

EASA Product Certification and Design Organisation Approval Workshop

Cologne, Germany

22nd - 23rd November 2017

By Duane Kritzinger

Duane Kritzinger (Principal Consultant and Part 21 Subject Matter Expert) represented Baines Simmons at the recent EASA “Product Certification and Design Organisation Approval Workshop”.

The objective of this annual workshop is to give both industry representatives and authority staff involved in EASA DOA an update on working methods and related Product Certification topics and with an overview of ongoing rulemaking activities.

Three key aspects which need highlighting are:

- ▶ The DO’s Compliance Checklists will need to be expanded to include CDEs to facilitate LOI (and to address the different AMCs in CS23 Amm 5 as applicable)
- ▶ SMS and LOI are inevitable and industry is encouraged to embrace the change pro-actively. A key enabler will be the establishment of a “Just Culture”, which is a new concept for many DOs.
 - ▶ For more information on what a Just Culture means, see <https://www.bainessimmons.com/aviation-consulting-services/smarrt-tools/fair-system/>
- ▶ EASA will be issuing an information bulletin called “J-NEWS”, which will disseminate Part 21 knowledge and developments to the wider industry to facilitate standardization and prevent recurring non-compliances.

The following synopses/interpretation should be read in conjunction with the presentations, which can be accessed via the Newsroom and Events page at www.easa.europa.eu

1. Opening of the Workshop and Welcoming Remarks

by T. Woods (EASA Certification Director) and A. Leroy (EASA Certification Deputy Director)

Trevor welcomed all attendees. Mentioned SEPIAC and his vision that the system will ensure that certification programs remain on schedule and receive due attention from EASA management if not. Also welcomed feedback on LOI, which is intended to reduce oversight effort and focus EASA attention where it is more needed. Basic Regulation is being amended and it is going to have an impact on Part 21 for both industry and EASA.

Alain emphasized that LOI is based on a partnership principle so that industry and EASA can use their resources more efficiently. SEPIAC should facilitate better communication and progress management across this “partnership”.

2. Introduction Remarks

by M. Goernemann (EASA Head of Design Organisations Department)

Markus encourages participation and continuing sharing of information and best practices across our industry. The side meetings were facilitated by EASA, and Markus encourages that this process should continue between DOA events.

3. Certification Memorandum on Level of Involvement (LOI) Determination

by M. Gerhard (EASA Regulations & Certification Policy Section Manager)

Michael's team develop rules and played a key role in the development of LOI.

Slide 5-6 shows the intent for 21.239 to be amended to incorporate LOI (see slides 13-14) in the verification of applicant's Design Assurance System. Opinion 7/2016 (slide 7 and 9) has been issued and EU update to Part 21 is expected by end of 2018 (has been discussed twice by EU Committees and next discussion is in Feb 2018). Industry will be allowed a 9 month transition period thereafter.

A supporting Certification Memorandum (see slide 10) and draft AMC (see Slide 11, subject to final decision) has been published. AMC needs further work as the Commissions is making some changes to Opinion 7/2016 and it is envisaged that the final AMC will be the Cert Memo

A Compliance Demonstration Item (CDI, see slide 15-16) is the grouping by the applicant of a set of MoCs (see slide 18 which will be in a new 21.A.15).

The LOI's risk based approach will be in 21.A15 and 21.B.100. Slide 21 shows the 3 steps which EASA will follow to agree LOI and slides 22-35 show the criteria which will be used. Note that the applicant must do the risk assessment and propose the LOI to EASA (but not for Minor modifications) (does pertain to ETSOs). The DOA Performance dashboard (slides 30-352) will be shared with the DO during annual review/feedback meeting. In future, this dashboard will be kept current in SEPIAC.

Slide 41 shows common LOI determination lessons learned to date, and work is underway to address some of these.

Note, it is not envisaged that LOI will lead to reduced fees for performing organisation (unless a DOA's privileges are increased).

Note also that the applicant will need (see slide 18) to inform EASA of any difficulties during the qualification program so that LOI can be adjusted. A “Just Culture” (slide 32) will facilitate this.

4. Level of Involvement (LOI): A Practical Case Study

by G. Donnarumma (TECNAM Airworthiness Engineer) and S. Fico, EASA Senior PCM - Initial Airworthiness General Aviation & RPAS

Contains a useful example of MoC allocated to CDI allocation along with risk classification.

Note that this is a good approach, but might not be practical on larger programmes. In order to support the LOI recommendation, the DOA has to put much more effort into the Certification Program Plan (typically by the Office of Airworthiness).

During the Q&A process, one company stated that they found it easier to allocate CDI to each document deliverable, but it was still a burdensome process.

5. Rulemaking Activities Affecting Part 21

by M. Gerhard, EASA Regulations & Certification Policy Section Manager

Michael presented the following changes, inter alia, imminent to Part 21:

- ▶ Cert Plan: Note on slide 5 that green font indicated new requirements due to LOI.
- ▶ Cert Basis: Changes due to Article 20 in the Basic Regulation is shown on slide 6.
- ▶ Privileges: Slide 7 provides possibility for DOA to get new privileges under their Terms of Approval (includes possibility to self-approve certain major changes/repairs based on past performance)

- ▶ Obligations: Slides 9 and 10 show where requirements will be moved from Section A to Section B? A correlation table will be provided in due course
- ▶ ICA: Slide 12 contains the plan to provide more instructions
- ▶ SMS in Part 21: Purpose is to address ICAO Annex 19 (Part 21 and Part 145 will be addressed at same time). See slide 13
- ▶ Part without a Form 1: See slide 14 and pertains to parts used during the maintenance process.
- ▶ CofA for imports: See slide 15, which also pertains to military aircraft to be transferred to civil registry. Impacts Part 21 and Part M

Regarding consolidating Part 21 amendments, Michael stated that EASA will make available a tool (some sort of database) that industry can use to compile a consolidated list of applicable Regulations pertaining to their individual scope of approval

6. Rulemaking Activities affecting the CS23 Amdt 5

by P. Violetti, EASA General Aviation Project Certification Manager

Pasquale presented a summary of the changes in CS23Amm 5. These have been published, but effectivity has been delayed whilst FAA and EASA try to harmonize the supporting AMC.

Note that the FAA might publish the AMC before EASA does.

Note on slide 16 that the applicant's Compliance Checklist must now include columns identifying the relevant AMC option chosen

7. Shared Electronic Platform for Initial Airworthiness Certification (SEPIAC)

by O. Tribout, EASA DOA Team Leader

The SEPIAC platform will provide a new way to exchange and communicate during a certification project. The problem SEPIAC is trying to solve is to try to move away from many e-mail queries/submissions and provide a system which allows more traceability, trackability and prioritization. See last slide, where the intent is to use SEPIAC for all projects after 2017. For more information, see <https://www.easa.europa.eu/newsroom-and-events/events/sepiac-information-session-and-live-training>. John Munckton (Qantas HoAW) attended this meeting and kindly provided the following summary note:

- ▶ SEPIAC provides project status and project document status. First release was June-2017 It is a cloud-based program hosted on the SharePoint platform. It is also used by other NAA's for validation.
- ▶ EASA initialize the project on SEPIAC after the project proposal has been submitted by the applicant.
- ▶ will only have access to EASA documents and documents pertaining to my company and my projects. Currently EASA has >50 projects hosted. Can search across title, document number, applicant name.
- ▶ Project status gives rough estimate of how many of the project documents are currently approved.
- ▶ The software is SharePoint2016. At the top of the project main page are the following sections:
 - ▶ Shared documents (main place where applicant and EASA work), noting:
 - ▶ Right-click on three dots gives a number of options including history to see changes made to the metadata of the document;
 - ▶ Modify the document within SharePoint;
 - ▶ Should not upload different versions of the document simultaneously. Everyone should work on the document in SharePoint;
 - ▶ Restricted documents (e.g. EASA comments, CRI discussion);
 - ▶ EASA-restricted documents;
- ▶ EASA provide bubble-type comments in the project documents, others will create a separate document referring to sections of the original and commenting on it. There is a "Discussion" option that may be used to comment on the document. EASA can reply using this same tool showing their response to the comment;
- ▶ There is also project-wide commenting that may be used e.g. for someone new coming in to the project if someone is away sick;
- ▶ In the file "library" tab I can set the 'Alert' to be advised every time a change is made to the document. An Alert can also be set against a specific folder. An Alert cannot be set at the project level.
- ▶ Offline Option - go to library and select "Connect to Outlook". This will send all documents for the project to my Outlook inbox. Outlook will always check to synchronise all these files every time it starts so this is not recommended.

- ▶ The project documents stay on SEPIAC only for the life of the project. Once the project is closed, the documents are archived by EASA and are no longer available due to cost of cloud-hosting.
- ▶ This tool has been presented to the FAA. They have not yet adopted use of this tool
- ▶ For further advice:
 - ▶ To obtain an account send an email to SEPIAC-help@easa.europa.eu. I do not need to have a project to obtain an account. With an account I can train my colleagues.
 - ▶ Under “How-To Documents” there is a full set of training manuals and videos.
 - ▶ For help email SEPIAC-help@easa.europa.eu

8. Continued Airworthiness: Occurrence Reporting

by A. Krastins, EASA Senior Occurrence Reporting Officer

Algars discussed best practices for the DOA procedures for occurrence reporting, analyses and follow-up. The system needs to be more robust to meet 376/2014 (see slides 6 & 7) for which Part 21 rulemaking activity is underway (see slide 23) :

- ▶ Reporting: Underpinned by the successful implementation of a “Just Culture in all approved organizations (for more on Just Culture, click here). Note on slide 18 that it not only “unsafe” conditions that must be reported!
- ▶ Analysis: Slide 10 shows a best practice to analysis of an Occurrence (and the evidence/rapports needed of such analysis)
- ▶ Agency/Authority/Commission involvement: See slides 13-14
- ▶ Follow-up: See slide 11 to close the loop (i.e. occurrence report closure)

Note, 376/2015 is not applicable to DOAs who are not part of the EU (but will be in due course once Part 21 is updated).

9. International Cooperation

- F. Steffens, EASA Head of International Cooperation Department and M. Kieft, EASA Safety Information Section Manager

Frank provided a general update. Slide 4 shows the dual objectives that EASA have: Safety and Development of our aviation industry (see also slides 16 and 23). There are over 140 working arrangements (slide 14) that EASA has with other countries, which have the prime objective of ensuring efficiency gains.

Regarding EU-US Bilateral, note that 2 new Annexes are being negotiated (slide 9).

Note that non-EU countries subject to Working Arrangements or TIP cannot apply for ETSOA

10. BASA EU/US – Technical Implementation Procedure revision 6

by M. Kieft, EASA Safety Information Section Manager

Mark provided a strategy that will evolve the TIP until 2022 (see slide 5)

In TIP Rev 6 we benefit (see slide 6) from a wider range of things (e.g. Minor changes and ETSOs) for which there is now full mutual acceptance. So, even though a specific TSO and its equivalent ETSO have different requirements, they are mutually accepted.

See slide 11 for a summary of all benefits.

11. Update: On-going BASA negotiations between the EU-China

by G. Lievre, EASA Implementation Support Services Section Manager

Gregory provided an update on the status of TIP negotiations, the scope of which is limited to design and production of products, part and appliances (see slide 6).

12. FAA validation of STCs’ Instructions for Continued Airworthiness (ICA)

by P. Hatton, EASA Senior PCM - Validation Process General Aviation & RPAS

Paul presented the framework of FAA validation for STCs’ ICA, the differences which are influenced by the very different approaches to personnel licensing (refer slide 4). The presentation contains useful advice of good practice (or, more importantly, what not to do) to facilitate ICA validation (e.g. see slides 9-11).

For more on SSD, see https://www.faa.gov/aircraft/air_cert/design_approvals/transport/transport_intl/sd_list/ssd_nonssd_list/

13. General Aviation (GA) roadmap update and PART21 proportionality

by D. Roland, EASA Head of General Aviation & RPAS and D. Krappel, EASA Senior DOA Team Leader

Dominique provided an overview on the status of the GA Roadmap (see slide 9) and the potential impact on the DOA business via Part 21 Proportionality. Note the plan for a combined DOA/POA/145 approval (slides 13-15 & 22)

A Part 21L is envisaged (i.e. Part 21 Light, see slide 27) and will need to be more product than process orientated (slides 23-26).

14. Changes in the EASA Design Organisations Department

by M. Goernemann, EASA Head of Design Organisations Department

LOI and DOA Performance: Each DOA will be able to interrogate their scores and see how it is aggregated. Will be underpinned with an MOU, internal DO procedures and the successful implementation of a Just Culture so that individuals in the DOA are not blamed for a low performance contribution.

SMS/LOI: Robert Boersma at EASA is leading the transition in Part 21. The Senior/Chief PCMs are key to its successful execution on DO projects.

DOA for ETSO: Companies no longer need to have 2 approvals and 2 handbooks (slide 10) . ETSO holders can now also apply for full DOA and thus gain full privileges (slide 11), and for some ETSOs it will become mandatory

Surveillance: TL Managers will join their colleagues during industry audits. Will act as observers and will help ensure standardization and equality across industry

Newsletter: EASA will soon issue a e-newsletter (slide 16, called "J-news") to raise industry awareness of DO related issues, initiatives and publication (not just rulemaking activities). Likely to be issued twice a year, but industry feedback and suggestions could lead to it being issued more frequently

15. Aviation goes electric

by M. Reichel, CS-23 Aeroplanes Section Manager and L. Gruz, Head of Propulsion, Parts & Appliances Department

Manfred's presentation provided an update on the latest EASA initiatives (an EASA project) to prepare for the future. Note that it is still too early to start any rulemaking activity.

Lourent discussed the challenges associated with the certification of e-motors. Development of CS-rules will require close participation with technology leaders (see also slide 23). Note that 2 CRI's have already been published (slide 13). Regarding e-motor failure severity classification, it is interesting to note the reduced severity this technology offers (see slides 16, but also slide 19). Battery pack crashworthiness is still an unknown.

Trevor Woods is on the steering committee for this initiative, which offers "significant benefits to safety and the environment". He encouraged industry to engage with EASA to enable progress.

16. Repairs vs Design changes: do's and don'ts

by W. Hoffmann, EASA Structures Expert and P. Lair, EASA Senior PCM - Continuing Airworthiness Propulsion

Wolfgang highlighted issues related to Repairs and Design change applications:

- ▶ Regulatory reference pertaining to structural repairs are listed on slide 4.
- ▶ Examples of MAJOR repairs are shown on slide 13 (See here for definition of "critical part"
- ▶ The Structural Repair Manual (SRM) is discussed on slide 10
- ▶ Typical recurring certification issues discussed on slides 21-22, 25-26.
- ▶ The background to the ageing aircraft obligations in Part 26 (slide 24)

17. Design Organisation Approval Certificate Transfer

by A. Enache, EASA Design Organisations Section Manager and F.M. Caridei, EASA Design Organisations Section Manager

Francesco discussed the intent of 21.A.249, with "border line cases" explored on slides 11-13. Note the recommendations made on slide 15, noting that new ownership does not guarantee DOA retention.

18. Input from Side Meeting of Group 1: Airlines Community

by G. Pearson (BA) and T. Munro (Qantas)

Highlighted the complexity of finding all applicable regulations (slide 4) to comply with and the airlines support of the EASA initiative to published e-rules (see end of para 5 above) by end of 2018.

Various topics were raised (slides 5 onwards) where EASA clarification is needed.

Note slide 9 discussion, which incorporates EASA input, regarding orphaned STCs.

19. Input from Side Meeting of Group 2: General Aviation Community

Highlighted various issues where EASA clarification is needed. Many of these pertain to the term “type design data” and its practical application.

Emphasized the fact that the SMS and LOI are inevitable and encourage the rest of industry to embrace the change proactively (slide 12).

CS25 Amm 5 will make identification the TC Basis more complicated (slide 12) and CVEs will need to be re-skilled to understand the new/difference standards.

20. Flight Test: Typical categorisation of rotorcraft flight test campaigns

by F. Paolucci, EASA Senior Expert - Rotary Wing Flight Test

Francesco provided a detailed and informative discussion on flight test challenges for the DAO in its application of Part 21 Appendix XII.

Note this appendix applies to certification test flight only, not maintenance acceptance test flights, but the organization's flight test procedure may well take heed of these good working practices/principles.

21. Specific De-risk measures before conducting Certification Flight Test Activities

by D. Richard, EASA DOA Team Leader

Dirk explored some of the difficulties that industry have shown in the implementation of 2015/1039 and provides an EASA checklist of topics which could be used by industry to identify and manage safety issues/concerns. Note the SMS references and the fact that the test pilot (especially if contracted) must be pro-actively involved during the flight test strategy/planning phase.

Note that during certification program the CofA is invalid and the DOA is considered to be fully responsible as the “operator” of the aircraft.

22. Input from Side Meeting of Group 3: Rotorcraft Community

Highlighted some issues requiring EASA clarification. Some topics applicable to wider industry:

- ▶ EPA part marking obligations of Part 21 Subpart P and concerns relating to parts manufactured in Part 145 organisation. Note slide 6 for pro-active steps a DO should take to control the execution of Subpart P.
- ▶ Different authority TCH and STCH expectations, especially when an EASA STCH wants to work more closely with an FAA STH.
- ▶ AC27-1 and AC29-2 requirements for medical equipment is often inconsistent with maintaining the medical qualification standards of that equipment. Use of medical oxygen equipment is controlled via a very complicated CRI, which is also very different to the FAA requirements.
- ▶ Common understanding of terms such as “LNAV+V” and “normal field of view”
- ▶ Knowing what industry guidance is applicable under different circumstances (slide 23)
- ▶ Underestimation by applicant and EASA of the amount (and therefore cost) of flight tests activities needed.

23. OSD implementation on STCs

by D. Elten, Lufthansa Technik Quality Manager and A. Gherman, Lufthansa Technik Head of the Design Organisation & Intellectual Property Management

Andreas presented some of the challenges they experienced in the practical application of the OSD requirements. Page 6 summarizes concisely the lessons learned from using CS-MMEL, CS-CCD and CS-FCD. The experience during STC applications are summarized on page 8 and it is evident that EASA specialists are on a steep learning curve too.

Note: During the Q&A one delegate highlighted a problem that Airbus considers the OSD data as proprietary, so an STCH applicant cannot issue supplements to OSD. 21.A.61 is not clear whether STC applicants may demand this data and will need careful management on case by case basis. Etihad confirmed that they experienced the same problem with Boeing and that the process to get the data took more than 6 months

24. Input from Side Meeting of Group 4: STCs holders (Small Organisations)

by J. Clementi (HoAW Aerodata AG)

Emphasized the need for early engagement to agree with EASA the cert basis and the LOI.

Did pose the intriguing question whether industry will (or should) ever have a reciprocal arrangement to do a performance score on EASA on a per project basis (i.e. 360 evaluation).

Various questions are posed in the presentation which required EASA guidance/clarification, which includes the TIP, DO/MO coordination, CS-MMEL, the ability for a DOA to do changes to ETSO articles, mixed experience in getting OSD source data from the TCH, etc.

25. Changes to Approved Models List (AML)

by R. Bader, EASA Chief PCM - EU Products

The presentation is focused on CM-21.A.E.001, which provides an option to certify the same changes/designs on similar aircraft types. The presentation provides some considerations and principle in support of this Certification Memorandum.

26. Input from Side Meeting of Group 5: ETSO holders

Highlighted some issues for EASA attention regarding:

- ▶ Validation of ETSOs in China and CTSOs in EU and their installation on aircraft.
- ▶ Current burden of dual Handbooks and Dual Approvals (DOA and apDOA)
- ▶ Management of ETSO changes
- ▶ Fees & Charges versus Privileges

27. Input from Side Meeting of Group 6: DOAs outside EU

by R. Marcato (Embraer DOA Monitor)

Issues discussed included:

- ▶ Control of partners/subcontractors
- ▶ EASA policy on not accepting TC/STC applications (EASA explained that their hands are tied under the ICAO Annex 8 State of Design obligations, see EASA FAQs)
- ▶ Fabricated parts via the DO-MO agreement
- ▶ The fact that 21.A.2 cannot be used to outsource obligations to non-EU DOA

28. Summary, Conclusions and Closure Remarks

by Patrick Ky (EASA Executive Director)

The new Basic Regulation is expected to be adopted by the EU by end of this year, Changes include:

- ▶ Change of scope of EASA activities (e.g. RPAS Cyber Security) and the ability to certify/deal with military/state aircraft
- ▶ More emphasis in supporting industry on the international scene.

EASA will be expected to do more with less, so EASA needs to work smarter by:

- ▶ being less reliant on prescriptive rules but more dependent on performance oversight. In Ops this is known as Risk Based Oversight (RBO). In Part 21 this is known as LOI.
- ▶ Using digital communication methods to facilitate project management (e.g. SEPIAC)

This event is the largest annual event hosted by EASA and Mr Ky thanked all those who contributed to its success

About Baines Simmons

We are specialists in aviation regulations, compliance and safety management and partner with the world's leading civil and defence aviation organisations to improve safety performance.

As trusted advisors to businesses, armed forces, governments and regulators across all sectors of aviation, we help to advance best practice, shape safety thinking and drive continuous improvement to safety performance through our consulting, training and outsourced services.

AIR PARTNER

Aircraft Charter since 1961

Baines Simmons is the consulting arm of the LSE-listed global aviation services group, Air Partner PLC
www.airpartner.com

Author

Duane Kritzinger
Principal Consultant, Baines Simmons

Duane Kritzinger is an experienced Certification and Safety Engineering specialist. His distinguishing safety expertise lies in the ability to differentiate and integrate the Safety Assessments in the design phase with the Safety Management activities in the operational phase. His certification skills cover both the military and civil aviation domains, where he not only provides expertise in the certification of products/parts/appliance, but also assists with EASA/EMAR Part 21 Design Organisation Approvals (which includes the establishment of organisation processes and structures to move beyond minimum compliance towards organisational performance).

Since the publication of EMAR 21, Duane has been assisting both the military regulators (in their adoption of EMAR 21) and the regulated community (in demonstration of compliance in the most efficient manner with due consideration of other approvals held).