EASA
European Union Aviation Safety Agency

Product Certification and Design Organisation Approval Workshop 2019

New basic Regulation – Implementation into Part 21

Michael GERHARD
Section Manager - Initial Airworthiness Specifications

Boudewijn DEUSS
Senior Regulations Officer - Initial Airworthiness Specifications

Carl GARVIE
Regulations Officer - Initial Airworthiness Specifications

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Overview of the new Basic Regulation

New Basic Regulation (EU) 2018/1139

- On 11 September 2018 the new basic Act on common rules in the field of aviation entered into force
- Regulation (EU) 2018/1139
  - repealing Regulation (EC) 216/2008
  - referred to currently as “new basic Regulation” (NBR)

REGULATIONS

REGULATION (EU) 2018/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 4 July 2018

EASA

Where are we today?

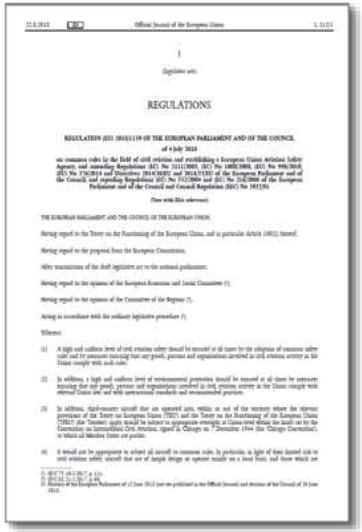
Part-21 requirements are not always scaled to the risk of products designed/produced …

… the new BR offers new tools and regulatory concepts and objectives, which will allow to make it more it more scalable

RMT.0727 will look into this

The new BR introduces new and amends existing airworthiness concepts …..

… Part-21 needs to be reviewed in view of these changes introduced in the new BR



REGULATIONS

REGULATION (EU) 2018/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 4 July 2018

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

What is new in the NBR affecting Part-21? (1)

- The NBR introduces or strengthens the following principles and elements
  - Requirements shall be where possible performance based and objective based and allow different means of achieving compliance.
  - Requirements shall be proportionate to the risk (operation open to public, 3rd party on ground, complexity of aircraft, persons affected ability to assess risks)
  - Possibility for approved organisations to issue, under privilege: TCs, changes, repairs or OSD approvals
  - A separate TC for engines and propellers is no longer always necessary (they can be included within the scope of the aircraft TC)

What is new in the NBR affecting Part-21? (2)

- Non-Installed Equipment (NIE) design and certification (possibly under privileges)
- New requirements for issuance of an RCofA and PtF
- An organisational approval is not always necessarily required if the risk is low and an organisation can also declare its capability
- Compliance with the essential requirements for airworthiness (new Annex II) can be demonstrated without the issuance of a certificate and a declaration is possible
- New Annex (III) for environment essential requirements
- Definitions and terminology (i.e certification, appliances, NIE, declarations)
- …

Proportionate Rules for Aircraft intended primarily for sports and recreational use (‘Part 21 light’)

NBR key elements that enable Part 21 proportionality

- The NBR allows greater proportionality for Initial Airworthiness:
  - Requirements shall be where possible performance based and objective based and allow different means of achieving compliance.
  - Requirements shall be proportionate to the risk (operation open to public, 3rd party on ground, complexity of aircraft, persons affected ability to assess risks)
  - An organisational approval is not always necessarily required if the risk is low and an organisation is able to declare its capability
  - Product compliance with the essential requirements for airworthiness (Annex II) can be demonstrated without the issuance of a certificate and a declaration is possible

Principal cornerstones of the concept

No change in EASA or NAAs responsibilities

A cooperative spirit between stakeholders.

- Make Information available <-> Coordination between EASA & NAA

Certification process corresponding with nature and risk of the product /activity

A regulatory systems for GA that allows progressive engagement with EASA

Product oriented, using coordination between design and production

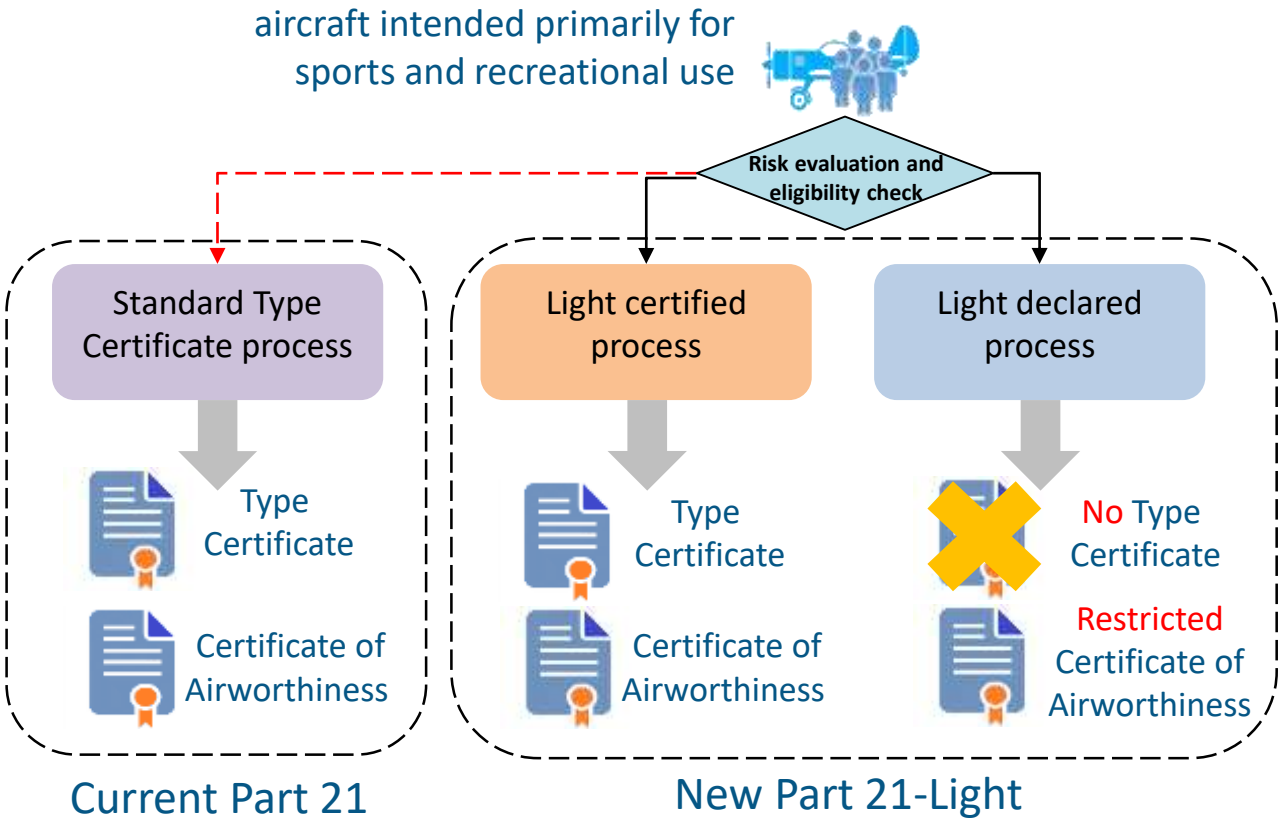
Possibility to choose between two different processes to certify aircraft. Either:

- Type Cert +CofA; or
- RCofA without Type Cert

Possibility of using a declaration (subject to oversight) to demonstrate:

- Organisational Capabilities (Design & Production)
- Compliance of the design (with the cert basis or industry standards)

Proposed proportionate regulatory system for GA



Light Certified process –key elements

Type Certificate	• EASA approval and ICAO compliant TC • Only available for conventional designs (non-novel, using acceptable standards + widely used SCs)
Design Capability	• Design Organisation Approval; or • Declaration of design capability (with oversight).
Production Capability	• Production Organisation Approval; or • Declaration of production capability (with oversight).
Oversight	• Compliance Demonstration Plan & Certification basis approval • On-site check before first prototype flight • On-site check and test flight before first production aircraft release

Light Declared process –key elements

Declaration of compliance	• Applicable for conservative designs (non-novel, using acceptable standards) • No EASA approval of the design (self declaration) and only a Restricted Certificate of Airworthiness (not globally recognised)
Design Capability	• Design Organisation Approval; or • Declaration of design capability (with oversight).
Production Capability	• Production Organisation Approval; or • Declaration of production capability (with oversight) .
Oversight	• Eligibility check for the declared process • First oversight visit before first prototype flight • Second oversight visit and test flight before first production aircraft release

Next steps Part 21 Light

- → EASA will continue to develop the concepts for Part 21 light that were presented in the workshops
  - → focus on the areas that have been identified above as needing further elaboration
- → EASA will continue to consult affected stakeholders through focussed consultation (no NPA will be published)
  - → organisations interested to participate in the consultation process should approach EASA
- → EASA will prepare an opinion with a regulatory proposal to the European Commission by the end of 2020

New concept: Non-Installed Equipment

NIE – a new ‘animal’ in the basic Regulation!

REGULATIONS

Art. 13 – design of non-installed equipment

‘[…] the design of non-installed equipment shall be subject to certification and shall be issued with a certificate.’

→ previously, airworthiness was only ensured in view of the product (in particular the aircraft), including its parts and appliances

→ now, also the airworthiness of equipment that is not installed in the aircraft shall be ensured

Why is it necessary to address airworthiness of NIE?

- → Equipment carried on-board the aircraft could affect safety
- → The risks from this equipment are varied and include: electromagnetic emissions, providing incorrect flight information, uncontained fire, leakages and non-provision of intended function in an emergency

  - → Previous BR lacked a means to assess airworthiness of equipment which will never be “installed” on an aircraft
  - → The ETSO process was sometimes used for this kind of equipment (e.g. parachutes (ETSO-C23F) or Containers (ETSO-C90d))
  - → EASA received requests to approve or certify equipment which were clearly not parts (e.g. Electronic Flight Bags)

Why is it necessary to address airworthiness of NIE?

- It shall be ensured that this type of equipment is safe and provides it's intended function; see para 1.4 of Annex II (essential requirements)
  - Non-installed equipment must perform its safety function or function relevant for safety as intended under any foreseeable operating conditions unless that function can also be performed by other means.
  - Non-installed equipment must be operable without needing exceptional skill or strength.
  - Non-installed equipment, whether functioning properly or improperly, must not reduce safety and must not adversely affect the proper functioning of any other equipment, system or appliance.

What is an NIE?

Art 3 (29) provides a definition

- any instrument, equipment, mechanism, apparatus, appurtenance, software or accessory
- carried on board of an aircraft by the aircraft operator,
- which is not a part*, and
- which is used or intended to be used
  - in operating or controlling an aircraft,
  - supports the occupants' survivability, or
  - which could impact the safe operation of the aircraft

* 'Part' is defined as 'any element of a product, as defined by that product's type design'.

- based upon this definition it is possible to consider a wide scope of examples of non-installed equipment
- but not all NIE have to be certified!

Art. 13 – design of non-installed equipment

'Where the delegated acts referred to in Article 19 so provide, the design of non-installed equipment shall be subject to certification and shall be issued with a certificate.'

- certain equipment may qualify as 'parts' and as 'NIE' depending on its use

- the DA (e.g. Part 21) will define the NIE for which a certification is necessary

Which NIE shall be subject to certification?

→ … those, for which the safety risk justifies the certification, e.g.

- Equipment which can be a ‘part’ or a ‘NIE’, depending on its use, and which today can receive an ETSOA – example: headphones
- Equipment for which a CS-ETSO exist, but which under the new definition of ‘part’ in the BR would not qualify as a part any longer – example: life preservers
- NIE, which needs an approval in accordance with the OPS rules
- ……..

How could NIE be certified?

- Need to ensure compliance with Annex II (essential requirements), in particular para. 1.4 (new!)
- The DA (Part 21) may require demonstration of:

Safety of the design (compliance with its cert. basis)

- through generic CS? equipment specific CS? reference to industry standards? …

Design capabilities?

- through holding a DOA/APDOA? declaring design capabilities? …

Production in conformity with the design?

Production capabilities?

- through holding a POA? Declaration of production capabilities? ….

Instructions for the operation of such NIE?

Need to establish a proportionate certification approach

- How could a proportionate regulatory process for NIE work?
  - Different classes of NIE based upon risk (using defined criteria);
  - Different organisational requirements and oversight based upon class;
  - Not necessarily requiring an organisation approval depending on the nature and risk of the activity;
  - Regulatory requirements contained in Part 21 and certification requirements in a CS;
  - …

Other consideration for NIE

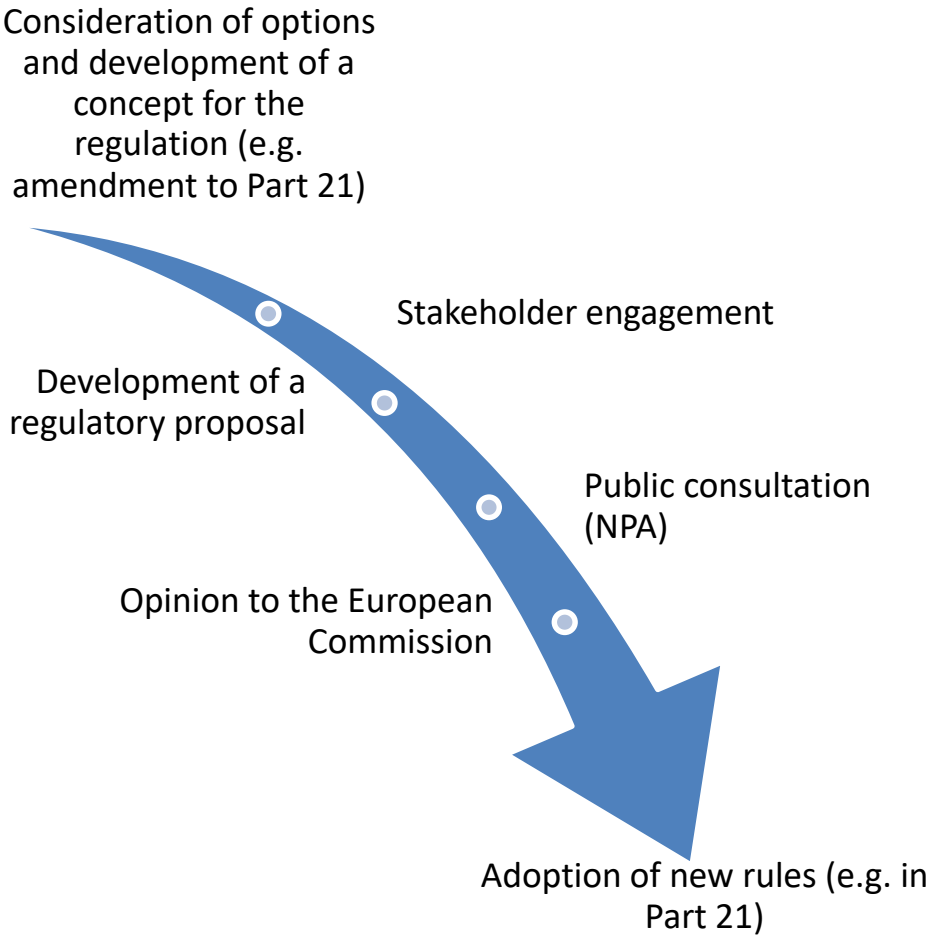
→ EASA could consider the following options:

1. Include NIE within the current ETSO process;
2. Implement a new proportionate NIE process alongside the current ETSO process;
3. Introduce a new proportionate process for both NIE and ETSO Parts;
4. Something else……

How is airworthiness of NIE documented?

- NIE shall be issued at the end of the certification process
  - with a certificate issued by
    - EASA; or
    - an approved organisation under a privilege
  - however a declaration of compliance with the certification requirements could be appropriate considering the nature and risk of the equipment: therefore a certificate may not always be necessary

NIE Next steps



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Thank you for your attention!

Questions are welcome.

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