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## F44 General Aviation Aircraft *Regulatory Briefings*

24 June 2021  
Christoph Genster  
F44 1<sup>st</sup> Vice Chair

[www.astm.org](http://www.astm.org)

# REVIEW OF TODAY'S AGENDA

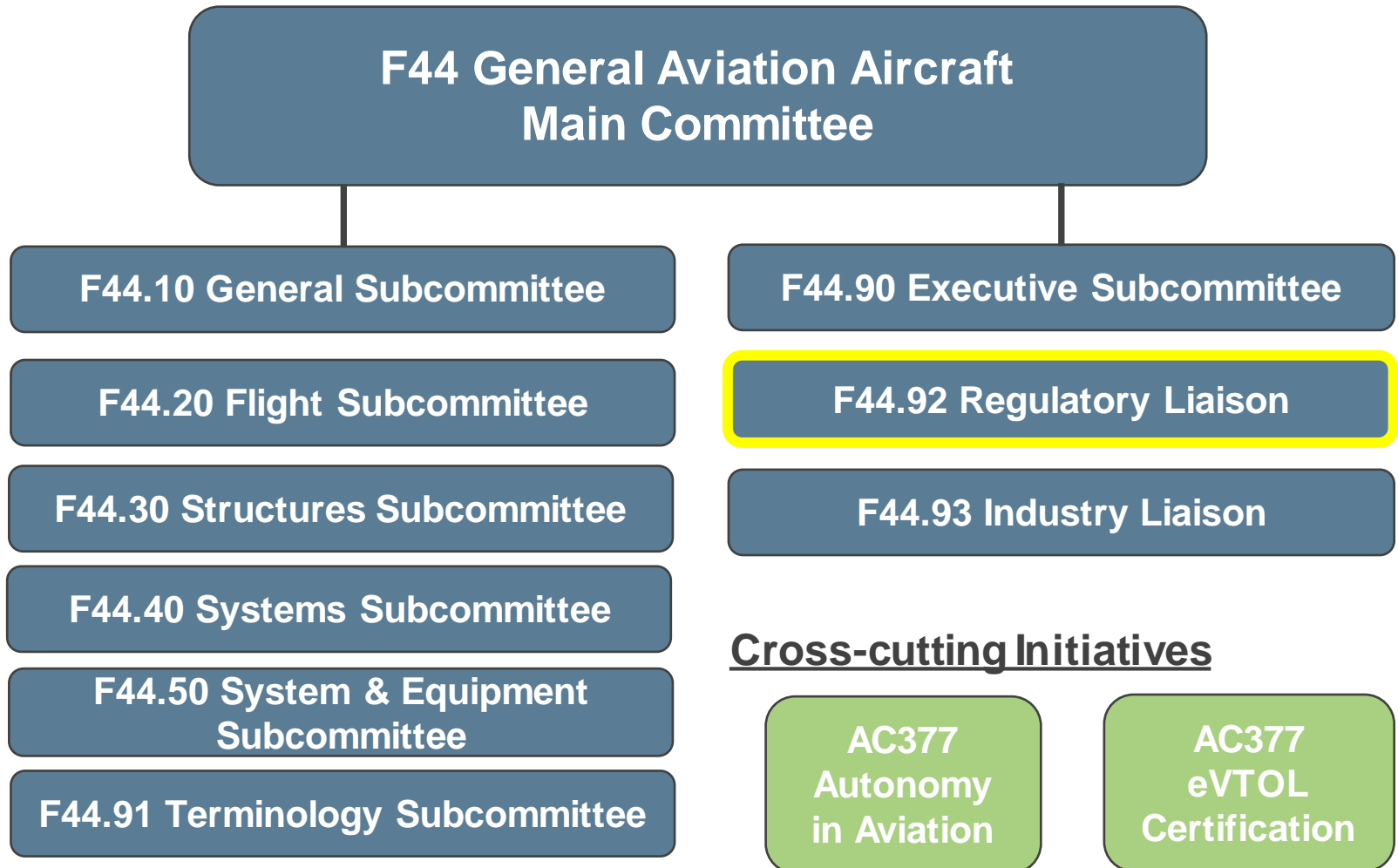


<b>TIME</b>	<b>SUBJECT</b>	<b>PRESENTER</b>
<i>10.30</i>	<b>Welcome and Opening Remarks (5min)</b>	Christoph Genster
<i>10.40</i>	<b>F44.92 Regulatory Liaison Subcommittee Update</b>	Boudewijn Deuss
	<b>Implementation update: FAA Part 23 Amendment 64 implementation EASA CS-23 Amendment 5 implementation</b>	Andy Supinie Boudewijn Deuss
<i>13.00</i>	<b>FAA lessons learned</b>	Andy Supinie
	<b>GAMA TPC 21-22: SACC</b>	Lowell Foster
	<b>Rulemaking and policy updates: EASA FAA ANAC Brazil TCCA NPA harmonizing with Part 23 standards</b>	Boudewijn Deuss Andy Supinie Plinio Ribeiro (TBC) Daniel Neufeld
<i>13.25</i>	<b>Closing Remarks Future Meetings (5min)</b>	Christoph Genster
<i>13.30</i>	<b>Adjourn</b>	Christoph Genster

# F44 STRUCTURE



# F44 STRUCTURE



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# Federal Aviation Administration

## Small Airplane Certification

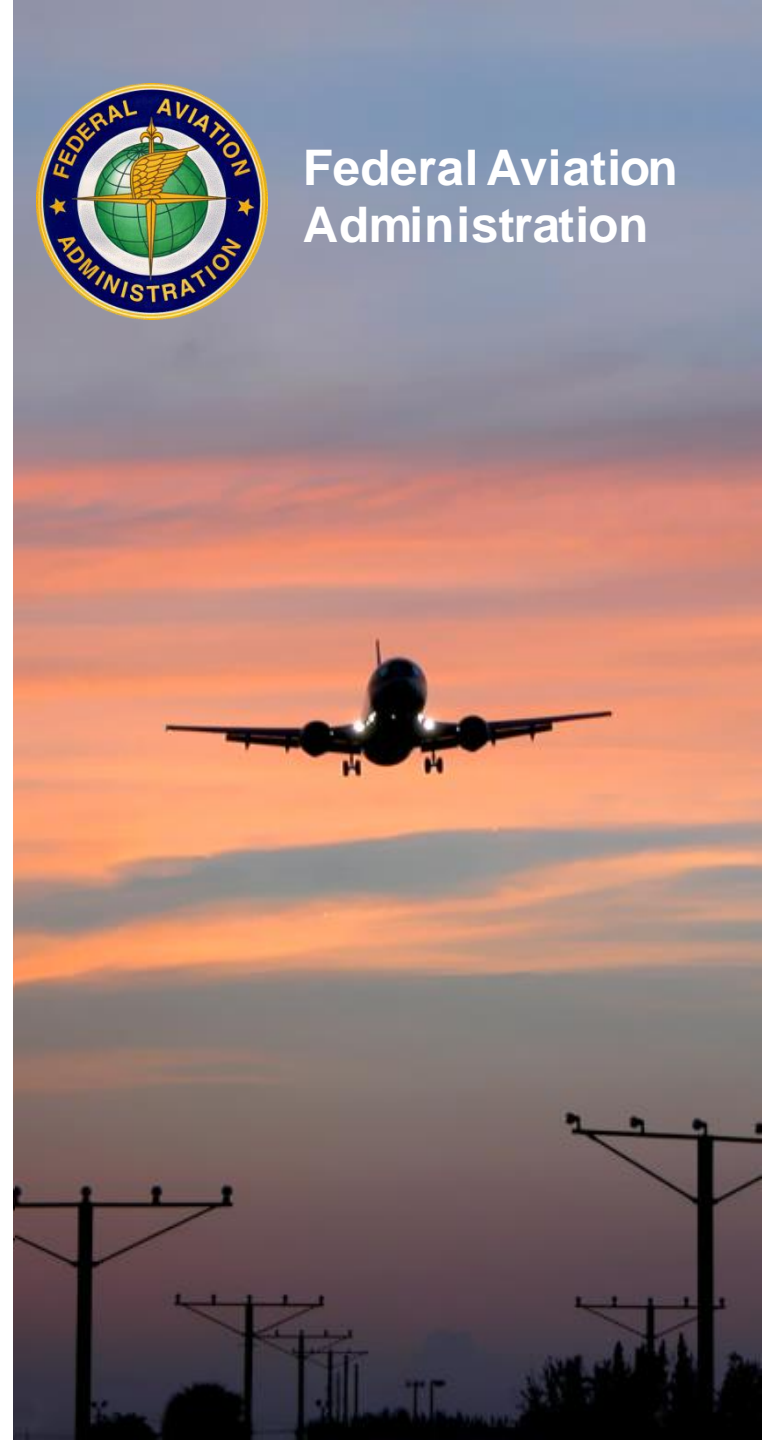
### Part 23 amdt 23-64 projects

June 2021

**Aircraft Certification Service  
Policy and Innovation Division  
Small Airplane Strategic Policy**



Federal Aviation  
Administration



# Projects overview

- FAA field offices work projects autonomously if no regs/policy support required
- Numbers reported here are probably low – if you're an applicant and you see a zero on later slides, don't despair
- Projects use part 23 amdt 23-64 for any part of their cert basis – One rule to the entire set

# TC Projects

	Complete	In Progress
Level 1	0	4
Level 2	0	4
Level 3	0	3
Level 4	0	2

**Projects in progress from across the industry with many more in pre-engagement with FAA thru CECl**

# ATC Projects

	Complete	In Progress
Level 1	0	0
Level 2	3	6
Level 3	0	3
Level 4	0	0

**List almost certainly incomplete due to dynamic nature of new environment which encourages early engagement**

# STC Projects

- Many projects being worked at all field offices
- Avionics
  - Autopilots
  - Electronic flight instruments/EFISs
  - Autothrottles
- Powerplants
  - Electric propulsion retrofits
  - Electronic engine control systems
- Inflatable restraints

**Many STC projects are AML and therefore touch many (hundreds) of makes and models in the General Aviation fleet**

# Conclusion

- Performance based rules and risk based approach intended to spur new technology
- This appears to be happening judging from incoming projects

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# **EASA CS-23 Amendment 5**

## **implementation**

Boudewijn DEUSS

EASA Senior Regulations Officer- Initial Airworthiness

June 2021

**Your safety is our mission.**

# CS-23 amendment 5 Implementation update

Applications started shortly after 31 March 2017 when CS-23 amendment 5 was issued

## Issued TC:

**Elixir (TCDS EASA.A.633)**

Special Conditions: Lithium Battery Installations

20 March 2020

**Bristell B23 (TCDS EASA.A.642)**

Special conditions: none

07 October 2020

**3 ongoing TC's**

**Multiple STC's**

# EASA “Lessons learned”

→ Very early in the implementation:

→ Familiarity with the “old rules” numbering and available compliance documents continues to play a role in a preference between AMC 1,2 or 3

→ CS-23 Amdt 5 **AMC1**-> ASTM F44 F3264-18 (08/10/2019)

→ CS-23 Amdt 5 **AMC2**-> CS-23 Amdt 4 (16/07/2015)

→ CS-23 Amdt 5 **AMC3**-> CS-VLA Amdt 1 (05/03/2009)

→ Format and detail of the compliance checklist (Rule → MOC)

→ Applicants are also looking at not-yet EASA accepted revisions of F44 standards

→ Validation: Difficulties with non-harmonised means of compliance

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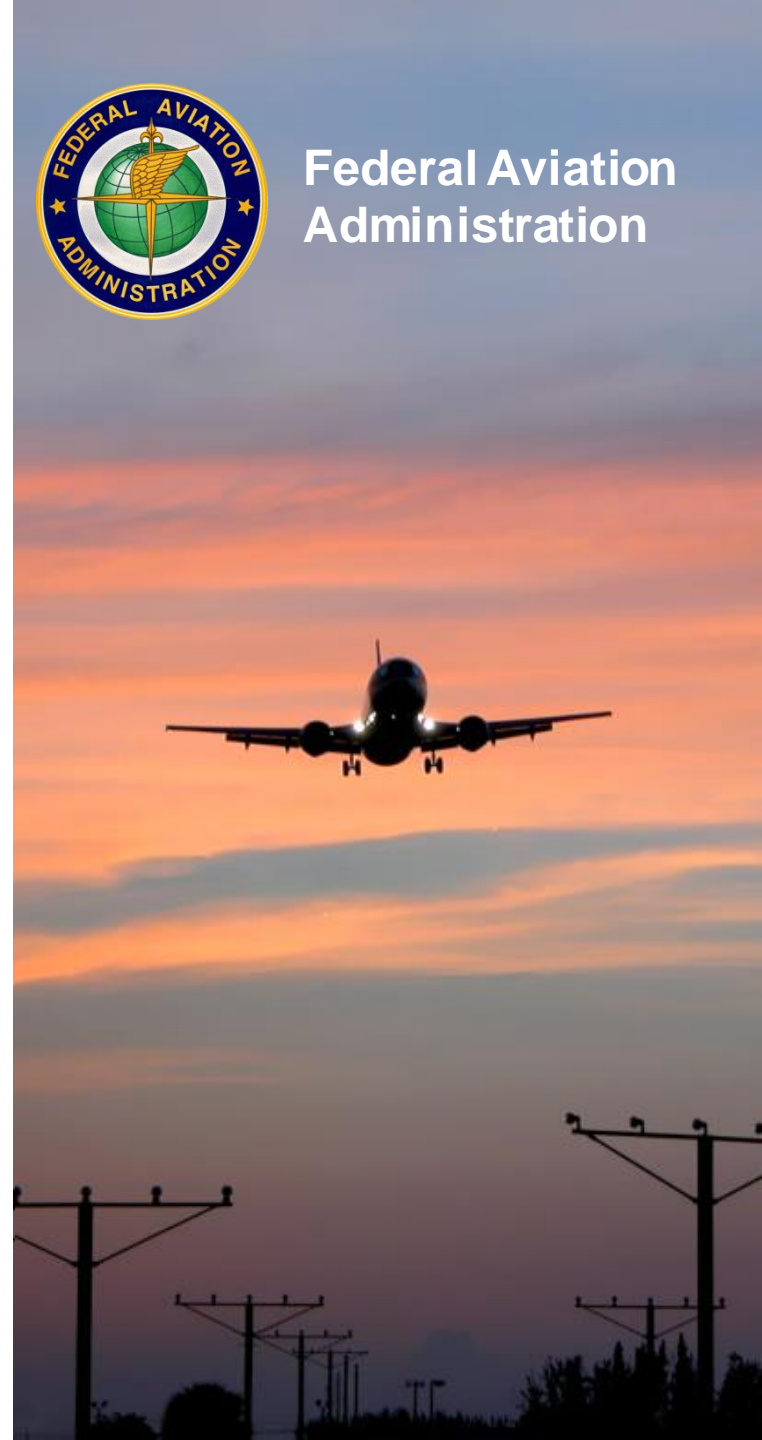
Experience in implementing a  
new regulatory environment

June 2021

**Aircraft Certification Service  
Policy and Innovation Division  
Small Airplane Strategic Policy**



Federal Aviation  
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# Disclaimer

- This presentation originally handcrafted for other CAAs to benefit from FAA experience
- Implementation insights should be helpful to industry and users as well



# Implementation

- Many important elements to successful implementation
- FAA and EASA have both implemented the new environment for small airplane certification
- Other authorities are in the process of implementation
- Three years into implementation, we have learned a lot (and probably more to learn)

# Collaboration

- Consensus standards tap worldwide expertise...IF
- IF...there is worldwide participation
  - Outreach vitally important
  - Industry, Research organizations, Regulatory agencies, Academia – All can make valuable contributions
- SDOs should expect a variety of points of view, from
  - The spectrum of regulatory approaches, and
  - The spectrum of industry strategies

# Regulatory language

- Identifying safety intent
  - Research preamble material required
  - Can be difficult for old, longstanding requirements
- Striking balance between
  - Too high level, and
  - Still too prescriptive
- Configuration flexibility
  - Backward fit
  - Forward fit

# CAA resource planning

- “Are you done yet?”
  - Rulemaking requires great effort – Letdown alert
  - Early revisions of consensus standards cover legacy configurations
  - Continuous effort required for standards expansion
- Consensus standards change relatively fast
  - The good news is...
  - The bad news is...
  - Tendency to get behind on standards review

# People considerations

- Training
  - FAA conducted training for each field office – Time of rule effectivity
  - Experience shows training more effective during projects
  - Early revisions of standards cover legacy configurations
  - Applicant and designee training beneficial as well
- Adapting to change
  - Difficult by human nature – More so when not all answers are known
  - Experience has shown this to be an issue to be overcome

# Technical considerations

- Technical discipline segregation
  - Compliance with PBR safety intent frequently crosses technical boundaries
  - Can result in need for organizational flexibility
  - Potential for impact to delegation authorizations
- Product line segregation
  - New PBR-friendly configurations frequently cross product line boundaries as well
  - Regulatory organizations will be challenged to adapt

# Rule-to-standard tables

- Tables linking PBR and approved MOC
  - Ideally established in collaboration with Industry prior to rule effectivity
  - Benefit of experience is lacking prior to projects – Becomes very difficult during projects
  - ASTM F44 Exec Committee committed to develop the linking tables to be included as Annexes – Steady progress

# Processes

- (Spoiler Alert) Certification is obviously a process driven activity
  - Much more proactive attention to revised processes needed
  - FAA and EASA working hard to catch up – See later agenda item
  - Must pay attention to new TCs as well as ATCs/STCs

# Flexibility

- Each CAA implementing new environment to date allows flexibility in means of compliance
- FAA – per AC 23.2010-1
  - Accepted industry consensus standards
  - Language of amdt 23-63 (not for LOC, FIKI, New tech)
  - Applicant proposed / FAA accepted standard
- EASA, ANAC, TCCA
  - Each implementing new environment with own processes, but fundamentally similar intent

# Beyond certification

- In all cases, beneficial for Operations and Airspace Integration to have understanding of Certification PBR
- Not a result of PBR, but...
  - New PBR-friendly configurations will challenge Operations and Airspace Integration organizations
  - Early intra-agency collaboration on new/unconventional configurations/operations is very beneficial

# Conclusion

- Implementation has not been without issue – Should not be surprising (worth the effort IMO)
- CAAs are working to address issues before and during projects
- Collaborative environment means both authorities and industry share successes and challenges
- Response to new environment has been positive – each industry player reacts in a way consistent with business strategy

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# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC)

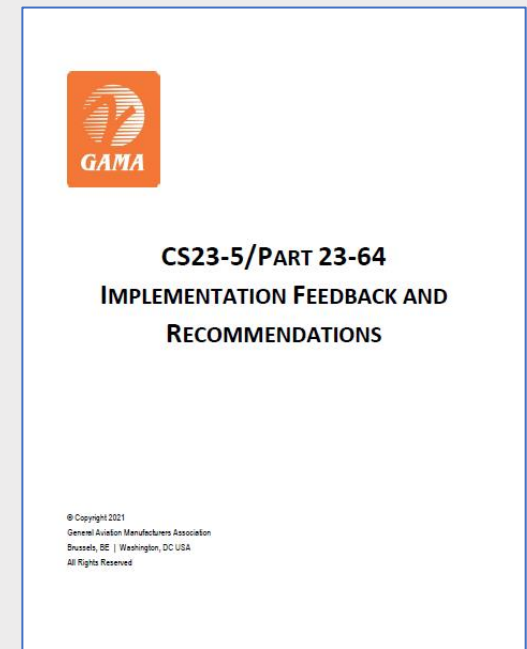
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## OBJECTIVE

- Identify what's working well and support
- Identify challenging issues and recommend solutions

## BACKGROUND

- Prescriptive to Performance-Based Rules (PRB) - Major Shift
- Challenges were anticipated
- We're all learning during this transition to a new approach
- Already benefitting from new rules



# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

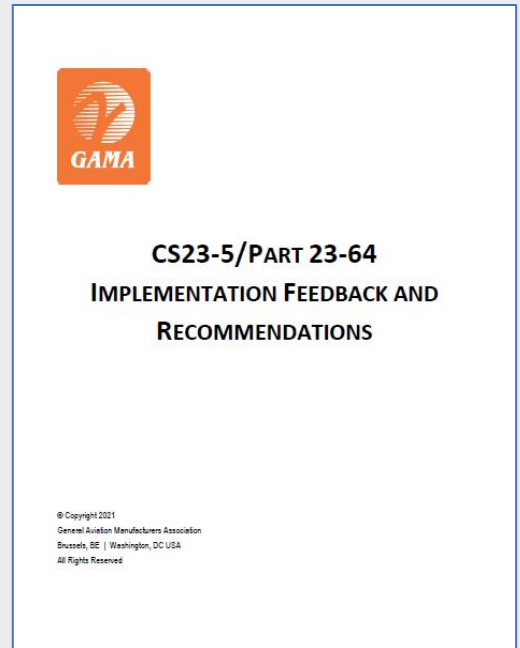
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## What's Working Well

- Performance-Based Rules Enable Certification of Innovation
  - Effectiveness & Timeliness of Industry Standards Process
  - Safety Continuum
  - Reduced Cost for Safety Enhancing Equipment
  - Target Safety Areas
- Improved Collaboration Between Industry and Authorities
- Easier Entry into CS-23/Part 23
- More Efficient Regulatory Process

## Challenges

- Training and Education
- Understanding Industry Standards as Airworthiness Accepted Means of Compliance Concept
- Level of Detail Required in the Compliance Plan
- Harmonization
- Process Improvement and Clarification for Changed Product Rule Applications
- Implementation of the Safety Continuum within the Airworthiness Means of Compliance
- Forms and Processes
  - FAA specific issues
  - EASA specific issues





# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – NEXT STEPS

- Continued support for efforts already underway
  - ASTM cross reference tables
  - FAA Performance-based rule policy
  - FAA internal training
- Working Group to develop the Safety Continuum Guidance
  - Initial scope will be Normal Category
  - Will include EPIC members for VTOL perspective
- Performance-based rule training and guidance
  - May SACC meeting focus on PBR and means of compliance



### **CS23-5/PART 23-64 IMPLEMENTATION FEEDBACK AND RECOMMENDATIONS**

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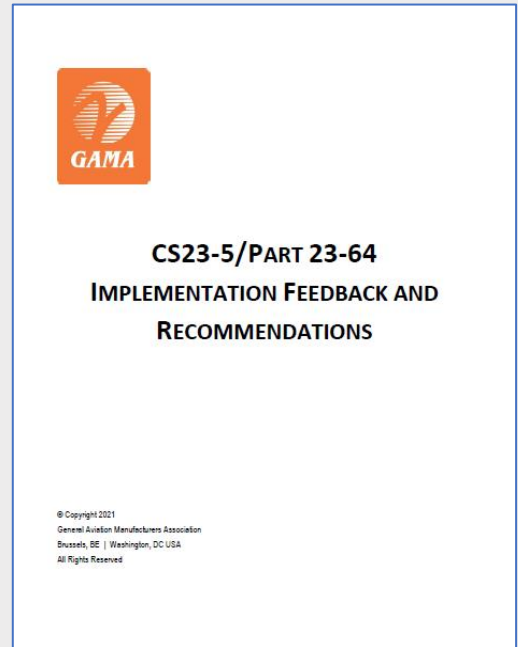


# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.1-2.** Encourage the legal organizations within authorities to allow specialists to participate in consensus bodies, including voting and commenting, especially allowing negative votes, where this is applicable. Authority engagement is critical for the standards working groups so that they know when and where an authority is going to accept, or not accept, a standard, and rationale why.

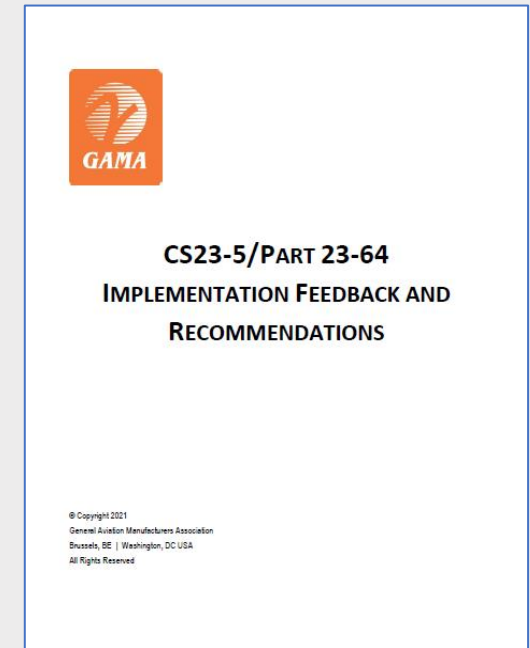


# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.1-3.** Per 23.2010(a), it should be emphasized that that the ASTM standards are not a regulation, but MOC. Furthermore, application of 23.2010(b) should not involve substantial use of processes such as use of certification review items (CRIs) or issue papers but should preferably take place in the normal course of determining the MOC during the early stages of the certification process and encourage development of consensus standards to replace the need for CRIs or issue papers.





# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.1-4.** FAA and industry leverage lessons learned during work on the initial programs to create more formal training. Development of this formal training needs to include industry, authority specialists, and designees, and it should include a stand-alone document to explain how to use performance-based rules in certification and validation that is applicable to all civil aviation authorities (CAAs). As part of the education effort, webinars from both authorities and industry should be used to explain the ASTM and other standards processes. The training and webinars might go beyond just performance-based rule and MOC processes to include periodic webinars that inform certification engineers of updates to the policy and standards. The committee recognized and commended both the FAA and EASA for starting virtual training for their compliance specialists and managers. We recommend however, that the authorities include industry in this training for consistency. Furthermore, this guidance could be referenced in the updated FAA-Industry Certification Process Guide (CPG) and a corresponding EASA/Industry document.



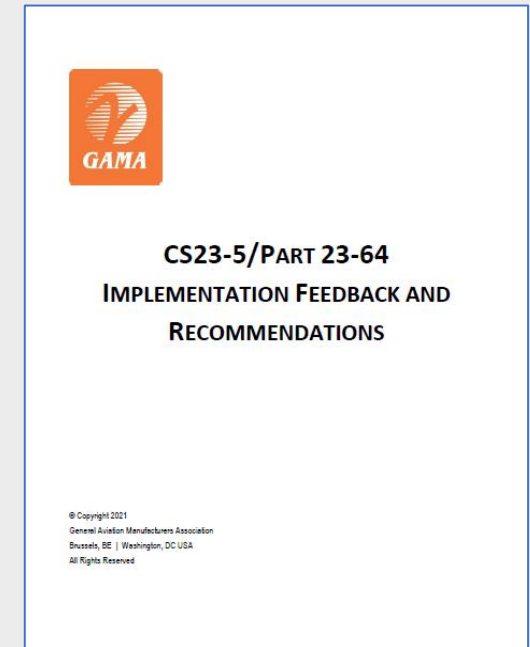
# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.1-5.** Authorities should review and provide guidance and training on the use of the Changed Product Rule (FAA 14 CFR Part 21.101 and EASA Part 21.A.101) as it relates to the new CS-23/Part 23 rules, addressing both TC and STC applications.

**SACC REC 3.2-4.** Encourage participation in the standards efforts for both industry and authorities. This participation is crucial for standards development and evolution on existing airplanes and to address new technologies and should include certification specialists from both industry and the authorities.





# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.3-1.** Authorities need to agree on and provide suitable guidance on what the appropriate depth, level of detail, presentation/organization of MOC for showing compliance with 23.2010 and for mixed certification basis in STCs. The SACC recognizes there are efforts underway with the authorities that will address this.

**SACC REC 3.3-2.** Provide guidance for better understanding between means of compliance and methods of compliance. Historically, these terms have been used interchangeably and are addressed in the FAA Order 8110.4 which creates confusion because the new rule has a slightly different description of the term “means of compliance” as discussed in AC 23.2010.



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# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.3-3.** The Authorities should provide education for both their specialists and industry on the process flexibility for using standards that have been approved by the standards development organization but not formally accepted yet by the authorities. An applicant may request a CAA to consider accepting such a standard.

**SACC REC 3.3-4.** Authorities need to identify a way to publicly make information known in situations where it may not be obvious that installed equipment was required for certification, such as the points-based system approach used by F3180. This information should be sufficient so that modifiers and regulators can ensure the aircraft remains compliant after modification.



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# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.4-1.** Work should continue at the regulatory level to resolve specific non-harmonized areas that cannot be addressed at the MOC level.

**SACC REC 3.4-2.** Leverage the Certification Management Team (CMT) to elevate the harmonization issue across authorities. The CMT should recommend all authorities work to accept the ASTM F44 industry consensus standards such that validation efficiencies can be achieved with the new rules, even where the rules are not completely harmonized. The goal needs to focus on changes that allow authorities to accept internationally accepted MOC to simplify validations in our global markets.



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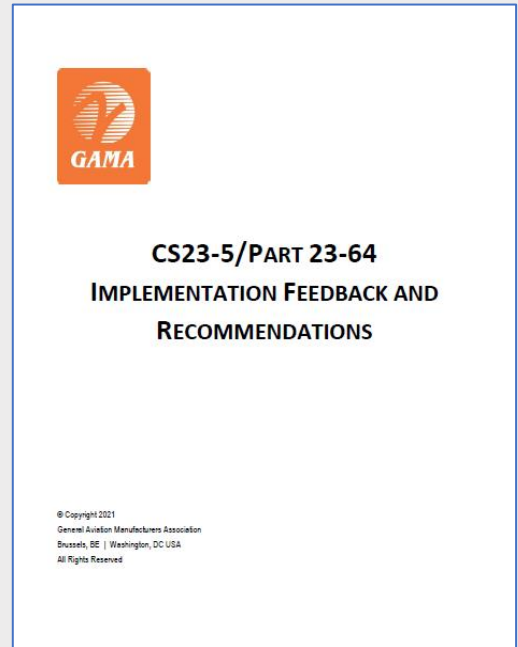
# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.4-3** Authorities that have not yet published equivalent rule language to Part 23-64 / CS-23-5, do so as soon as possible. Furthermore, encourage increased participation from other regulators on the development of ASTM F44 MOC. As part of that effort, it is recommended that these authorities accept the same revisions of the ASTM standards accepted by FAA and EASA.

**SACC REC 3.4-4.** Provide examples of projects and advantages obtained from the use of industry consensus standards to other CAA. Possibly, a workshop should be created to discuss concerns of CAAs and identify possible solutions.





# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.5-1.** Authority guidance needs to be developed and published in the Performance-Based Rules Guidance recommended previously, to address situations where the weight and propulsion divisions from the previous rule have changed to occupant risk and performance divisions. Guidance should include situations involving gross weight increases and highlighting where using either the old rule or new rule is beneficial.

**SACC REC 3.7-1.** The FAA should consider rescinding the Policy Memo, AIR-600-17-6FO-PM01, and changing the requirement in Order 8110.37F as it is redundant and is no value added with the accepted MOC under the project number.



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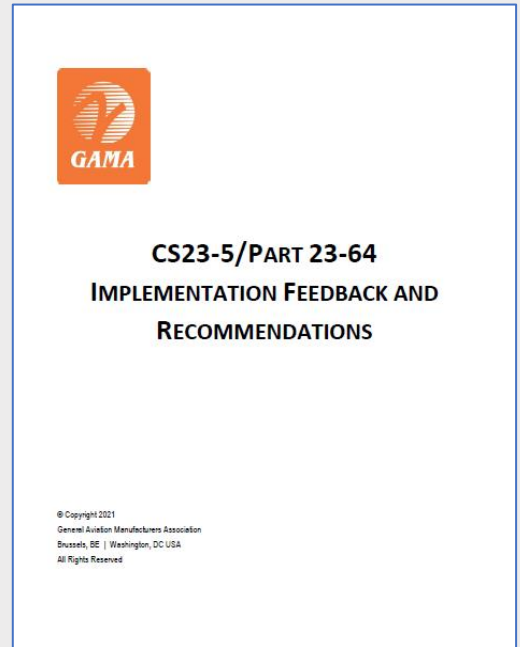


# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## RECOMMENDATIONS – REGULATOR SPECIFIC

**SACC REC 3.6-1.** Industry and authorities should develop guidance explaining how to apply the safety continuum across the wide range of airplanes that fall within CS-23/Part 23. This will allow for more resolution in the MOC and can be addressed within F44 standards development. The safety continuum concept isn't well understood or consistently implemented outside of targeted guidance like AC 23.1309. Industry and authorities can benefit from a formal guidance document that addresses the multi-variable approaches appropriate for applying the safety continuum.





# SMALL AIRPLANE CERTIFICATION AD HOC COMMITTEE (SACC) – REPORT

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## PART 23/CS-23 ALREADY MAKING A DIFFERENCE – ALTERNATIVE APPROACHES

- Emergency Conditions, Occupant Safety and Accommodations
- Simplified Methods for Addressing High-Intensity Radiated Fields (HIRF) and Indirect Effects of Lightning on Aircraft
- Simplified Safety Assessment of Systems and Equipment in Small Aircraft
- Fatigue Load Spectra
- Low-Speed Flight Characteristics of Aircraft
- Ice Protection for General Aviation Aircraft



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# EASA Rulemaking CS-23 Update (process)

ToR RMT.0687 “Regular update of CS-23”

## For what?

- update of industry standards
- feedback from certification activities or,
- minor issues raised by stakeholders.
- non-controversial amendments to the CS-23 objective requirements

## When?

Regular interval ( $\approx$  2 Years)

## How?

Depending on the need for consultation, either the **standard** or a **special rulemaking procedure** will be used.



# Regular updates CS-23

**AMC1 issue 1**(20/12/2017)

(F3264-17)

29 New ASTM F44 standards

**AMC1 Issue 2**(08/10/2019)

(F3264-18b)

11 revised standards

1 New standard

**Next AMC1 (2021)**

(F3264-21)



# Planned EASA Rulemaking CS-23 Amdt 6 & AMC/GM

## Next AMC1 (F3264-21)

*21 revised standards*

*9 New standards*

## Rule Harmonisation

*CS 23.2135(b)*

The aeroplane must be able to make a safe landing using the steepest approved approach gradient procedures and providing a reasonable safe margin below  $V_{REF}$  or above approach angle of attack.

## Safety recommendation

Add a note (difference to F3231) to AMC that a protective device for a circuit essential to flight safety shall not be a glass fuse

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	<b>Rulemaking and policy updates: EASA FAA ANAC Brazil TCCA NPA harmonizing with Part 23 standards</b>	Boudewijn Deuss Andy Supinie Plinio Ribeiro (TBC) Daniel Neufeld
<i>13.25</i>	<b>Closing Remarks Future Meetings (5min)</b>	Christoph Genster
<i>13.30</i>	<b>Adjourn</b>	Christoph Genster

# Federal Aviation Administration

## Small Airplane Certification

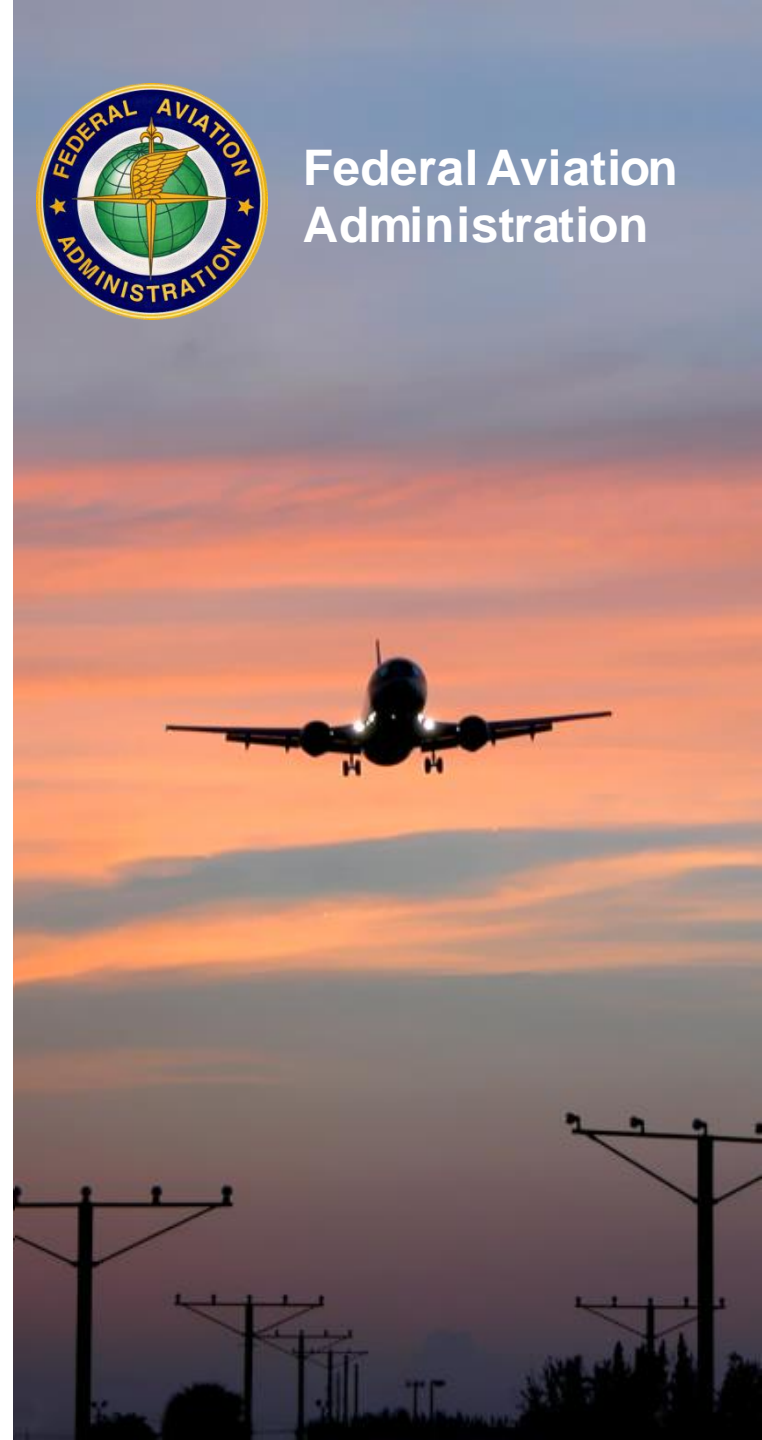
### Part 23 amdt 23-64 Guidance Overview

June 2021

**Aircraft Certification Service  
Policy and Innovation Division  
Small Airplane Strategic Policy**



Federal Aviation  
Administration



# Agenda

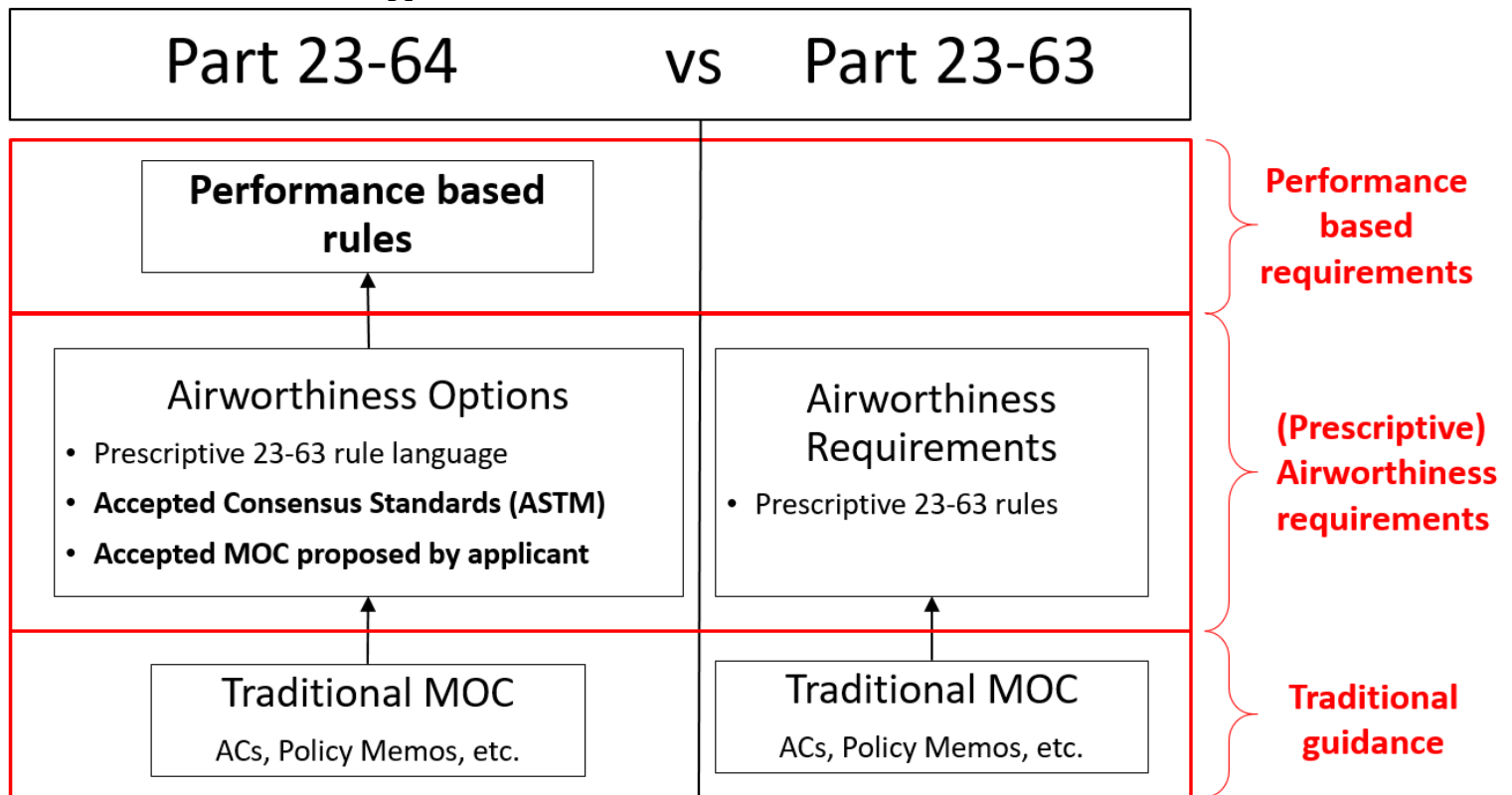
- Background
- Planned guidance elements
- Guidance effort status

# Background

- Part 23 amdt 23-64 became effective August 2017
- Full airplane TC projects using amdt 23-64 start late 2018
- Processes for establishing the means of compliance IAW §23.2010 worked project by project
- GAO report following audit of FAA implementation of amdt 23-64 re-enforced need to write guidance
- GAMA Small Airplane Certification Committee provided additional input
- Guidance informed by internal training conducted by Small Airplane Strategic Policy Section

# Background

- Part 23 amdt 23-64 fundamental differences drive a number of processes
- In particular linkage between the new rules and MOC



# Guidance elements

- Focuses on issues created by the introduction of Performance based rules, a logical layer which does not exist in the prior amdt(s)
- Guidance addresses
  - TC/ATC
  - STC/ASTC
  - PMA
- Considers feedback from
  - Inside FAA
  - Other CAAs, particularly EASA
  - Industry, primarily through GAMA

# Guidance elements

- Most important guidance content
  - Detailed Design Standards (DDS) – The package of prescriptive requirements which make up the MOC IAW §23.2010
  - DDS Collector Document – A standardized document for DDS to be negotiated and set between FAA and applicant on a project
    - The Collector shows previously accepted ASTM and Amdt 23-63 language for each Amdt 23-64 rule
    - Also provides standard format for negotiating new MOC
  - §21.101 evaluations – With mixed (old/new) cert basis projects, these evaluations become more complex

# Guidance elements

- Additional guidance content driven by Order 8110.4C
  - Certification Plan and Compliance Checklist
  - Designee forms and process 8100-9 and 8110-3
  - Type Certificate Data Sheet (TCDS) – What is included?
  - Supplemental Type Certificate (STC)
  - Parts Manufacturer Approval (PMA)
- Numerous other topics covered which are fallouts of the above

# Guidance elements

- Draft Policy Memo contents

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# Guidance elements

- Draft Policy Memo contents (cont'd)

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# Guidance status

- Detailed language is in review within AIR
  - Strategic Policy Sections
  - Technical Policy Sections
  - Procedures Section
- Feedback from EASA has been received – Desire as much commonality in process as possible
- Expect to use guidance on projects in near future

# Conclusion

- FAA working implementation improvements while coordinating with EASA and other CAAs
- Feedback from US Government Accountability Office (GAO)
- Feedback from GAMA Small Airplane Certification Committee (SACC)



# TODAY'S AGENDA

<b>TIME</b>	<b>SUBJECT</b>	<b>PRESENTER</b>
<i>10.30</i>	<b>Welcome and Opening Remarks (5min)</b>	Christoph Genster
<i>10.40</i>	<b>F44.92 Regulatory Liaison Subcommittee Update</b>	Boudewijn Deuss
	<b>Implementation update: FAA Part 23 Amendment 64 implementation EASA CS-23 Amendment 5 implementation</b>	Andy Supinie Boudewijn Deuss
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- RBAC 23 Amd 64 issued on Aug 2, 2019
- It is a publication of both 14 CFR Part 23 and its translation to Portuguese
- ANAC Policy IN 15/2008: “The interpretation of a RBAC that is based on a foreign document (FAR/CS) must consider the related interpretative documents issued by the original CAA.”
- Policy update: ANAC will issue IS 21.002-A “Type Certification Guidelines”, including a statement accepting FAA interpretations and guidances as Acceptable Means of Compliance for RBAC 23 – Aug 21.

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# AIRWORTHINESS MANUAL

## CHAPTER 523 CHANGE 523-18

Harmonization With 14 CFR Part 23 Amendment 23-64

Daniel Neufeld

Senior Engineer, Aircraft Certification Standards

June 2021



# AWM 523 Change 523-18

- TCCA is harmonizing with 14 CFR Part 23 amendment 23-64
- NPA is currently under public consultation
  - NPA 2021-010 - Standards of Airworthiness Manual (AWM) Chapters 523 and 535
- Posted for public consultation on June 12, 2021
  - Public consultation period is 60 days
  - Earliest effective date is September 2021 provided that there are no persuasive dissents (this is not expected)
  - Contains additional guidance on Part 23.2135(b)

# AWM 523 Change 523-18

- Regulatory process
  - Adoption of an external standard by reference
  - AWM 523 wording to be harmonized with 14 CFR part 23 except for editorial changes and cross-references to Canadian requirements
  - The NPRM and Final Rule preamble of 14 CFR part 23 is also adopted and may be used as guidance material for interpretation
- Acceptance of Means of Compliance
  - Forthcoming AC to outline our policy
    - We expect to harmonize with the FAA NOAs for ASTM standards
    - We expect any exceptions to be limited to Canadian-specific issues
      - Cold soak, MoCs proposed by Canadian OEMs



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# Open Discussion



# Future Meetings



## Upcoming F44 Sessions

### **AC377 Autonomy in Aviation Symposium**

- 20 October 2021, Mountain View, California USA (details still being confirmed)

### **Upcoming F44 Meetings**

- 4-8 October 2021, Atlanta, Georgia USA
- 4-8 April 2022, Prague, Czech Republic

### **Task Groups via Webex**

- See Google Calendar

## Upcoming ASTM Sessions

### **F37 Light Sport Aircraft**

- 28 July, Oshkosh, Wisconsin USA at Airventure
- 5-6 October, Atlanta, Georgia USA

### **F38 Unmanned Aircraft Systems**

- November, Syracuse, New York USA at NUAIR (tentative)

### **F39 Aircraft Systems**

- September/October (2½ day sessions)

### **F46 Aerospace Personnel**

- 6-7 October, Atlanta, Georgia USA

### **Joint Chairs Calls**

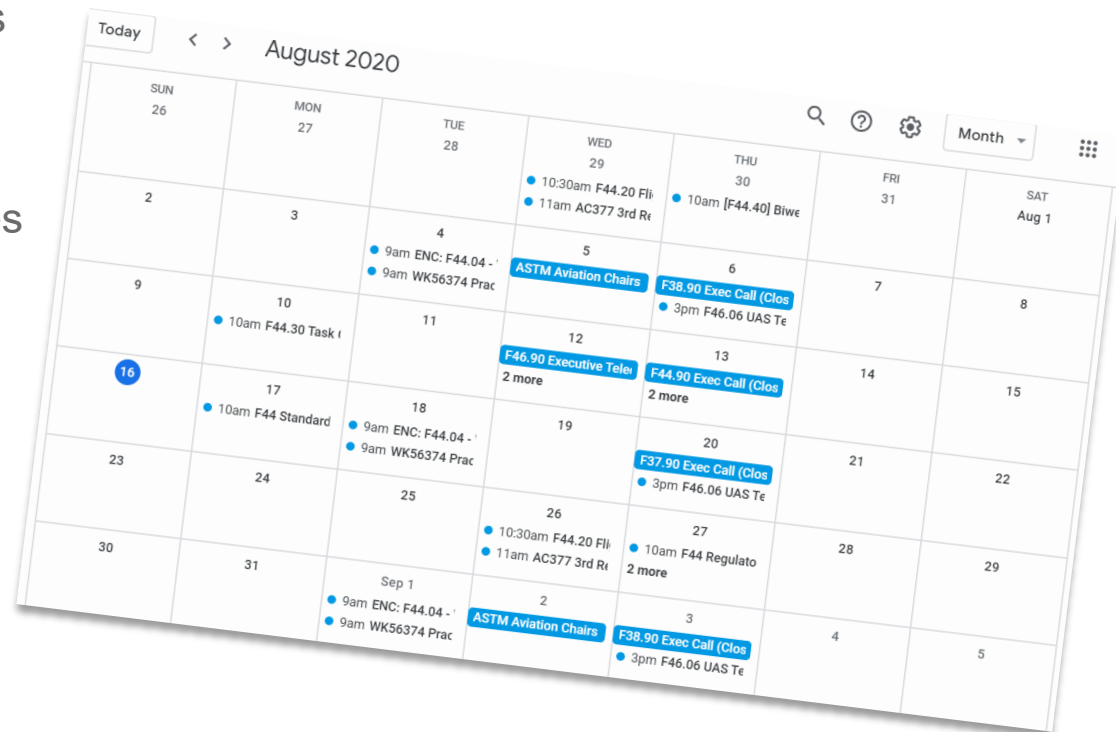
- 1 Wednesday each month

# ASTM Aviation Standards Calendar



## Public Google Calendar

- Publicly available: <https://calendar.google.com/calendar/b/3?cid=YXZpYXRpb24uc3RhbmRhcmlRzQGdtYWlsLmNvbQ>
- Access / Integrate Calendar: <https://calendar.google.com/calendar/ical/aviation.standards%40gmail.com/public/basic.ics>
- F37, F38, F39, F44, F46 Meetings
- Increase awareness about sessions
- Does not replace ASTM's official notices
- Does not change how TG's operates or how to get engaged.



# Adjourn



## Contact Information

Christine DeJong Bernat  
F44 Chair  
Director, Global Innovation and Policy  
General Aviation Manufacturers Association  
[cdejong@gama.aero](mailto:cdejong@gama.aero)  
+1-202-236-7580

Joe Koury  
F44 Staff Manager  
Manager, Technical Committee Operations  
ASTM International  
[jkoury@astm.org](mailto:jkoury@astm.org)

*\*Slides will be posted online & distributed to registrants post-event*

