



EASA

European Aviation Safety Agency



Simpler, lighter, better rules for
General Aviation

Part 21 Proportionality

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RMT.0689

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General Aviation
Manufacturers Association

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RMT. 068 is using a task force as sounding board to develop proportionate improvements to Part-21 implementations. ToR defines:

2. Objectives

The objective is to provide additional **flexibility and simplification** in Part-21 certification for GA that is **proportionate to risks** and meets an acceptable safety level. This task should be regarded as a change to the certification process that is in-line and within the new framework being developed in the proposals to change Regulation (EC) No 216/20082 (hereinafter referred to as 'the Basic Regulation'). This task will also consider using **performance based regulations (PBR) principles** that are being developed in coordination with the EASA advisory bodies. At the same time improvements to the certification process are also expected from a **more pragmatic implementation and guidance**. Options to be considered are:

- to **simplify and/or support of approval processes**;
- to **change competent authority involvement** and to **redistribute responsibilities** between competent authorities and stakeholders



With this ToR, the TF pursues three initiatives:

1. Develop alternatives to Part-21 AMC/GM for smaller companies for:
 - Subpart G – POA
 - Subpart J – DOA
2. Test these new AMC in pilot cases
3. Develop a new approach for Part-21(Light)
 - Implementing Basic Regulation updates



RMT.0689 Part-21 proportionality

2016 Q4

2017 Q1

2017 Q2

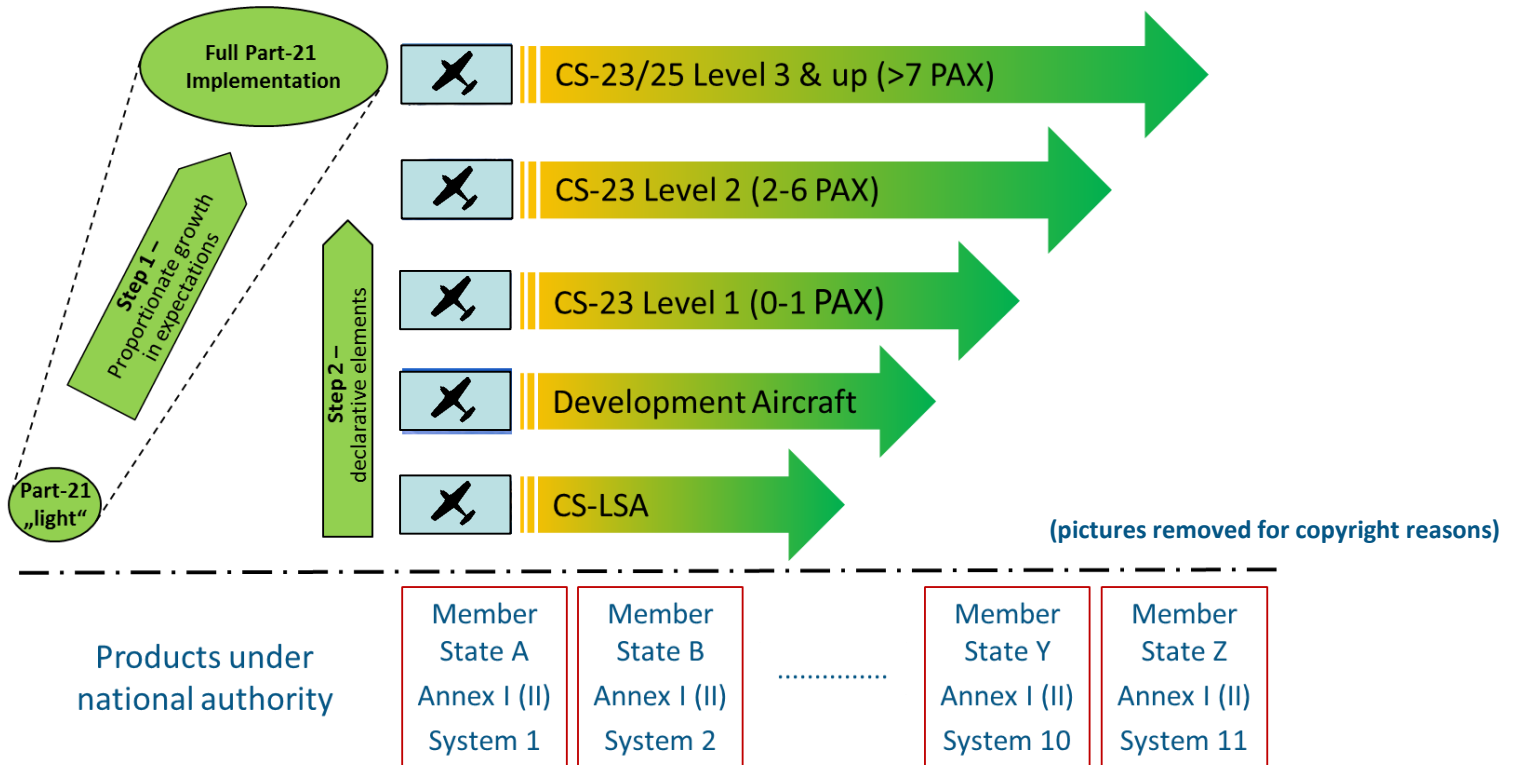
2017 Q3

2017 Q4

(Phase 1) Draft AMC/GM Part-21

(1A) Pilot cases

(Phase 2) Part-21 (Light) – Use of new options from BR





Step 1 – AMC-ELA



Step 1 – Developing (draft) AMC-ELA to Part-21

Today there are three main problem areas:



Existing AMC/GM to Part-21 is written for large aircraft and companies; especially POA is lacking alternatives



Non-natural split between approvals for DOA & POA (and Maintenance) of small, consolidated teams



Part-21 Section B (Procedures for competent authorities) mandate a process-oriented approach



Step 1 – Developing (draft) AMC-ELA to Part-21

How to improve the situation:

- Ensure common sense for small companies:
 - Know for every specific means why it is requested
 - Ensure that general means required are really necessary to meet the requirement
 - Define the means so that it serves the intent

Applying this in a strict way makes numerous elements unrelated for companies designing and producing small aircraft.



Step 1 – Developing (draft) AMC-ELA to Part-21

Besides rulemaking this requires...:

→ A Cultural Change!!

- A change towards product oriented surveillance, instead of today's process oriented approach.
- A change towards utilisation of other influences to companies, instead of duplicating aspects
- A change towards integrated assessments, instead of individual certificates
- A change towards partnership and trust, instead of hierarchy and suspicion



Step 1 – AMC-ELA for Subpart G (POA)

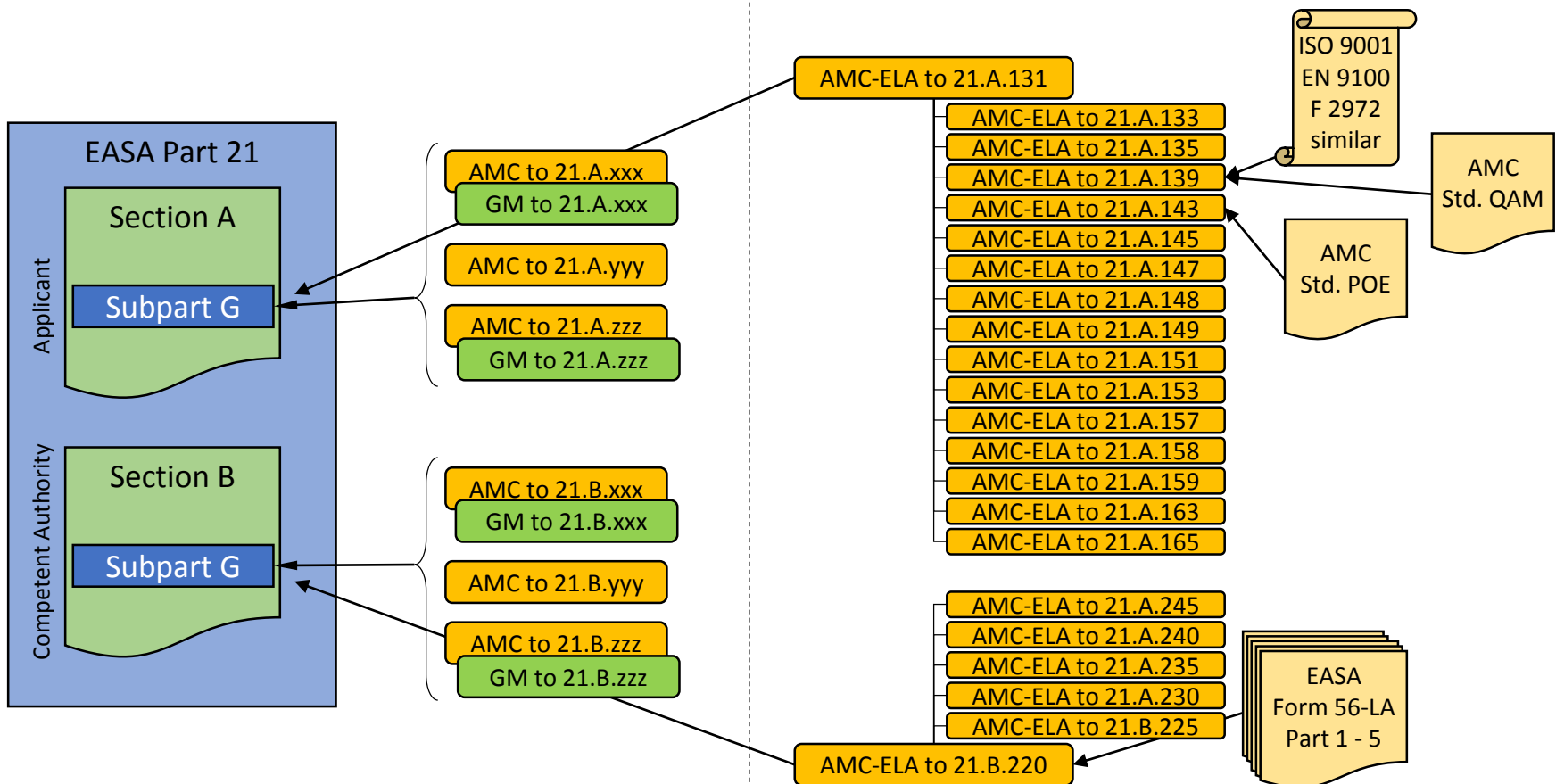


21.G – Spirit of AMC-ELA for small POA (Step 1)

- Apply product-oriented surveillance instead of process-oriented
- Significantly tailor the extent of documentation of the Quality System
- Make use of “practiced methods” in many areas - demonstration of repeatable procedures by evidence of work results is enough
- The competent authority oversight will focus on work results instead of process overhead verification



21.G – System of AMC-ELA



Existing – applicable to all products

New – applicable to products level 1 & 2

Note: „ELA“ relates to light aircraft in a much wider scope than ELA 1/2



21.G – AMC-ELA Examples

- ▶ Applicability of the new AMC is covering a broad range of products:

AMC-ELA No. 1 to 21.A.131 Scope

The full set of AMC-ELA defines an acceptable means of compliance to qualify for the issuance of a production organisation approval for companies that manufacture aircraft, or engines, or propeller, or articles under ETSO authorisation, when the aircraft is within, or the products and articles are limited to be used on aircraft within the following limitations:

- aircraft not classified as complex-motorpowered aircraft; and
 - aeroplanes of 2 730 kg maximum take-off mass (MTOM) or less; or
 - rotorcraft of 1 200 kg MTOM or less, certified for a maximum of up to 4 occupants; or
 - other ELA2 aircraft, including for example sailplanes and balloons.

Each AMC titled as AMC-ELA is considered applicable to companies producing products to this definition.

AMC-ELA No. 2 to 21.A.131 Scope – General Considerations

The full set of AMC-ELA as implemented here is based upon a set of preconditions.

AMC-ELA does not change the applicable regulations. AMC-ELA does not replace the existing GM and AMC. It provides an alternative, complete and self-contained set of AMC to the existing ones. Applicants that manufacture aircraft or products within the Scope as per AMC-ELA No. 1 to 21.A.131 may elect to apply AMC-ELA instead of the existing set of AMC, or instead of alternative means.



21.G – AMC-ELA Examples

► Focus tailored to verification of product conformity:

POA approval is based upon compliance with the airworthiness requirements imposed by Part 21 Subpart G. There are **numerous other external influences** that trigger decisions and processes within an organisation that is engaged in production of aircraft. Such aspects can be, but not limited to:

- Liability aspects,
- Economic requirements,
- Customer perception,
- Market acceptance,
- Social and ethical environment,
- and others.

POA approval process is not intended to provide a verification with respect to those other aspects, as long as not explicitly requested by Part 21 requirements.

Required level of detail in the quality system:

The focus of the required quality system is on the key workflows that are indispensable to **ensure conformity of delivered products** to the relevant parameters of the applicable design data. Only where evidence on product level shows that the methods of quality inspection are not sufficient to determine conformity with the relevant parameters of the applicable design data, and when the type design is not providing process definitions for these cases, the Quality System should include elements that care for the related deficiency.



21.G – AMC-ELA Examples

► „presumption of compliance“:

AMC-ELA No. 1 to 21.A.135 Issue of POA

The full set of AMC-ELA satisfies all Subpart G requirements. When adhering to this set of AMC in full, in exact analogy to established EU product legislation processes, compliance with all requirements of EASA Part 21 Subpart G is implied, without the need to consider any further aspects raised by alternative GM or AMC to this subpart of Part 21.

In cases where AMC-ELA declare some of the requirements of this Subpart not applicable for this scope of companies, this definition can be applied by the applicant without further justification.

Implementation of the standard POE and QAM without changes but adapted to the company constitutes full adherence to AMC-ELA. In this case the applicant is not required to demonstrate that the standard POE and QAM as such meet the provisions of AMC-ELA, hence Part 21 Subpart G. In cases where the specific characteristic of the company renders individual means of AMC-ELA impracticable or not applicable, a case specific resolution shall be agreed with the relevant Competent Authority, but only for those aspects. A justification that the means applied to satisfy those aspects meet the underlying requirements of Part-21 is only developed for those aspects.



21.G – AMC-ELA Examples

► POE used purely as interface document:

AMC-ELA No. 1 to 21.A.143 Exposition

The organisation provides a POE in form of a consolidated interface document towards the CA. The POE may be integral part of another company (quality) (management) manual. In this case the elements being considered part of the POE should be easily identifiable.

The POE is approved by virtue of obtaining the POA approval as such. The document as such is not intended to be approved by the CA, visual evidence of approval beyond issuing of the POA certificate with Scope of Approval is not applied.

The following key elements of the PO are to be covered by the POE:

1. A statement signed by the accountable manager confirming that the POE and OAM as referenced



21.G – AMC-ELA Examples

- Extended use of „practiced methods“, as opposed to documented procedures:

When using the term “A method needs to be practiced” throughout AMC-ELA, this shall imply that it is sufficient when the applicant can show what is actually done in order to comply with a requirement in a systematic way, without necessarily having a formally documented procedure established and introduced. Documented procedures that go beyond a “declaration” of the principles considered within the practiced method are typically not required. Evidence is provided by work result, by demonstration of actual conduct during surveillance activities, or by similar means. Only when the actual “doing” continues to be inconsistent, or does not satisfy the needs, documentation may be one of the alternatives to be considered to rectify the situation, but not the only one.



21.G – AMC-ELA Examples

► QAM Examples for practiced methods:

3.1. Control of Documented Information

21.A.139(b)1.(i), (x); 21.A.139(b)1.(x); 21.A.165(h);

Document control is ensured by workflow management being part of the IT based Document Management System (DMS). The workflow ensures revision management, adequate document approval and adequate document access to employees on the basis of defined user authorizations. Adequate backup procedures are in place that ensure safe copies of the database at a separate location.

This commitment applies to all documented information related to this QMS, especially to those of relevance for the production of conforming and safe products, including records, and to the Type Design.

3.4. Identification and Traceability

21.A.139(b)1.(iv);

ASTM F2792-14, 7.4;

All material on stock is properly identified, by reference to the part number or material specification, as applicable.

The manufacturer follows the definitions for identification provided as part of the approved Type Design. The manufacturer does not apply marking beyond this level. Traceability is ensured by identification of each material on stock, completed part or part in process through the IT based ERP system. Definition of method of traceability is provided by the approved Type Design. Identification is done by labels with barcodes, with the labels applied directly to the part, or stored together with the part in case of bulk or small goods.



21.G – AMC-ELA Examples

- Supplied parts are inspected when it makes sense, only in seldom cases supplier oversight
- Internal audits are not the primary, and by far not the only means accepted for internal monitoring
- For companies that already have a QM system installed, this can be utilised:
- Definition and use of the „major place of activity“ ensures greater flexibility and eliminates elaborate detail definition, such as floor plans, etc.
- Only one FTOM needed, typically coordinated from DOA
- Only one entity does Occurrence Monitoring



21.G – AMC-ELA Examples

- Section B requires the CA to use a product oriented oversight, still based upon evidence

AMC-ELA No. 1 to 21.B.220 (b) Extent of Investigation

Initial and continued investigation of the company is primarily conducted on the basis of conformity investigation of products with work in progress or following completion, and on the basis of direct product assessment, or assessment of product related production records.

When conducting investigations on companies that apply the POE and QAM template provided as AMC-ELA to Book A of Part-21 Subpart G, investigation of the documentation is limited to the verification that the templates have been adequately adopted to the company specific details.

In cases where the production organisation has been audited by an accredited third party for compliance with ISO 9001 or AS/EN 9100 and where the company holds a respective and valid certificate, and where the production activity to be covered by the production organisation approval is explicitly covered by the Scope of the QM approval, the competent authority should use and accept this to the best extent as evidence of successful implementation and practicing of methods required by AMC-ELA, with the aim to reduce duplication in regular assessment.

Recommendation for issue or continuation of a POA shall be given when the investigation shows that the company is capable to manufacture products within the scope of work in a repeatable way, so that they conform to the Type Design in such a way, that the safe operation of the product can be expected.



21.G – AMC-ELA Examples

- Section B requires the CA to use a product oriented oversight, still based upon evidence

5. Investigation

The POATL:

- makes a check of the POE for compliance with AMC-ELA No. 1 to 21.A.143 (a), (b) on the basis of EASA Form 56-ELA Part 3, or to the correct adoption of the sample POE provided, as applicable.
- audits the product and its associated documentation for conformity** with the provisions of the relevant type design. Where discrepancies show up on the audited product, the POATL assesses if the definitions of the Quality System have been adhered to, and if those definitions may have been misleading and contributing to the discrepancies, warranting possible need for modification. The audit is **conducted using EASA Form 56-ELA** Part 2 as a guide during the investigation with direct link to AMC-ELA to Section A, Subpart G, and as a checklist at the end of it.



Step 1 – AMC-ELA for Subpart J (DOA)



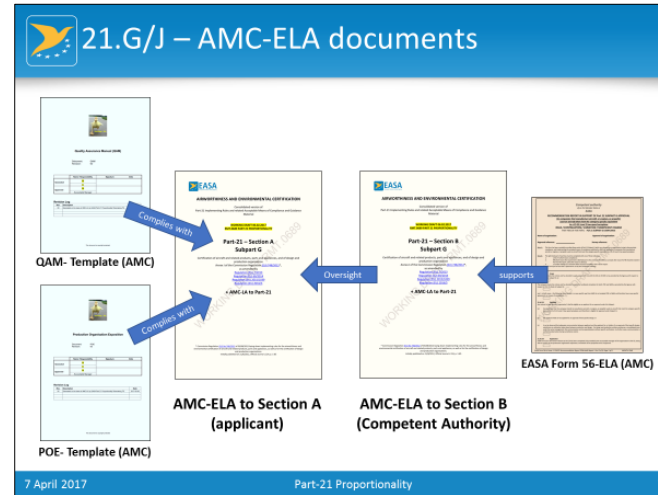
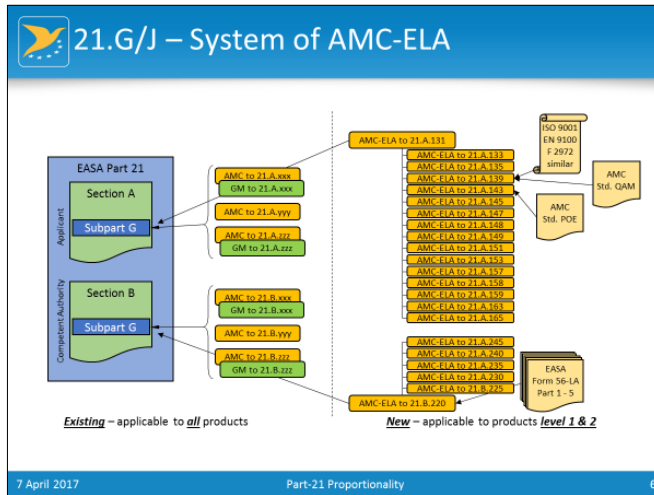
21.J – Spirit of AMC-ELA for small DOA (Step 1)

- Focus on “verification” elements of the Design Assurance System as “Gateway”
- Type Certificate related requirements of Part-21 go to Certification Program, not to DO-Handbook
- Significantly tailor the extent of documentation of the Quality System
- Make use of “practiced methods” in many areas - demonstration of repeatable procedures by evidence of work results is enough
- Agency oversight to focus on DAS “Gateway”- Function, not on basic engineering process



21.J – System of AMC-ELA

➤ Equivalent approach as for Subpart G



Available for review now:

<https://www.easa.europa.eu/system/files/dfu/ga.zip>



21.J – AMC-ELA Examples

Same approach as for Subpart G is used for the following issues:

- Applicability of the new AMC is covering a broad range of products
- „presumption of compliance“
- Exclusion of external aspects
- Extended use of „practiced methods“, as opposed to documented procedures
- Internal audits are not the primary, and by far not the only means accepted for internal monitoring
- Definition and use of the „major place of activity“
- Only one FTOM needed, typically coordinated from DOA
- Only one Occurrence Management needed



21.J – AMC-ELA Examples

► Focus limited to the independent checking elements:

AMC-ELA No. 1 to 21.A.239 (a) Design assurance system – Definition

When speaking of the “Design Assurance System” (DAS), this refers to those elements of product development and certification, that ensure for the control and supervision of initial design, changes or repairs to the design, with respect to the applicable type-certification basis, operational suitability data certification basis and environmental protection requirements. Therefore, **elements to be considered as part of the DAS are:**

- Generation, iteration, EASA agreement and maintenance of the Certification Programme;
- Verification of Compliance within the Design Organisation;
- Declaration of Compliance by the Design Organisation towards EASA;
- Monitoring functions to ensure continued airworthiness of the certified product, including resulting activities;
- Independent System Monitoring of the compliance with, and adequacy of, the documented procedures of this system.

A typical development process will include a number of additional activities that are not part of the DAS, even when elements of the DAS form specific milestones in the development path. **Those other activities are consequently excluded from the assessment of the DAS**, even when they are directly influenced by aspects of the DAS.



21.J – AMC-ELA Examples

➤ Complete AMC for an adequate FTO

AMC-ELA No. 2 to 21.A.243 Data – Policies and procedures in relation to Flight Test

In order to conduct flight test activities, the DOA is required to implement policies and procedures for the conduct of these activities, that include a proportionate and efficient risk and safety management system. This approach is documented, either within a separate Flight Test Operations Manual (FTOM), or as integral part of any other valid manual of the organisation, such as the DOH, or any other relevant Quality Manual. The FTOM, or its equivalent, should be proportionate to the aircraft and the organisation complexity.

The risk and safety management system, documented within the FTOM, or equivalent, covers the following aspects:

- Definition of the key qualifications, responsibilities and accountabilities for the staff involved in the conduct of flight test, covering at least:
 - Head of Flight Test – coordinates all activities related to flight test and is assuming responsibility for flight testing (can be shared with other management position within the DO)
 - Flight Test Engineer – manages individual flight test (campaigns)
 - Test Pilot – conducts any flight test
 - Flight Test Mechanic – conducts all maintenance on aircraft



Step 1 – Spirit of AMC-ELA for consolidated teams

Practical combination of DO & PO allows:

- Sufficient to have one Flight Test group in either DOA or POA
- Sufficient to have one Occurrence Management process in either DOA or POA
- Recognize “inherent” communication and widely eliminate DO/PO agreement procedures
- Prepare the base for “combined investigation” with subsequent “combined approvals” – allow Maintenance Approvals to join



Step 1 – New AMC-ELA for small organisations

Challenges

- Educate the affected people towards the cultural change when performing product oriented POA-oversight
- Short term action that will need adjustment when the BR changes

Opportunities

- AMC-ELA makes the EASA direction for the lower end of GA immediately accessible
- Possibility for adjustment when the BR changes allows to rapidly adopt Lessons Learned



Step 1 – Accelerated rulemaking procedure

Fast implementation of Step 1 by:

- Dedicated meeting at AERO to explain:
 - This is Step 1 in the Part-21 proportionality RMT
 - Scope and principles used for this AMC; and
 - What is Step 2 of the RMT about to offer
- Focussed consultation (Workshop @ EASA in May 2017)
- Consultation with stakeholders and Competent Authorities via the advisory bodies (STeB and GA Sectorial team) – May / June 2017.
- Direct publication of a Decision - Summer 2017



Step 2 – Updated Part-21

Declarative Elements in a Proportionate Environment



Step 2 – Adopting declarative elements

- New Basic Regulation will require re-definition of Part-21
- Re-definition of Part-21 will allow for follow-on steps for light aviation:
 - Apply “lessons learned” to AMC-ELA from pilot phase
 - Implement declarative elements
 - Adopt an objective rule approach, making use of AMC
- New Basic Regulation is expected to allow declarative elements



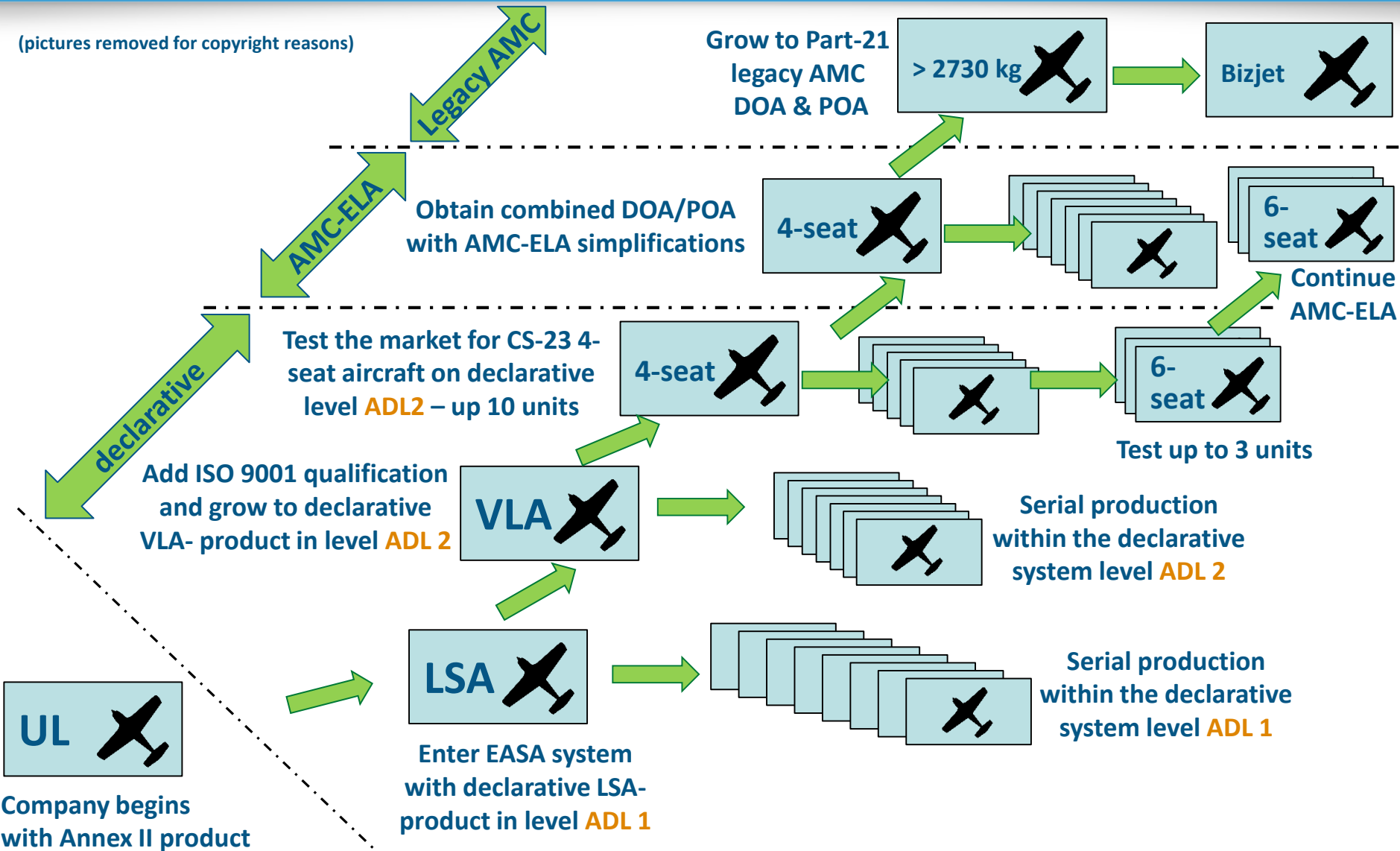
21.J/G – Spirit of declarative elements (Step 2)

- Use experience from existing declarative systems
- Definition of an “assisted” declaration system
 - Guide the applicant & encourage to use experienced staff
 - Declaration requires submission of content statements
- System oversight by Authorities using spot-checks
 - experience level of applicant gives credit
- Allow to explore next bigger product categories
- Connect seamless to Step 1 AMC-ELA approach



RMT.0689 Part-21 proportionality

(pictures removed for copyright reasons)





Part-21 Proportionality

Example products for the different options (pictures removed for copyright reasons)

600 kg max; LSA low-wing; LSA high wing,
LSA Amphibious; sailplanes single-seat;
600 kg touring motorgliders
small lighter-than-air vehicles, etc.

**Declarative -
ADL 1**

Light helicopters, VLA, 2-seat & open class sailplanes,
touring motorgliders, CS-23 Level 1;
medium size lighter-than-air, etc.

**Declarative -
ADL 2**

fixed wing up to 2.730 kg (6.000 lbs)
multi-engine electric and piston;
lighter-than-air without vector control;
helicopter ELA 2, etc.

**Alleviated Part-21
AMC-ELA**

Complex motor-powered aircraft; jets;
vector control LTA; commuter; etc.

**Established Part-21
Legacy AMC**

Proportionate growth



EASA

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Your feedback is required:

→ Does this give you the improvement that you need to make GA grow again?

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