	<p>405 <span style="float: right;">comment by: <i>Eurocopter</i></span></p> <p>Completely agree with option 1</p>
response	<p>—</p>



**2. Explanatory Note and key questions for stakeholders — 2.4. Analysis of impacts — 2.4.4. Economic impact**

p. 11-12

comment	61	comment by: <i>Perlato Patrice</i>
	I'm for keeping the option 1, no license constitutes an obstacle to the free movement of workers because there would be no mutual recognition between holders of DOA/POA.	
response		
comment	121	comment by: <i>ITAF</i>
	<p><i>In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.</i></p> <p><i>In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.</i></p> <p><i>Medical requirements:</i>  <i>It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED"</i></p>	
response		
comment	151	comment by: <i>Thibaud Chalvidan</i>
	Without a license, it would be impossible for us to work beyond our current business. It would be impossible for us to easily change business.	
response		
comment	168	comment by: <i>Deshayes/DGA EV Istres</i>
	The cost of additional administrative burden may be in part offset by the existing licensing system currently in place for pilots, and if the country don't have any organisation for licensing system, the pilot or the LFTE can go to a nearby country in Europe to acquire his license => nothing against option 1, mainly because the license is recognized anywhere in europe.	
response		
comment	209	comment by: <i>Di bianca</i>
	It is not fully relevant to say that that there is an economic gain if there is no more licensing. Licensing give a label that guarantee the capability to be efficient in flight, returning from flight with needed data, collecting the good analyze in flight. Missed flight due to lack of	



efficiency, incident or accident due to error of LFTE can cost a lot to the company and even make it close the door. Diminishing the constraint to be LFTE could tend to duplicate the number of people in flight as it is easier to obtain numbers of LFTE. What would be nowadays the economic impact for a company of an accident over population. Does long term cost are improved without licensing regarding all previous remarks?

response



comment

300

comment by: *Pilatus*

**Economic, Proportional and Safety issues**

The training proposed in CRD 2008-20 is more than excessive and not commensurate with the organisation, type of testing or the complexity of the aircraft under test. Such training is very expensive (direct costs typically US\$ 500,000 plus expenses). Such courses are of significant duration (typically one year) so there is also the issue of loss of productivity while the FTE is away from the company and also social issues while away from the family, etc. In a small company this also significantly increases the load on the remaining staff which can have an effect on morale and safety.

These effects shall have a greater influence on smaller companies who are unable to invest in such excessive and in most cases non-relevant, time consuming training. Small companies may not be able to recruit or retain FTEs as they shall tend towards the bigger companies. Contrary to EASAs belief, this will have a negative effect on social issues, staff recruitment, retention, moral, free circulation of personnel and potentially safety.

Introducing a licensing scheme will only increase the complexity in setting up the licensing scheme and increase the reoccurring administrative and financial burden on all parties involved (industry and the authorities).

response



comment

328

comment by: *Jean-Louis RABILLOUD*

Regarding economic impact, Option 0 would put a burden on the industry, which does not exist today and that non European industries will not be bearing; hence this Option would lead to a competitive disadvantage for European flight test entities.

Conversely in Option 1 most of the administrative burden would be supported by agencies.

response



comment

339

comment by: *AIC owner*

**OPTION NB ONE**

France, Germany, Italy, Spain WHERE LFTE IS NOW. They are friends of mine who got the same License also in 1965: therefore we worked on the same aircrafts, with the same instructors same; who experienced the same Flight tests and more. Our French TOA / EPNER is always open about the other countries

response



comment

397

comment by: *QinetiQ Trials Engineering*

**Section 2.4.4**



**Economic Impact:** It is recognised that Option 1 would result in a economic impact for each member country. This may be prohibitive. It is further noted, that with reliance on an external body to approve our flight test professionals this may impact our ability to deliver capability, with associated economic and reputational consequences

response



comment

406

comment by: *Eurocopter*

lower cost of the option 0 is short term. The option 0 will have impact of test flight cost because by experience, flight are longer and maybe because of higher rate of accident.

response



**2. Explanatory Note and key questions for stakeholders — 2.4. Analysis of impacts — 2.4.6. Impact on 'Better Regulation' and harmonisation**

p. 12

comment

29

comment by: *Andrew Roberts*

The impact of disharmony with countries such as Canada and the USA should not be underestimated.

1. It is important to be able to access a worldwide market for talent in this very specialised area.

2. An increase in regulation in Europe will encourage organisations to conduct flight test work outside of Europe, this will have an economic impact and will not achieve the desired improvement in flight safety.

response



comment

240

comment by: *Carolyn BREEDEN*

Just because other countries do not have a licencing system, this is not a good reason to not have one in Europe. Perhaps the other countries should also be using a licencing system, or equivalent, or perhaps already do (such as the Australian military example), in which case it is a question of harmonising the different systems in place.

response



comment

299

comment by: *Pilatus*

**Impact on Regulatory Coordination and Harmonisation**

The practice of Pilatus is consistent with the current regulations of the majority of the world's Flight Test community which is proportionally greater than the two European member states supporting the idea of LFTE licencing.

response



comment

311

comment by: *Yann FORESTIER*



Page 12 §2.4.6 : Consistency with ICAO : although ICAO does not contain a specific licensing theme for flight test crews, the flight test qualification has been introduced in EASA regulation through the flight test rating for pilots. It is thus relevant to treat the flight test qualifications the same way for all flight crew having an impact on safety. LFTEs are clearly among the crews having an impact on flight safety and flight management.

Option 1 is the only option allowing to deal with crew qualifications for flight tests in a consistent manner with what has been initiated by EASA on the pilots. Crew licensing consistency is a recurrent point in ICAO regulation. It would be incoherent to make a difference between pilots and other crew members' licenses only when dealing with flight tests whereas other crews qualifications are always taken into consideration in the rest of the scope covered by ICAO regulation.

response



**2. Explanatory Note and key questions for stakeholders — 2.4. Analysis of impacts — 2.4.7. Summary of impacts**

p. 12-13

comment

66

comment by: *VAGUE*

From my point of view safety in option 0 is impacted because the present situation is not enough safe for test flights (non-licensed FTE) compare to test-licensed crew.

response



comment

147

comment by: *LEBRE Christophe*

The lack of LFTE professional licence is clearly a brake to the free circulation of the european workers in industries. The industry change for a LFTE will become more difficult as no reference exists.

response



comment

222

comment by: *Zidan REN*

I do not agree that "status quo" of Option 0 has no safety impact. It surely has a detrimental effect in the mid- to long-term.

Should the existing licences phase out, gone with them will be the recognition of the profession, the existing experts and their expertise. Without regulated training and medical that are recognized by a licence, how can EASA/NAA ensure that each DOA/POA applies the same or even an adequate standard when recruiting new LFTEs? I'm convinced that this safety-related responsibility should not given to the DOA/POA level.

In addition, LFTE is crucial to the efficiency of flight tests, which has non-ignorable environmental impacts, while not compromising flight safety.

response



comment

252

comment by: *AIC owner*

**My Name is Jean-Marie Blot**



**Agree with OPTION NB 1 (ONE)**

For the following reasons:

- Necessity of being operational, efficient and able to give a quick answer in a very short time
- Consistency between all the specialists: Aircraft or Equipment Engineer studies and writes Flight test Orders, Pilot executes, Mechanical Engineer handling overtaking parameters and Experimenter records and manages Flight Data. All together on the same Flight, at the same time, in the same place, for the same Goal!
- One should never act "As judge and jury ". The workshop as well as the laboratory of the ground Study Department is, of course, necessary but they are very different from the in-flight Job. This is a fact.
- Health checks under an Official Medical Reference, Reliability of Data assured by an Official Aeronautical Independent Structure, and a permanent availability guaranteed by the EASA are all together the best way to fight against all kind of problems we could have to front.

**And more:****Safety****impact**

- LFTE licensing would promote adequate common standardization level as I worked during my Flight Test career development. And more was, would allow experience being shared, improving flight test safety and efficiency- LFTE licensing be under the responsibility of national competent authorities
- Training and medical fitness be under the responsibility of approved organizations overseen by the NAA
- Experiences show that an identical formation for pilots improves the crew cockpit management resources (**CRM**) and therefore has beneficial influence on safety cooperation the crew cooperation during certification Flight Tests and so reduce time

**Social****impact**

- **Main impact**  
No change for countries that already have LFTE license  
LFTE licensing enable LFTEs to be recognized throughout Europe, freedom of circulation of people
- **Additional impact**  
Improve recognition of crew privilege concerning medical fitness necessities

**Economic****impact**

- **Training costs**  
LFTE licensing with identical formation for CRM, crew cooperation and coordination, will be a need for an ATO (as EPNER in Istres France area) or additional approval structure.
- **Administrative costs**  
LFTE licensing related to the issue of license by the Member State with Flight Testing activity, to establish administrative requirements, may be translated from the state formerly, to reducing these.

**Proportionality****issues**

- Actual situation shows that a minimal impact will be necessary about LFTE licensing activities

**Impact on "better regulation" and harmonization**

- A new necessary amendment would need but wit a new safety, harmonization and freedom of people, for safety and efficiently
- Effectively selected foreign as USA, Canada and Brazil will be in relatively situation, but these countries accept yet their Flight Test crew to follow French ATO into EPNER.
- Hope that a majority of LFTE licensing countries will be the new future of European



Harmonization for Young people. This is my point of view.

#### **My Lead Flight Test Engineer Work Experience**

Lead Flight Test Engineer License (obtained in July 1965).

**5.000 (Five Thousand Flight Test hours) in 20 (Twenty) Years** of Flight Tests in North Atlantic, Africa, USA and South America for the CEV

Certification for DGA (Atlantic Mark2 / DC8 New Motorization)

Certification of Airbus A300 Equipment for CEV

#### **My Invention activities**

Inventor of Rudder forces measurement Equipment without structural modification for Aircraft

Inventor of Accelerometer for Aircraft centrifugal acceleration

Inventor of an Automatic List Control-Command Equipment for submarine

#### **About my career development**

Executive Director of the French Flight Test Unit for Research, Observation and Data Aircraft - AMOR ( "Avions de Mesures, d'Observation et de Recherche/ Etudes") - under responsibility of DGA (Delegation Générale pour l'Armement/ French Delegation of Missiles) at the CEV (Centre d'Essais en Vol / Flight Test Center) of Bretigny – sur – Orge (France).

Executive Director of the of Aircraft calculation Center (for Planes, Astronauts and Telemetry of Missiles)

EADS/ SECA: Technical and Commercial Executive Director of the Aircraft Equipment Department

Other experiences in private companies: SODETECH (surveillance satellites); MORS – Techniphone (GPS receivers for aircrafts); Brion Leroux (armored panels)

Former Reserve Army Colonel

License of Private Pilot

President of PHILOMATHS (Non-profit organization) for Study on Superconductivity and Quantum Theory

Retired since 1996

response



comment

318

comment by: *Anne DUCAROUGE*

In addition to the other impacts, Option 1 is the only option that will allow all the nations to continue working with their current procedures and thus to maintain the present level of safety in flight tests :

- the nations employing LFTEs maintaining a licensing scheme justified by the level of responsibilities required in flight by LFTEs and
- the nations employing FTEs being able to continue proceeding without licenses.

Option 0 could have an impact on safety by decreasing the LFTEs required level of proficiency in the nations with a long experience in flight tests and where LFTEs are the most employed.

response



comment

336

comment by: *AIC owner*

**Option nb ONE**



Harmonization is better than each national DOA/ POA holder.  
Same family, same technical sensibility with same experiment AND same exchange about "risk during Flight Test" related by experienced people.

response



comment

337

comment by: AIC owner

OPTION NB ONE

Some degrees of de-harmonization as foreign countries will have the economic temptation to apply their rules.

Option ONE will STOP any attempt for these.

.

This is my tecnical Flight Test (true experiment point of view I am so sorry!)

response



comment

348

comment by: AIC owner

For all Stakeholders

I agrre with **OPTION NUMBER ONE**

Please read my previous Comments

I am sorry to mix your questions and my comments

Thanks a ot for Your Kind attention concerning my comments.

response



## 2. Explanatory Note and key questions for stakeholders — 2.5. Questions for stakeholders

p. 14

comment

1

comment by: Royal Air Force

Q7 - 7 including myself.

Q8 - All 7.

Q9 - None.

Q10 - None, though 5 of the 7 have successfully attended a category 1 or 2 course at EPNER or ETPS.

Q11 - Option 1. In an industry that is multinational, a common European scheme is necessary; a licensing scheme is my preferred option as it would provide a framework for standardisation of LFTEs in all member states, would greatly improve the ability of LFTEs to transfer between European flight test organisations and would correctly recognise the unique training and skills that are common to LFTEs.

response



comment

2

comment by: Inaer



response	<p>According to CRD 2008-20 flight test categories classification, the following people can participate as flight test engineer:</p> <ul style="list-style-type: none"> <li>- Category 2: 2</li> <li>- Category 4: 5</li> </ul>
comment	3 <span style="float: right;">comment by: <i>Inaer</i></span>
response	0
comment	4 <span style="float: right;">comment by: <i>Inaer</i></span>
response	0
comment	5 <span style="float: right;">comment by: <i>Inaer</i></span>
response	0
comment	6 <span style="float: right;">comment by: <i>Inaer</i></span>
	<p><u>Option 0.</u> No license requirement. Responsibility under DOA holder.</p> <p>‘Lead flight test engineer’ (LFTE) designates a flight test engineer assigned for duties in an aircraft for the purpose of <b>conducting flight tests</b> or <b>assisting the pilot in the operation of the aircraft and its systems</b> during flight test activities.’</p> <p>Here below are our thoughts:</p> <ol style="list-style-type: none"> <li>1. In our opinion, a person unless he is a pilot should operate aircraft controls.</li> <li>2. In our case, we develop modifications mainly with Flight test category 4 and few Flight tests category 2 (less than 5 per year). When for a Flight test category 2, because of the nature of the test, we require a Flight test pilot and additional Safety pilot type-rated in the aircraft. This has been the procedure on STC's where EASA staff were involved. <ul style="list-style-type: none"> <li>○ In addition, for helicopters under CS-27 and CS-29 and for airplanes under CS-23, flight crewmembers compartment are so small that a Flight test engineer cannot physically be in.</li> <li>○ Our Flight test engineers only check that all the flight protocol has been followed according to the Flight testing plan.</li> </ul> </li> <li>3. We think LFTEs can make senses for Flight tests category 1 and for category 2 on new types and for modification for airplanes under CS-25.</li> <li>4. Related to social impact: <ul style="list-style-type: none"> <li>○ One thing to take into account is the age of the individuals affected. If old, less impact.</li> <li>○ A harmonized licensing scheme for Flight tests engineers in category 2 looks</li> </ul> </li> </ol>



response

too pretentious. If we would need a Flight test engineer in this case, we would look for locally. And, finally, we need to take in mind the responsibility is always in the DOA holder.

5. Requirements for Flight test engineers are already stated in the regulation: Flight conditions for a PtF, FTOM requirement, training, medical fitness, etc.

comment

9 comment by: *Al Lawless, Technical Council Chair, Society of Flight Test Engineers*

Answers to section 2.5 question #s

7) I oversee 10 Flight Test Engineers

8) Currently 3 of my FTEs act a Lead FTEs per the EASA definition.

9) I employ no independents and do not consider this to be an acceptable approach for most circumstances.

10) None of my FTEs have an FTE license, nor is one necessary. In this case, however, each FTE has a Commercial multi-engine instrument pilot rating.

11) From my own 29 years of professional experience and in consultation with numerous practicing FTEs and flight test managers, I can only **support option 0** that eliminates FTE licensing in its entirety. While EASA has greatly improved the scope and definitions since the earliest licensing proposals began, the situation still remains that methods of flight testing in Europe and largely around the globe has been increasingly safe and effective using the current approach and does justify the time and expense of any government-issued licensing.

By considering then expressly omitting safety in the recent A-NPA's reasons for licensing, we see that EASA agrees with us that flight test safety is not a driving concern for this effort. Overall, each European flight test organization should address flight test safety processes and flight crew training and qualification via an Operation Manual or similar documents. The authorities need only to review and approve such documents then follow-through to ensure they are enforced.

Regarding the option 1 licensing reasons presented in the A-NPA, any additional consistency with Article 32 is far outweighed by option 0 which retains consistency with basic regulations and with ICAO annex1.

The crux of the proposal seems to center on maintaining status for the few individuals currently operating as licensed FTEs within their countries. The A-NPA suggested the number may exceed 300 but in all likelihood, the number should be considerably less. Considering the few large aircraft flight test programs occurring throughout Europe at any given time, it is highly unlikely that more than a few dozen individuals need to function as Lead FTEs. Certainly many more people could qualify based on test pilot school or other training and experience, but that misses the point: only a modest number of LFTEs are required. Clearly, option 1 proposes to establish barriers that protect the social status of a few highly-qualified individuals. This is hardly sufficient justification to build a completely new European-level of bureaucracy, oversight, and of course cost that must be borne by everyone else. Furthermore, option 1 will undoubtedly confuse cooperation with non-



European flight test organizations and will likely add additional levels of complexity with waivers, exceptions, and government-mandated training, bilateral agreements, etc.

While we strongly urge option 0, we do not object if any single nation maintains and enforces FTE licensing for domestic programs. We have no desire to direct sovereign states how to license their people for domestic work and consider it consistent that they not impose their regulations on other sovereign states. We do not understand why it might, but if in fact option 0 truly affects insurance and pension schemes of our currently-licensed colleagues, we can only trust they will be addressed in a fair and equitable manner. In any case, their social status will remain constant in our eyes.

Yours,  
 Alan Lawless  
 Chief Flight Test Engineer  
 Honda Aircraft Company

response



comment

10

comment by: *Diamond Aircraft*

Response of Diamond Aircraft Industries Austria (DAI) to the A-NPA 2013–16 concerning "Lead Flight Test Engineer Licence"

DAI welcomes the Agency's decision to invite the stakeholders for additional comments to the named topic.

As the largest small aircraft manufacturer in Europe with a worldwide customer base, DAI develops and manufactures small aircraft below 2000 kg MTOM, and is currently developing aircraft above 2000 kg MTOM in Austria under Part-21. Hence the proposed regulation would directly impact DAI in the current and future development of new aircraft.

#### DAI prefers Option 0

#### Justification:

The main reasons given in the A-NPA for introducing a LFTE licencing scheme are:

1. Compliance with ICAO Convention (Article 32)
2. Perceived loss of (social) status of previously licenced FTE
3. Impact on certain national insurance and pension schemes

Concerning point 1, the interpretation of Article 32 leading to a need for licencing LFTE is absurd. Was clarification from the ICAO Council sought with respect of this interpretation of article 32 with regard to LFTE?

Concerning point 2, EASA does not have a mandate by the Basic Regulation to cater to perceived loss of (social) status for certain, limited number of individuals. A perceived loss (compared to a demonstrated loss) can never be a sufficient reason for any regulative changes. In addition, a causal link between a loss of (social) status and decrease in safety was not shown. As such a perceived loss of (social) status must be dismissed as reasons for



introducing regulations.

Concerning point 3, EASA also has no mandate to regulate employment or health/social benefits. EASA itself states the main driver for this A-NPA is an act of social harmonisation. Given the direct responsibility of the Member States for employment and social and health care policies, the European Union only sets out framework objectives and analyses national measures and proposes individual recommendations for Member States.

A more common sense solution for the points 2 and 3 would be for the two countries involved (France and Italy) to adopt their national social care regulations to prevent individuals from potential negative outcomes derived from the loss of their (national) FTE licence, or issue their own FTE licence without enforcing a licencing scheme to other member states.

Neither a legal obligation like the "Basic Regulation" nor an ICAO requirement forces the EU to create additional administrative burden to introduce new licences for LFTE.

The A-NPA correctly states that a (L)FTE plays an important role in the safe conduct of flight test activities. As such, the Austrian CAA published guidelines for conducting flight tests, which include minimum requirements for FTE. DAI adopted these guidelines as part of its approved flight test procedures as early as 2006. As part of these procedures, internal permits are issued to personnel qualified according to these procedures. Since implementation of these procedures, the lack of a FTE licencing scheme, or lack of harmonizing regulation regarding FTE was never identified as necessary to increase the safety of operation.

In addition, a causal relationship between an EASA driven (L)FTE licensing scheme and increase in flight test safety was not shown, nor does it seem likely. Indeed, it is DAI position that a safety benefit is either non-existing or negligible, especially compared to the additional cost.

The task for a safe conduct of test flights lies with the Head of Flight Test (HoFT), and he discharges this responsibility by developing and adhering to approved procedures, initiating training for crew members and carefully selecting the test crew based on test requirement and crew qualification/experience.

It is common practice in the industry to nominate a FTE for a LFTP task only if the FTE has several years' experience in the field. This has been diligently practised within the Flight Test Department, with several department heads using the same, consistent criteria.

It is also common practice to prepare the flight with all crew involved, including the tasks shared between the test pilot and the FTE. In this stage the consequences of the actions performed by the FTE, as well as exit strategies are discussed and the scope of the FTE actions agreed upon by the test pilot and the HoFT (if necessary). During the tests, all actions are performed under the supervision of the test pilot in a challenge-response environment. Good cockpit communication as the basis for a safe and efficient flight test is a high priority of the HoFT on selecting LFTE candidates and assembling the test crew.

All of these measures were carried out in the past and will be continued to be adhered to without an additional requirement, without an additional licensing scheme.

Please refer to the following with regard of the questions for stakeholders posed in the A-



NPA.

7. DAI currently employs less than 10 FTE
8. DAI currently employs less than 10 FTE with LFTE duties, all within the Flight Test Department
9. DAI currently has no independent/freelance FTE. Any freelance FTE would be integrated into and qualified according to the approved DAI flight test procedure.
10. All of the FTE with LFTE duties have a DAI internal permit according to DAI-DOA procedure; none have an authority-issued licence.
11. DAI favours option 0, (it would be better to delete this RMT complete) for reasons stated above.

response



comment

11

comment by: *N. Depinoy*

My preference goes to option 1 since :  
 In terms of flight safety, licensing LFTE will assure common formation and experience since they work in narrow relationship with licensed Pilot.  
 In other terms, it will improve freedom of circulation of people throughout Europe.  
 The loss of a license for a state licensed people may lead to social difficulty for him.

response



comment

12

comment by: *D Cheater*

**Question 7:**

2 persons perform FTE duties at Cat 1-2 and a further 2 work as FTO at Cat 3-4

**Question 8:**

Of the above 1 person would qualify as LFTE

**Question 9:**

None of the above operate independantly

**Question 10:**

The person identified as LFTE is not currently required to be licensed but is trained by ETPS to the recognised standard for Cat 2

**Question 11:**

Option 1 (LFTE Licensing) is preferred as it would provide a level standard of competence recognised by offices in other countries (some in countries which currently require FTE licenses) such that greater co-operation and sharing of FTE resources could be possible on future projects. The cost to the company is perceived as being negligible as internal policies already dictate competence in line with EASA guidelines and a minimum of a Class 2 pilot medical for FTE; therefore the only additional cost would be the licence fee.

The LFTE is often required to occupy the 2nd Pilot Seat on 2 Pilot aircraft and is covering the role of the second pilot with regard to vital actions in emergencies; it would therefore be beneficial for the LFTE to be licensed as meeting a suitable standard in relation to this flight critical role.



response



comment

16

comment by: *Eric CHARLES*

Answer to question 11 : option 1 please. Key points :

1) Flight test engineers ensuring tasks which determine or have a significant influence on the safety level achieved during flight tests must be licensed. The same way pilots are. For the same reasons. So with no additional administrative costs.

2) Who is responsible for people on the ground safety (children in the school playground) ? State or company ? Obviously, the answer is State. That's why, for instance, private pilots are licensed, meaning privileged by State to fly, on conditions : training, physical/psychological shape, exams ! That's why, too, "Flight test engineers ensuring tasks which determine or have a significant influence on the safety level achieved during flight tests" must be licensed.

3) To get a license induces ethics : as far as safety is concerned, being responsible for it towards the State/community. This situation leads to more responsibility, workers and supervisory staff.

Additional points :

4) In the previous years, being a flight test engineer prevented me from raising a loan : insurance was an issue, basic terms excluding "war, flight tests". Being licensed permitted me to get an affordable life-insurance at AGPM, an insurance company specialised in military personnels.

5) The comparison with the USA is not possible : we are so smaller. So only unfair competition is possible. That's why too, we need to ensure safety decks.

response



comment

17

comment by: *Stéphane Pichené*

Answer to question 11 :

Option 1 : I consider that a licence is preferred for LFTEs.

Justifications :

As a test pilot used to fly with LFTEs, I consider that :

- a LFTE has to act on the primary flight controls of an aircraft. Consequently the LFTE must be identified as a primary actor of flight safety, and licenced accordingly.
- a LFTE must be able to give his/her own opinions regarding the results of the flight test he/she realizes. No licence will link his/her judgment to those of the firm he/she belongs to. Hence a licence will provide the LFTE a minimum of independency in judgment, and this is a least guarantee in terms of flight safety.
- LFTE's retirement and insurance involve a licence, as of today regulations. Lack of licence



response	<p>could induce lack of appropriate insurance and will generate social disturbance.</p>
comment	<p>18 <span style="float: right;">comment by: <i>Elias AFONSO</i></span></p> <p>My choice is the option 1 (licence requirement).          Same a flight test pilot, the LFTE contributes to perform a flight test safety.          Without licence, the LFTE will have financial losses and socials movements will be expected.          Without licence, it would not free circulation of LFTE from one company to another. it's not very good to preserve an independence of judgment in this job !</p> <p>Best regards</p>
response	<p>—</p>
comment	<p>19 <span style="float: right;">comment by: <i>Régis GROS (DGA EV)</i></span></p> <p>I'm in favor of option 1 (License requirement).</p> <p>As a Lead Flight Test Engineer, I assume to be a key player in the aviation safety of aircraft operating in an airspace shared with other military and civilian aircraft and overflying people and goods.          Like any crew member, I have the possibility of concerted action on the controllability of the aircraft (for example by changing the flight control laws), the propulsion of the aircraft (eg shutting down or by relighting an engine) or a critical system of the aircraft (for example, pressurization, hydraulic or electric system).          All this is possible after a demanding training as part of a test crew in a world-class school (and soon AFTTO).My FTE license is a national and international recognition of my abilities thus far exceeding the frame of a company, this allows me to consider not limited to a single national company professional development. The absence of a license would result in a recognition limited to the company with the DOA.          Finally, the possession of a license is an expression of social recognition of the expertise acquired at the end of a demanding training leading to a career, a premium of flight and access to retirement additional professional crewmembers.</p>
response	<p>—</p>
comment	<p>21 <span style="float: right;">comment by: <i>French flight test center</i></span></p> <p>For me the option one is the only solution that allows me to continue to work in complete safety and serenity          This is the only solution that can assure me :</p> <ul style="list-style-type: none"> <li>- to be covered in case of accident,</li> <li>- to maintain a high level of knowledge in all aspects of aviation safety (regular and appropriate training),</li> <li>- to attest my physical condition if i have a problem health during a flight,</li> <li>- to be able in my work with my partners to enforce the judgment of my crédibilible</li> </ul>
response	<p>—</p>



comment 22 comment by: DGA EV

I definitely prefer **option 1** because :

1- : If the flight personnel lose their license, they also lose the benefits of salary and pension, which is unacceptable. Complaints, lawsuits and social movements to predict.

2- : I fly regularly in cockpit. My formation allows me to act on organs of flight with safety. It is inconceivable to let untrained people to do this work if there will be accidents.

3- : Without a license, the skills of each individual are known only from their company. Changes in business is so tough, losing their personal freedom of thought, which can affect the security.

**Any other option is unthinkable without risk to safety.**

response 

comment 23 comment by: Gerald Allan Liston

1. Do you have flight test activities in your country as defined in Part-21?  
Yes

2. Do you have a system for licences (or equivalent e.g. rating, authorisations) for crew members other than pilots for the purpose of flight test?  
Please provide the rationale for having (or not) a licensing scheme for crew members other than pilots for the purpose of flight test.  
No. The provision of licences has not been made a requirement by the UK CAA.

3. How many LFTE/FTE licences (or equivalent) do you have in your country?  
None

4. How many people that would qualify as LFTEs are employed by the NAAs  
Not sure

5. Do you anticipate TC or STC activities in your territory in the future?  
Yes

6. If a LFTE licence requirement would be introduced in your country how would you estimate the impact of the additional administrative cost?  
Some of the cost could be offset by use of the syllabus and training resources used by the military flight test organisation. However, the introduction of civilian training infrastructure and organisational oversight would be costly.

7. How many people in your oversight perform flight test engineering duties?  
8.

8. How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?  
3

9. How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)  
1

10. How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?  
None

11. Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.  
0 (see further comment below)



	<p>Option 0 allows for good oversight of the competencies of LFTEs without introducing costly governance which could become burdensome in this economic climate. However, it does not necessarily follow that the member states that issue licences should have to stop. It would seem to me that, if the licences perform a social/economic function as well as providing the qualification, they should be retained in the countries that use them.</p> <p>Some regard should be paid to the competence and engineering capability of flight test organisations so that, if their structures and training is up to standard, their LFTEs should be allowed to operate within Europe.</p>
response	
comment	<p>24 <span style="float: right;">comment by: <i>norbert FRESTEL</i></span></p>
response	
comment	<p>25 <span style="float: right;">comment by: <i>norbert FRESTEL</i></span></p> <p>Attachment <a href="#">#7</a></p>
response	
comment	<p>26 <span style="float: right;">comment by: <i>Olivier Freslon</i></span></p> <p>I am for the option 1  The LFTE participates in the conduct of the flight) as the pilot. He is also an actor of the flight safety. It is for these reasons that the delivery of licenses to the pilot has to apply also also in the LFTE  Without license, an important loss of salary is to be planned. Social movements will be to plan.  The LFTE allows a mutual recognition and a free circulation of the employees. It is also a guarantee on the independence of judgment.</p>
response	
comment	<p>30 <span style="float: right;">comment by: <i>Ryanair</i></span></p> <p>How many people in you oversight perform flight test engineering duties - 6  How many of the people identified in 7 have duties that would qualify them as LFTE - All 6  Hom many people identified operate independently - 0  How many people identified above have a licence, all 6 individuals are minimum PART66 B1 with type approval (no specific licence for TFE)  Option 0  Currently we work to a company procedure that requires PART66 B1 maintenance engineers who participate in MCF to undergo simulator training with senior flight crew authorized for MCF and to carry out 5 MCF under instruction from a PART66 CAT C certifier who has undergone training to provide this instruction. All MCF engineers are assessed for competency and recurrent training every 2 years.  The only operational involvement of our MCF engineers is to select flight control systems off</p>



	during manual reversion test, this is carried out in complete control of the Captain and allows crew to maintain 'hands on' control in case of violent manouever
response	
comment	<p>31 <span style="float: right;">comment by: <i>Andrew Roberts</i></span></p> <p>7. My organisation employs two test pilots, three personnel who could fall under the LFTE definition and approximately 30 people who work as FTEs or are specialists required to participate in flight tests on-board aircraft including those who use systems to modify engine control systems in-flight. Those working in equivalent roles to LFTE all work in the USA where my company chooses to base the majority of it's flight test activities, partly due to the differences in regulatory environment.</p> <p>8. Three personel could fall under the LFTE definition.</p> <p>9. The company employs subcontract Flight Engineers who could also fall under the LFTE criteria although these are currently only active in the USA.</p> <p>10. None currently have a licence. Only one FTE is a graduate of a recognised Flight Test School.</p> <p>11. I do not support the current licencing proposal described by option 1. While I do not object in principal to a licencing arrangements the current proposal will not lead to the desired benefits.</p> <p>It will not significantly lead to freedom of circulation of people due the costs and barriers to access to the training required.</p> <p>The currently proposed training requirements will impose unnecessary boundaries for LFTEs who wish to transfer between part-25 and part-29 aircraft.</p> <p>It will not achieve the desired increase in flight safety for the following reasons; It will encourage organisations (many of which are already working globally) to transfer more of their flight test operations outside of Europe. It will encourage organisations to artificially limit the scope of the FTEs to prevent them working within the LFTE definition or by increasing the use of telemetry for performing a Test Director role.</p>
response	
comment	<p>33 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>My preference goes to option 1.</p>
response	
comment	<p>34 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>To conduct category 1 and 2 flight tests, a LFTE will follow the training course provided by an</p>



response	<p>approved training organization, the same as the ones pilots will go through. The qualification needs to be recognized regardless of the employer. This recognition would be easier and evident through a licensing scheme for LFTE.</p>
comment	<p>35 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>Without a licence, each DOA/POA organization will have its own requirement for training, proficiency check, medical fitness, recognition of seniority. This will render moving from a company to another difficult and result in potential unequal treatments.</p>
response	<p>—</p>
comment	<p>36 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>For safety and proficiency, LFTE, as pilots, need to have a minimum recurrent experience. This is easily achieved through a licensing scheme. Leaving this to each DOA / POA holder may result in significant differences thus potential safety gaps.</p>
response	<p>—</p>
comment	<p>37 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>A licence means a personal logbook. Through this logbook, experience and seniority is easily traced.</p>
response	<p>—</p>
comment	<p>38 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>Since in some member state countries, the pension plan and insurances are already linked to a licence, the loss of such licence may imply a significant economic loss for each individual.</p>
response	<p>—</p>
comment	<p>39 <span style="float: right;">comment by: <i>Thierry Lewandowski</i></span></p> <p>Should LFTE recognition be only through DOA / POA, LFTE's may lose some of their independence of mind as a result of DOA/POA holder economic and program pressures.</p>
response	<p>—</p>
comment	<p>41 <span style="float: right;">comment by: <i>Thierry BIHANNIC</i></span></p> <p>As a flight crew member, the LFTE is involved, during flight tests, in the active conduct of the flight. He has obvious interactions with many systems of the aircraft, especially on test bed aircraft. In so doing, the LFTE is a main contributor in maintaining the required level of safety during the flight. The role of the LFTE and the associated responsibilities as a flight crew member logically lead to a license delivery as for pilots. The licensing scheme is the best way to harmonize and maintain a standard level of knowledge and safety in a flight test crew.</p>



In some countries, insurance and pension schemes are based on a licensing scheme for LFTE. The loss of the license means the opposite of a social advancement (economic impact, social status, professional recognition) for these people.

The delivery of a license for LFTE means an official recognition for all DOA/POA in Member States. Thus, it will facilitate free circulation of these LFTE's, avoiding problems with mutual recognition from foreign authorities.

response



comment

42

comment by: EUROCOPTER

### **Eurocopter answer to ANPA 2013-16 LFTE license**

Q7. How many people in your oversight perform flight test engineering duties? **For Eurocopter in Europe: 43 people (28 Class 1).**

Q8. How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)? **For Eurocopter in Europe: 43 people.**

Q9. How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers): **For Eurocopter in Europe: 0 people.**

Q10. How many of the people identified in 8 (as LFTE) have a license (or equivalent)? **For Eurocopter in Europe: 26 people.**

Q11. Please indicate which of the options 0 or 1 (license requirement) is preferred and provide a justification for your choice. **For Eurocopter: Option 1 preferred.**

Justification:

#### **Regulatory aspects:**

The regulatory framework and its consequences are well detailed in the ANPA text. Nevertheless, the definition of LFTE and the understanding of the significance of the function during flight test occurred during the work of the Flight Test Rulemaking Group (MDM.003). Therefore, it is not surprising that the Basic Regulation did not foresee the need for licensing such a category of flight crew when it was written. On the other hand, article 32 of Chicago Convention is requesting that "the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses". The LFTE is performing activities in flight that are essential considering the possible impacts on the safety of the flight. Two examples: the LFTE is the one in charge of shutting off one engine or injecting failures in the flight controls. In this aspect, they are fully in line with the definition of a crew member as per Annex1 to Chicago convention: "Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period"

#### **Coherence with other requirements:**

Part 66 maintenance and Air Traffic Controllers hold a European license as these categories are recognized as essential for the safety of Air Operations in Europe. During a flight test it is of highest importance to decide if the results permit to continue or if there is a concern leading to cancel following test point. This decision is taken by a common agreement between the test pilot and the LFTE. LFTE, as essential flight crew members should be licensed as the test pilots.

#### **Standardization:**

Although training requirements will be set in Part-21, the licensing will allow a better harmonization and standardization of training. In particular, training could be done in an



approved Flight Test training organization together with pilot training for better efficiency. Another area of concern for manufacturers are medical requirements as they are vague and might be interpreted differently leading to possible conflicts with employees in case of disagreement. The licensing would allow using the applicable requirements and existing national structures in accordance with Part MED.

**Cost aspects:**

As test pilots are already licensed, the additional cost aspects for the licensing of LFTE would be marginal for our industry.

**Social aspects:**

The loss of license for those LFTE already holding one as required by national regulation is likely to create social tensions as some important items are linked to the license (pension scheme, loss of license insurance, etc).

response



comment

47

comment by: P.Malot

Please find below my answers to the requested comments from A-NPA

*2 - Questions for all other stakeholders (page 14) :*

*7) How many people in your oversight perform flight test engineering duties? **Comment** :* approximately 30 persons

*8) How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)? **Comment** :* 10 persons

*9) How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers) **Comment** :* 0 persons

*10) How many of the people identified in 8 (as LFTE) have a licence (or equivalent)? **Comment** :* 100%

*3 - Question for all stakeholders (page 14):*

*11) Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice **Comment** :* the best option is One (1) for the following reasons

- The LFTE will require (and this is a good point for safety and efficiency in the job) a significant flight test training to operate in the 4 categories, but mainly in Cat1 and 2. This requires from the company a major investment (time and cost), and for the candidate also (new job, medical constraints, personal investment, ...). Then this invest should be certificated (like engineers graduated by a national certificate process). For those reasons and because of the competences preservation needs, the licence is the best way to reply them.
- The licence permits an official recognition independently of the Member States, especially for the freelancers. It will facilitate free circulation of these LFTE's. avoiding problems with mutual recognition from foreign authorities. Into the same country, this recognition will help the LFTE to move from one company to another one.
- With a licence, the preservation of the (minimum required) LFTE competences is independent of the employer, and the tentative of training cost reduction.
- To maintain the level of knowledge and safety requirements in a flight (test) crew,



- competences shall be harmonized with the same rules. These rules can only be guaranteed by a national authority process through a LFTE licence.
- Where insurance and pension schemes of the flight test engineers are linked with a national licence process (Italie, France), the LFTE licence is important to avoid economic and social difficulties.

response



comment

48

comment by: *LESCAUDRON*

Question 11 :

I prefer the option 1

How can I keep my way of mind if my LFTE status is recognize only by my employer on a list under his DOA? Today with my French license, if I don't agree with DGA-EV philosophy on certification/qualification, test results interpretation, I feel free to say it, as at any time, I can try to find an LFTE job in another company or governmental institute recognizing the EPNER diploma.

As LFTE and during some specific flight tests, we need to operate some aircraft commands that could have a direct impact on the safety of the flight (i.e. modifying weight and balance, simulating engine power failures...). As actor of the flight safety, I think that we need to have a license like pilots, flight test pilots, cabin crewmembers and airspace controllers.

Today, part of my appointment/pension fund is directly link with my French LFTE license. Without this license, it could have an impact on the possibility for me to continue to have the benefit of this pension fund.

response



comment

49

comment by: *Thierry Lewandowski*

When you want to board a test aircraft at a busy airport, pilots with a licence will clear security way faster than engineers without licence will. This will result in extensive delays and extra burden in a day's work.

response



comment

50

comment by: *JEAN-FRANCOIS DETHIER*

**question 11:**

My choice is option 1 and my justification is :

*-The LFTE being in the loop operation of the aircraft, and it involves the safety of the flight. Therefore, it must have a license justifying his skills as well as the pilote.*

*-In the country where I serve navigant of professional civil trial, a license is required to benefit from the devices retire and insurance. A significant portion of my salary also depends on the license.*

response



comment

55

comment by: *Bernardino Paggi*



Question #11: my preferred option is "Option 1" with the following justifications:

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of*



*pilots.*

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

*Medical requirements:*

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED"*

response



comment

56

comment by: JAULT

## 2.5 Questions for stakeholders

Questions for all other stakeholders:

7 How many people in your oversight perform flight test engineering duties?

Answer : **30 to 40 depending on activities**

8 How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?

Answer : **10**

9 How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)

Answer : **0**

10 How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?

Answer : **10**

## Questions for all stakeholders

11 Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.

The best option is **1**

Comments

1. The main objective of a LFTE license is to ensure a dedicated and common course and rules for each LFTE, whatever the organization or country is . That mean's European recognition

2. This license will permit to a freelancer LFTE or a LFTE working for an international program/organisation to get the competences (safety and technical aspects) matching with the flight cockpit crew needings. "*The LFTE has to conduct flight tests and/or assist the pilot during the flight...*"

It's necessary to avoid a lot of different experiences /training between the flight crew depending on the countries or organization objectives.

3. A license is the best way to control the experience level, the training and the medical



capabilities of each LFTE in all the countries/companies.

4. For the safety, a common course for pilots/LFTE and a common licensing scheme will avoid misunderstanding of the flight crew.

5. Today, wages and insurances are linked to a license ownership. If not , it will entail a significant loss of means for each flight test engineer  
Lost of licensing scheme for LFTE promise a social dislocation in some countries.

response



comment

57

comment by: *Patrick Bouchare*

OPTION 1

It seems abnormal that a person can participate in test flights, even to participate in the development during flight of aircraft prototype, without possessing a qualification and navigator's License. What is going to be the reaction of the insurances?

response



comment

62

comment by: *Perlato Patrice*

I prefer the option 1 because the LFTE is a major actor in aviation safety as well as the pilot.

response



comment

63

comment by: *herve PICARD*

question7 : 15 people

question 8 : 15 people

question 9 : no body

question 10 : 15 people

question 11 : option 1 is preferred --> The lead flight test engineer is on the order of aircraft and participated in the conduct of the flight as well as the pilote. He is an actor of aviation safety.

response



comment

65

comment by: *VAGUE*

Q7: more than 20

Q8: all of them

Q9: 1 to 2



Q10: all of them: they have followed a specific and graduating training under strict national regulation to get a specific degree (licence equivalence) for Test Flights.

Q11: Option 1 (licence requirement) must be validated. Test flights are specific flights, under particular procedures (not covered by JAR-OPs or EASA-OPS) because AC or equipment behavior are hardly predictable during those flights. You must dedicate a test crew and not only a licensed test pilot but a full licensed crew (pilot, engineer, ...) in order to ensure safety and efficiency.

response



comment

68

comment by: *Eric Chauffeton*

### **ANSWER FOR QUESTION Nr 11**

I am for the option n°1 for the following reasons :

1. Within the framework of the flight tests on aircrafts multi-seats such as made to DGA EV, the LFTE can be brought to act on the main commands of the aircraft in test like engines or propeller commands, and also participates in the conduct of the flight just as much as the pilot. He is a key figure of the flight safety in flight test and all the reasons which preside over the delivery of licenses for a pilot apply actually also to the LFTE.
2. The French companies of insurance and the pension fund of the crew like CRPN, for which I pay the contribution for several years, require from us to have an aeronautical title of civil professional crew. Without this license, we would undergo an important loss of our income (until less 50 %) and social movements of the category of staff of whom I am a member, will be inevitable.
3. The absence of license would constitute an obstacle in the free circulation of the employees because there would be no mutual recognition between holders of DOA/POA and the change of company employer would be made difficult. Besides, the current freedom of movement allows to guarantee a certain independence of judgment which goes to the sense of the flight safety.

response



comment

69

comment by: *Denis PETIPAS*

According to my experience (16 years as a flight test engineer on national and international programs), option 1 is preferred for Europeans LFTE, for the following reasons:

1/ In several European countries, LFTEs are part of flight test crews, as pilots. As mentioned in §2, page 6, they are "assigned for duties" for flight tests, and they are able to operate flight control systems. In this idea of flight test activities, LFTEs have a key role in flight safety, like pilots, flight engineers, or air traffic controllers. Their activities are fully in the spirit of "licensing activities" described in ICAO annex 1. That is why they shall have a license.

2/ A license for LFTEs will be a good guarantee for a common formation and continuing training. Formation with pilots in a FTTO will give them the same technical knowledge, and crew working methods. This common culture will guarantee efficiency and safety,



response

particularly within international flight test crews.  
 3/A license is also a proof of skillness, independant from a DOA/POA. It gives them more freedom for technical objective opinions, and free movement throughout Europe.  
 4/ At least in France, a license is necessary to subscribe special insurances insuring flight test activities, and to contribute to a specific pension fund.

comment

70

comment by: Massimo Longo

Answer at **Question N. 11: OPTION 1** preferred for the following justifications:

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex 1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 23 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight*



safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

71

comment by: Marco MONTORFANO

I support Option 1 (ref to question # 11) for the following reasons:

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of



today derogatory regime knowing that flight tests are conducted within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the A-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For **AgustaWestland** this represents **21** people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

*Medical requirements:*

It has to be pointed out that medical requirements as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

72

comment by: **Walter Moiola**

I support Option 1 (question n. 11).

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems



*(e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*

response



comment

73

comment by: *Alessandro BRUSA*

*I’m personally convinced that the Option 1 is the only solution that will allow to preserve the elevated standard and level of integration reached by the flight test crews operating nowadays in the main european aeronautical companies.*

*A\_ NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the*



*aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*As explained in the A\_NPA A LFTE is potentially in control of safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems) and is his duty to monitor critical parameters during the flight test activity, taking active part in the process of evaluating the limits of the aircraft, which could lead to the interruption of the ongoing planned test sequence.*

*Therefore LFTE function is essential regarding flight safety. Consequently LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

response



comment

74

comment by: Fournier

Answer to question 11 is that option 1 is preferred main reason being compliance with Chicago Convention and Flight Safety aspects:

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International



Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rules, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party taking proceeding in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ? Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an unacceptable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

Cost aspect:

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots, ATO and PART66 maintenance engineers. For member states for which no LFTE are foreseen (either no flight testing activities or only FTE acting to conduct flight tests) there will be no cost impact.

response



comment

75

comment by: SAAB

**Questions and Answers from Flight Test Organisations within SAAB AB**

**7**

**Question**

How many people in your oversight perform flight test engineering duties?

**Answer**

SAAB has about 100 Flight Test Engineers. SAAB conducts flight testing of fighters, commercial aircrafts, derivatives of commercial aircrafts and UAV's.

**8**

**Question**

How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?



**Answer**

At SAAB flight test engineers never act as commander, the pilot always has the final word concerning issues that can affect flight safety. In this aspect, we do not have any LFTE. Although SAAB has several test engineer acting close to the definition.

9

**Question**

How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)

**Answer**

All Senior Flight Test Engineers are employed by SAAB.

10

**Question**

How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?

**Answer**

SAAB has a well defined Test Engineer Authorization Program including courses, on the job training, self studies, job rotation and international assignments. The program includes 3 steps – Test Engineer, First Test Engineer and Senior Test Engineer. Each step gives the Test Engineer specific authorities. About 80% of our test engineers have an authorization, and about 30% has the highest level (Senior Test Engineer). This is a way to include all flight test engineers in work with flight test safety. It is an important way to keep up flight test safety awareness among all engineers involved in flight testing.

11

**Question**

Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.

**Answer**

SAAB recommends option 0, with the following justification:

Flight Safety is based on the total competence within a flight test organization. By having a well defined in-house authorization program, the total competence concerning flight safety issues is high. This in combination with a process including flight safety review groups, a high level of flight safety is achieved. By working according to these principles, SAAB has approval to perform flight test activities from EASA and FLYGI. This is granted by inspections from mentioned authorities

response



comment

77

comment by: *piaggioaero industries*

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article*



32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Piaggio Aero Industries this represents 5 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.



response	<p style="text-align: center;"><i>Medical requirements:</i></p> <p><i>It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”</i></p>
comment	<p>78 <span style="float: right;">comment by: <i>Christian LE MILLIER</i></span></p> <p><b>Answer to the question number 11.</b></p> <p><b>The choice is the option 1 (licence required).</b></p> <p>The LFTE assists the pilot in the operation of the aircraft and its systems during all flight test activities. In case of problem for any reason, the LFTE must be able to fly the aircraft for the safety of the crew until the resolution of this problem, landing included.</p> <p>With a licence, a LFTE will have more opportunities if he wishes to find another company and or another employer in any European countries, either private companies or public administrations. The licence guarantees an independence of judgment which strengthens the consideration of all the elements of safety.</p>
response	<p style="text-align: center;"></p>
comment	<p>79 <span style="float: right;">comment by: <i>RATELET-FTE</i></span></p> <p><b><u>questions 8 for all other stakeholders :</u></b> 10 persons would be qualified as lead flight test engineers</p>
response	<p style="text-align: center;"></p>
comment	<p>81 <span style="float: right;">comment by: <i>RATELET-FTE</i></span></p> <p><b><u>questions 9 for all other stakeholders :</u></b> 0 (zero) person identified in <i>question 8</i> operate independently.</p>
response	<p style="text-align: center;"></p>
comment	<p>82 <span style="float: right;">comment by: <i>RATELET-FTE</i></span></p> <p><b><u>questions 10 for all other stakeholders :</u></b> 10 persons identified in <i>question 8</i> (LFTE) have a licence, i.e 100% of people performed flight test engineering duties qualified as LFTE have a licence.</p>
response	<p style="text-align: center;"></p>
comment	<p>83 <span style="float: right;">comment by: <i>DGA Essais en Vol</i></span></p> <p><b>OPTION 1 (Licence requirement) is preferred.</b></p>



**Operation and aviation safety**

The ICAO annex 1 specifies that each person in an aircraft that has a function which could affect the aircraft safety must have a licence.

The LFTE acts on the main controls of the aircraft and in the conduct of the flight as much and as fully as the pilot.

He has a leading role in the aviation safety and the very same reasons that govern the licensing for a pilot have also to apply to LFTE. A function on board provided by a person without a license would seriously undermine the work of the crew and will impact the aircraft safety.

**Social difficulties**

The national systems of insurance and pension require having an aeronautic title of civilian professional navigation crew.

Without this license, the individual will suffer a significant financial loss and social movements are likely to occur.

**Professional recognition and independence**

The absence of a license could constitute an obstacle to the free movement of employees because there would be no mutual recognition between holders DOA / POA and a change of job or a change of firm would be made very hard, indeed impossible.

Moreover, the current freedom of movement enables the guarantee of a certain independence of judgment that is in keeping with the guarantee of aviation safety.

response



comment

86

comment by: Piermarco Luotti

About question 11 I'm favorable to option 1

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight*



test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Agusta Westland this represents 21 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

87

comment by: RATELET-FTE

**Question 11 for all stakeholders :**

**OPTION 1 (licence requirement) is preferred for LFTE**

Each LFTE involved in all CATs(1 to 4) flights must have a licence, even for FTE.

Here, Below why :



1. Why a licence : harmonize at the European level the conditions of presence, Rules which defined a LFTE, so that an any operator, in any European country, can follow the same rules of harmonization of Skills of a LFTE.
2. Training(Formation)
  - is essential because allows to return the teams of more efficient tests in economic term and productivity => efficiency of the flights. Training implies a license.
  - Training : to conduct tests flights, a LFTE has to follow an approved and appropriate training course, as it will be for pilots This training has to be recognize by all (employer, DOA/POA organization at each level). The best way to be recognize by all is to have a licence for LFTE.
3. Licence => the same terminology within the trial crew(equipage).
4. efficiency of the flights
5. Necessity of an independent follow-up which allows to verify the preservation of the skills of a LFTE ==> for that a licence is necessary
6. The LFTE has actions on the driving of tests, it is necessary to know year after year the skill level of the LFTE in an independent way, a license allows this independent entity to make him(it)
7. With licence, the minimal requirement of preservation of skills of LFTE will be European, and linked to a European independent entity.
8. Licence: the minimal level required for the licence (medical training, preservation skills, etc...) is set by an independent European agency, and is not determined by each DOA/POA organization, which can put its own minimal level without coherence to each other.
9. Licence : experienced and seniority are well easily traced and accepted by all
10. Free circulation of LFTEs: The same skill level (training, medical), the same requirements for qualification.
11. Social aspect : pension plan and insurance is already linked to a license in some member state countries
12. No reference to flying test-bed aircraft. Need of crews with coherent training and skill with Coherent crew – training / safety, because this sort of aircraft is Unique and specific aircraft with specific test equipment and instrumentation (Specific test rig => it is not a certified plane but tests have to be made)
13. Moreover, implementation a pilot licensing scheme, as stated in §2, item 1 page 5 was linking with the training required and is not specific to the organization for which the pilots works. For the same reason, LFTE involved in all categories (cat 1 to Cat 4) must have a licence.

response



comment

88

comment by: du da pic

**About question #11 I'm favourable to option 1**

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a*



*licensed crew member charged with duties essential to operation of an aircraft during flight duty period". It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is "every day" practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Agustawestland this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

**Medical requirements:**

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED"*

response



comment	<p>89 <span style="float: right;">comment by: RATELET-FTE</span></p> <p><b><u>questions 7 for all other stakeholders :</u></b> near 30 persons perform flight test engineering duties.</p>
response	<p></p>
comment	<p>93 <span style="float: right;">comment by: Stefano Rognoni</span></p> <p>My personal position related to question 11 (which of the options 0 or 1 is preferred) is 1. I think that a formal LFTE licence is required. Below the justifications: <b><u>Compliance to Chicago Convention:</u></b></p> <p><i>A_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.</i></p> <p><i>Moreover, as explained in the A_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.</i></p> <p><i>Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?</i></p> <p><b><u>Social aspects:</u></b> <i>Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.</i></p> <p><i>It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.</i></p> <p><i>Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation</i></p>



was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED

response



comment

94

comment by: AgustaWestland

About the question n° 11 my position is favorable to the option 1.

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of



today derogatory regime knowing that flight tests are conducted within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Company Name this represents 21 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirements as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED"

response



comment

95

comment by: **BARDON**

I choose option n°1

To realise some actions which could be "critical actions" when in board in any aircraft, it is indispensable to have followed the adequate training. I am convinced that only the fact to have an European license would guarantee that a graduated LFTE will be compliant with the training level required.

Best regards.

response



comment

96

comment by: **Tiziano DONIZETTI**



Answer to question N° 11: Option 1 for the following reasons.

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Agustawestland this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of*



pilots.

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

*Medical requirements:*

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”*

response



comment

97

comment by: Massimo CAZZANI

**I'm quite favourable to option 1 for licence requirement.**

*“Compliance to Chicago Convention:*

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

*Social aspects:*

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.*



*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

*Cost aspects:*

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

*Medical requirements:*

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”.*

response



comment

98

comment by: *Andrea Manera*

About question number 11 I'm favourable to option 1 (licence required).

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state,



it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.

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**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

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**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED.

response



comment

99

comment by: *Luigi CHIODINI*

Answer to question 11: Option 1 (Create a licensing scheme for the LFTE), for the following reasons.

**“Compliance to Chicago Convention:**

*A\_ NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the*



aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

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**Social aspects:**

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Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.



*Medical requirements:*

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED"*

response



comment

100

comment by: *Claudio Filippini*

Answer to question 11: option 1 for the followin reasons.

**"Compliance to Chicago Convention:**

*A\_ NPA20013-16 definition of tasks and duties of LFTE "assisting pilots in the operation of the aircraft and its systems" show that LFTE is an "operating crew member" according to article 32 of Chicago Convention. The Convention is requesting that "the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses".*

*Moreover, as explained in the A\_ NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : "Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period". It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is "every day" practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*



Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

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In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

101

comment by: **Bram**

I'm in favor of option 1 for the same reasons given by my AW colleagues:

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International



*Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AGUSTAWESTLAND (ITALY) this represents 21 people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

**Medical requirements:**

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”*

response



comment

104

comment by: Marco Bertoluzza

Q:11

The introduction of a licensing scheme, resulting in a common ground for the LFTE training throughout the different companies, will generate a standardization of procedures and



terminology used during flight tests, thus greatly contributing to Crew Coordination and therefore to safety.

Further to that, from the A-NPA discussion it appears that the ratio Costs/Benefits is in favour of option 1, as the only cost involved (administrative cost for the national authorities) is probably very limited.

On the opposite, with option 0 the individual cost for all the presently licensed FTEs can be high, in the form of loss of social status as well as pension status.

I am thus strongly in favour of Option 1.

response



comment

106

comment by: *Meignien - DGA EV*

Question 11 : Option 1.

The rationale is that crewmembers other than pilots can perform safety-critical tasks during flight tests. Such task can be the operation of critical systems and/or controls. It can also be the fact of being the "test conductor" (or "test director"). In this case, the non-pilot crew member has to take decisions that can affect the safety of flight, such as changing the parameters of a test point (altitude, airspeed, configuration, ...) or choosing to continue vs abort a test flight. When looking at flight test mishap reports, it is obvious that FTEs play a key role in the safety of flight. Annual SETP (society of experimental test pilot) symposiums count numerous lectures relating to "the test conductor being the main contributor to avoid -or contribute to- the mishap". One exemple would be the crash of a B1 during flight test (near Edwards AFB, USA) because the crew (which included an FTE) forgot to reconfigure the sweep angle of the wing before changing the weight balance (through fuel transfer), with the FTE forgetting to check the configuration of the wing before acting on the sweep angle.

If an LFTE can act on such critical controls, his/her qualifications needs to be properly validated.

If an LFTE is performing the test conductor duty, he/she has to check that none of the other crewmember (pilots, flight engineer if any, loadmaster, and any other technician aboard) is performing an action that is either dangerous in itself or dangerous because of its potential interactions with the actions of other. Also, if an LFTE has the authority ot modify the flight profile for real-time optimisation of expensive flight time, the rest of the crew must get assurance that his/her decision won't affect their safety. This is done through recognition of proper training, ie. licensing.

Also, flighth test licensing allows LFTE to act in various organizations (gouvernement, civilian or military, industries) without having to go through additional training once their license is validated. This is essential for employability of test crew, but also to help organizations recruit the right people.

To sum up, LFTE licensing is paramount both to flight test safety and for free ciruclation of workers (which benefits both recruiters and employees).

response



comment

107

comment by: *Michele Riccobono*

From my perspective as the AgustaWestland Italy Head of Flight Test Operation, I can personally report the following situation for the AgustaWestland Italy and Uk organizations:

7. How many people in your oversight perform flight test engineering duties?

38 in Italy  
9 in Uk

8. How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE) ?

38 in Italy  
9 in Uk

9. How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)

None in Italy  
3 in Uk

10. How many of the people identified in 8 (as LFTE) have a license (or equivalent) ?

38 in Italy  
2 in Uk

response



comment

108

comment by: *Michele Riccobono*

Considering question no. 11, I'm in favour of Option 1 for the following reasons explained herebelow.

### **1. Compliance to Chicago Convention**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to



Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**2. Social aspects**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland Italy this represents 38 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**3. Cost aspects**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**4. Medical requirements**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

113

comment by: *Fabrice CRESSIOT*

Question 7 : around 100  
 Question 8 : around 25/30  
 Question 9 : none  
 Questin 10: all  
 Question 11: option 1 is preferred, as



- licencing as experienced in the entity is a baseline of the flight Test safety: its ensures
  1. that the FT crew has a common level of understanding of the safety consideration,
  2. it allows a real sharing of FT tasks, including actions on commands & throttles, application of emergency check lists, actions on critical functions (armement delivery, modification of control laws, engine shut down actions...)
- it already exists in my organisation:it will guarantee to keep the same social status, important not only as individual, but also for the way FTE is considered/includes as crewmember onboard (in my entity and also when participating to FT in industry).

response



comment

114

comment by: Cayuse

My answer to question 11 is Option 1 for the following reasons:

**Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For*



AgustaWestland this represents 21 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

*Medical requirements:*

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED

response



comment

119

comment by: *Berard Gilbert*

Attachments [#8](#) [#9](#)

**Je choisi l'option 1**

**I choose option 1**

Résumé du commentaire/CommentSummary

Formation /Training

- Formation diplômante et qualifiante reconnue, faite dans des centres agréés.
- [Recognized training given in appropriate centers and leading to a qualification and a diploma.](#)
- Formation au Travail en équipe, partage des compétences entre ces membres.
- [Training for team work and skills share between members.](#)
- Prise en compte des particularités du travail, d'essais en vol.
- [Consideration of flight tests specificities.](#)

Sécurité/Safety

- Harmonisation des formations.
- [Trainings harmonisation.](#)



- Exigences médicales standardisée.
- [Standardized medical requirements.](#)
- Travail en équipe : confiance et cohésion, efficacité, évite toutes les ambiguïtés sur qui fait quoi en essais en vol.
- [Team work: confidence and cohesion, efficiency, which avoids any ambiguity about who does what un flight tests.](#)
- Répondre aux critères de l'OACI pour les vols d'essais pratiqués hors UE. Justification légale de la composition des équipages auprès des autorités aéronautiques **et judiciaires** des pays concernés.
- [Respond to OACI criteria for non EU flight tests. Legal justification of crews setting towards aerospace and judicial authorities of concerned countries.](#)
- Eviter le traitement minimaliste des essais en vol
- [Avoid minimized processing of flight tests.](#)

Social/Social

- Reconnaissance des qualifications.
- [Qualifications recognition.](#)
- Droits du travail et libre circulation.
- [Labor laws and freedom of movement.](#)
- Indépendance vis-à-vis de l'employeur.
- [Independence towards employers.](#)
- Accès aux systèmes d'assurances spécifiques (perte de licence..).
- [Access to specific insurances \(loss of license\).](#)
- Accès aux caisses de retraites spécifiques.
- [Access to specific pension funds.](#)
- Eviter que cette nouvelle réglementation orientée certification soit discriminatoire par rapport aux essais en vol de recherche et développements.
- [Avoid this new regulation, certification oriented, being discriminatory for research and development flight tests.](#)

Economie/Economic

- Si le pays possède déjà une activité aérienne, le cout sera celui de l'adaptation de l'existant, donc non significatif. Le principal cout sera celui de la formation, mais laquelle ? l'option 0 n'est pas claire sur la formation et sur qui fait la formation (qui forme les formateurs ?).
- [If the state already has an aerospace activity, the additional cost should only be an adaptation of existing resources. The major cost would be the one of the training, but which training ? Option0 is not clear about training and about who gives the training \(who trains the trainers ?\)](#)

Salutations/[Best regards](#)Pièces jointes/[Attachements](#)

- Commentaires en Français
- [Comments in English](#)

response



comment

123

comment by: *Carlo Alberto Pellacani*

These are the answers to the questions asked on pag.14:

Question 7: 32 (thirtytwo) people

Question 8: 5 (five) people



Question 9: 0 (zero) people

Question 10: 2 (two) people

Question 11: **Option 1** is definitely the **preferred one**. In fact, in addition to the positive aspects supporting option 1 as described in the A-NPA, such as the improvement of flight test safety and efficiency or the training standardisation (pag. 10), the following other two points can be considered in favour of option 1:

a) A LFTE licence although it shall obviously be based on the civil (EASA, or FAA-like) regulations, it will have to be held also by those (L)FTE working on military programs (that's my case). This will allow a non-negligible exchange of expertise and know-how between the military and civil aviation fields. Consider for example the amount of research that has been done in the past for the design and test of military radar, and that has been transferred to the civil aviation. The transfer of know-how from civil to military was and will be also equally important. On the contrary, option 0 would very likely reduce the possibility of moving FTE-related knowledge and resources from civil to military aviation and vice versa.

b) The test pilots, also those testing military aircraft for aircraft manufacturers, operates with a civil licence. Thus, only if Option 1 will be chosen, any duty or privilege of a LFTE role (as to 'assist' the pilots and perform 'critical' actions, pag 6 of the A-NPA) would definitely result more compatible with the test pilot job. In other words, it would be surely more sensible that the crewmember that operates some critical aircraft systems (LFTE) has a qualification (i.e. licence !) that shares officially (and legally !) the same 'bulk' of knowledge, as the one that flies the aircraft (test pilot).

In addition I strongly support the considerations, already shared with my Italian and French colleagues, that can be summarized as follows:

*“Compliance to Chicago Convention:*

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air*



traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

Social aspects:

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Company Name this represents

2 people, and in the near future shall be a total of 5.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

Cost aspects:

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

Medical requirements:

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

124

comment by: ENE Gaël RAYBAUD

My choice is the option 1 (licence requirement). Same a flight test pilot, the LFTE contributes to perform a flight test safety. Without licence, the LFTE will have financial losses and social movements will be expected. Without licence, it would not free circulation of LFTE from one company to another. it's not very good to preserve an independence of judgment in this job ! Best regards

response



comment

125

comment by: Laurent HEMERY

Question 7  
200  
Question 8  
60  
Question 9



	<p>0 Question 10 60</p> <p>Question 11 Option 1 is preferred. By its definition, the LFTE interferes with the aircraft basic systems and therefore has an active part in the flight test safety. The LFTE official definition is not only words, I can daily witness by my own or other's experience that LFTE are managing systems (from basic radio up to engine shut-down) which could impair safety if not done correctly. A licence would secure the requested skills of LFTE.</p>
response	
comment	<p>128 <span style="float: right;">comment by: marc CHEVALLIER</span></p> <p>According to me, <b>option 1</b> (licence requirement for LFTE) is with no doubt the one to be preferred.</p> <p>As a Lead Flight Test Engineer working for French MOD, I sometimes take part to flight tests performed on aircraft where LFTE has an action on the aircraft behavior (action on engines, action on flight controls, action on radio frequency changes, action on FMS/Navigation system...), and as a matter of fact, I also have an action on flight security. As we also perform flight tests on two-seated aircraft, we participate to the management of the aircraft during flight tests, and we may be required, in case of over load of pilot or even health problem, to actively assist him to manage the aircraft (we are regularly trained to basic piloting of aircraft and most of us are private pilots with many flight hours). This shows that LFTE actually take part to flight security generally speaking, and as all the actors of flight security working in a common airspace with general aviation (pilots, air traffic controllers...), LFTE are to be licenced.</p>
response	
comment	<p>129 <span style="float: right;">comment by: marc CHEVALLIER</span></p> <p>According to me, <b>option 1</b> (licence requirement for LFTE) is with no doubt the one to be preferred.</p> <p>If option 0 was to be preferred by the majority, DOA/POA of LFTE's organisation would be responsible for LFTE's nomination, qualification and training. In that case, I see two main problems :</p> <ul style="list-style-type: none"> <li>- 1/ As the LFTE's qualification would only be acknowledged by his own DOA/POA, means of professional evolution within another DOA/POA organisation would be much more difficult than in case of option 1 with licenced LFTE acknowledged by all European countries. This would not contribute to LFTE's professional background/experience improvement and motivation, and in a sens would also limit security improvement.</li> <li>- 2/ LFTE of a given organisation would also have less independence of judgment : knowing that his qualification would not be acknowledged outside his organisation, LFTE of a given organisation could fear to be fired and not being able to find a similar job within another</li> </ul>



organisation if not in agreement with his superiors. This is actually a matter of security in flight tests field...

Still in case option 0 was to be preferred, I have trouble figuring out how a certification crew with both state and private organisation crew members would work in flight if the private organisation had no LFTE in its organisation. Indeed, what kind of qualification would be required for a state LFTE flying on a certification flight performed with a prototype aircraft belonging to a private organisation ? Even if private organisation had LFTE in its staff, would a state LFTE flying on a certification flight require qualification acknowledgement of DOA/POA of the private organisation ?

response



comment

130

comment by: Florent6185

As a flight test pilot, I prefer option 1. This choice is necessary to give to the crew not only a **standardization** for working together wherever you have to fly but also a guarantee of **safety** for difficult flights when a single pilot can do the job alone.

response



comment

131

comment by: Meignien - DGA EV

Add-on to my comment : LFTE licensing (not just as an authorisation under part 21 rules) is required to improve safety and employability because LFTE licensing will provide harmonization throughout the profession. Harmonization will help LFTEs and Test Pilots to speak a common language with common rules and procedures, whatever the country and organization they will come from. This will help them to work better and to trust each other, which is essential in such a dangerous activity.

response



comment

132

comment by: Deschamp Jean Christophe

Question 11 : Option 1 is preferred. As a test flight engineer, I have the ability to prepare a flight without pilot assistance. One of my inflight duty is to perform emergency procedures to assist the pilot. A license guarantees the freedom of speech of each LFTE against his employer (DOA/POA). In case of divergent position, the LFTE could not suffer from any pressure on its job as its license gives him an acknowledgement from other employers. The most important think in actual test schools is the cultural exchange between students and industrials, between various nations, between pilots and engineers. A license will guaranty the access to such a school and gives a common basis to all test crew members.

response



comment

133

comment by: Olivier DELODE

Question 7  
About 20



Question 8

All of them

Question 9

None

Question 10

At least 15, the others having not enough experience yet to pretend to have the licence (it request 2 years of work in test flights in addition of having passed the course in a dedicated school (EPNER in France)

Question 11

Option 1: creation of a LFTE licence

**Safety:**

As a LFTE, I am as involved in safety before and during a flight as a pilot.

Even if I don't have the controls, the action I do, or I ask the pilot to do, can have an impact on the safety of the flight.

On some test flights, I can modify the behaviour of the flight controls or the engine computers. I then have to know exactly what is changed on the behaviour and how the pilot and I have to act in case of problem.

I am also often involved with ATC, when the pilot is too busy to manage the radio communications with the controllers.

On some test flights, I can also be involved in the cut and reigniting on the engine, checking what the pilot is doing, or doing the procedure myself under the pilots control.

Even if in some flights my job is "only" to lead the tests, I also have to keep an eye on the flight parameters; this also contributes to flight safety.

For example: during a test flight in medium altitude, I stopped the pilot when he was reducing torque under the minimum authorised at this flight level. If I had not intervened, the pilot would have reduced torque, causing the shutdown of all the engines.

In conclusion of this part, and this is my main point, LFTEs are always involved in safety during a flight, as well as pilots or TFEs are.

**Impartiality:**

A European licence guarantees that the LFTE will be less impacted by his DOA/POA decisions,



than if his DOA/POA was in charge of authorising him to do his work.

It guarantees a better impartiality of the LFTE.

I personally witnessed such a situation during test flights made by a firm. The LFTE (*with licence*) was hardly criticising the product of his company, while the FTE (*without licence*) was trying to minimise the obvious defects to please his DOA.

#### Recognition:

A European licence can grant LFTEs finding work anywhere in Europe.

A better coordination between countries will also be possible, by involving foreign LFTEs in national test flights, as part of the test crew and not just as observers.

In addition, after having passed the hard training to get the LFTE diploma, it would be a personal pride to obtain a recognized licence, instead of just having the required qualifications to do the job.

response



comment

134

comment by: *EPNER*

Question 7 : As DGA Flight Testing Technical Director, I manage about 40 flight test engineers.

Questions 8: As all of them have been graduated from EPNER flight test school (or ETPS, USAFTF or USNTPS), all of them could be qualified as LFTE

Questions 9: None of them are supposed to operate independently.

Question 10: 37 have a French license.

Question 11: Option 1 is clearly preferred.

As they will have to manage test flight within area shared with international navigation rules from one hand and they will be involved in flight security actions on the other hand, they need to have a license in order to be consistent with ICAO.

Flight safety is clearly in relation with CRM training. A license requirement will guaranty access and fees availability for such a training witch is dispensed by ATO schools.

response



comment

135

comment by: *marc CHEVALLIER*

According to me, **option 1** (licence requirement for LFTE) is with no doubt the one to be preferred.

If option 0 was to be preferred by the majority, we have to take into account the fact that there is no DOA/POA for state organisations. As a matter of fact and according to option 0 explanation in A-NPA 2013-16, there would be no possibility to have LFTE working fo state



organisations (no DOA/POA available to manage, qualify and train them...). However, we are a lot of people corresponding to LFTE's definition given in A-NPA 2013-16 and working for state organisations ! So option 0 can not be the good solution for us as it can not be applied to our state organisation.

response



comment

136

comment by: *marc CHEVALLIER*

According to me, **option 1** (licence requirement for LFTE) is with no doubt the one to be preferred.

If option 0 was to be preferred by the majority, specific flight test training under responsibility of LFTE's DOA/POA would be required for LFTE of a given organisation (Part-21). At the same time, Part-FCL requires specific flight test training in approved training organisation for test pilots conducting category 1 and 2 flight testing. If those two types of training are not harmonized, there is a great risk of poor rentability in flight tests with sometimes incomprehension between test pilots cat. 1-2 and LFTE. In addition to the poor profitability of flights, this could also lead to endangering the safety of flight tests.

**If option 1 was chosen**, both test pilots cat. 1-2 and LFTE could be trained in same approved training organisations and could then acquire the same flight tests culture. This would be especially beneficial as such approved training organisations already exist in Europe !

response



comment

138

comment by: *marc CHEVALLIER*

According to me, **option 1** (licence requirement for LFTE) is with no doubt the one to be preferred.

I have anecdotes demonstrating the validity of Option 1.

Before working as a LFTE for a state organisation, I used to work as a FTE for a private aircraft manufacturer. There were no LFTE in that organisation with respect to A-NPA 2013-16 definition.

All the avionics development was performed by an American supplier. During flight tests development of our aircraft, there were two or three people from the American avionics supplier dedicated to flight testing : their job during this period essentially consisted in adjusting autopilot gains in flight. Those people belonged to design office where they used to program code lines 95% of the time ! They had absolutely no flight test qualification, but according to their DOA/POA, they could also work occasionally as flight test engineers. At almost every stirring flight, they were sick, losing much of their intellectual capacity. In flight, they could change safety parameters of the autopilot (gains) and inject failures without any control of a LFTE : so in fact, they were behaving just as a LFTE, but without any skills. On top of that, they were American speaking only english whereas our test pilots were French. As a matter of fact, we experienced some test flights where bad (and even dangerous) autopilot gains were input, with dangerous reactions of the aircraft and nobody on board knowing exactly what was going on and why...



This would not have happened if the American avionics supplier had sent us some licensee LFTE for the job, or if there had been a licensee LFTE from our organisation on board, telling the American engineers exactly what they had to do and when they had to do it.

I also experienced a high altitude certification mission in La Paz where we had to test one engine failure (OEI) at take off with automatic power reserve mode on the available engine. When available engine would switch to APR mode, engine bleed would be automatically stopped and cabin altitude would rise. Just before the flight test, our design office called requiring us to analyze some parameters of the cabin pressurization computer in real time thanks to test instrumentation linked to aircraft numerical buses. As I was the only one in the team present at La Paz knowing how to use the test instrumentation and read it in real time, our chief test pilot allowed me by phone to participate to the flight test (I was a basic FTE at this time!). During the flight test, cabin altitude reached 6000 meters with oxygen masks falling. Hopefully, I did not suffer from hypoxia and managed to analyze pressurization computer parameters, and this computer behaved normally so that I did not have to intervene in the conduct of the flight. However, I now realize that I could have acted as a LFTE if things had not been working normally. I was not trained for that (I was only flying very occasionally) eventhough my organisation (DOA/POA) estimated I could occasionally do the job. It goes without saying that a well trained, licensee LFTE on board would have been much more comfortable than I have been, and would undoubtedly have reacted in a safer way than I would have done in case of problem. Flight safety is not based on improvisation...

response



comment

139

comment by: FTE DGA

Option 1 is the only viable solution.

On the first hand, if the DAO/PAO is the only authority allowed to decide who is able to lead a flight test, this would put at risk the necessary impartiality and independence of the Flight Test department from the project management and financial constraints of aeronautical programs. As a consequence, it could induce technical choices lead, not by security, but by calendar or financial constraints. In the end, this could have major consequences on the end-user security.

On the second hand, in my personal experience as a LFTE, there are several occasions on which I've had an active impact on the aircraft security. As an example I have already been responsible for extinguishing and relighting an engine in flight, meaning I had the hand on the throttle. From times to times, I also take in charge the radio traffic when the pilot workload is very high. As a consequence, I consider myself as a full crew member.

That's why, in my opinion, there should be a licence for LFTE.

response



comment

140

comment by: Stephane JOULAIN

I prefer option 1 (licensing the LFTE) because of the following items :

- As LFTE usually taking part in envelop flight test or vibrations flight test, my role is decisive as test director, by conducting the flight by progressive steps, monitoring the vibrations levels, analyzing the systems behavior which may interfere with aircraft integrity, and making



in-flight decisions. All these points are directly impacting flight safety. LFTE license is a commonly agreed guaranty of minimal flight experience, appropriate training and medical fitness. Therefore it allows a mutual recognition as crewmember, reciprocal confidence and an efficient crew cockpit management, which improves flight safety.

- The flight test methods with integrated test crew (test pilot + test director) used in France have given proofs of efficiency and safety for many years. A license loss of the LFTE may induce a role regression of the LFTE, and therefore a safety regression in France.

- Each test methods either using LFTE or FTE shall be maintained as state of the art. Since LFTE participation even in CAT 1 or CAT 2 test flight is not mandatory, option 1 still allow using the preferred method in Member States having or not a LFTE licensing scheme.

response



comment

141

comment by: *jerome BRAISAZ*

Question 11 : Option 1 is preferred

During my flight activity I often deal with flight safety:  
 -firstly as Flight Test Engineer because like other crew members, managing the systems I can have a direct impact on the behavior of the airplane or helicopter and therefore on flight safety ( inertial sensor, flight controls laws, communication or navigation management ... )  
 -secondly as an EPNER instructor, one of the main role during flight is to ensure that actions taken by the students crew (Pilot and FTE) are consistent with flight safety (computing stall speeds , respect the limitations ... ) .

This necessary credibility should be monitored in the same way as other crewmembers, maintaining a license.

Personally this license gives an acknowledgment both by state and industries either for the purpose of employment or work mandate.

response



comment

153

comment by: *Eric JUGNOT*

Answer: Option 1

During à Flight test Cat 1 or 2, LFTE has rules or duties which can affect safety, LFTE is considered as a crew member; so, LFTE must have a licence (with his qualification endorsed) as the same logic than for the pilots.

Only LFTE licensing scheme (obtained in an ATO) secure initial level of training and qualification, recurrent training and medical fitness. Regarding all DOA/POA, it will be benefit for the mutual recognition of the LFTE competences and then will contribute to the harmonisation of flight tests in Europe.

In DOA/POA an LFTE with a valid licence contributes by his experience and seniority to



efficiency for flight crew coordination and safety and also to the work efficiency.

Some countries already have LFTE licensing scheme, with option 0, the loss of the LFTE social status and privileges will have an economic and social impacts for their insurances and pension scheme.

response



comment

156

comment by: *Eric PARELON*

**My preferred option is the OPTION 1 for the following reasons:**

As former Lead Flight Test Engineer for the French DGAC and for the French MoD during more than 20 years, I have had the opportunity to participate in many different types of flight test as:

- development flight test of military fighters and transport airplanes
- development flight test of helicopters
- research and development test on flight test beds
- certification flight test of civil transport airplanes (Airbus, Boeing, Falcon, etc) with many applicants in EU, US and Brazil
- development flight test of civil transport airplanes

Based on this experience, I can say that the Lead Flight Test Engineer (LFTE) has a full role in the management of a flight test, he is really part of the technical crew.

Test pilot(s) and LFTE(s) composes an indissociable integrated team that ensures together the management of the flight test and the best level of safety.

The dialogue among this team is permanent during the test and each member of the crew recognizes the value brought by the other.

In several situations, I can testify that the indication, the information or the alert provided by the LFTE to the test pilot(s) (errors in speed rotations in unusual configurations, flutter start identification, identification of the right status of the system after failures or in unusual situations, etc) have prevented hazardous situation and in some case even catastrophic.

Moreover, the LFTE manages and activates some controls through the flight test installation that have an important impact on the A/C behavior (tuning of the flight controls laws, engine cut, etc), as the pilots activate the current controls as flaps/slats, L/G in the cockpit. The role of the LFTE constitutes a paramount for the safety of the flight.

All these arguments are clearly in favor of the creation of a specific european LFTE licence that will allow first to recognize their role as as part of the flight test crew (role already recognized by the flight test community) and secondly to ensure an harmonised education and training across Europe. This licence will allow to maintain a strong flight test competence in Europe for our aerospace industry and will also ease the mobility of this competence across Europe.

All together, industries and Members States, have developed for the last 50 years a real strenght in Europe in the flight test domain (Airbus, Eurocopter and Dassault are good examples), now at European level try together to maintain and consolidate it!



response



comment

157

comment by: *Pierre-Henri Papelard*

## 11. option 1

## Reasons :

The LFTE has a high level of responsibility when actions are needed in the aircraft during the flight. Because of his degree of aeronautical high school plus his diploma of flight test school, he is the equivalent of the pilot in certain actions. The pilot needs a degree of pilot (ATPL) and needs to have a diploma of flight test school also. But the engineering can only be done by the engineer whose high level of study can assure safety and effectiveness of the flight. Without this high level of study (degree of aeronautical high school plus his diploma of flight test school), vital actions could not be done.

- actually, LFTE have a specific treatment for insurance, salary and pension. Without licence, these 3 aspects would be changed, and LFTE would lose this specific treatment link to the risks of this job. It will generate social crisis that could bring about loss of severity and interest for this technical job.

- last, having a licence is the guaranty of competence, that assures recognition and independence of judgement for technical decisions. That's why the both qualifications (degree of aeronautical high school plus his diploma of flight test school) are absolutely essential and inseparable (as for the test pilot).

response



comment

170

comment by: *COUVREUR FTE DGA EV*

Question 7 : around 80 peoples (mainly DGA EV and Eurocopter)

Question 8 : around 40 peoples

Question 9 : nobody

Question 10 : around 40 peoples

Question 11:

I clearly prefer option 1.

As LFTE, I usually help the pilot during Flight Testing Activities (engines, fuel, AFCS, radio, ...). My understanding of ICAO Annex 1 is, as LFTEs operate aircraft controls, a licence is required.

I work on NH90 program, and I work with different countries (France, Germany, Italy, Belgium ...), most of people I work with have been to a Flight Test School, but the recognition is not the same in all the countries. I think that a licence for LFTE, will permit a better recognition of LFTE skills in Europe (in the first time).

Other impact of a LFTE licence, is that LFTE skills will be recognized, whatever the DOA/POA. This licence will help, in case of employer change, but will also give more impartiality to the LFTE regarding his employer. If the employer is the only manager of LFTE qualification, the opinion of LFTE can be more reserved.



As explained in analysis of impact, with option 1, safety will be increase, at training level with ATO and at medical level. CRM training linked to ATO training will also highly increase flight test safety and efficiency. It will, of course, have economic impact, but does safety have a cost?

response



comment

171

comment by: FPO

I'm a flight test ingenieur instructor at the EPNER since 7 years (fixe and rotary wind). I can see the importance and exigence of the year training for LFTE. All these are for having the best members for flight test who can perform flight with the best security.

It's not trivial to have actions on a plane during flight test (actions on power, actions on aircraft systems and equipment, actions on the decision to continue or not the flight test overlooked security...).

**That is one of important things that I choose OPTION 1 "having a LFTE Licence".**

response



comment

172

comment by: Salinas Eric

Question 11 : Option 1 is preferred As LFTE, and due to my Test School graduation, I have the ability and the duty to assist the pilot in various actions (engine, flight controls, specific test means...). To insure that such a level of formation will always be granted through AFTTO, I consider licensing scheme for LFTE as necessary.

response



comment

173

comment by: patrick sebbaghi

I'm 52 years old and i make flight tests (class A and B) since 25 years. My feeling is that the option 1 is probably the better solution.

First reason : the Lead flight test engineer must have a common formation with test pilot. This common formation allows a similar thinking method and natural, quick and efficient reaction in flight. The contribution of the LFTE in safety must be maintained. The pilot need to feel safe with his crew. In the crew, each member have a various but an essential part in the flight safety. The licence is the better guarantee of an homogeneous level of all crew members, for a common and current thinking method and therefore, a better flight safety. The LFTE mustn't be out of practice. He has to perfectly known the aircraft or the tested system. The training of the LFTE in flight is also an essential point for safety and efficiency. The medical requirements are also and logically essential.

Second point : The licence allows the engineer to change of employer and to easily defend his rights. In an other hand, the abolition of the LFTE Licence could induce major social difficulties for the people who contribute to specific pension fund (in France). This evolution could be feel as a social regression by the concerned people.



In conclusion, the first reason indicates that there is a great analogy and complementarity between the LFTE and the test Pilot functions. This complementarity is better guaranty by a common status and, consequently, a legitimacy to grant and require to the LFTE a good training level and a state of shape. The second reason underlines that in the country where licence is in place, his abolition will induce social difficulties.

response



comment

174

comment by: Jim FAWCETT

With an initial engineering degree from the UK, training as an LFTE in France and long periods of employment as an LFTE in France and in Germany, I consider myself to be a good example of an EU citizen who would benefit from the mutual recognition of qualifications throughout the EU via an LFTE licensing scheme. I have experienced first-hand the practical difficulties and social barriers which are in place when trying to move from one country to another and have spent countless hours in meetings and other discussions trying to justify why my level of education, training and experience entitles me to carry out my role as an LFTE. I have observed other colleagues facing similar difficulties. With an LFTE licence recognised EU-wide, these barriers would be instantly removed.

Employed by Airbus, my role as an LFTE requires me on a daily basis to operate aircraft systems as an integral member of the crew. These systems include those which are directly necessary for the safe operation of the flight, including (but not limited to) the engines, the communication and navigation equipment, the pressurisation system, and test equipment to modify in real time the weight and balance of the aircraft. The flights which I perform are always over heavily populated areas, sometimes in air space shared between test and commercial operations, often between EU countries, and on occasion to countries across the world for external test campaigns requiring particular environmental or geographical conditions. In addition, non-flight-test-trained observers and technicians are often carried to provide expert advice on certain systems under test.

I consider that it is vital for any crew member operating in such conditions to be licensed (and to have an appropriate level of fitness), to ensure the safe operation of the aircraft and also the security of those on the ground under the flight path of the aircraft. Given all of these conditions, Annex 1 to the Chicago Convention is an entirely pertinent document and its requirement for all crew members to be licensed would be well fulfilled by the creation of an LFTE licence.

From an economic viewpoint, an internationally recognised LFTE license would also greatly facilitate transport through airports as a recognised crew member when returning from ferry flights, allowing savings in time and money. Furthermore, from an entirely selfish point of view, knowing that all my fellow crew members were licensed would provide an additional level of security, not to mention a gain in efficiency by allowing us to take benefit of common knowledge in flight testing procedures and CRM aspects.

I am therefore strongly in favour of option 1, to introduce a licensing scheme for LFTEs.

response



comment	<p>175</p> <p>Question 11 : Option 1 is preferred It seems to be really important that a licence is created. The reason for that is that the FTE is totally part of the conducting crew. From a regulatory point of view, the LFTE, being part of the crew, has to have a licence because according to ICAO rules, every crew member must have a licence.</p>	comment by: <i>Volpoet Ivan</i>
response		
comment	<p>176</p> <p><b>REPLY TO QUESTION N° 11 : I chose option n°1</b></p> <p>In my mind an LFTE License is indispensable because of the following reasons which are somewhere linked each others.</p> <p>First one, the main one, is a flight safety reason. LFTE is indeed defined to "conduct flight tests or assist the pilot in the operation of the aircraft and its systems...". That means the LFTE is a "full" crew member during flight test activities, fully implicated in flight safety management. For this reason, and, in order to be compliant with OACI rules (annex 1), I am convinced that an LFTE has to follow the formation provided by an AFTTO, has to be graduated as an LFTE by this training organisation which will certify his training level by delivering him a European License.</p> <p>Second one concerns judgment and expression freedom. I mean that an LFTE must be sure to be able to keep his own intellectual independence at any moment. This is essential to prevent him, from any kind of pressure (financial, social and so on). I am convinced that this intellectual independence won't be guaranteed if the LFTE is totally submitted to the authority of his DOA/POA to be able to fly. That's why, once more, I am sure that the only way to prevent the LFTE from any partiality and to allow him to keep his liberty in judgment, is giving him a European License.</p> <p>Third one concerns the persons who works as state authority in certification processes. Without any LFTE's European License (as advocated in option n°0), for these staffs it won't exist any DOA/POA and as a result, they won't exist anymore as LFTE. So, if they want to do their job, they only will be able to fly at industrial's under industrial's DOA/POA. This may involves the same problem of partiality and intellectual independence than described some lines upper. That's why, for the third time, a European License for LFTE is indispensable.</p> <p>Thanks to EASA for taking in account these remarks and arguments. Thanks too, to have spent time to read them till the end.</p> <p>Best regards.</p> <p>LARGE Philippe.</p>	comment by: <i>LARGE Philippe</i>
response		
comment	<p>177</p>	comment by: <i>David CAROFF</i>



Question 11:

My choice is option 1 (licence requirement). Working as an experimental test pilot in France, I've been trained to work every day with LFTE's. From my point of view, LFTE's are part of the crew, since they sometimes have an active duty on vital part of the aircraft (flight commands, engines, flight test systems,...). Their opinion and point of view are always taken into account during any flight test, and they are directly concerned in flight safety management. Their knowledge and expertise need to be considered, and the best way to achieve this goal is to give them a licence, that will officially continue to recognize their flight test skills.

response



comment

178

comment by: Capt Fabio Di Caro

**My preference regarding the LFTE licensing requirement is Option 1, for the following reasons:**

**Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE "assisting pilots in the operation of the aircraft and its systems" show that LFTE is an "operating crew member" according to article 32 of Chicago Convention. The Convention is requesting that "the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses".*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : "Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period". It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is "every day" practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For ItAF Flight Test Center this represents at least 4 people.*



*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*

*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

**Medical requirements:**

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED*

response



comment

179

comment by: *Laurent SIGAUD*

Question 11 : My choice is Option 1.

I'm a flight test engineer at "Direction Générale de l'Armement" in France (flight test center). To harmonize all the flight crew licences in order to improve safety, it seems important that the LFTE owns a licence. Also, the licensing scheme is applied to ground mechanics and air traffic controllers which is a good thing.

Flight test engineer is involved in the flight like any other flight crew. For example, during some flight tests dedicated to the qualification of a new radio on an aircraft, the LFTE has to communicate and manage with ATC.

Moreover our training is focus on a team, pilot and engineer. For specific flight tests, our acknowledge of the aircraft systems is necessary to be able to assist (share the work load) the pilot, for example on a fighter when the flight control laws must be modified. The front seat is equipped with specific commands for the engineer and the rear seat is equipped with conventional laws.

An other example, when the LFTE conducts flight tests, the LFTE has to inform the pilot concerning some parameters which may have an influence on the piloting.

response



comment

180

comment by: *Laurent TRIPOTEAU*



I'm for option 1. In some cases such as plane failures or delicate phases of testing, if the pilot is the sole occupant, it may be necessary to approach or exceed the workload reasonably acceptable. Thanks to his training, in addition to his own duties, the LFTE can supply tasks like reading the checklist, managing radios or providing radiocom/radionav frequencies. If the presence on board of someone who knows perfectly the system is useful, an engineer who would not have FTE training (EPNER...) will have more difficult to do so because the work with a crew can not be improvised and requires good knowledge of the aviation environment. This could not be provided by another pilote because for some tests, it is not financially conceivable.

response



comment

183

comment by: Andrea Castelli

**Answer to question 7:** In my oversight about 27 people are performing professional duties as Flight Test Engineer.

**Answer to question 8:** all the people defined in the previous answer (27) can be qualified as Lead Flight Test Engineer. They are part of a flying crew and all of them followed a professional course to be Lead Flight Test Engineer.

**Answer to question 9:** no one of the 27 people described in the answer 8 are operating independently. All of them are a part of an organization.

**Answer to question 10:** 24 of the people described in answer 8 have at present have a licence.

**Answer to question 11:** I personally prefer the option 1 (licence required) for the following justifications:

**Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of*



today derogatory regime knowing that flight tests are conducted within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For AgustaWestland this represents 21 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirements as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED

response



comment

187

comment by: Gian Luca Greco

Justification of Option 1 and answer to question N. 11:

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.



Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : "Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period". It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is "every day" practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Italian Air Force Flight Test Center at Pratica di Mare this represents 4 people.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable



	<i>requirements and rules of Part MED”</i>	
response		
comment	194	comment by: <i>PRIEUR/atr</i>
	<p>Question 7: 4</p> <p>Question 8: all of them. ATR has a small flight test department compare to the huge flight test department in Airbus but we have the same flight test culture in our blood because we are all, i write all, issued from the same flight test school: EPNER in Istres. that makes sense....Pilot are mostly coming from this school, other from England or United state but the "blood" is the same.....</p> <p>Question 9: none</p> <p>Question 10: NA</p> <p>Question 11: Option 1 is my choice.</p> <p>If we want to keep the same level of flight safety, we must choose and act for the option 1. What will be the statement of the manufacturer and the HR after 2017 with the option 0: i think it will be a real mess in the Flight test process. The main risk is to have the bad person in the aircraft. If we choose the option 0 there is no way to set a frame in technical flight through the airlines and we certainly increase the risk to play with flight safety.</p> <p>Option 1 with: approve ATO and <u>Exam</u></p> <p>Only notion of LFTE, no notion of FTE</p> <p>Specific licence, medical recurrent etc.....</p> <p>about Cost: remember that safety has a cost.</p> <p>For others country under EASA: how they work today and who is involved ? aircraft are more and more complex and it is dangerous to keep in mind two pilots on stick with FTE having no specific knowledge.</p>	
response		
comment	195	comment by: <i>Hermann Schmoeckel</i>
	Yes	
response		
comment	196	comment by: <i>Hermann Schmoeckel</i>
	about 50 FTE	
response		
comment	197	comment by: <i>Hermann Schmoeckel</i>
	<p>Question 7: about 50 FTE</p> <p>Question 8: all of them</p> <p>Question 9: 1 or 2</p> <p>Question 10: all FTE (french licences: INE or ENE or MNE or ENE B)</p> <p>Question 11: OPTION 1 (Licence requirement)</p>	



The flight test engineer has one of main role within flight testing. Preparation and execution of flight test is one mayor task. The flight test engineer has a huge influence on flight safety, flight operation and in some cases even a direct access to the flight controls via specific computer programs. The flight test engineer is part of the crew while flight testing and needs to have medical aptitude and a licence, as it is still issued e.g. within the French system.

Performing test flights **close** to the aircraft envelope with engineers and pilots not fully trained for this job, the safety may be reduced (see also EASA SIB No:2011-07 and NPA 2012-08)

Performing flight test sometimes **exceeding** the normal flight envelope should therefore only performed by licenced flight test crew including the FLIGHT TEST ENGINEER.

Therefore the LFTE should be licenced with an EU-FCL similar to the test pilots with flight test rating CAT 2 or 1.

If the Flight test engineers (LFTE) will not be licenced as they are up to now, the risk to lose the present social status is well increased and not at all acceptable.

response



comment

199

comment by: *Alain Delavet*

Answer to question 7 : 13

Answer to question 8 : 13

Answer to question 9 : 0

Answer to question 10 : 13

Answer to question 11:

1 - The function of LFTE includes the following actions:

- For test purpose, acting on equipment and controls including reducing or shutting down an engine, and subsequently restoring the power level, shutting down hydraulic or electrical supply and restoring it, disengaging autopilot....

- In case a genuine failure he will act to assist the pilot applying the emergency procedure.

- Through the Flight test installation, for test or tuning purpose, he will act on important aircraft system. That includes change the autopilot laws, act on the engine governing laws or change any parameter that can affect any of the systems, create any failure that have to be evaluated in flight (autopilot failure including active ones, engine governing failures, avionic failure...)

- In a built-up test, the LFTE will, be part of the decision to continue or to abort the test. Through the flight test installation he is able to gather data's that are not available to the pilot through aircraft parameters reading, his input in that decision to continue/abort the test is then paramount to flight safety.

The previously described LFTE tasks (assisting the pilot in case of real failure or malfunction, creating various failures and so being able to revert to normal conditions, ...) makes the LFTE a paramount actor of flight test safety.



Performing these tasks and having an action that involved flight safety, makes the LFTE an “operating crewmember”. And so compliance with article 32 of Chicago convention (the pilot of every aircraft and other members of the operating crew.... shall be provided with certificate of competency and license) makes a license mandatory for LFTE to perform their duty in compliance with ICAO rules. In the contrary, not having a license an performing these can of task may put himself, that pilot in command and his organization in big trouble from a legal standpoint in case of any accident or incident

2 – If the LFTE activity is only managed by part 21, the LFTE qualification and rights will be linked to a particular DOA. That would definitely create differences in initial training from one DOA to another. Recognition of knowledge and qualification outside of that particular DOA will be difficult and will however complicate the freedom of circulation of LFTEs inside the UE. EASA has recognized the need of a license for PART 66 maintenance engineers and Air Traffic Controllers for air safety reasons and, as a consequence, the freedom of circulation inside the UE is granted for them. To reach the same goal, Air safety and freedom of circulation for LFTE, it is essential that a license is issued for LFTEs. Not providing them with a license will create an incomprehensible dissimilarity between those personels involve in flight safety.

3 – The flight safety role of the LFTE induces a medical fitness that ensures he is able to discharge his duty in flight. Without a license, the LFTE medical examination will be done by the DOA. That is to say by the employer with all the differences of interpretation that can involve. In case of a license, the medical will be linked to the EASA medical part. That is the assurance of equality Europe wide as well as for the examination as for the procedure of appeal in case of incapacity. For medical also only a LFTE license can assure equality of safety all over Europe

4 – The tests are often conducted outside of the home base of the manufacturer. The crew has so to go through security checks in worldwide airports. To follow the quick crew path, a license is mandatory. Without LFTE license, airport security check will induce delay and burden at departure and arrival.

5 – Today, even though there is no European regulation to enforce LFTE license, national regulations make that most personnel acting as so do have a license. Even those with no license have been given an initial training (one of the recognize flight test school) to be given one. Option 0 is so not a status-quo, it is a way back. Of course, option 0 will not degrade flight test safety right away, as the same personnel will still be involved. The potential flight test safety degradation will be delayed. But when it will become visible, it will also take a long time to correct the adverse effect of a today’s wrong decision.

6 – Conclusion: as LFTE act as operating flight crew members, only option 1 will:

- Make LFTE activity compliant with ICAO rules;
- Secure LFTE freedom of movement inside the EU;
- Secure equality of treatment with other aviation actors (air traffic controllers, maintenance engineers, ...)
- Secure coherent and faire level of LFTE medical examination;
- Secure coherent level of initial and recurrent training.

Option 0 is definitely not an option.

response



comment

201

comment by: *François Drouillot*

Il s'agit en priorité d'assurer la sécurité des vols d'essais, pour les personnes qui sont à bord, et pour les personnes au sol qui peuvent être victimes d'un accident.

Il est indispensable que les LFTE aient une formation reconnue théorique et pratique (aérodynamique, mécanique du vol, installations d'essais,... travail en équipe, trafic radio avec ATF,...) pouvant être dispensée en partie par l'industriel et vérifiée et/ou complétée par une ATO délivrant un diplôme (ou un brevet), et que comme membre d'équipage intervenant dans la conduite du vol d'essais il possède une licence européenne qui sera renouvelée sous réserve d'une aptitude médicale suffisante et d'une activité de LFTE minimale.

Cela va aussi dans le sens d'une meilleure confiance entre les différents membres d'équipage.

Cette licence permettra aussi à son détenteur de pouvoir changer d'employeur facilement, dans toute l'Europe avec aussi un coût moindre pour l'employeur qui n'aura que peu de formation à envisager.

Au point de vue social cette licence confèrera des privilèges et des accès aux assurances et caisses de retraite spécifiques.

On demande bien un permis de conduire (licence) pour conduire un véhicule terrestre à moteur et pourtant les conséquences courantes d'un accident sont bien moindre que lors d'un accident d'aéronef.

Le coût administratif est quasi nul pour les pays qui ont déjà une licence, il est très peu élevé pour les pays qui font des essais en vol car il suffit de rattacher le suivi à celui des pilotes, quant aux autres pays qui ne font pas d'essais en vol il me semble qu'ils ne sont pas obligés de créer un suivi des licences des LFTE.

response



comment

205

comment by: *DGA/EV*

Question n°11 : for me, option n°1 (one) is the best solution because :

1°/ the lead flight test engineer is fully involve, as and with the pilot, about safety aspects of the flights : managing engines, flight controls, weapons or gears for example.

Each time such systems are in tests, the lead flight test enginner may change parameters, tune gains, change rpm on running engines, fly by wire system, weapons firing, start/idle/stop engines etc ... this directly leads to safety !

That is reason why, pilot and LFTE need to have complete initial courses to be trained to work together as a crewmembers to perform flight test with the higher level of safety.

In my everyday job I perform flights tests with real weapons on helicopters like Tiger, EC725 etc ..., this includes : missiles firing, rockets firing, gun firing, non eye safe laser firing, torpedo firing.

Most of the time, the pilot has no way to control what the gunner is doing/aiming/firing, so



as for the tests pilot, the LFTE/gunner is fully involved in safety aspects and needs to be trained and licenced.

-> With an European licence, initial courses, training, medical aspects etc ... will be harmonized and regulated, that is the way to secure all the mandatory needs to perform flights tests with the higher level of safety (OACI annex n°1) as possible.

2°/ with a licence, LFTE will be, with the pilots, involved in all regulation/certification rules during their initial courses and after in their everyday job.

With the same rules for each country, all way to use / understand / performing certification will be harmonized and then specialists can do the same job through Europa easily speaking the same language.

3°/ Having an European licence, the LFTE is not prisoner with it's DAO/PAO like the FTE, doing a good job according to harmonized European rules, so he won't be obliged to accept low quality stuff because he can easily go away doing his job everywhere.

4°/ In Europa, some countries have licence/regulation and schools for flight tests crews : these countries have world leading companies in aeronautical industry, so we can assume this is directly linked. Using such an organisation is a win / win partnership between industry / nation.

5°/ For the countries that have licenced flight tests crews, suppressing the licence at the European level in 2016 for all the non-pilot crewmembers can lead to social troubles in major companies/organizations.

Let's take an example to illustrated :

Imagine that, unfortunately you are deeply sick, you can choose between three hospitals :

- one with a doctor called LFTE licenced with 8 years of studies and 7 years of experience in 4 hospitals
- second with a doctor called FTE with 2 years of studies and 13 years of experience in 2 hospitals
- last with a doctor called FTE with no study but 15 years performing medical jobs in the same hospital

All have same age and same "duration" experience, which one do you choose and why ?

If you assume the first doctor is the best experienced/trained to save you, why should it be different for an engineer working as a crew member in flight tests ? how would you accept to have a doctor/crew member involved with safety with no recognized licence meaning formation and training ????

response



comment	207	comment by: <i>Laurent PERTHUIS</i>
	<p><b>Question 1-6 :</b> N/A</p> <p><b>Question 7-10 :</b> My current position at NATO is not related to flight testing. However, my previous appointment (2005-2010) as chief of flight test division for french flight test center (DGA Essais en Vol - Istres), included the direct supervision of :</p> <ul style="list-style-type: none"> <li>- Question 7 : 26</li> <li>- Question 8 : 15</li> <li>- Question 9 : 0</li> <li>- Question 10 : 15</li> </ul> <p><b>Question 11 :</b> option 1 (licence required for LFTE) LFTE tasks and responsibilities during a test flight, make him/her a fully empowered crew member. In some cases (e.g. engine relight) flight safety cannot be ensured without a positive action from the LFTE. Therefore, according to ICAO standards (annex 1), this crew member must hold a licence. This option only provides the proper level of harmonization of training and proficiency among LFTEs, needed to reach an acceptable safety level.</p>	
response		
comment	210	comment by: <i>Patrick du Ché</i>
	<p>Answer to question 11: Option 1 with licence for LFTE is requested.</p> <p>Given the responsibility of the LFTE who is completely part of the flight crew, particularly with regards to the Safety of the flight, it is key to maintain the right level of medical fitness and authority oversight for the ability to discharge the LFTE duty. Licencing is a final enabler for this on top of the already envisaged training without constituting a significant burden as the training itself is the major investment from the employer.</p> <p>In addition, considering the role of a LFTE inside a DOA organisation, the licence will support efficiently the LFTE in his independent checking role within the organisation by providing a recognised and harmonised crew position in the Flight Test team.</p> <p>On the operational side, holding a licence enables the LFTE to be considered as an official crew member by Airport and security staff nearly all over the world and especially outside Europe.</p> <p>As an individual, the fact I owe a licence gives me more freedom to work for other flight test organisation as my skills are recognised by the licence instead of a company record (which is just equivalent to a Curriculam Vitae).</p>	
response		
comment	211	comment by: <i>Giovanni Paganini</i>
	<p>Question 7: 32 (thirtytwo) people Question 8: 5 (five) people Question 9: 0 (zero) people Question 10: 2 (two) people</p>	



**Question 11: Option 1**

In addition to the positive aspects supporting option 1 as described in the A-NPA, such as the improvement of flight test safety and efficiency or the training standardisation (pag. 10), the following other two points can be considered in favour of option 1:

a) A LFTE licence although it shall obviously be based on the civil (EASA, or FAA-like) regulations, it will have to be held also by those (L)FTE working on military programs (that's my case). This will allow a non-negligible exchange of expertise and know-how between the military and civil aviation fields. Consider for example the amount of research that has been done in the past for the design and test of military radar, and that has been transferred to the civil aviation. The transfer of know-how from civil to military was and will be also equally important. On the contrary, option 0 would very likely reduce the possibility of moving FTE-related knowledge and resources from civil to military aviation and vice versa.

b) The test pilots, also those testing military aircraft for aircraft manufacturers, operates with a civil licence. Thus, only if Option 1 will be chosen, any duty or privilege of a LFTE role (as to 'assist' the pilots and perform 'critical' actions, pag 6 of the A-NPA) would definitely result more compatible with the test pilot job. In other words, it would be surely more sensible that the crewmember that operates some critical aircraft systems (LFTE) has a qualification (i.e. licence !) that shares officially (and legally !) the same 'bulk' of knowledge, as the one that flies the aircraft (test pilot).

**“Compliance to Chicago Convention:**  
A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the



legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Company Name this represents 2 people, and in the near future shall be a total of 5.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

227

comment by: *andrea ciabrini*

Answer to question 11:

The option 1 (licence requirement) is preferred.

**Safety :**

Today the A-NPA states :

One of the LFTE duties is « ... assisting the pilot in the operation of the aircraft and its system », and so « their actions could be paramount for the safety »,

It is clearly understood that the LFTE is a flight crew member as defined in the annex1 to



Chicago convention.

Taking into account that flight tests activities, due to certification requirements, are performed all over the world, it seems difficult to explain that flight tests activities are out of the Chicago convention scope ( international civil aviation).

Having a category of personnel acting as a flight crew member without a license is not only a non-conformity to the Chicago convention but also it is inconsistent to the EASA safety objective where clearly the different categories of aviation personnel which have a direct effect on the safety have a license ( maintenance engineer, pilots and air traffic controllers).

Amending the basic regulation in order to create the LFTE licensing scheme should not be an obstacle when considering the importance of maintaining and increasing the safety level in flight test activities.

Today, the option 0 is presented as no impact on the safety, however, safety is a large consideration. Indeed it is stated in the A-NPA (§2.4.5) that « most of the people that perform LFTE cat1 and 2 work for organisations that are located in Member States where a LFTE licensing scheme is already in place », which means that the status quo today is closer to option 1 than option 0.

Enforcing a licensing system ensures a better harmonisation between all the countries of the EU and so ensures more consistent treatment of personnel within each category.

Concerning medical fitness for example, a non-harmonisation could generate 2 main issues : Firstly, safety: medical requirements are not the same for a person to read a Flight Test Order or to be a test witness than for a person to be appropriately fit « to discharge assigned duties and responsibilities ». Even if this difference was already noted by the A-NPA , and some recommendations are included in the AMC, the non harmonisation of detailed and objective medical fitness requirements leaves a gap which can have an impact on the safety. Secondly, there is a social impact.

**Social :**

Concerning medical fitness in the case of no licensing scheme existing, there will be no detailed or harmonised requirements between organisations. In case of disagreement between employee and employer there is a potential for conflict and inequitable treatment between different people of a same category.

Companies which use personnel as an FTE only will not see any change. Only organisations using personnel in the role of LFTE in Cat 1 and Cat 2 testing, that do not currently have a licencing system will be impacted. As most EU organisations using LFTE already have a licencing system, the impact will be minimal.

Moreover, having a common European license will facilitate the free circulation of personnel between organisations and countries which is one the goals of the EU. Otherwise, a LFTE privileges will be attached to his DOA.

**Economic :**

The option 1 is presented as an option which generates additional cost. Considering that countries which have flight test activities which require LFTE involvement already have flight test pilots, they already manage the flight test pilot license and so have the adequate organisation in place. Moreover, in the EU there is the possibility for a country to delegate the license management to another one.



response



comment

230

comment by: REMIGI

As a LFTE involved in flying qualities / engine / performance testing of fighter and transport aircrafts, I am always working as a crew with the captain. Firstly, during these test flights and for test purpose, I can act directly on flight control laws, engine control laws or on aircraft systems, affecting aircraft behavior. Secondly, when tests are conducted on a flying test bed with a significant Flight Test Instrumentation, I am in charge of the FTI. Flying test beds are very different from baseline aircrafts and often have some peculiarities involving LFTE actions to operate the FTI and, if necessary, to conduct emergency procedures related to this FTI. Thirdly, on fighter aircrafts, back seat actions are mandatory to operate basic aircraft systems like inertial reference units, radar, counter measures, pods, not necessarily related to the test but essential to normal procedures. And finally, in many cases, test techniques lead pilots to have a degraded look out during the maneuver and, as a LFTE, I have also an active role to "see and avoid". It is a key factor for test safety and effectiveness. Therefore, with all these multiples roles, a LFTE is a key crew member. He has a direct effect on flight test conducting and as such, should be recognized as a genuine crew member. For the reasons above, I think an Aircrew LFTE license would be an enhancing feature for the future of flight testing.

response



comment

234

comment by: Alenia Aermacchi Flight Test Department

Question 7: 32 (thirtytwo) people

Question 8: 5 (five) people

Question 9: 0 (zero) people

Question 10: 2 (two) people + 3 people more in the future (5 in total)

Question 11: **Option 1** is definitely the **preferred one**. In fact, in addition to the positive aspects supporting option 1 as described in the A-NPA, such as the improvement of flight test safety and efficiency or the training standardisation (pag. 10), the following other two points can be considered in favour of option 1:

a) A LFTE licence although it shall obviously be based on the civil (EASA, or FAA-like) regulations, it will have to be held also by those (L)FTE working on military programs. This will allow a non-negligible exchange of expertise and know-how between the military and civil aviation fields. The transfer of know-how from civil to military was and will be also equally important. On the contrary, option 0 would very likely reduce the possibility of moving FTE-related knowledge and resources from civil to military aviation and vice versa.

b) The test pilots, also those testing military aircraft for aircraft manufacturers, operates with a civil licence. Thus, only if Option 1 will be chosen, any duty or privilege of a LFTE role (as to 'assist' the pilots and perform 'critical' actions, pag 6 of the A-NPA) would definitely result more compatible with the test pilot job. In other words, it would be surely more sensible that the crewmember that operates some critical aircraft systems (LFTE) has a qualification that shares officially and legally the same 'bulk' of knowledge, as the pilot that flies the aircraft.

In addition I strongly support the comments proposed by other Italian and French FTE colleagues:



**Compliance to Chicago Convention:**

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response



comment

235

comment by: *mauro quadro*

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response



comment

236

comment by: *Claudio Girolami*

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Question 11: **Option 1** is definitely the **preferred one**. In fact, in addition to the positive aspects supporting option 1 as decribed in the A-NPA, such as the improvement of flight test safety and effieciency or the training standardisation (pag. 10), the following other two points can be considered in favour of option 1:

a) A LFTE licence although it shall obviously be based on the civil (EASA, or FAA-like) regulations, it will have to be held also by those (L)FTE working on military programs. This will allow a non-negligible exchange of expertise and know-how between the military and civil aviation fields. The transfer of know-how from civil to military was and will be also equally important. On the contrary, option 0 would very likely reduce the possibility of moving FTE-related knowledge and resources from civil to military aviation and vice versa.



b) The test pilots, also those testing military aircraft for aircraft manufacturers, operates with a civil licence. Thus, only if Option 1 will be chosen, any duty or privilege of a LFTE role (as to 'assist' the pilots and perform 'critical' actions, pag 6 of the A-NPA) would definitely result more compatible with the test pilot job. In other words, it would be surely more sensible that the crewmember that operates some critical aircraft systems (LFTE) has a qualification that shares officially and legally the same 'bulk' of knowledge, as the pilot that flies the aircraft.

In addition I strongly support the comments proposed by other Italian and French FTE colleagues:

#### **Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conducted within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

#### **Social aspects:**

Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For Company Name this represents 2 people, and in the near future shall be a total of 5.

It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

#### **Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number



of people in the management system already taking care of licenses for a huge number of pilots.

In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

**Medical requirements:**

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

237

comment by: *Frederic Nourisson*

Attachment [#10](#)

Please refer to attached file.

response



comment

242

comment by: *Didier Delsalle*

**Option 1 (license requirement) is preferred.**

This choice is driven by the following considerations.

**Regulatory aspect:**

Consistency with ICAO Chicago Convention – Article 32 : every pilot and associated operating crew members shall be provided with certificate of competency and licenses.

LFTE competence and experience requirements have been formalized by CRD 2008-20 and lead to the definitions of LFTE tasks:

- To conduct flight tests activities
- To assist the pilot during critical actions in the operation of the aircraft and its systems during these flight test activities i.e. to act directly on aircraft's critical systems.

These points lead to give to LFTE the definition of an operating crew member during flight test activities. The option 0 (status quo without LFTE licensing) will not be consistent with ICAO rules.

As operating crew members, LFTE need adequate and formalized training because the required training is not specific to the organization to which the LFTE works:

- Certification agencies establish requirements not specific to an organization or a company
- Certification agencies (namely FAA and EASA) tend to harmonize certification requirements enforcing the fact that LFTE shall have a common training
- Aircrafts certification process occurs nowadays and specifically within UE in an international context where mutual crew licenses recognition is evidently required.

These points lead to assess that the training needs for LFTE are not specific to the organization for which the LFTE works.

For category 1 & 2 flight test activities, all the reasons which lead led to test pilot's JAA licensing requirements are applicable to LFTE qualification into the EASA system.



**Legal aspect:**

Flight test activities can occur in airspaces not specifically allocated to these specific activities and open to general international air traffic so the non-conformity to ICAO requirements may imply some legal cases in case of accident/incident with non-licensed crew members operating on aircrafts essential systems.

The status of non- licensed flight crew on board an aircraft, approved by EU & EASA may be a wide open door for third party claims after an accident pointing out.

**Safety aspect:**

LFTE technical skills:

Maintenance engineers & Air Traffic Controllers have been recognized as requiring a license certifying a minimum level of competency recognized as essential for flight safety. What about crew members directly acting, in flight, on aircrafts essential systems like engines, flight controls systems, hydraulic or electrical power supply? LFTE must have an official proof of competency to act on vital aircraft's systems as the consequences or errors may impact not only the aircraft and its crew but also third parties.

During category 1 & 2 flight test activities cockpit workload is high and shared between pilot(s) and FTE(s) where Crew Resource Management (CRM) is paramount for flight safety.

CRM and Human factors aspects are essential parts of aircrews training and only official minimum requirements of a license may guaranty this required level.

LFTE licensing will require an adequate initial and recurrent training and will guaranty that the proper test methods (like the build-up approach to the limits) will be in force in the design or production organization for flight safety sake.

LFTE independence of judgement:

As flight safety considerations may have considerable impacts on costs and schedule on a specific product or equipment, a licensing system will give more weight to LFTE opinion on flight safety impact in case of disagreement between the organization for which the LFTE works for and the LFTE.

Medical requirements:

Adequate regular medical fitness assessments are required for LFTE as the physical incapacity to perform one of their essential tasks in flight may jeopardize flight safety at very short term.

These periodic assessments of the minimum physical requirements are part of the requirement of a crew license.

**Social aspects:**

The golden rule within the EU is mutual recognition of diploma and licenses allowing the freedom of travel and work within EU. What a better choice that to have unified licenses to allow mutual recognition?

A unified European flight crew license system is a strong driving mean to allow harmonized working conditions and social security for the benefit of the entire LFTE group. Option 0 will lead to considerable drawback for already licensed LFTE (salary, insurance, retirement pensions, ...).

In case of technical disagreement between the employer and the LFTE, having a license will help to protect the LFTE against possible social harassment and maintain the necessary LFTE independence of judgment.

**Economic impacts**

For countries already operating a Flight Test crews and particularly LFTE licensing system, the



cost effort will be nil as for countries with no Flight Test organization or in which no LFTE are foreseen.

As adequate training costs are independent of the type of option (0 or 1) and considering the international characteristics of Flight Tests, countries in which Flight Test organization with LFTE are existing or are foreseen but without licensing system, the cost of the administrative burden could be minimal as, if the LFTE is recognized at EU (EASA FCL) level, those countries may delegate training and license validation to other European countries already operating such licensing systems.

On another side, every EU state member has a pilot crew licensing system and the administrative costs of LFTE licensing could be mitigated by using the system currently used for pilots.

Countries and organization newcomers in the aircraft design industry will begin by light aviation products which may not require LFTE on board the aircraft for high risks flight tests.

response



comment

244

comment by: *Jean Francois AZZOPARDI*

Réponse à la question 11 : Option 1

La création d'une licence LFTE, (équivalente à celle des INE/MNE/ENE de certains pays de la communauté) me paraît un plus incontestable pour la sécurité des vols d'essais de Cat 1 & Cat 2 pendant lesquels ces personnels sont amenés à prendre une part active à la conduite du vol (décision de poursuivre ou pas, adaptation de l'ordre d'essais en fonction des résultats obtenus, ...) mais aussi de la conduite machine (extinction / rallumage moteur, modification lois de pilotage, etc).

Cette licence permettrait de plus de garantir la standardisation et l'harmonisation de la formation mais aussi des exigences médicales des titulaires originaires des différents pays de la communauté et faciliterait par là même la libre circulation de ces personnels au sein de la communauté.

response



comment

249

comment by: *Damien ROUJAS*

Answer to question 7:

4 people are doing flight test engineering duties in our service

Answer to question 8

All of them would qualify as LFTE

Answer to question 9

None of them are freelancers

Answer to question 10

All of them have a license

Answer to question 11

I am strongly in favour of option 1.



As flight test is conceived and perceived among my organisation, the LFTE role is fundamental and crucial in the way the flight is conducted.

In the vast majority of test points, the LFTE is responsible of monitoring flight parameters and **deciding** on the spot whether a parameter could be exceeded or not for the sake of test point completion.

In the majority of tests, the LFTE is **acting** on systems and sometimes primary flight parameters.

This is the case for flight controls or autopilot tuning, for which the LFTE is the sole people onboard to be able to modify and inject laws tuning.

This is the case in flight dynamics and/or engine test points tuning like VMCG / VMCA or stability point, for which the LFTE is the person onboard responsible for shutting down engines at critical speeds.

Through the two abovementioned examples, we have seen that LFTE as a direct input on the conduct of the flight and the safety of the flight. But these are only two examples, and it exists many more.

We then clearly see the level of training and proficiency required in several areas such as CRM, basic airmanship, way to recover from critical situation...

This level of competence requires flight hours and standardized training. It also requests medical fit, and also a high level of confidence inside the A/C to be tested. Above all this level of competence and fitness must be guaranteed by an independent system since flight testing activities are inherently dangerous if not carried out correctly.

To my opinion the only system able to guarantee all the criterions at the same time with a high level of coherence and standardisation is a **licensing** system, proposed by **option 1**.

response



comment

255

comment by: *Pourchet Alain*

About question 11, I choose the option 1 for a license for all lead flight test engineer for the following reason :

1 - In accordance with ICAO Annex 1 document, all flight crew member must have a flight license with regular medical check. A medical check for all lead flight test engineer has to be done every year by a dedicated medical center authorised for that

2 - Lead flight test engineer is part of crew member during test and acting as crew member during test. Acting means participating to the aircraft configuration (fuel, engine systems) or monitoring/recording parameter during test manoeuvre

3 - If Lead flight test engineer is part of crew team, he must learn and train accordingly in a dedicated school to have the minimum requirement to manage test and analyse the data result obtained in flight. He must have the capability to analyse in flight with his own skill, and in relationship with all the crew what could be the next step for the test (if the result obtained is not the one expected)

4 - Aircraft testing must be performed by people well officially trained in specific school and those people must be officially identified and recognised by a specific document (LICENSE)



response



comment

257

comment by: PRIBILSKI

In my opinion, option 1 seems to me necessary for the following reasons :

-In test flights carried out, the Flight Test Engineer has often significant actions on engine, AFCS or other systems control (inflight relights or engine manual regulation) whether in assisting the pilot as a crew member or for performing tests. It is important to remember that most of the test flights are conducted in tandem cockpit in which the engineer conducts its actions and conduct the flight almost independently (no visual cross check possible)

-Medical monitoring of Flight Test Engineers must be the same as the Test Pilot. The engineers who may have significant actions in flight as described previously must be physically and psychologically the same level as pilots. Therefore, as required for licensing, Flight Test Engineers medical monitoring must be certified by medical centers approved.

Approved medical center expertise is particularly adapted to the specific activities of Flight Test Engineers.

response



comment

258

comment by: Army

question 11 : after reading the text and assessed the consequences, I am rather in favor of option 1.

response



comment

259

comment by: Ludovic TALON

Option 1 preferred: LFTE licence necessary.

LFTE can have access and actions on the flight commands, on the AFCS (Automatic Flight Control System) commands and settings, on the engines control panels and other safety devices of an aircraft. Therefore, as it is already regulated by a licence for other crew members having a direct action on safety devices, a licence for LFTE is necessary to maintain a good level of safety in flight.

LFTE impact on safety in flight have to be regulated by a licence to ensure the same safety level as for other types of flight performed in the european skies.

Concerning the medical aspect, it is also necessary to ensure a good level of medical fitness for LFTE as some flight conditions can be very hard and demanding (turbulences, visibility, technical problems...). Therefore, only a LFTE licence can ensure a good level of physical fitness, equivalent for all crew members having impact on the flight safety.

For the training of LFTE, it is important to keep it in coordination with the one of the test pilots in order to improve the crew cockpit management and the efficiency of a flight test. CRM can be learnt, but this not replace the coordination between LFTE and test pilot that is learnt during a common training in flight.



response



comment

260

comment by: *Emiliano Requena Esteban*

Question 7: Approx 130

Question 8: Approx 50

Question 9: 0

Question 10: Approx 10

Question 11: Option 1 (licence required). Rational:

As European citizen, as aeronautical engineer and as LFTE, I consider that a **LFTE is a crew member with a specific job and key tasks that affects the safety & efficiency** of the the flight tests.

As for test pilot cat 1&2, **the training required for a LFTE is not specific to the organization for which LFTE works.**

**The cancelation of current LFTE licence may affect the current retirement rights since LFTE could not be cosidered as flight crew member anymore.**

Therefore, I think the LFTE licence should exist.

For more details on the rational:

I am:

- Aeronautical Engineer (Escuela Superior de Ingenieros Aeronauticos de Madrid. Universidad Polit cnica de Madrid).

- Lead Flight Test Engineer for Engines, Fuel and APU with a French licence (Airbus training & EPNER). I have 1700 flight test hours.

- Private Pilot (PPL).

I am working as Lead Flight Test Engineer since 9 years ago in EADS, mainly in flight test for the development of new aircrafts (A380, A400M). Before, I worked as aeronautical engineer for the analysis of Flight Controls and Power Plant.

I consider that the LFTE has a very specific job and he is a crew member with key responsibilities during the flight tests. Unsafe situations or even accidents could occurs if his tasks are not properly done (that could happens due to lack of knowledge or proper physical or mental level) . In order to support this statement, I provide in the following list some tasks I have as LFTE:

- I participate in the design of aircrafts & systems being involved on operational and regulation subjects, and also in the definition of test strategy for verification, validation and certification.
- I am the crew member who defines the tests to be done during the flight.
- I am the crew member who performs the conduction of the tests and provide adequate guidance to the pilot for the manoeuvres to be done.
- I am a crew member who monitors parameters for the validation of the tests in real time (in occasions, only accessible to me).
- I am a crew member who monitors parameters (in occasions, only accessible to me) for assuring the integrity of aircraft equipments&systems and safe aircraft operation.



- I am the crew member who introduces in real time modifications in the laws of a/c systems and in particular on the engine control laws. In flight, only the LFTE has access to the interface for those engine control laws modification.
- I am a crew member who could shut down an engine (or call for ).
- I am the crew member together with the captain who provides reports and statements regarding the intended functioning of the systems & aircraft.
- I am one of the crew members who ensures the safety of passengers and technical staff when on board.
- I am one of the crew member who agrees and coordinate the flight test for certification with the authorities.

**Therefore, the LFTE is a flight crew member with specific key tasks that affects the efficiency and safety of the flight tests.**

In spite of I am Aeronautical Engineer and pilot, I have to recognize that the LFTE is a specific job that I think I would not be able to do (with the required level of efficiency and safety for a flight test) if I do not have:

- The level of knowledge in flight test techniques (manoeuvres, test conductions, monitoring, crew task sharing) provided by the general formation required to obtain my current LFTE licence. In order to get the required level of knowledge I have done 2 years of instruction and training.

**As for test pilot cat 1&2, the training required for a LFTE is not specific to the organization for which LFTE works.**

- The level of health required for flight test. In order to be sure that I am my physic and mental conditions are good for the LFTE tasks, I have to pass periodical flight crew medical checks.

-  
A licence would assure that the LFTE has the required qualification and health level the flight test task. I think also the **LFTE licence would recognize and identify the specific job of LFTE I am doing since 9 years ago and would also allow me to do my job in all countries where the licence would be recognized (Europe at least) . The cancelation of current LFTE licence may affect the current retirement rights since LFTE could not be considered as flight crew member anymore.**

Also as european citizen, I think a LFTE licence should exist. Rationals:

As European citizen, I want that all activities are done by persons with an adequate level of knowledge, physical and mental conditions. This applies to teachers, architects, engineers, doctors, drivers, pilots and also should be the case for the specific job of LFTE.

As European Citizen, I would not understand why some aircrafts are flying in Europe with crews not properly qualified.

As European Citizen, I would like that the aircrafts are developed, tested, verify, validated and certified by people with the best level of knowledge. It is my understanding , that level of knowndlge could affect the "quality" of the aircraft. Good knowledge would provide aircrafts with better performances and with potentially market success.

As European Citizen, I consider that a LFTE licence that requires a minimum level of knowledge and physical/mental level would assure (as much as possible):

- Flight tests done with the proper level of safety
- Aircrafts developed, tested, verify, validated & certified by persons with adequate



level of knowledge.

response



comment

261

comment by: *Joseph K*

As a flight test pilot, I support option #1 (licence requirement).

Here are my justifications:

11.

- A licence for test pilots is being established, which will give a common ground for all EASA countries regarding ground and flight training required for the different categories of test pilots. Why would we need a licence for pilots, and not for test engineers who conduct the flight, have a crucial part in the flight run down and outcome and may make decision regarding flight safety and effectiveness. The specificity of flight testing leading deserve in my opinion a proper training.

- A licence for FTEs would allow them to have a common and standardized knowledge recognized across all EASA countries. They would not be bound to one manufacturer or another, and that would improve their mobility and flight test knowledge spreading.

- With a licence, an FTE would be recognized as a full crew member for a test flight, which may help during cross-borders transit and save paperwork and time.

- The licence would be an official acknowledgement for comprehensive training and medical fitness (which would then be necessary). It would be an insurance for the crew that everybody talks on the same level.

- A licence would provide the Lead FTE formal authority as the flight test conductor.

response



comment

264

comment by: *DGA/EV EPNER*

I prefer the option 1 (license requirement for LFTE) because :

During the ten months training course in EPNER, test pilots and LFTE trainees learn to work together in a test team, first before the flight to prepare and sign the flight test order, and then onboard during the flight, each in his speciality,

- flying the aircraft for the pilot,

- conducting the progression in the tests as test director for the FTE, and often operating some test aircraft systems.

Both are able to make in-flight decisions as far as flight safety is concerned.

So I do not understand why at the end of the course and during their flight test operational life, there would be two different ways to maintain their respective flight test qualification

- with a licensing scheme for the test pilot

- without licensing scheme for the LFTE

No licensing for the LFTE means loss of social status for him, and difficulties to maintain insurance and pension schemes.

response



comment	<p>265</p> <p>I prefer the option 1 (licensing requirement for LFTE) because :</p> <p>As operational flying people, LFTE are required</p> <ul style="list-style-type: none"> <li>- to have accumulated each year a minimum of flight experience, or to have been tested in flight by a LFTE examiner</li> <li>- to be physically and mentally fit to their assigned duties and responsibility onboard</li> </ul> <p>The licensing scheme has proven to be efficient to manage these annual requirements</p>	comment by: <i>DGA/EV EPNER</i>
response		
comment	<p>266</p> <p>Test pilots' actions during flight testing may induce risks and may affect the security of assets and people. Their license ensures that they have the level of skills, the training and the good physical state that allows them to reduce those risks at acceptable level.</p> <p>I work for the French MoD flight test center since 1987 and I'm graduate from EPNER. In my experience, during test flights, LFTE may performs actions that can directly affect the aircraft basic system, through the flight controls, through the autopilot or by the mean of the flight test instrumentation. In doing so they contribute to a better distribution of tasks within the test crew and therefore they contribue to the safety. In these situations, in the same way that the test pilots, LFTE's actions may induce risks and may affect the security of assets and people. As a consequence of this, LFTE's skills, training and good physical state have to be guaranteed by a license in the same way that the test pilots.</p> <p><b>For this main reason I am in favour of option 1.</b></p> <p>We must also consider that in France, test pilots and LFTE are used to be trained and to work in a highly cohesive team with a mutual level of trust that allows a good distribution of tasks. We must keep in mind that this level of trust is also strongly based on the fact that the LFTE's abilities are ensured by a license.</p>	comment by: <i>Jean-Paul ANSIDEI</i>
response		
comment	<p>270</p> <p>I am convinced that a lead FTE licence must be issued by EASA.</p> <p>In Europe, there is no experimental aircraft as in the USA for example. Consequently, to be part of the flight crew of any flight onboard an aircraft not certified (no type certificate delivered by EASA), a specific test licence is required. A lead FTE licence delivered by EASA will guarantee the proper level of proficiency and safety for people on board and on ground. This will also guarante a more efficient crew resulting in less flight hours and a more competetive industry.</p> <p>If the Lead FTE is not part of the acting flight crew, it will increase workload on the pilots leading to less efficiency and a lower level of safety.</p> <p>Eample, where Lead FTE is part of the acting crew of the aircraft: when opening flight envelope with aero-elastic excitation to validate aircraft flight envelope, that is the Lead FTE who inject the stimuli on the flight controls with regards to the previous results. This action is fully a crew member action impacting directly flight characteristics of the aircraft. We cannot imagine this action done by a non crew member. And it cannot be done either by a pilot as he is already very busy flying the aircraft.</p>	comment by: <i>castaigns</i>



response



comment

273

comment by: UK CAA

**2.5. Questions for stakeholders**Questions for Member States/ National Aviation Authorities:

1 Do you have flight test activities in your country as defined in Part-21?

*Yes.*

response



comment

274

comment by: UK CAA

2 Do you have a system for licences (or equivalent e.g. rating, authorisations) for crew members other than pilots for the purpose of flight test? Please provide the rationale for having (or not) a licensing scheme for crew members other than pilots for the purpose of flight test.

*The CAA does not have a scheme for licensing crew members other than pilots for the purpose of flight test.*

*The CAA oversees these personnel using the 'approved organisation' process, which involves the specific approval of nominated post holders within that organisation. Nominated personnel must submit their curriculum vitae for approval by the CAA, to be in post.*

*These nominated personnel are responsible for recruitment of appropriately trained personnel within the area of expertise of flight test; these personnel may also submit their details to CAA.*

*The terms of reference of the persons required under a UK approval (in accordance with the relevant UK requirement (i.e. BCAR Section 'A') must be identified in the Organisation's Exposition, outlining responsibilities for liaison with CAA.*

*The 'Personnel' Section of the Exposition should also contain a list of Approved Signatories to the relevant Certificates and Declarations, which are required by BCAR Section 'A', giving their names and positions in the organisation. Details of certification responsibilities should also be included.*

response



comment

275

comment by: UK CAA

3 How many LFTE/FTE licences (or equivalent) do you have in your country?

*There are no licences. There are around 20 people who may be eligible for a LFTE licence.*



response



comment

276

comment by: *KLM Engineering & Maintenance*

KLM Engineering & Maintenance comments to questions 7 thru 11:

Does KLM (E&M) have employees that comply with the LFTE definition? NO  
 It is however noted that during Maintenance Check Flights KLM Type Project Engineers 737 operate aircraft systems (flight control s/o valves during manual reversion. Adequate training (including simulator session with flight crew) is already in place. As these activities are performed during Maintenance Check Flights the Type Project Engineer does not comply with the LFTE definition.

Does KLM (E&M) perform Cat. 1 and/or Cat. 2 Flight Tests? NO

It is noted that KLM (E&M) performs the following two flights; Maintenance Check Flights (frequent) and flight test(s) for DOA design changes (infrequent). DOA flight tests fall in Cat. 4 for the majority of all cases.

• Conclusion:

KLM does not conduct cat 1./cat 2 test flights and does not employ LFTEs. DOA test flights conducted by KLM always fall in cat. 4. Consequently this A-NPA has no impact on KLM (E&M).

Recommendation:

KLM E&M supports option 0 – Do not require licensing scheme for LFTE.  
 Note: Countries (France & Italy) that already provide LFTE licences should be able to continue to do so. Most important aspect is that this option already represents an improvement since it introduces in Part-21 common LFTE training requirements.

KLM E&M does not support option 1 – the creation of a licensing scheme for LFTE since this will (on top of France & Italy) impose additional requirements for all other member states only for the sake of harmonisation.

response



comment

278

comment by: *UK CAA*

4 How many people that would qualify as LFTEs are employed by the NAAs?

*Four.*

response



comment	279	comment by: UK CAA
	5 Do you anticipate TC or STC activities in your territory in the future?	
	<i>Yes.</i>	
response		
comment	280	comment by: UK CAA
	6 If a LFTE licence requirement would be introduced in your country how would you estimate the impact of the additional administrative cost?	
	<i>In the UK, the additional costs of such a system would have to be recovered directly from the applicant for the LFTE licence through the CAA's Scheme of Charges.</i>	
response		
comment	281	comment by: UK CAA
	<u>Question for all stakeholders:</u>	
	11. Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.	
	<i>In order to adequately address the options, further discussion is required on the significant issues and possible implications raised in this A-NPA. The UK CAA suggest that such discussions take place at the RAG, as the potentially significant issues raised by this A-NPA should be discussed at an early stage in the rulemaking process.</i>	
response		
comment	282	comment by: W. Brueggemann
	With reference to question 11 (Question for all stakeholders): For me, the <b>option 1</b> deems necessary. Justification: Flight Test is not only linked to the security / safety of the aircraft which is under test, it is also linked to the security of people (civilians) living closely around the Europeans flight test centres. This is fundamentally different to American test centres which are in general far away from populated areas (Edwards, Patuxent River etc.). To recommend any deep flight test training means not too much - and might leave the door open for any light and insufficient training accepted by the local DOA/POA holder and authorities. This situation might be quickly aggravated by financial aspects. In consequence the success of the future LFTE training should be deeply checked and laid down in an official serious European Licence. Notably in Europe more and more flight test centres are working closely together across the borders. Some flight tests are taking off in one country but the actual tests are performed in another country. Only a standardized European LFTE Licence would enable to coordinate flight tests between the countries under a maximum safety and	



	efficiency aspect.
response	
comment	<p>284 <span style="float: right;">comment by: <i>christophe BERTRAND</i></span></p> <p><u>question: 7</u> (how many people in your oversight perform flight test engineering duties):</p> <p>Within AIRBUS <u>production</u> flight test organisation, around 33 people are declared as licenced flight test engineers, covering the 3 sites (Toulouse, Hamburg, Tianjin).</p> <p><u>Question 8:</u> (how many of the people identified in 7 have duties that would qualify them as lead test engineers (LFTE)?)</p> <p>All of them (33) work as LFTE (preparing test order &amp; aircraft, conduct the flight test, take care of test excusion, direct action on push button if required, ...)</p> <p><u>Question 9:</u> How many people identified in 8 operate independantly?</p> <p>- none.</p> <p><u>Question 10:</u> How many of the people identified in 8 have a licence?</p> <p>- all of them (33)</p>
response	
comment	<p>285 <span style="float: right;">comment by: <i>christophe BERTRAND</i></span></p> <p><u>Question 11:</u> Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.</p> <p>- <b>My choice: 1 (licence required).</b></p> <p><b><i>To be recognised as a crew member:</i></b></p> <ul style="list-style-type: none"> <li>• Before flight: in front of maintenance staff (for some of them having a licence covering their maintenance activity ...) &amp; production people. Be able to act <u>on behalf of the captain</u> (accepting logbook item for flight), be able to delay the flight if not happy with aircraft status, ...</li> <li>• During flight: in front of pilots. Take into account my opinion - have a real team spirit with pilots- support pilots during test while they are well busy with air traffic control (direct action on cockpit push button to do test and recover normal config), take over pilot reaction for specific issue (ex: engine/APU start in flight).</li> <li>• After flight:again, in front of maintenance staff &amp; production people. Again, be able to act on behalf of captain. Request additional flight if not happy with previous flight.</li> </ul> <p><b><i>To improve safety:</i></b></p>



- the licence is to validate training (theoretical & practical) on how to handle flight test: safety environment for test / define limits to stop the test / what to do in case of.

**To be more efficient for activity outside main base:**

- To prepare the aircraft on behalf of the captain in front of external organisation
- To go through airport facilities as being part of crew member
- to have legitimacy when doing training to airline on how to handle flight tests

response



comment

287

comment by: Jet Aviation AG, Basel

**2.5 Q1-6:**

Not Applicable

**2.5 Q7:**

Flight Test Coordinators: 2 (+2 Trainees)

*Note:*

*FTCs act as an "Aircraft Coordinator", a "Primary FTE", an "Operations Engineer", or a combination hereof (see Society of Flight Test Engineers (SFTE) definition, reference CRD 2008-20 comment # 322).*

Flight Test Engineers: 7

*Note:*

*FTEs act as a "Basic FTE" (see Society of Flight Test Engineers (SFTE) definition, reference CRD 2008-20 comment # 322).*

**2.5 Q8:**

None. Flight Test activities, carried out by our company, do not demand participation of an LFTE as defined on Page 6 of this A-NPA.

**2.5 Q9:**

None. Flight Test activities, carried out by our company, do not demand participation of an LFTE as defined on Page 6 of this A-NPA.

**2.5 Q10:**

Not Applicable

**2.5 Q11:**

Option 0 is preferred.



Justification argument 1):

**Part 21, Subpart P, Appendix XII** provides adequate LFTE competence and experience requirements for the various test flight categories, hence, the pre-requisite for DOA/POA owned responsibility concerning LFTE authorization and respective test program appointment is fully granted, yet does not demand any higher level licensing scheme. DO and PO procedures can be kept synchronized for FTEs and LFTEs, defining EASA approved means to assess and accept candidates in view for such duties.

Justification argument 2):

In particular, **Part 21, Subpart P, Appendix XII, (d) 1. Competence Level 4** is adequately kept “generic” in view of LFTE qualification, referring to the company FTOM for such definition. This would be in conflict with a generic licensing scheme for LFTEs, unless LFTE Competence Level 4 is re-defined, or LFTE Competence Level 4 is removed from a potential future licensing scheme.

Justification argument 3):

**Part 21, Subpart P, Appendix XII, (d) 2.** correctly mandates the need for DOA/POA organizations to detail the scope and function of an authorized LFTE.

LFTE scope of responsibilities demand a very high level of integration with all related disciplines participating in flight testing. Processes and practices vary significantly based on company-, and/or test program specific criteria.

Therefore, adequate **prove** of LFTE qualification cannot be **solely** based on a license system, but will always demand DOA/POA assessment of adequate competence and experience, medical fitness **and knowledge of company-, and/or test program specific environment**, in order to fully justify a specific appointment.

Therefore, the potential benefit of a common licensing scheme, which would promote/support freelance type LFTE contracts by enhancing the freedom of circulation of people is not necessarily as much of an advantage as it seems. Based on the above, DOA/POA organizations will remain responsible to assess, authorize, and appoint LFTEs, just as being mandated to do so for FTEs, concluding in the need to reflect appropriate processes and definitions within their FTOM. As this is the case with-, or without a licence scheme, and as the “License” related areas of assessment **are well oversee-able** (medical fitness check, competence and experience record keeping), we feel that a license benefit in this respect would not justify the disadvantages of such implementation.

response



comment

288

comment by: *Marchand*

Comment on question number 11 :

**I prefer the option number 1** for the following reason :

I'm a young flight test pilote and I've not a big experience in this kind of flight, but I already face a situation that should be dangerous. At this time the action of my LFTE and his help has been crucial.

I think that a licence is required to be confident in his LFTE because it is the best solution to have LFTE well instructed and efficient. During the EPNER course for exemple, LFTE learn to work inside a flight team and to begin essential element in flight safety.

In my job of experimentation on helicopter, in most of case, I immediatly see the difference



between a LFTE with a real formation and an other one without it.  
Being essential part of flight safety, LFTE need to have a licence like other crew members.

response



comment

289

comment by: *Christian MIGNOT*

### Question 11 's answer :

I prefer the option 1 for several points :

- This license will allow to distinguish a personal who passed a flight test school, who has a recurrent training on the flight test conduct, and a recurrent medical surveillance without being a pilot. All this points increase the trust in the flight test team and safety's flight.
- Today, this type of personnel have an active role on the flight conduct (cut off or cut on engine, radio traffic management, etc,... ). By this way, he has to be recognize as a crew member to be in accord with the ICAO regulation (captain delegation).
- A all others personals (pilot, flight controllers, mechanics) who intervene around the flight test are recognized by a license. The creation of the lead flight test Engineer license would make more homogeneous the recognition off all population who works together.
- Recognized by European Instance, this license will permit to LFTE, guarantor of tests results, not to be attached at the DOA/POA (total impartiality admit).

response



comment

290

comment by: *René STEVENS*

Being retired only the question 11 is pertinent for me and my choice is **the option 1**.

First I must introduce myself. I am a civil engineer ( Ecole Supérieure d'Ingénieurs de Marseille, 1956-1960, Ecole Supérieure d'Electricité de Paris, 1960-1962, Ecole du Personnel Navigant d'Essais et Réception, Istres, now retired.

I worked as LFTE at the Helicopter flight test Department of successively, Sud Aviation, SNIAS, Aerospatiale and Eurocopter, from 1964 to 1995. I had principally in charge the Dolphin program with the single engine SA 360 to all the twin-engine family SA 365 C, G N including the Coast-Guard program etc.

It appears to me that it is absolutely necessary for a LFTE to have a LFTE licence issued by the competent Administration following an approved course in a flight test school as EPNER, ETPS, or others.

This licence will attest that the owner has the required aeronautical experience and knowledge, and has been prepared to work inside the crew team, with the other crew members, in complete confidence.

By two times I remind, in my career, I had to refuse a requested test (ground resonance), or to stop a test that I considered as dangerous for the airframe (transmission resonance on T 800 HH 65 A in Phoenix) I am sure that if I had had only an approval from my DOA/POA, I



response	<p>should not have the same authority to take this necessary decision.</p>
comment	<p>293 <span style="float: right;">comment by: <i>Martin BERRY</i></span></p> <p>In regard to Q11.</p> <p>I would recommend that EASA moves towards introducing a Lead FTE license (Option 1). There are 2 main reasons for this:-</p> <ol style="list-style-type: none"> <li>1) It would enhance the standing of the experienced Flight Test Engineer within the Aviation Industry and hopefully lead to recognition of the key role of a Lead FTE in progressing a flight development and/or certification programme.</li> <li>2) It would allow an aligning of Lead FTE qualification routes i.e. complete “on the job” learning over a period of years or combination of “on the job” learning combined with a recognised FTE course (only as a way of foreshortening the “on the job” learning phase).</li> </ol> <p>I am in the unusual position of working for a sub-division of a helicopter company in a country that does not have a Lead FTE License requirement (yet) – solely driven by the fact that the products currently produced at my home location are covered by MAA (Military Aviation Authority) oversight. I do however have a Lead FTE License - issued to me by ENAC (Ente Nazionale per l'Aviazione Civile) following a review of my extensive Cat 1 and Cat 2 Flight Test experience and completion of an exam on CS27/29 rules and applications to testing. This allows me to act as Lead FTE on Italian registered non-certified aircraft both in Italy and UK to standard expected by ENAC. This is part of an overall company plan to maximise the resources of Flight Test Departments located at two sites in different countries and reduce development / certification timescales.</p> <p>At an appropriate point in a FTE’s career there needs to be the option of having their level of experience recognised by the Industry. The development of a FTE from a novice to full Lead FTE requires a gradual exposure to all aspects of Flight Testing with increasing levels of responsibility added as experienced is gained. Some skills and knowledge, in my opinion, can only be gained by “on-the-job” training such as instrumentation limitations, instrumentation design and data analysis, while other aspects can be gained by either “on-the-job” training or by way of a recognised Flight Test Course.</p> <p>As FTEs are a critical part of the test aircrew there is a need to encourage the FTEs to become a Lead FTE and to maintain the professional standard of Lead FTE and, as such, a Lead FTE License offers novice and junior FTEs a level to which they should aspire to. In order for this to happen there needs to be a clear and recognised career progression path (by the Flight Test community) within the Aviation Industry. At the end of this progression should be an Aviation Industry wide recognised grade of Lead Flight Test Engineer.</p> <p>In order to reflect the level of contribution that Lead FTEs bring to a Flight Development Programme it is essential that there is an Industry Standard that underlines this level of experience and of course this will, hopefully, reflect the appropriate position (and reward) of the Lead FTE within the Aviation Industry.</p> <p>In my opinion, the significance of the Lead FTE to the safe and successful completion of</p>



Development Flight Test Activity is continually overlooked – the planning of the flight(s), the participation in the flight(s) and the analysis & reporting of the results amongst the essential tasks to execute a flight test activity from start to finish. There appears to be a serious under-estimation of the level of competence and knowledge that a fully trained and experienced Flight Test Engineer brings to flight testing activities especially Cat 1 and Cat 2 testing. A successful, uneventful, well conducted Flight Test campaign never raises any headlines. Within the Aviation Industry being good at your Flight Test job allows less well informed persons to assume that the job is easy.

While the ultimate responsibility and control of a helicopter under flight test belongs to the Test Pilot, the pilot is heavily dependent on the FTE(s) onboard for operating relevant systems, both aircraft & test instrumentation; the latter may include engine limiting (power limiting) systems and AFCS response modification systems both of which may have a serious impact on the aircraft safety if incorrectly actioned. The Lead FTE should be in a position to aid the Test Pilot's decision making, whether from the left hand seat, rear cabin or from Telemetry, based on the Lead FTEs understanding of the systems being tested and the methods used. To that end the Lead FTE is just as critical to the safe conduct and the success of the flight test activity as the Test Pilot.

The creation of a European wide Lead FTE qualification through the issuing of a EASA equivalent (to those already in existence) license will allow the role to be rightly recognised for its importance and the level of experience that the holder has acquired & developed over a number of years & the holders' significant contribution to the safe advancement of aviation.

response



comment

294

comment by: EUROCOPTER-FTE

LFTE are part of the flight crew, by choosing option 1:

- Make LFTE activity compliant with ICAO rules;
  - Define the same level of knowledge and power with all other flight crew
  - Define an initial and common training for flight crew.
- Secure flight test by medical examination

Option 0 can't be accepted

response



comment

295

comment by: DGA CEV

My choice is : option 1 (Licence requirement) for the following reasons :

- Participation of the LFTE like a crew member for the control of the flight in the event of a flight test with only one pilot (tandem aircraft,...) -This work requires pilot / LFTE common formation. By definition of the ICAO, the crew member must be titular of a licence
- The use of means of communication or navigations (FMS) by the LFTE in the civil airspace requires a standardized level of knowledge which can be guaranteed only by a licence : For example :



- Management of radiocommunication with civil air traffic control during radiocommunication flight test – safety impact

- - Flight tests of means of navigation (IFR, RNP-RNAV, ...) with civil air traffic control – safety impact
- Many tests with LFTE can have an implication on the control of the aircraft: for example: autopilot tests
- The licence guarantees a qualification level which can be exportable without additional training
- The licence guarantees an uniform and minimal qualification level for certification test flights
- The licence guarantees a medical aptitude for flight tests.
- The licence guarantees the impartiality of the LFTE towards his DAO/PAO

response



comment

296

comment by: *Laurent PALCY***A-NPA 2013-16****Answer to question 11**

Option 1 (licence requirement) is preferred as explained hereafter.

The main onboard tasks of a LFTE during flight testing are:

- to conduct the flight testing in accordance with the test cards,
- to operate the necessary flight test means and devices, and the aircraft systems / equipment related to the testing purposes,
- to take part in the decision process (final decision belonging to the captain) for any:
  - o flight test adaptation,
  - o degraded functioning of the flight test devices,
  - o emergency procedures application for the flight test devices failures when options are possible.
- to assist the pilot(s) to operate the aircraft and its systems.

Some onboard flight test devices directly act on critical aircraft parts or functioning (e.g. engine regulation, auto-pilot, primary piloting aids,...) or contain dangerous materials (live ammunition of weapons, chaff and flares dispensers cartridges,...), or have direct or indirect safety effects when operated (weapon firings, external stores jettisoning,...). These systems usually are operated by the LFTE.

The LFTE is therefore an active crewmember for decision taken, for aircraft operations and for systems operations with direct impacts on:

- safety (onboard and outboard),
- effectiveness of the testing.

Having a licence process with regular examination (at least yearly) of standard criteria (medical, flight experience, ability level) is necessary in order to assure that the concerned personal suits to the LFTE in-flight functions.



When Pilots, Maintenance Engineers and Air Traffic Controllers have a licence process, it appears obvious that the LFTE shall have also a licence process, for the simple same safety reasons.

Moreover having a LFTE licence process for all the Member States testing is a real advantages:

- it provides a standardised level of the LFTE qualification,
- it assures a standardised up-to-date experience and training level of the LFTE,
- it assures suitable medical criteria for in-flight operations in a standardised way.

Having a licence has a direct effect on safety and effectiveness, wherever (in Europe and beyond) the test crew and the LFTE are acting for category 1 and 2 flight test.

Since some of these testing require the aircraft to be operated out of the initial country, the licensing of the crewmembers, including the LFTE, is a further insurance that the aircraft and its systems will be operated in a standardised way for the countries which are overflown or which provide the testing facilities.

Conclusion:

Only the option 1 (Licence requirement) fits to the LFTE crewmember functions as defined in the A-NPA 2013-16. This is the only option which will assure medical, continuing experience, training level and ability level for safe, discerning and effective onboard operations for category 1 and 2 flight testing.

Laurent Palcy

response



comment

297

comment by: Airbus

Please find herebelow Airbus contribution to A-NPA 2013-16 about Lead Flight Test Engineers.

In a nutshell, Airbus thank EASA for this initiative and support the proposed option 1 of this A-NPA, as it would constitute a balanced and proportionate regulation for flight test crew members, in combination of Opinion 07-2013.

**Fernando ALONSO**

SVP Head of Airbus Flight & Integration Test Center  
Head of Flight Operations  
Experimental Flight Test Engineer

**Question 7 – How many people in your oversight perform flight test engineering duties?**

Above 1000 people in Airbus (FTEs as in A-NPA)

**Question 8 – How many of the people identified in 7 have duties that would qualify them**



**as lead flight test engineers (LFTE)?**

Airbus: 86 LFTEs

**Question 9 – How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)**

Airbus: None

**Question 10 – How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?**

All people identified in §8 have a licence:

**Note 1:**

In Airbus, only roughly half of the LFTEs are French nationals, the other half being mainly German, British, Spanish (including myself), Italian. But to be noticed all 86 LFTEs hold a test licence.

**Note 2:**

The total number of test crew members, holding a test licence or a certificate, including test pilots, LFTEs and cabin specialists, is 140.

**Question 11 – Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.**

Airbus prefers **OPTION 1** (licence requirement), for the following reasons:

**Safety:**

A licence scheme enables the setting up of a more formal and efficient medical follow-up of LFTEs. As stated in the A-NPA, those crew members have duties that are really directly related to flight safety. Improving their medical oversight will give further assurance of their ability to discharge their flight safety duties in critical phases of flight.

As well, it enables an independent check on the discharge of those essential duties.

The formalisation of a level of competence through the issuance of a licence enhances, in most minds, the consciousness that privileges are associated to duties and obligations.

**Regulatory stability:**

Since Airbus, as an European Company initially, has grown majorly in a regulatory background, which required such licencing in conjunction with the training requirements that would now be specified in the flight testing rules (Opinion 07-2013 – Part 21), keeping a licence scheme would avoid undesirable regulatory changes in our business.

**Social considerations:**

Not having a licence in the future would have a significant detrimental impact on all social schemes that will have to be reworked to re-enable the equivalent schemes for the future. Despite of course this would be feasible, this work is considered unnecessary since normally such crew should be regulated by a licence as required by ICAO.

Indeed those crew involved in aircraft operations, by assisting the test pilot, do fall in the



ICAO definition of flight crew member. Therefore it is understood and accepted that those persons are regulated as flight crew members.

We consider reasonable not to change the frame for those crew members, now that the clear distinction is made between them and all the other FTEs.

**Operational considerations:**

Crew members have different privileges and are handled in airports in a different way than any other aircraft occupants. Not all, but most of the airports that our crews visit when performing their duties, do adapt the handling of people on board depending on their crew member status, which is determined by the capacity of the crew member to show that he/she holds a licence.

For instance, for a long-haul test flight or serie of flights, it would be very detrimental for the overall crew coordination and fatigue to be obliged to sustain significantly different filtering processes, detrimental to those not being accepted as crew members.

**Harmonisation in Europe:**

Licensing those crew members, based on the already harmonised training requirements (Opinion 07-2013), will actually harmonise the proficiency and medical fitness requirements and make the proficiency criteria independent of the employer, thus truly enabling the freedom of movement of qualified personnel throughout the European Union.

**Proportionality:**

Airbus applauds the balance introduced by the concept of requiring an LFTE licence for essential flight safety functions, and only for those LFTEs.

The most important requirement on Industry and Authorities, as regards LFTE, is actually the training itself, which may be costly and requires proper coordination and oversight from the Authorities. The requirement for such a training is already being introduced into Part-21 (Opinion 07-2013). The introduction of the licensing itself for LFTE 1 and 2 only is a very light add-on compared to the a.m. training. Not having it would trigger on the other hand lot of undesirable changes in existing business and social organisation.

Therefore, the global scheme for flight test personnel, including LFTE and other crew members, as currently proposed by EASA with Opinion 07-2013 and potentially Option 1 of this A-NPA, would constitute a fairly balanced synthesis of opposite traditional schemes in place in EU Member States.

Indeed, not imposing such qualifications to organisations which do not need/wish such specific flight duties, it enables existing schemes that allow FTEs (except LFTEs) to participate in flight testing with the adequate training defined by their organisation, without necessarily requesting the level of flight crew members. In addition, the current excessive requirements that exist for instance in France, such as "every personnel on board shall hold a test licence", would then be better balanced between those personnel actually deserving a licensing scheme due to their critical duties on board, and those that would safely and efficiently be regulated and trained at company level.

.

response



comment

298

comment by: *Pilatus*

In answer to the questions of A-NPA 2013-16 Section 2.5, Questions for all other stakeholders:



7	How many people in your oversight perform flight test engineer duties?	20
8	How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?	20
9	How many people identified in 8 operate independently (e.g. freelancers)	4
10	How many people identified in 8 (as LFTE) have a licence (or equivalent)?	0

response



comment

303

comment by: *Pilatus*

**Conclusions**

- Pilatus are totally against the concept of Lead Flight Test Engineer (LFTE) as defined in NPA2008-20.
  - Pilatus are totally against the concept of licensing the LFTE, as proposed in A-NPA 2013-16.
  - Pilatus proposes that the current ruling is maintained.
- Pilatus are concerned that their responses to NPA No. 2008-20 and the CRD have not been fully appreciated. Pilatus therefore requests that EASA further review the Pilatus position and seeks dialogue so that Pilatus can explain/clarify their concerns.

response



comment

305

comment by: *Fokker Services*

Comment from Fokker Flight Test group.

Answer to questions for all stakeholder to A-NPA 2013-16

7. In Fokker organization the number of peoples performing flight test engineering duties is 3;

8. All the 3 persons mentioned at point 7 perform actions that qualify them as lead flight test engineer;

9. None

10. One person of the ones mentioned at point 8 is in possess of a Flight Test Engineer license

11. In regards of the A-NPA 2013-16 Fokker Services prefers the Option 1, involving the creation of a licensing scheme for (L)FTE's.

response



comment

309

comment by: *YBM*



Option 1 is by far my choice; first of all for flight safety aspect. LFTE will have to act on engine, flight control system (as he is already doing). For this major reason, I consider mandatory (at least for France, as it is already), to settle a licence for LFTE. A licence is also the way to ensure that pilot and FTE have followed TOGETHER flight test course, which is paramount for Cockpit Ressource Management. Present french FTE has already licence and demonstrates a real know-how during flight test activities all over the world. A french licensed FTE can operate in flight test activities in all countries, as it is not always the case for non-licenced.

response



comment

314

comment by: Yann FORESTIER

Answer to question 11 :

Option 1 is the best option for all the reasons developped above and summarized below :

- - Importance of the involvement of the LFTEs in safety management, requiring to deal with the LFTEs qualification requirements at the same level as what was done for the other flight test crews (pilots so far),
- - Flight tests efficiency linked to the fact that LFTEs can be trained as a team with the test pilots in an ATO and that category 1/2 flight tests are not DOA/POA specific and thus more appropriately taught in an ATO,
- - Coherence with international regulations that are not only dealing with pilots' qualifications but with crew qualifications and explicitly require licenses for all crews on all the topics treated until now,
- - Maintaining at least the current level of safety in flight tests management by allowing countries that are experienced in flight tests to continue flight tests management with a safety standard that has been recognized for a long time with licensed LFTEs and also allowing other countries to perform flight tests with FTEs only with no additional constraint if they wish to do so.

response



comment

315

comment by: Mathieu SKWAREK

Question 7: I work for Snecma, which is known for developping engines for civil and military aircrafts. Today in this organization, I am the only one Flight Test Engineer (with EPNER diploma and CEV Licence).

Question 8: Since my qualification (2005) I've performed the development of the SaM146 engine during 2 flight test campaigns, on an IL76 Flight Test Bed Aircraft, and I now preparing a new flight test campaign on a Gulfstream GII FTB for developing the Silvercrest Engine.

My role during these campaigns is to be very active in managing the test engine: helping pilot during engine relights / managing in-flight software modificati0sn (adjustments) / acting directly on the Flight Test Installation in order to prepare the engine configuration before tests...

So I consider that my job can really be qualified as "Lead Flight Test Engineer".

Question 9: I do not operate independently for the moment. However, I regularly work with the Airbus flight test teams as a partnership, in order to increase my knowledge area.



Question 10: I have a FTE Licence since 2005.

Question 11: **I prefer the option 1.**

My work is to be very close to the Flight test crew during the kind of flight tests I use to perform. By being involved in developpement and certification tests, I am part of the safety during the flights (by managing directly the test engine).

Also, having a licence helps for authorities recognition, specially when I operate in foreign countries (like Russia for Sam146 or USA for Silvercrest).

Finally, a licence will help to be part of CRM task sharing and for work recognitions.

response



comment

316

comment by: *Michel OSWALD*

**Option 1** is preferred because :

1. International rules :

LFTE is a flight crewmember as defined in Chicago convention because he is able to perform actions that may have paramount effects on safety. Flight tests may be performed out of national area or cross the boundaries, so as international activity it should stick to international rules.

2. Safety aspect

The pilot in command should rely on a crew member able to perform actions having direct impact on safety. The obtention of a license is a garanty to have the minimum knowledge and the correct standardized cockpit ressource management approach. License obtention and renewal will be attached to a minimum training and a medical verification that will also upgrade the safety level.

3. Social :

A common EU license will allow the free personnal circulation.

The Option 0 is not, as presented, a status quo situation as in several EU countries LFTE license is existing with adequate organisation in place.

response



comment

317

comment by: *Philippe SEVE*

Depuis plusieurs années je conduis des essais en vol au sein d'Airbus en temps qu'ingénieur navigant d'essais. Lors de ces essais, nous avons un rôle de conduite de vol, et nous participons aussi à la mise en œuvre technique de la machine en intervenant directement sur les systèmes pendant le vol. Il s'agit d'une responsabilité importante en termes d'impact sur la sécurité des vols. Un vol d'essai ne peut avoir lieu sans l'équipage au complet, les pilotes et les ingénieurs navigants d'essais « Lead Flight Test Engineer ». A ce titre pour moi non seulement une formation technique et opérationnelle est nécessaire, mais aussi une licence. Seule une licence permet de garder un contrôle dans le temps de la bonne qualification d'un membre d'équipage, entre autres au niveau de son état de santé. Les « Lead Flight Test



Engineers » doivent selon moi y être soumis comme leurs collègues pilotes d’essais avec qui ils mettent en œuvre ces vols, en dépendant les uns des autres.  
Je suis en faveur de l'option 1 (licence).

response



comment

319

comment by: *Anne DUCAROUGE*

**Option 1** is much preferable for the following reasons :

- **Safety** : by definition, LFTEs are full members of the crew and are deeply involved in safety management since they are conducting the flights and can act on aircraft systems and/or configurations. It is therefore consistent to have the same level of proficiency requirements for them as the one expected from the pilots. Amongst other things, this includes training in an ATO and standardized medical fitness assessment. Option 1 is the only option that allows maintaining the appropriate level of safety, that is closely related to LFTEs’ competence.

- **Training and efficiency** : training LFTEs and test pilots together as a team in an official training organism has proven an efficient way of proceeding in many countries. It has a very positive influence on crew cockpit management leading to improved flight test efficiency as well as safety management.

- **Specificities of Categories 1/2** : Just as for the pilots, the level of knowledge required for managing flight tests for conducting Category 1 and 2 tests is not specific to the organization for which the crew works. Allowing the LFTEs to be taught only in a DOA/POA would therefore be inconsistent with what is required from the pilots. The arguments developed in the A-NPA §2, 1. Page 5 for justifying the choice of an FCL-qualification for pilots in categories 1/2 flight tests are also fully applicable to LFTEs.

- **Regulation consistency** : Although initially limited to international air transport by the Chicago convention, the scope of EASA regulation has expanded to flight tests issues through introducing flight test rating for pilots. The crew proficiency should be treated at the same level for LFTEs as for pilots since they also have a strong impact on safety management in flight. Requiring a license for LFTEs is therefore consistent with the introduction of flight tests qualifications for the pilots from an international regulation point of view.

response



comment

320

comment by: *Dassault Aviation*

**Questions for all other stakeholders: Dassaut-Aviation answers**

7	How many people in your oversight perform flight test engineering duties?  <i>Dassault Aviation Flight Test Directorate is employing 50 Flight Test Engineers</i>
8	How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?  <i>4 of them have duties that would qualify them as lead flight test engineers (LFTE)</i>
9	How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)



None of them. All 4 are Dassault Aviation employees.

10 How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?

All 4 Flight Test Engineers (identified as LFTE) have a licence delivered by EPNER after a one year training course.

**Question for all stakeholders: Dassaut-Aviation answers**

11 Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.

***Dassault Aviation is for the Option 1: create a licensing scheme for the LFTE.***

*In the scope of its flight testing activities, Dassault Aviation uses different specialists among them are test pilots, flight test engineers, and lead flight test engineers.*

**The role of a Lead Flight Test Engineer is essential**

*The Dassault Aviation flight testing expertise based on an historical and long practice leads to consider that test pilots and lead flight test engineers have complementary roles.*

*Where the test pilot will more concentrate his analysis on the qualitative results of a test (e.g. handling characteristics, easiness of a maneuver), the lead flight test engineer will focus more on the quantitative aspects of a test (e.g. sufficient number of recorded points, quality of the test point execution).*

*In flight when the test pilots are fully concentrated to execute a test point, they may have no time*

- *to trigger a failure (e.g. autopilot failure, engine failure)*
- *to activate a recording system (e.g. high speed cameras),*
- *to monitor all the instruments (e.g. when looking outside, the pilot may have no time to monitor several system parameters).*

*The LFTE helps by reducing the complexity of the test installations, by reducing the test pilots workload, by increasing the efficiency of each test flight, and by conducting the test flight.*

*As a result it reduces the global cost of a test flight, while increasing the safety of the flight.*

***Therefore the role of a lead flight test engineer on board an aircraft to assist the pilots is essential.***

**The Lead Flight Test Engineer needs to have a licence**

*The Lead Flight Test Engineer is fully part of the flight test crew at the same level as a second pilot.*

*The LFTE may act as a second pilot as he may shut down an engine or trigger a drift in an automatic system when assessing failure modes.*



Therefore the LFTE must demonstrate a high and safe level of competencies in conducting test flights, as well as in managing aircraft systems. He must also demonstrate a medical fitness.

Dassault Aviation may have to fly with LFTE coming from system suppliers. We must ensure before crewing any LFTE that his level of competencies is at a correct and sufficient level.

Only the delivery of a licence by an approved training organization will attest of an adequate and standard level of competency.

Therefore the **LFTE** needs to have a **licence**.

response



comment

325

comment by: *François FAUCHET*

Basically, I choose option number 1 because the notion of license for the LFTE seems fundamental to me. It is necessary to impose a licence on LFTE for safety reasons within the framework of flight tests as well as for harmonization and recognition point of view.

Indeed, some flight tests may lead LFTE to fully take part in the management of the test itself and also in the trajectory of the aircraft, as well as the pilot and air traffic controller do. Whereas pilots and air traffic controllers are required to have a license to practice, it would be illogical and inconsistent not to impose a licence to LFTE for such tests.

In addition, licence allows LFTE to be recognised by the entire flight test community (whether it is industrial or public organisations) and without challenging his appropriate skill to practice (technical and medical).

The licence for LFTE is a matter of safety and effectiveness.

response



comment

327

comment by: *Philippe PUPIN*

Option 1 (licence requirement) is the preferred option:

- A Lead Flight Test Engineer frequently and significantly impacts the conduct of flight by acting on the primary flight controls or the engines during the flight. He/She is a crew member as per ICAO definition, and shall therefore be licenced.
- Having a European licence fo Lead Flight Test Engineer will allow harmonized recognition of the profession throughout Europe. This will make the requirements & the profession independant of each individual POA/DOA holder (employer) and will ease circulation of individuals between member states.
- Requirements to be qualified and "authorized" as Lead Flight Test Engineer (Training & medical fitness) are close to those of Test Pilots. Administrative structure delivering test pilot ratings & licences could also take over Lead Flight Test Engineer Licences without significant additional costs.



	<ul style="list-style-type: none"> <li>As a citizen, I need a licence to drive a car or a motorcycle. I would find consistent that any crew member acting on the controls of an aircraft over my head are also properly licenced and monitored.</li> </ul>
response	
comment	<p>331 <span style="float: right;">comment by: Jean-Louis RABILLOUD</span></p>
	<p>I am in favor of Option 1 for all the reasons expressed in my comments above.</p>
response	
comment	<p>338 <span style="float: right;">comment by: AVdef</span></p>
	<p>Question 7: 3 Question 8: 1 Question 9: 0 Question 10: 0</p> <p>Option 1 is preferred. LFTE play a key role in the safety of flight tests. Therefore, it seems natural to us that they are, like the pilots, recognized for that with a professional licence.</p>
response	
comment	<p>340 <span style="float: right;">comment by: Philippe Braca</span></p>
	<p><b><u>LFTE versus Flight Test pilot recognition :</u></b> Actually the rule requires for a pilot:</p> <ul style="list-style-type: none"> <li>- to be type rated in civil operations</li> <li>- to be flight test licensed for Flight test operation Class A or B for a common European recognition.</li> </ul> <p>According to the definition, LFTE are “<i>flight test engineers assigned for duties in an aircraft for the purpose of conducting flight test or assisting the pilot in the operation of the aircraft and its systems during flight test activities</i>”.</p> <p>That clearly highlights the specificity of the LFTE function that is totally invested in the aircraft management during flight test in addition to their basic role to conduct the test. They clearly interfere with flight test pilot functions as LFTE will operate controls / systems / engines / flight test installation which could directly influence aircraft trajectory but also flight safety and safety of people overflown.</p> <p>In that way, there is no rational reason to make a difference between Flight Test Pilot license considerations and LFTE.</p> <p>In that purpose, LFTE licensing scheme (option 1) is obviously the most adequate to cover LFTE specificities.</p> <p><b><u>Safety aspects:</u></b> CRM is clearly not adequate for flight test activities. CRM is perfectly applicable for degraded situations on an “In service” aircraft. This is typically not the case during flight test activities, either for prototype development or first acceptance flight during which normal aircraft behavior is not yet fully identified (this is typically flight testing basic assumption). Flight Test crew cooperation is mainly based on the common understanding of flight test activities and</p>



techniques and is fully covered by the Flight testing “know how”. CRM is only applicable when flight test activity is ended and aircraft ready for service.

Moreover, the existence of a LFTE licensing scheme will allow worldwide function recognition which is a paramount point for specific duties like flight testing in foreign countries. A lack of license could hamper the ability of LFTE to perform flight testing away from their companies and induce unpredictable effects on delays and costs.

Flight safety and safety of people overflown are also challenged regarding medical crew fitness. According to LFTE function definition they shall also be concerned by specific medical requirements. And we all agree that this cannot be required without an associated license to be regularly validated through comparable examination over Europe. This will not be possible with option 0.

And finally, defining a LFTE license is also the only way to ensure a common understanding of flight test activities and techniques all over Europe, here again increasing safety. This will never be possible if option 0 is retained.

#### **Training / Experience:**

Option 0 concept is mainly based on experience / training recognition through DOA process.

Basically, this concept questions:

- - The definition of the minimum level of competence / experience required for flight testing
- - The ability for the smallest companies or freelance organizations to ensure a satisfactory preservation of skill.

On which criteria those key points will be based? And who will be responsible in front of lawyers or insurance companies in case of accident?

On that point, option 0 is clearly not adequate.

#### **Conclusion:**

History has demonstrated that editing rules allows equal consideration between all applicants and this is the best way to ensure the required safety level.

What is true for an aircraft shall also be true for the crew according to his function onboard.

**For LFTE, Option 1 is clearly the most adequate for what concerns:**

- - Specificity recognition,
- - Flight safety and safety of people overflown,
- - Training and experience

response



comment

341

comment by: AIC owner

#### **Questions for stakeholders**

1 Yes we have in France

2 Yes, we have a system for licenses as NOA, called EPNER Ecole du Personnel Navigant d'Essais et de Réception for Pilotes LFTE, FTE Experiment and engineer

3 About few hundred

4 About less than hundred



	<p>5 Yes</p> <p>6 No impact</p>
response	
comment	<p>343 <span style="float: right;">comment by: Catherine SCHNEIDER</span></p> <p>Answer to question 11 : 1 (licence requirement)</p> <p>The lead flight test engineer is in charge of tasks which are critical for the safe conduct of the test flight and thus definitely part of the flight test crew:</p> <ul style="list-style-type: none"> <li>• He shares, with the captain, the responsibility of the content of the test flight and its adequacy with regard to aircraft configuration, technical status and environmental conditions.</li> <li>• Via specific tools dedicated to flight tests, he can modify characteristics of aircraft controls or inject commands, in flight, which may have direct impact on aircraft integrity.</li> <li>• He monitors critical parameters during test flight and takes appropriate decision, in real time, to proceed with subsequent testing or to stop the tests.</li> </ul> <p>Indeed, as any crew member, the lead flight test engineer profession requires:</p> <ul style="list-style-type: none"> <li>• an appropriate theoretical and practical training, with a published program,</li> <li>• a qualification via a test supervised by an independent authority,</li> <li>• regular practice,</li> <li>• and adequate medical fitness, regularly checked by an independent organism.</li> </ul> <p>The only means of answering to these four pre-requisites is a licence as it is for test pilots. In addition, this licence should be created at European level to enable circulation of people between companies and countries, which is fundamental for european overall technical and industrial development but also for flight test safety.</p>
response	
comment	<p>344 <span style="float: right;">comment by: SylvieLABASTE</span></p> <p>Answer to question 11: option 1 is preferred</p> <p>- For safety reason: during flight tests, lead FTE is fully part of the technical crew. He has access to the controls of the aircraft: he can act on flight control gains, he can send solicitations on flight control surfaces, he can modify engine rating, he can intervene to stop tests for which safety is in danger...Test pilots and lead FTE work as a team and every member should be duly recognised. According to OACI, licence is required for a crew member.</p> <p>- For social reason: It is important to facilitate circulation of lead FTE within different european countries and within different manufacturers. A licence is a real mean of recognition, it will ease hiring process of lead FTE.</p> <p>- For operational reason: Acknowledgement of the lead FTE as part of the crew is important,</p>



response

especially when performing flight test outside the manufacturer's country. For example, not having licence will be a real operational burden at airport security.

comment

347

comment by: AIC owner

Questions for other

7 Number 12 all are friends of mine

8 Number12

9 Zero

10 12 idem

For all stakeholders

11 OPTION NB ONE

See my previous comments

Thanks a lot for your attention

I lament for the short time which was given to us to answer

All this is my personal point of view.

response

comment

349

comment by: Raoul moderc FTE

### **OPTION NUMBER ONE**

My name is Raoul MODERC.

Breveté Expérimentateur Navigant d'Essais à l'EPNER (Ecole du Personnel Navigant Essais et de Réception) du CEV (Centre d'Essais en Vol ) de Brétigny-sur-Orge en décembre 1961.

Affecté au CEV , section Essais - Equipements, de 1962 à 1997. Spécialiste des essais et de la mise au point des systèmes de navigation. Promu Cadre DGA en 1972.

- Titulaire de 3400 heures de vol sur une quinzaine de types d aéronefs civils et militaires divers, avions et hélicoptères.

- Mon choix se porte sur l'Option n° 1.

En France, la formation des équipages d'essais s'effectue à l'école du personnel navigant d'essais créée en 1945. C'est la seule école au monde occidental qui forme des équipages d'essais complets : pilote, mécanicien, ingénieur, expérimentateur. Cette particularité de la formation permet aux équipages d'essais de suivre les mêmes cycles de cours et de conférences leur permettant ainsi de parler le même langage. Elle est ouverte à toutes les nations du monde occidental.

Le pilote, assisté du mécanicien, est responsable de la conduite du vol et de la sécurité à bord. L'ingénieur d'essais rédige et définit les procédures d'essais qu'il propose au pilote. Il est assisté de l'expérimentateur navigant essais qui veille au bon fonctionnement des



enregistreurs de paramètres de vol.  
Le rôle de l'ingénieur d'essais est devenu de plus en plus important au cours de ces 20 dernières années étant donné l'importance croissante de la mise au point en vol des équipements (au sens large) et des systèmes (conduite du vol, navigation, armement...). Son rôle est de guider les constructeurs, car c'est lui qui porte le jugement final sur les caractéristiques des matériels et leur conformité aux clauses techniques.

Page 14

Questions for Shareholders

1 Yes we have Flight Test activities in France

2 Yes get a system for licences LFTE, FTE experiment and engineer from French NOA as EPNER Ecole du personnel Navigant d'Essais et de Réception Istres area

3 may be 200 or more

4 about 150 perhaps

5 yes we get

6 No impact

All other Stakeholders

7 may be 20

8 idem 20

9 None In France we are professional FTE

10 idem 20

All Stake holders

### **OPTION NUMBER ONE**

Would You see my previous comments.

Thanks a lot for your kind attention.

My comments are from my own point of view and to improve safety and freedom for Young people working in the best future.

response



comment

350

comment by: JPC

Answers to questions:

7 - I would estimate that more than 1000 people are performing flight test engineering duties in our organisation

8 - around 40 or 50 people have duties, acting as a crew during flight test

9 - none of them operates independantly

10 - all of them have a licence

11 - option 1 (licence required) is my preference for the following reasons:

\* Licence is not only a means of ensuring proper education of FTE but also recurrent training: a diploma is granting that the holder as followed required course, a licence needs to be renewed which ensure proper recurrent training. We make sure by this means that people in charge of flight test activities have continuous experience on the task they have to perform.

\* FTEs have a direct influence on flight tests performed because they are operating aircraft systems on board (modification of computer laws, change of aircraft center of gravity...) that has a direct link with aircraft safety. As such they are acting as a technical crew member.

\* FTEs are defining test order for each flight, making sure that flight test conditions are reacheable with acceptable level of safety. They share the responsibility of test points performed with the captain.

\* Holders of FTE licence are recognized as Flight Test experts whom opinion counts. This position is sometimes necessary to impose decisions which safety might require in front of industrial constraints. It is wise to put proper border between technical and commercial worlds. I am fully convinced that imposing licence for FTEs is a great contributor to flight safety.

response



comment

351

comment by: J Angoloti

Question 7: Not having direct responsibility over them, several tens of people. 4 directly under my orders, somehow.

Question 8: None of them.

Question 9: N/A

Question 10: N/A

Question 11: YES: A licence is required in the same way it is in many other flight crew activities: LFTEs are basic part of most of the FT activity and their work has to be regulated in the same way as for pilots, since they can have as much (if not more) influence on the safety and effectivity of a test flight.

response



comment

354

comment by: Marie-Laure GROUD



Answer to question 7: as responsible of the team of handling qualities, performances and flight analysis (flight test and others like incident/accident), 10 people can be considering as performing flight test engineering duties under my responsibility.

Answer to question 8: only 1 can be qualified as lead flight test engineer

Answer to question 9: none is freelancer. The flight test people are employed by ATR (Avions de Transport Regional). They are 7 in total.

Answer to question 10: only the one who can be qualified as lead flight test engineer has a licence.

### **Answer to question 11: option 1**

#### Safety impact

The recognition of the major role played by people who can even shutdown an engine in flight is crucial.

Not only the theoretical and practical background will be defined by the training, examinations will allow also to get the licence with the level necessary in this type of activities and harmonized in all Member States.

Medical fitness is essential during flight test activity and a good crew coordination is fundamental for Safety.

Option 0 does not bring any safety improvements when option 1 does.

#### Social impact

People already trained today by their own industry are attached to it with no possibility to move from one country to another. It can improve overall aspects to share methods amongst the flight test community by sharing experience through people and in some way, also improve Safety.

Option 0 does not bring any social improvements when option 1 does.

#### Economic impact

As stated in the NPA, if the economic burden is reduced is on Industry, one can anticipate that the Industry will facilitate the free circulation of people as they can find qualified people even in other countries rather than promoting their "national" employees at high cost. To this aspect, it reinforce the Social impact.

Concerning the creation and adaptation of the LFTE icensing scheme, it can be mitigated by the fact that all Member States have already deployed the administrative organisation for other licences. If in that respect, the Agency follows the same model for LFTE licence as for pilots, the costs will be limited for Member States. Moreover, if some Member States do not wish to develop this licence because they do not have strong Industry needs, they are not obliged to do it. Occasional needs can be covered by the free circulation and recognition of licences delivered by other Member States. For the Member States already having a licensing scheme, the costs will also be limited.



option 0 put all the economic burden on industry when option 1 let the possibility to use already in-place administration to deal with licencing scheme.

Proportionality issues

no remark.

Impact on regulatory coordination and harmonisation

There could be an initial de-harmonisation with FAA or Transport Canada regulations for LFTE. But in the long term, the demonstration of LFTE licence can bring other countries to reconsider their own requirements. It can be considered as an opportunity to lead improvements.

response



comment

355

comment by: *CHAPELLE*

I am in favour of **option 1**, for the following reasons :

Only a licence can guarantee that a LFTE owns the **updated skills and experience** which are absolutely necessary to deal with new or specific flight test devices. Thus, in my personal situation, I have to deal with flight test devices from the back seat of a two-seater jet, which goal is to configure system settings for skilled duties such as very precise navigation patterns, terrain avoidance and external loads release. Without the **minimum amount of flight test hours required** by my present lead flight test engineer licence, I wouldn't be able to keep my skills on such specific flight test devices. Let's suppose that, several months or years after my licence withdraw without flying on this aircraft, my employer asks me to perform a flight test from the back seat just because I am now the only man available who used to deal with this flight test system : I would have to refuse to get on board, as my loss of skill could represent a danger for the flight.

The LFTE is an **essential stakeholder** in the effective conduct of a flight test :  
 - before the flight, he is the person who gathers all the test needs of design office engineers - who, at most times, don't know anything about the specific flight test constraints - and transforms them into an understandable and workable flight test order for the pilot. Without the knowledge he gains on the system in test and the specific skills he gets on the flight test aircraft, the flight test preparation would be almost impossible ;  
 - during the flight, he is a person to who the captain delegates tasks directly linked to flight test execution, as some trajectory parameters monitoring and/or announcement for instance : he participates to the flight test as any crew member. So among all the persons involved in the pre-flight operations, including the flight safety items (as the mechanics for instance), and among all the persons involved in the flight execution itself (as the crew members or the air traffic controllers for instance), I do not see any objective reason why LFTE would be the only flight test stakeholder not to require a licence. If such a situation was accepted, it would represent an obvious lack of coherence in the global flight test process.

An official licence offers to a LFTE the **only legal framework for medical certificate**.



Indeed, without any licence, there wouldn't be any official medical criteria to determine whether one's health is compliant with flight test constraints. Thus, any employer would be free to downgrade the present lead flight test engineer medical criteria to fit with a specific medical insurance policy, and oblige a LFTE to sign a medical consent for all the other medical risks uncovered by this corporate insurance. That would inevitably increase the medical risk for LFTE.

A licence would be the best guarantee for european LFTEs to be **freely employed among all the EEC aircraft manufacturers, without any national or corporate discrimination**. Indeed, without any licence, in order to avoid social trouble within his company, an employer could be reluctant to hire LFTEs from other european nations : thus, to reject their candidacies, he could fakely argue to them that his company LFTE skills are higher than their own ones. By the contrary, a european licence would establish a **effective work equity among all european LFTEs**.

response



comment

357

comment by: *Stéphane PEZET*

Question 11 : Option 1 is preferred.

During flight tests in which I have been involved, I had to act on specific engine governor test means, to act on flight controls, to shut down or relight engine in flight. My duty onboard gives me a real impact on Flight Safety but also claims for the corresponding responsibility. A licensing scheme for LFTE is a guaranty for this.

Having such an impact on flight safety in area shared with other aeronautical actors such as international navigation companies militate in favour of an LFTE license. In these area all actors of flight safety (crew members, controlers...) have the same level of recognition through a Licensing scheme. As ICAO rules has been extend to Flight Test for Test pilots (Part21), LFTE should follow the same way.

On an other hand, a LFTE license will give an international recognition which will guaranty free circulation of LFTE without being restricted to its DOA, and will also be a guaranty of the LFTE independence of mind

In case this position is not shared by every one and the percentage of FTE acting as LFTE is still considered as very low, PART 21 already gives a way for all state to continue working properly as the use of LFTE is not mandatory even for Cat1 or 2 flights.

response



comment

358

comment by: *AIC owner*

**Option nb ONE**

Harmonization is better than each national DOA/ POA holder.

Same family, same technical sensibility with same experiment AND same exchange about "risk during Flight Test" related by experienced people.

OPTION NB ONE



Some degrees of de-harmonization as foreign countries will have the economic temptation to apply their rules.

Option ONE will STOP any look for these.

This is my technical Flight Test (true experiment point of view I am so sorry!)

For all Stakeholders

I agree with **OPTION NUMBER ONE**

Please read my previous Comments

I am sorry to mix your questions and my comments

Thanks a lot for your kind attention

#### **Questions for stakeholders**

1 Yes we have in France

2 Yes, we have a system for licenses as NOA, called EPNER Ecole du Personnel Navigant d'Essais et de Réception for Pilotes LFTE, FTE Experiment and engineer

3 A few hundred

4 Less than a hundred

5 Yes

6 No impact

#### **Questions for other**

7 Number 12 all are friends of mine

8 Number12

9 Zero

10 12 idem

For all stakeholders

11 OPTION NB ONE

See my previous comments

Thanks a lot for your attention

I lament for the short time which was given to us to answer

All this is my personal point of view.



response



comment

360

comment by: Airbus Military Flight Operations and Test

Attachment [#11](#)

The response from Airbus Military Flight Operations &amp; Test is in the attached document.

response



comment

361

comment by: michel tetard

**Je choisis l'option 1.**

Les essais en vol, un métier qui se pratique en équipe.

Une équipe de professionnels formés selon un programme agréé et sanctionnés par un diplôme reconnu par les instances officielles (EPNER en France).

Cette formation entraîne un partage clair des compétences et des responsabilités.

Cette formation est incontournable car même si l'option 0 était retenue, *qui formerait les instructeurs DOA?*

Le LFTE est le leader de l'essais.

Les membres de l'équipe d'essais participent à la conduite de l'aéronef en essais:

- changements de configurations
- surveillance des paramètres de sécurité
- trafic radio,....

Cette participation diminue la charge de travail du pilote, augmente la sécurité, et permet au pilote de se concentrer sur la réalisation de l'essais.

*Les membres de l'équipe d'essais font partie de l'équipage de conduite et de ce fait doivent posséder une licence.*

La possession de cette licence est un "plus" lors d'essais à l'étranger et en cas d'enquête; elle est également un important facteur d'indépendance.

La non possession d'une licence pourrait entraîner des problèmes sociaux graves: assurance, salaire, retraite, mobilité.

**En résumé: OUI à la possession d'une licence essais c'est à dire l'option 1**

response



comment

366

comment by: POULTEAU

**Question 7** : Within my department **65 persons** are performing flight test engineering duties covering preparation, performance, analysis of flight test, providing assessments, statements (statement of compliance...) for the the benefit of different military or civilian customers (Forces, procurement Agencies, EASA, National Authorities, Industry) in fixed or rotary-wing domain.

response



comment

367

comment by: Association of Flight Engineers for Testing

Question #11: the preferred option for the "Italian Association of Flight Engineers for



Testing" is "Option 1" with the following justifications:

**“Compliance to Chicago Convention:**

A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.

Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.

Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?

**Social aspects:**

Withdrawal of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.

Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.

**Cost aspects:**

In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.



In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.

Medical requirements:

It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”

response



comment

368

comment by: *Andrew Daws*

QUESTION 7:

45 people perform flight test engineering duties in my oversight on Airbus A380 aircraft.

QUESTION 8:

Of these, 15 people have duties as LFTE.

QUESTION 9:

None of these people operate independently.

QUESTION 10:

All 15 people with duties as LFTE have a licence (or equivalent).

QUESTION 11:

I support OPTION 1.

I believe there is a need for an LFTE License to ensure that the profession's training, qualifications and operational currency requirements are adequately overseen for the good of flight safety. A license scheme also provides the appropriate monitoring of the crews' medical fitness to carry out his flight duties.

In view of the LFTE's essential role as a crew member operating and testing aircraft in-flight, I believe there is a need to manage his qualifications and competence to the same level as those of test pilots. The LFTE's flight currency and medical fitness should also be managed in a similar way to pilots and with requirements appropriate to their role.

I firmly believe that the LFTE license offers the best means of standardizing these requirements across the profession and across Europe. I do not believe that the monitoring of LFTE training/medical at the industry organization's DOA/ POA level, surveyed by their national AAs, provides an adequate framework for managing the flight crew member's role at the heart of flight test activity in the long term. Neither do I believe that the interests of industry organizations nor the varying experience of national AAs in matters of flight test can provide the basis for a common European standard.

The spirit of the Basic Regulation and ICAO Annex 1 and the long term consideration of flight safety in the profession must be the main driver for the creation of a European licensing



	<p>scheme for LFTEs in the field of flight test.</p> <p>Andrew Daws</p>
response	
comment	<p>369 <span style="float: right;">comment by: <i>christophe harlay</i></span></p> <p>It is very important to choose option 1 and give the Lead FLight Test Engineers a license for the following reason :</p> <p>The Lead FLight Test engineer plays a key role during test flights and has a significant influence on the flights and on the safety of the flights.</p> <p>A license would ensure :</p> <ul style="list-style-type: none"> <li>- A medical check on a yearly basis.</li> <li>- A recognition of the role and the duty of the LFTE during test flights.</li> <li>- A clear status of the LFTE among the test pilots community.</li> </ul>
response	
comment	<p>370 <span style="float: right;">comment by: <i>POULTEAU</i></span></p> <p><b>Question 8</b> : Among thes 65 FTEs, <b>31</b> have duties that would qualify them as <b>LFTE</b> since they are deeply involved in flight test assisting test pilot by performing direct actions on controls of aircraft (Engine operation including shutdown in flight , failure simulation in flight including Engine, automatic flight control system...) in normal, degraded mode and in case of emergency with an an appropriate and efficient crew management.</p>
response	
comment	<p>371 <span style="float: right;">comment by: <i>POULTEAU</i></span></p> <p><b>Question 9:</b> None</p>
response	
comment	<p>372 <span style="float: right;">comment by: <i>POULTEAU</i></span></p> <p><b>Question 10:</b> <b>31 persons</b> identified as LFTE have a <b>license</b> within my department.</p>
response	
comment	<p>373 <span style="float: right;">comment by: <i>POULTEAU</i></span></p> <p><b>Question 11:</b> <b>option 1 is definitely preferred</b> since:</p> <p>1- the need of LFTE in charge of assisting XTest Pilots is confirmed within our organisation for a part of our activities</p> <p>and</p>



2- persons in charge of acting directly on controls following test procedures (assisting X Test Pilot):

- in normal mode,
- unforeseen degraded mode and sometimes
- in case of unforeseen degraded mode

are submitted to reach an equivalent level of safety and an equivalent level of efficiency reached by XTest Pilots for whom a License is required under Authorities' control (qualification, training, health).

response



comment

375

comment by: Joan ANDRE

I support option 1 for the following reasons:

Working for airbus as FTE on production side, the licence is the guarantee that any crew member is perfectly trained even if light briefing performed. This ensures safety, confidence, quality and efficiency. This is also the acknowledgement of the qualification. This should be maintained in order to avoid any unsafe corporate decision for rentability despite security.

Today, any crew member has a dedicated rule and responsibility in accordance with his licence... No licence will charge the captain with all the tasks like walk-around, technical follow-up, test order preparation... And in this case, why do we request a dedicated qualification for engine run and nothing for FTE ? Consistency is not ensured. And EASA should take a decision which protect and prevent the most against incidents or accidents. Relaxing rules in a production world will give a chance to any head of people to increase rentability despite security considering this was not sensitive according to regulations. Thanks for consideration.

response



comment

377

comment by: ADDD

•

Question n°11: Please indicate which of the options 0 or 1 (license requirement) is preferred and provide a justification for your choice.

**I prefer Option 1 (license requirement)**

Firstly, a personal experience related to illustrate my words:

*"A flight test point consisted to perform a 5 minutes hover out of ground effect. As we learned in Flight Test School, I did a ground briefing and briefing before test point. All risks that may happen were identified and in particular vortex (helicopter would fall like a stone). After 3 minutes of stabilization, I advertised pilot focused on other parameters, that vertical speed was slightly negative and pilot announced vibrations: which were the first signs of entering into vortex. Immediately the pilot applied procedure defined and briefed just before. I'm not sure I could relate this event today if vortex risk wasn't planned and the crew coordination (CRM) wasn't such efficient."*

I'm a French Army LFTE specialized on helicopter testing. As well as a Flight Test Pilot, I



obtained my license (all flight categories) after one year of studies in a Flight Test School (EPNER). We received a common formation and learned crew work before, during and after flights. This year taught me to lead a flight test efficiently and in safety.

### 1. LFTE participates efficiently with flight safety

- Flight safety is improved because the formation is common between pilot and LFTE, they apply same process then coordination (CRM) is improved.
- Flight safety is improved because the LFTE have a global approach and knowledge of flight.
- Flight safety is improved because when the workload is too strong, different critical tasks can be distributed among test pilot and LFTE.

### 2. LFTE assists the pilot in the operation of the aircraft

- LFTE can have an action in the operation of the aircraft. I experienced regularly on different systems for example:

- engine test: cut off or manual regulation by LFTE;  
 - radio test: radio management for radio test;  
 - control of system slaved to automatic pilot (roof mounted sight on TIGER, winch man stick on COUGAR, ...);

- LFTE has to take decisions in flight according to the situation (weather, air traffic, ...):

- to validate flight point;  
 - to continue or stop the test flight (or test points);  
 - to modify flight chronology;  
 - to modify start conditions of test point;

### 3. The “LFTE permit to flight” must be independent from the employer and have a european recognition

A mutual LFTE license recognition between european states will allow avoiding pressure from employer and a better crew coordination by harmonized process.

**I’m convinced that a license for LFTE is essential because, as a crew member, he has a leading role on flight safety and assists pilot in the aircraft operation; moreover LFTE has followed his curriculum in a Test Pilot School. In order to warrant his independence and to optimize efficiency and safety, this license had to be harmonized and recognized by european states.**

response



comment 378

comment by: Bruno SARDA

I support option 1, for ensuring test flight safety and efficiency.



response



comment

379

comment by: AIB DLS

Hello,

I fully support option 1, thus the licencing of Flight Test Engineer.  
The main reason for me are flight safety & efficiency at all times.  
I was expecting Europe to move up & not down.

Rgds  
DLS

response



comment

380

comment by: Christophe CAIL

Question 11

My preferred option is **option 1**.

I have been working as an experimental test pilot for 19 years, at the French flight test center first (mainly on military aircraft) and then at Airbus. My choice is motivated by my experience in flight testing.

A key point is that the LFTE is really a crew member who actively participate to the conduct of aircraft in test flight.

The current "Test Flight Engineer" is the third crew member in the cockpit. Even if an aircraft is (or will be for a prototype) certified for only 2 pilots operation, flight tests require engineer competences in the cockpit, and critical tasks are very often shared between the pilots and the engineer. Among a lot of exemple, I would like to mention his role in VMCG testing where he has the responsability to shut down one engine during the take off roll and to restart it shortly when airborne; as well as his role when managing a developpement engine on a flight test bed during critical phases; as well as his role during VMCA test in real N-1 engine configuration at low level where safety depends on his competencies.

The curent "Flight Test Engineer" who stand at the flight engineer station not only conduct the flight test but also may intervene on the aircrat systems, e.g. flight control system during flight envelope opening. That affects the control of the aircraft and may impact the safe conduct of the flight. It is not only a matter of efficiency but also safety.

The LFTE is a real flight crew member who the pilots **must** rely on, like each pilot must rely on the other one. Like for the pilots a licensing system only can guarantee the required training and competency levels, as well as a proper medical fitness.

response



comment

381

comment by: LCH



The Flight Test Engineer has a real responsibility, which needs to be trained and checked regularly, in a common protocol: for this a licence is necessary.

Having a common EASA licence will force all parties to discuss on technical flight items, which we maybe wouldn't do otherwise: these discussions help us identify and solve weak points, and strengthen key safety and efficiency points.

A licence is the official recognition of a competence, which each individual is proud of, and eager to maintain the highest level of skill: it serves as a motivation for excellence.

response



comment

388

comment by: Airbus SAS, David O'Nions

**ENEB (Expérimentateur Navigant d'Essais, Classe B) and Airbus Type Rated A320/A330 Pilot. Nationality UK, works for Airbus in Toulouse France.**

Below are my personal comments for the justification of licencing of Lead Flight Test Engineers. I am therefore in favour of Option 1.

At Airbus our main flight test activities are development and certification testing in prototypes and production serial aircraft testing. We have continuously several prototype aircraft on development test. We conduct production test flights for the delivery of more than 600 Aircraft per year, from sites in Toulouse, Hamburg, Tianjin China and soon Mobile in the USA. Lead Flight Test Engineers (INE, ENE and MNE) fly on a regular basis on category 1, 2, 3 and 4 flights. On average LFTE's will fly 2 or 3 flights per week. LFTE's frequently conduct their duties as test crew members worldwide on aircraft operated by Airbus. We also have a non-negligible activity testing corporate jets and in-service support flight testing.

Within Airbus LFTE's have a Licence (INE, ENE, or MNE) issued by the French "Ministère de la Défense Nationale et des Forces Armées". A LFTE is part of the operational crew. A LFTE has several functions depending on his or her specific role within the Airbus Flight Test department. Most of the functions include; preparation of the aircraft and test equipment, cockpit pre-flight checks, technical logbook acceptance, walk around, writing of the Flight Test Order, lead flight test briefing, execution of the Flight acting as operational crew member, lead flight test debriefing and aircraft technical logbook entries. Note, Airbus Test pilots conduct none of these above tasks.

During a flight a LFTE is responsible for managing the flight test whilst briefing the test points, assisting the pilots and checking the aircraft configuration. A LFTE actions aircraft or test controls which will or may have impact on the flight path of the aircraft.

On a prototype aircraft a LFTE has the sole responsibility to 'inject' in real time during the flight modifications to the various aircraft and engines computers. Also, the ability to reset computers including switching to downgraded flight control laws, FADEC resets and engine shutdown. Acting as a LFTE in the cockpit on a prototype aircraft and sat on the third cockpit seat, the LFTE will often be responsible for the engines throttles and systems. During specific engine tests the LFTE may have full and sole responsibility to manage the throttle of the engine on test. The fuel system and associated regular fuel balancing required on test flights is managed by a LFTE. Before the flight during the pre-flight briefing CRM is well discussed with operational tasks defined as who does what and when during the mission. On Production test aircraft, LFTE's from the third cockpit seat operate as crew assisting the pilots. Again, CRM is essential during dense routine production test flights. In coordination



with the pilots LFTE's will action cockpit controls. Computer resets conducted via cockpit push buttons or circuit breakers are often conducted by LFTE's. Requirements to reset systems using circuit breakers located in the avionics bay are exclusively conducted by LFTE's.

LFTE's in Airbus also have the sole responsibility (without pilots on-board) to conduct all maintenance and test activities involving engine run-ups to high power and low speed taxiing. During, high speed taxi checks with rejected take-off, LFTE's can act as first officers operating from the right hand pilot seat. LFTE's consequently operate the aircraft VHF radios for ATC communications.

In accordance with the Airbus Flight Operations Manual all Airbus Test Flights whether they be Prototype flights, Production First Flights, Check Flights or Ferry Flights require the presence of a LFTE on-board. Therefore all Airbus test flights operate with a minimum crew of 3. No test flights are conducted with only pilots. In Airbus LFTE's are an integral part of the crew who operate aircraft controls during test flights. When anomalies are detected during the take-off roll the LFTE has the privilege to call STOP or GO before V1. When failures occur in flight, decisions to continue testing or abort are taken by LFTE's as well as the pilots. The LFTE will in most circumstances know better the technical status of the aircraft and the impact failures may have on further testing. Preparation of all Airbus Test Flights requires the writing of a Flight Test Order. The Flight Test Order includes the weight and balance calculation and take-off performance (take-off speeds), which are systematically calculated by LFTE's. The Flight Test Order is Co-signed with the Captain of the flight.

All LFTE's in Airbus have undergone an extensive one year training course conducted either internally by Airbus or externally at a recognised flight test school. In both cases final examinations involving practical exercises on test aircraft are conducted externally at a recognised flight test school. Following a successful pass grade a LFTE Licence is issued (ENE, INE, MNE). For the licence to be valid the LFTE must also hold a current FCL Class 2 Medical. In most cases LFTE's hold a Class1 medical aptitude. At annual licence renewal the LFTE holder must demonstrate to have conducted a minimum number of flight hours.

I believe a LFTE Licence in Europe would facilitate the recognition that the role requires. The licence would allow control of minimum training requirements, medical aptitude and flying currency. A recognised European licence would better allow for the free circulation of LFTE's in Europe. The LFTE Licence also provides confirmation of crew status which allows access to appropriate Flight Crew insurance and remuneration. Crew status is also essential for airport access and crew visa rights when operating aircraft worldwide.

In many organisations including Airbus there are Engineers working in the Flight Test domain who may call themselves Flight Test Engineer's but it may not be their profession to fly on a regular basis and acting as part of the operational crew.

I would like to ask if the EASA is willing to allow LFTE's conduct all of the operational activities as mentioned above without the need for control via a licencing scheme?

David O'Nions

response



comment	<p>390</p> <p style="text-align: right;">comment by: <i>DGA Essais en vol</i></p> <p>Most of the flight tests we have to perform are done within a team composed of the test pilot and the FTE. This is the way we learned to work at Test Pilot School and that is considered the most efficient, especially when we happen to work temporarily on a project with an FTE that we didn't know before : if he qualified in a test school, things will be much easier and safer because we understand each other very quickly.</p> <p>Moreover the LFTE might have to make safety critical decisions, with the pilot relying on him as he could rely on a second pilot.</p> <p>That is why the option 1, where the LFTE skills and qualifications are clearly recognized, is preferred.</p>
response	
comment	<p>391</p> <p style="text-align: right;">comment by: <i>Pellerin</i></p> <p>Question 11 : Option 1</p> <p>Comments :</p> <p>1 - Per ICAO rules, only personnel with a licence can be crew members. Per same rules, a captain can delegate tasks linked to the conduct of the plane only to a crew member. Without a licence, FTEs will no more be able to</p> <ul style="list-style-type: none"> <li>a) proceed with paperwork before flight on behalf of the captain</li> <li>b) manipulate any switch or control on board</li> <li>c) manipulate a flight test installation on a prototype since it gives access to flight controls through computers.</li> </ul> <p>For production flights, it means that pilots will have to do the necessary paperwork before first flight (review of the logbook, up to 2 hours work). Development flights might require additional additional pilot. This will be, obviously, very costly for the company.</p> <p>2 - When travelling on board prototypes, the FTEs without a licence will have to go through security checks in the same channels as ordinary passengers, increasing dramatically the time needed for procedures before take-off at some airports. Not to mention the necessity to issue boarding passes every time they need to access the plane, even without flight. This is another loss of time and an additional burden for the whole team, and the company.</p> <p>3 - Without a licence, the check of (recent) experience, medical fitness and initial/necessary training lies on the employer only. No more requirements from a regulatory side means, eventually, the possibility to have on board a prototype people who do not master thoroughly the systems they operate and/or who are not medically fit for the the task they are supposed to perform, putting at risk the safety of the flight.</p> <p>4 - It is obvious that FTEs performing test flights on a regular basis should be employed as flying personnel, with adequate insurance coverage and pension scheme that take into account the specificity of their job and the risk they encounter. Without a licence, they</p>



would be treated as any other employee and not recognised as flying personnel. This sets an obvious problem from a social point of view.

Moreover, not being recognised as flying personnel means a loss of authority in their relationship with Design offices or even with pilots. Being replaceable by any other engineer would be detrimental to development of planes, since there would be a loss of follow-up, a loss of memory and/or knowledge, and in turn, a loss of precious time in the future.

response



comment

400

comment by: *QinetiQ Trials Engineering***Question 7**

150 personnel perform flight test engineering duties

**Question 8**

60 personnel may lead, conduct and direct category 1 and 2 flight test activities.

**Question 9**

none

**Question 10**

none

**Question 11**

It must be acknowledged that the FTEs within our organisation had a variety of valid comments and concerns and there was not a unanimous decision for option 0 or option 1.

Our corporate position is that we prefer Option 1, with the following justifications and comments:

The driver for licensed FTEs must be safety. However, this can only be achieved by increasing the scope of the LFTE role definition to include all personnel who are responsible for safe flight test direction and conduct (including those who don't fly).

The proposal for FTE licensing would provide a demonstrable commitment to high standards and professionalism. It has the potential to provide recognition to FTEs that they are a valuable asset to their organisation, the wider flight test community (through skill interchange and deploy-ability between flight test organisations and sharing of common safety and technical lessons), and would provide a clear basis of recognition for the highly specialised training and experience FTEs have.

There are clear economic challenges that must be managed to ensure this is an efficient use of EU resources, and that measures put in place do not adversely affect corporate delivery.



	<p>However, we would like to continue to be actively involved in the future consultations to ensure our concerns are addressed</p>
response	
comment	<p>401 <span style="float: right;">comment by: <i>Philippe SAMIE</i></span></p> <p>Question for all stakeholders n°11</p> <p>I prefer the option 1 (licence requirement). The most of aeronautic programmes are developed today in multinational and the test flight are also conduct in several countrys by multinational team. I think that for safety reasons and also for efficency, it is neccessary to have a common view of the responsibility of the LFTE and so an harmonized training.</p>
response	
comment	<p>402 <span style="float: right;">comment by: <i>GIFAS - Commission Essais en vol et Personnels Navigants (Flight tests)</i></span></p> <p>Please find here below the GIFAS (Groupement des Industries Françaises Aéronautiques et Spatiales) contribution to A-NPA 2013-16 about Lead Flight Test Engineers.</p> <p><b>Question 7 – How many people in your oversight perform flight test engineering duties?</b></p> <p>More than 3000 people (FTEs as in A-NPA), including test instrumentation, telemetry, data processing, etc.</p> <p><b>Question 8 – How many of the people identified in 7 have duties that would qualify them as lead flight test engineers (LFTE)?</b></p> <p>Airbus: 86 Eurocopter: 22 Safran : 3 thalès : 10 Total GIFAS members: 129</p> <p><b>Question 9 – How many people identified in 8 (as LFTEs) operate independently? (e.g. freelancers)</b></p> <p>None</p> <p><b>Question 10 – How many of the people identified in 8 (as LFTE) have a licence (or equivalent)?</b></p> <p>All people identified in §8 have a licence, equivalent to the LFTE potential licence</p> <p>To be noticed, not all the GIFAS employees are French nationals, but the licencing scheme does apply as well to other nationalities such as German, British, Spanish for instance. Numerous such non-French crew, even based outside France, are regulated in accordance with this French licencing operational &amp; social scheme by some of our members.</p>



**Question 11 – Please indicate which of the options 0 or 1 (licence requirement) is preferred and provide a justification for your choice.**

GIFAS, representing amongst others Safran (SNECMA, SAGEM, TURBOMECA), Dassault, Thales, Airbus, Eurocopter, would like to promote **OPTION 1** which would introduce an LFTE licence for essential flight safety functions, and only for those LFTEs, for the main following reasons:

**Safety**

Establishing a licence will enhance, as stated in the A-NPA, the medical and regulatory oversight as well as harmonization. Those crew are recognized by our members to have a significant & direct role in the flight test safety. In particular, LFTE in France often use/modify aircraft controls and parameters in flight such as engine controls, engine governing system parameters and failure simulation, autopilot parameters, etc... For these activities, LFTE are crew members who have a direct influence on test flight safety, requiring a licensing scheme comparable to the pilots' one.

**Social & regulation**

Most of insurance and social schemes are currently based on the existence of a "test licence or certificate" in France. That has been the rationale, as stated in the CRD of NPA 20-2008, for EASA to provide an exemption for France to carry on licencing engineers until the licence topic is addressed at EU level.

Indeed, not having a licence any more in the future would have a significant impact on all social schemes that we manage at GIFAS level. All these schemes, which showed efficient support to the crew and to the industry, would have to be thoroughly revisited.

GIFAS believes that Option 0 would be undue burden on industry, undue because on the other hand Option 1 is eventually in accordance with ICAO recommendation, and will not require any licence for the people participating to flight test by not qualifying as LFTE, which is most of EU population.

Finally, Option 1 is no harm for people not qualifying as LFTE.

response



comment

404

comment by: *Michel GIGOT*

As licensed flight test engineer (EPNER 1966 - Flight tests Transall, Airbus A300, Concorde, TB10...) **I agree the option 1 .**

Sorry for my poor english language (Ich habe besonders deutsche Sprache gelernt !)

*J'ai toujours eu en ligne de mire la sécurité des vols que ce soit vis à vis des essais en vol ou du client utilisateur. Ceci me paraissait de plus très positif pour l'image de marque de l'entreprise qui m'employait.*

*J'ai vécu une phase où, en conscience je ne pouvais accepter une certaine définition de système (calage baro altimétrique) J'ai donc bagarré pour obtenir la modification souhaitée. Je peux donc témoigner de l'utilité d'une licence officielle d'INE à l'époque, elle me confirmait une légitimité dans cette démarche.*



En l'absence de cette licence, j'aurais été pieds et mains liés vis à vis de mon employeur qui m'avait désigné parmi de jeunes ingénieurs pour devenir ingénieur navigant d'essais via le moule commun de l'EPNER.

Parenthèse: ceci, pour une entreprise, est un formidable moteur de motivation de ses jeunes ingénieurs, mais la licence me paraît la seule parade pour préserver la liberté d'expression du navigant face à son employeur et donc atténuer l'effet "juge et partie" de celui ci.

L'aspect sécurité des aéronefs est d'autant plus difficile à défendre que l'aspect financier tend à supplanter tous les autres ...

L'aspect reconnaissance internationale est un atout important pour l'avionneur et le navigant voire une nécessité.

La licence d'INE ne l'accordant pas, c'est ainsi qu'il a fallu m'obtenir une licence indonésienne de navigateur afin de pouvoir convoier des TRANSALL à Djakarta !

response



comment

407

comment by: *Nicolas ARCAUTE*

I recommend option 1 for the following reason.

The LFTE are crewmembers who have direct impact on the safety of the flight:

- Using the flight test installation, the LFTE can modify the tuning of the flight control laws with direct impact on the flight characteristics. For instance the settings available can be speed/Mach/configuration dependent and be unsuitable for a given flight condition, or the possible combinations of adjustable parameters may not all be safe, and it is the LFTE's responsibility to activate during the tests this settings and combinations,
- The LFTE can also modify the engine settings in the FADEC, for instance change the fuel regulation for a given flight condition to make the tested engine representative of the more critical engine for stall or blockage,
- The LFTE can be the only one on board to have access to the critical parameters that drive the test and in particular the decision to terminate the test,
- The LFTE is often in charge of the test strategy and has a major contribution in flight to the decision to resume the test, or switch to a different scenario or terminate the test,

they should have a licence like test pilots, test flight engineers, air controllers or chief ground mechanics do.

response



comment

408

comment by: *Nicolas ARCAUTE*

I recommend option 1 for the following reason:

The licence contributes, consciously or not, to make the LFTE a legitimate crewmember, co-responsible of the test with the test pilot and a credible leader in charge of the test during the flight.

response



comment

409

comment by: *Nicolas ARCAUTE*

I recommend option 1 for the following reason:

A licence recognized beyond the border of a DAO, would protect the LFTE's independence of



response	judgment from potential internal pressure within the company providing them the ability to change company more easily.
comment	410 <span style="float: right;">comment by: <i>Nicolas ARCAUTE</i></span> I recommend option 1 for the following reason: A LFTE licence is an efficient way to insure proper tracking of medical status and recent flight experience, and keep both consistent with the LFTE's level of responsibilities during the flight tests.
response	—
comment	413 <span style="float: right;">comment by: <i>S.Dumont</i></span> In my oversight, about 40 people perform flight test engineering duties. 80% of those people are working as LFTE and have a licence, but none of them operate independently. My preference goes to option 1. According to me, people having active duties in an aircraft for the purpose of conducting flight tests need to be educated, trained and maintain their proficiency in a very supervised environment. A standardised training and crew coordination are key elements for Safety. LFTE take sometimes decisions that have an impact on flight-controls, engines... and should be considered as fully part of the crew and therefore have a licence.
response	—
comment	414 <span style="float: right;">comment by: <i>Sylvain GUIRAUD</i></span> After flying for more than ten years for the French test flight center, I'm convinced that option 1 is best option for maintaining a good level of confidence inside the test crew and thus, for maintaining the best level of safety.  <b>Q7 :</b> 50+  <b>Q8 :</b> Many of them.  <b>Q9 :</b> I don't know the exact number. I would say more than 10.  <b>Q10 :</b> Everyone.  <b>Q11 :</b> The only impact on flight safety is to my mind sufficient to choose option 1.  As mentionned in the NPA, the France have such a system for licences for crew members other than pilots. There is a long tradition of working by pair (pilot+engineer) for conducting of test flights in



France. From the conception of the the flight test program to the redaction of test report, the pilot is involved close to the engineer. In the aircraft too, the relationship inside the crew is very important. The engineer is a key point in maintaining flight safety at the highest level. He very often have an action on critical systems in the aircraft. He is also the expert of the test instrumentation and so he can have decisive actions relative to this installation witch can have an impact on flight caracteritics of the aircraft or main subsystems (engines, mission computers...)

For these reason, it is very important to be well trained.  
When operating as a freelancer, it will be much more easier to obtain pilot trust whith a LFTE licence...

To my mind, a licensing scheme is the best way to obtain and to prove the required level of ability for conducting test flight.

response



comment

420

comment by: Jean-Michel DUC, ex-DGA/DCAé/CEV

About 10

response



comment

421

comment by: Jean-Michel DUC, ex-DGA/DCAé/CEV

All of them

response



comment

422

comment by: Laurent LAPIERRE

**Answer to question 7**  
I am in charge of 20 persons performing flight test duties for flight physics domains: handling qualities, performances, loads, flutter, flight control, autopilot and braking.

**Answer to question 8**  
Seven of them are flight test crew members. And, they are all qualified as Experimental Flight Test Engineer, except one who is trainee.

**Answer to question 9**  
None of them are freelancers.

**Answer to question 10**  
All of them have a licence delivered by EPNER.

**Answer to question 11**  
Answer = option 1

The future LFTE as the current licenced FTE (Experimental or not):  
- is a full flight test crew member,  
- is in charge to conduct the tests and monitor in real time the behavior of the airplane and its systems,

- thanks to flight test tools:  
. can modify the aircraft control, the systems or the engine tuning,



. can inject direct orders on surface control, systems or engines.

Consequently, he shares with the captain the efficiency and the safety of the test.

This level of responsibility requires:

- an appropriate theoretical and practical training, with a published program,
- a qualification via a test supervised by an independent authority,
- a regular practice,
- an adequate medical fitness, regularly checked by an independent organism.

As for the pilots, these requirements correspond to a licence.

In addition, an European licence should ease movement between European companies and countries by providing a standard of competence and safety.

response



comment

423

comment by: *Jean-Michel DUC, ex-DGA/DCAé/CEV*

May be 1 or 2 to help light airplane manufacturers (including own-designed and collector airplane replicas manufacturers)

response



comment

424

comment by: *Jean-Michel DUC, ex-DGA/DCAé/CEV*

All of them

response



comment

425

comment by: *Bruno AYET*

Question #11:

I prefer option 1

En effet, au même titre que pour le Test Pilot, une licence pour le LFTE permettra de garantir le niveau de compétence requis pour assurer efficacement et en toute sécurité ses prérogatives (telles que fixées au paragraphe 2) de flight test crew member.

response



comment

427

comment by: *Jean-Michel DUC, ex-DGA/DCAé/CEV*

I definitely prefer option 1 (i.e. licence requirement)

An LFTE licence delivered by an independent authority is likely to be the best solution for, at least, four reasons :

1 - EQUITY : Why would a FTP licence be required to carry out some important or critical FTP duty and a LFTE licence would not be required to also participate as a lead test crew member (i.e. LFTE) in the same flight ? There should be no discrepancy between pilots and engineers.

2 - WIDER EXPERTISE : A LFTE licence should cover any type of fixed-wing aircraft (or rotorcraft) from light general aviation airplane to big jumbo jets, from propeller-driven airplanes to combat aircraft, from low-speed airplanes to supersonic jets. Even if at a given



time in his or her career the LFTE will only be working on a given type of aircraft, having a full LFTE licence would guaranty a wider background and therefore better judgments and safer actions in that specific case. This would be more difficult to achieve in the case of a single in-house company qualification.

3 – INDEPENDENCE : It is obvious that a LFTE licence will give that engineer MORE INDEPENDENT JUDGMENTS within his or her own company as well as MORE FLEXIBILITY to move from one company to another or to an INDEPENDENT ORGANIZATION such as EASA without being accused of conflict of interest.

4 - CREDIBILITY : Whatever the quality of an in-house (company) training and delivering of proficiency certificate, without a licence delivered by an independent authority the LFTE will always be regarded as a self-made man or woman less credible than a LFTE graduated from an independent Flight Test Academy. Would one imagine the Boeing company for instance accepting that the flight testing of one of their aircraft for a European certification being done by an Airbus, EADS or Dassault-in-house qualified LFTE (even detached as an expert to EASA) ?

As far as costs are concerned it is likely that one (or two) Flight Test independent training organisations at European level would overall be less expensive than having within each and every aircraft company such a training organisation (in particular for small or medium size manufacturers that could be charged only the marginal costs by a European organisation). But this is another story.

Jean-Michel DUC  
13 November 2013

response



comment

430

comment by: *Jean-Michel DUC, ex-DGA/DCAé/CEV*

No additional comment

response



comment

431

comment by: *DEPOMPEIS ROBERTO*

1. NO
2. NO There is necessity to have FTE, mechanics, engineers, etc. on some tests that do not refer to any regulation.
3. around 60
4. 4 or 5
5. YES
6. Will not be an high cost
7. 30
8. 7
9. 2
10. 4

response



comment 76

comment by: piaggioaero industries

**“Compliance to Chicago Convention:**

*A\_NPA20013-16 definition of tasks and duties of LFTE “assisting pilots in the operation of the aircraft and its systems” show that LFTE is an “operating crew member” according to article 32 of Chicago Convention. The Convention is requesting that “the pilot of every aircraft and the other members of the operating crew.... shall be provided with certificate of competency and licenses”.*

*Moreover, as explained in the A\_NPA A LFTE is potentially acting on safety critical systems (e.g. flight control systems, engines, electric systems, hydraulic systems, ...), therefore LFTE function is essential regarding flight safety. Therefore LFTE is totally fulfilling the definition of a flight crew member written in the Annex1 to Chicago Convention : “Flight crew member: a licensed crew member charged with duties essential to operation of an aircraft during flight duty period”. It would be a paradox that a person acting on critical systems and performing essential task in regard to flight safety would not be considered by EASA as a flight crew member.*

*Chicago convention does apply to International Civil Aviation and particularly to International Air Navigation. In the past, when flight tests were performed over the territory of each state, it could be understandable that each state has defined specific rule, including waivers to Chicago Convention, regarding flight testing. Nowadays, crossing states borders during flight test, performing flight test in foreign countries is “every day” practices. There is no legitimized reasons to continue under a derogatory regime except for member states in which flight test are no conducted out of this state borders. Moreover one can challenge the legal aspects of today derogatory regime knowing that flight tests are conduct within the international air traffic. What about the risk of a third party suit in justice toward persons, companies, member states or EASA in case of an incident/accident for non-compliance with an international treaty ?*

**Social aspects:**

*Withdrawing of Flight Test Engineer license in Italy will have a strong social impact (as explained in the a-NPA) on 100% of the LFTE working in Italy or under the Italian regime. For **Company Name** this represents **XX** people.*

*It would be a pity not to have a European upward social harmonization while all the tools are available at a reduced cost.*

*Moreover, PART 66 maintenance engineers and Air Traffic Controllers have a European license. The need of a license for those categories essential for the safety of the air navigation was recognized by EASA. No license for LFTE who are as essential as the previous for flight safety would create an understandable social discrepancy. Including, for an individual, risk of non-recognition of its qualification by employers or member states reducing the freedom of circulation within UE.*

**Cost aspects:**

*In case of option 1 (creating a license for LFTE) costs will be marginal for member states knowing that it would require to incorporate LFTE license management for a limited number of people in the management system already taking care of licenses for a huge number of pilots.*



*In addition, it should be observed that the license would be necessary only for the LFTE, in accordance with their functions on board during flight test. FTE not exercising these functions will not need to be licensed.*

*Medical requirements:*

*It has to be pointed out that medical requirement as described in NPA 008-20 are not very detailed and will lead to interpretation and difficulties in case of disagreement between the employer and the employee. A licensing of the LFTE will allow using the applicable requirements and rules of Part MED”*

response



#### 4. Appendices — 4.1. Acronyms and definitions

p. 16

comment

221

comment by: *Prof. Dr. Bernd Hamacher, University of Applied Sciences Osnabrueck*

**‘Flight test engineer’ (FTE) is any engineer involved in flight test operations either on the ground or in flight**

This definition is very ambiguous. So it becomes not clear what it “any engineer involved in flight test operations” means. This can be the engineer designing an aircraft and being involved to modify the design, if the flight tests results show design-weaknesses in the design. This can be also the engineer, who is in charge for product data documentation. Involved in flight tests is also the engineer, responsible for instrumentation of the flight tests and the engineer, responsible for the work safety of the ground crew. Even the head of the fire brigade, if he/she holds an academic degree as an engineer is according to this definition to be considered as an FTE. Makes this definition sense, when even a tower controller on duty during flight tests is considered as an FTE from now on, if he by accident holds a degree as civil engineer? So the declaration “any engineer involved” is very vague, not appropriate and will cause more confusion than clarification. This makes the definition valueless.

The LFTE definition shows as well weaknesses. According to this definition an ordinary FTE becomes a lead FTE, when he is sitting in an aeroplane. It might be useful that an FTE is sitting in the aeroplane during flight tests, but by what duty in that aeroplane he becomes the leader? Especially as the definition explicitly states that he may assist the pilot. In this case he should better called “Test Pilot Assistant” rather than “Lead Flight Test Engineer” as he is assisting rather leading.

This offers a narrow understanding of the practice of flight tests. Flight tests are usually done as teamwork, where different people have to play different roles and no role by nature is not relevant. The role of the FTE usually is to coordinate this. So he talks to the design engineers, to the systems engineers of suppliers, to the instrumentation engineer, the ground crew, the fire brigade, the rescue team and all other people involved in the planning, preparation, execution and evaluation of flight tests. For this purpose he has not to sit in the aeroplane. On the contrary an FTE, especially the leading FTE usually sits on the ground monitoring systems behavior by telemetry, as this offers more channels to coordinate and to organize support for the test pilot or other members of the team. If more than one FTE is required, one of them should be designated as the lead FTE and sometimes it is useful that a FTE is sitting in the Aeroplane and assist the pilot. But this is usually not the lead FTE, if there are



choices. If there is only one FTE it is arrogant to call him LFTE. These are vanity issues, which should not be supported by regulation and titles as this may affect safety by misbehaviour and inadequate attitudes. This is a well known human factor issue.

We agree that in former times the role distribution sometimes was different. Kurt Tank for example, the technical director of Focke-Wulf in Bremen was head of the design department, chief flight engineer and test pilot in one person. He covered all these duties by himself and he was eager to fly every new prototype. But this is history and a modern definition should cover the existing range of practices rather a romantic vision of a flying flight engineer, who is simultaneously the leader in the sky.

response



comment

323

comment by: *Christophe SKORLIC*

Today, as describe on the A-NPA, LFTE is “assisting pilots in the operation of the aircraft and its systems”. That means, the LFTE is a flight test “operating crew member” notably in charge of the following actions:

- Acting on different systems including equipment which can have an interaction with the piloting of the aircraft like engine controls, hydraulic or electrical supply (reducing or shutting down and restore the power) but also the autopilot, navigation systems, radio communication and radio navigation,
- For test purpose, he has possibility in flight, with le flight test installation, to modify parameters on engine governor system or automatic pilot, including creation of major failure for certification demonstration.
- During all part of the flight, in case of, assist the pilot in applying the emergency procedure.

For these reasons and also because LFTE performs flight test in foreign countries (climatic campaigns,...), according the article 32 of the Chicago Convention, makes a license for LFTE is mandatory to perform their duty in compliance with ICAO rules.

Moreover, for flight safety and particularly for the cockpit crew management, LFTE has to comply with:

- Approved initial rating (described in PART 21)
- Medical checks;
- Recurrent training.

Those three requirements constitute the basic description of an aviation license.

Today, PART 66 maintenance engineers and Air Traffic controllers have a European license. No license for LFTE creates an understandable safety and social discrepancy, including risk of non-recognition of its qualification by employers or states members of the EU

For all these reasons, option 0 is for me, not an “aeronautical” option in terms of safety and ICAO rules and not a “social” option due to the reducing the freedom of circulation within the EU.

response



## 4. Attachments

 [Comments to A-NPA 2013-16.pdf](#)

Attachment #1 to comment [#363](#)

 [2013.11.12 - Annex 1 flight test crex task.pdf](#)

Attachment #2 to comment [#384](#)

 [2013.11.07 - SNPNAC-ANSWER TO A-NPA-2013-16.pdf](#)

Attachment #3 to comment [#384](#)

 [Turbomeca comments NPA2013-16.pdf](#)

Attachment #4 to comment [#432](#)

 [SFTE TC response to A-NPA 2013-16 .pdf](#)

Attachment #5 to comment [#433](#)

 [NPA-2013-16 Cessna Aircraft Company 1329.pdf](#)

Attachment #6 to comment [#215](#)

 [Comments EASA to ANPA2013-16 NF.pdf](#)

Attachment #7 to comment [#25](#)

 [Commentaire AESA2012-2013 version française.pdf](#)

Attachment #8 to comment [#119](#)

 [Comment AESA2012-2013 english version.pdf](#)

Attachment #9 to comment [#119](#)

 [Arguments for Option 1 NRS 8 nov 13 0.pdf](#)

Attachment #10 to comment [#237](#)

 [ME-0-CT-130013.pdf](#)

Attachment #11 to comment [#360](#)