

EXPLANATORY NOTE¹

Introduction

1. As explained in the consultation document, the Agency shall assist the Commission in submitting proposals for the regulation of personnel involved in the operation of aeronautical products. This implies in particular that essential requirements are specified by the legislator. This explanatory memorandum explains how essential requirements for pilot qualification, training and fitness have been drafted. It has three main objectives:

- a. to explain the process of hazard risk mitigation used to draft these requirements,
- b. to explain how these essential requirements comply with ICAO recommendations, and
- c. how they anticipate the possible use of existing JAR-FCL as implementing rules.

2. As their name already indicates, essential requirements are the conditions to be fulfilled by a product, a person or an organisation to ensure as much as possible that the public is not unduly affected by their operations or activities. They address therefore the means by which risks associated to a specific activity shall be eliminated or reduced to an acceptable level, when reasonably probable. To achieve this goal hazards and associated risks must be identified and analysed to determine the requirements that are essential to mitigate the unacceptable risks. In that context it must be made clear that certification processes are not mitigating measures; they are the verification that a mitigating measure is being implemented. As far as mitigating measures are concerned, it is also important to insist that they must be proportionate to the safety objective. This means that they must not go beyond what is strictly necessary to achieve the expected safety benefit without creating undue restrictions that are not justified by that objective. To validate the results of such a “top down” approach, a “bottom up” review was made to examine why certification was imposed; which risk such certification was mitigating; and whether the means used were proportionate to the safety objective.

3. In this context, the Agency together with national and JAA experts undertook a study to identify hazard areas linked with the activity of pilots. These are:

- Pilot competence,
- Quality of training,
- Physical and medical fitness, and
- Pilot age.

The mitigating criteria that were introduced to mitigate each hazard, when the associated risk appeared unacceptable, and produce the essential requirements originate from ICAO Annex 1 “Personnel Licensing” or from JAR-FCL.

4. The essential requirements apply to pilot qualification, training, and fitness as specified in chapters 2 and 6 of ICAO Annex 1. They cover both professional and private flight crew, operating all categories of aircraft. As a consequence:

- Applicants,
- pilots undergoing training,
- pilots,
- instructors,
- examiners,
- organisations providing training for pilots and
- aero-medical examiners and centres,

shall be subject to these essential requirements. The details for each of the categories of licences and ratings, as specified in ICAO Annex 1 should be specified in implementing rules, as appropriate.

5. As specified in the consultation document, the essential requirements have been drafted with the view to allowing alternative implementation means, which could vary depending on the type of operation. It would be possible therefore, to develop implementing rules based on JAR-FCL material or to build other forms of regulation, in particular for non-commercial pilots, depending on the answers to the questions raised in that document.

¹ For information purposes only.

Mitigation of the hazards linked to pilot's competence

6. It seems obvious that the competence of the pilot is essential to flight safety. The first competence that comes to mind is theoretical knowledge. Inadequate theoretical knowledge can prevent a pilot from understanding what is happening with the aircraft or in its environment. Of course, the extent of this theoretical knowledge is dependant upon the complexity of the aircraft flown and the responsibilities exercised. Point 1.b.1 develops the theoretical subject matter that should be known by a pilot. The subjects listed are based on ICAO Annex 1 point 2.3.1.1, JAR-FCL 1 (Aeroplane) and Appendix 1 to JAR-FCL 1.470. Furthermore, one can only be certain that knowledge is properly acquired and upheld when this is demonstrated to a third party. Point 1.c concentrates on providing the legal basis for such demonstration. It also allows for a continuous assessment during the theoretical knowledge instruction phase or, where it is appropriate, for an examination

7. The skill of a pilot is naturally essential for flight safety. It constitutes the second important competence that a pilot must have. The essential requirements therefore specify in points 1.d and 1.e the practical skills that a pilot must develop, possess and demonstrate; these requirements are based on ICAO Annex 1 points 2.3.1.5, 2.4.1.4 and 2.5.1.2. Of course, the extent of the skill required is dependant upon the type of aircraft flown and the responsibilities exercised; it could be reduced if the functions exercised on the aircraft allow it. Furthermore, practical skill may not be limited only to the listed items, but can be extended in cases where it is appropriate due to the complexity of the aircraft flown or the importance of the responsibilities enjoyed. Finally, these skills can be developed and demonstrated on synthetic training devices, providing the device reflects the aircraft flown⁸. As the essential requirements shall provide for the free movement of pilots throughout the airspace of the Union, it is legitimate that they impose the use of a common vehicle of communication, as this is vital for flight safety. It is already universally accepted throughout the aviation community and enshrined as a requirement in ICAO Annex 1, that such vehicle is the English language. Point 1.f sets the legal basis for pilot proficiency in English

9. Whatever the level of competence, it can deteriorate through time. If this reduction of competence is significant, it can constitute a risk to flight safety. This reduction can be due to lack of practice of an aircraft or certain configurations of flight. That is why Point 1.g, that establishes the need for maintaining theoretical knowledge and practical skill, introduces the concept of experience in this area. It also adjusts the period between checks to the risk. The more complex the aircraft or device operated, taking also into account the operating environment, the shorter should be the period between the checks. This makes it possible to deviate or to be less stringent towards certain non-commercial sport and recreational activities. Furthermore, the use of synthetic training devices is authorised for the maintenance of practical skill and assessments, providing the device reflects the aircraft flown

10. As described above, there is a need for checks after initial training or to verify that competence has not deteriorated through time. These checks can only be efficient if the examiners are properly qualified themselves. Point 1.j sets out criteria that must be met by these examiners so that they can check pilots in a proper and harmonised way

11. One important aspect not to be forgotten when developing the essential requirements was that they had to be proportionate to the safety objective. This is the purpose of point 1.h. It requires knowledge and skill requirements to be adapted to the type of operation. This will, for example, allow the differentiation between recreational pilots, that may be subject to some form of self-regulation and airline transport pilots that may be regulated through implementing rules reflecting JAR-FCL1.

Mitigation of the hazards linked to the quality of training

12. As described above, pilot competence is fundamental to flight safety. But this competence can only be reached through proper training. It is clear, for example, that:

- inadequate or inappropriate training could lead to sub-standard pilots,
- non uniform standards of training could lead to different practices in the pilot population that could make their interaction difficult,
- the absence of vital elements in the training programme could produce pilots unable to handle critical situations,
- the lack of training in the treatment of stressful situations could lead to pilots incapable of coping in such cases.

For all these reasons, the essential requirements include in point 1.i. the need for a training course and criteria for its development.

13. Needless to say, the quality of a training course is not the only factor in good training. The quality of the instructor is also a significant factor in reaching this goal. Point 1.j addresses this issue. It is based on ICAO Annex 1 point 2.11 and JAR-FCL 1 (Aeroplane) point JAR-FCL 1.310, whilst leaving flexibility to vary the level of qualification to suit the specific instructor category. Qualifying criteria have been designed to apply not only to theoretical instruction, but also to flight instruction and synthetic flight instruction.

14. Finally, when an organisation carries out training, and not an individual, several people interact. If this organisation is not well structured, there is a risk that disorganised training does not provide for the competence needed to achieve the intended risk mitigation. Furthermore, there are cases where the risks involved in the activities of a pilot make it necessary to mandate training in a more structured environment. Point 2.a sets the criteria to be met by training organisations providing pilot training. This point keeps the current practice of enabling training organisations to subcontract areas of specialist training or parts of training

Mitigation of the hazards linked to physical/medical fitness

15. It is evident that pilots must be physically and medically fit to fly an aircraft. Detailed requirements to demonstrate such fitness vary in accordance with the type of aircraft flown and the activities to be executed on board. The essential requirements must therefore be sufficiently generic to provide for the necessary flexibility. Point 3.a.1 concentrates on providing the legal basis for the assessments and examinations necessary to demonstrate the ability to fly the aircraft to be used. Moreover point 3.a.2 allows deviations when appropriate mitigation measures can be implemented to ensure that the level of safety is maintained. That should allow the continuation of most current practices that permit flying with some disabilities that are compensated by operational or technical measures as specified in ICAO Annex 1 point 1.2.4.8.

16. The verification of compliance with physical/medical fitness requirements is also an essential safety element. It is recognised that such assessments can only be made by appropriately qualified examiners. Criteria must be developed to describe what a qualified examiner is. Such is the aim of point 3.b, that describes the criteria to be met to be authorised to act as an aeromedical examiner

17. In some cases it is necessary that medical assessment is made by a well structured and equipped organisation to provide for better certainty of fitness when the risk is associated to very sensitive tasks, involving important responsibilities. Point 3.c therefore establishes criteria to define what such an organisation must comply with to be entitled to perform such compliance assessments. The adopted process is similar to the one applied for the approval of training organisations.

Mitigation of the hazards linked to Pilot age

18. As insufficient maturity to assimilate training is seen as a significant hazard, there is a need to provide protection against such a risk. Setting a minimum age is an option, but such requirement is relatively inflexible and does not take into consideration the various types of training, or the different levels of maturity among individuals of the same age. It has been preferred therefore to specify a qualitative requirement that can then be appropriately developed through implementing rules to address all possible situations. The criterion specified in point 1.a.1 enables the establishment of a minimum age limits for flight crew that can comply with ICAO, or that reflect JAR-FCL. It also provides for the creation of less burdensome rules for non-commercial activities.

19. On the other end of the spectrum, age can be a threat, as older pilots may no longer have the necessary ability in terms of motor skill and response, the necessary strength or the necessary vigilance to execute their tasks on board the aircraft they fly. Mitigation can be an age limit. This option however misses the necessary flexibility to address all possible situations. By setting an arbitrary standard the legislator would establish a disproportionate discrimination. It has been preferred again to establish qualitative requirements as the mitigation of possible incapacitation due to age can be done by other means such as additional medical examination or appropriate restriction of the privileges of affected pilots. The criteria developed in point 3.a.1 enable the establishment of maximum age limits that comply with ICAO or that reflect JAR-FCL. They also allow for the creation of less burdensome rules for non-commercial activities.