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WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

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COMMITTEE B

Agenda Item 7: Operational safety risks
7.1: Facilitation of data-driven decision-making in support of safety intelligence to support safety risk management

RISK-BASED VALIDATION PRINCIPLES

(Presented by the United States)

EXECUTIVE SUMMARY

This paper presents the broad benefits of developing standardized risk-based decision making policies and best practices for validation of foreign products to reduce redundancies in determinations of compliance. States of Registry (SoR) are neither expected nor encouraged to perform the same in-depth determination of compliance that the State of Design (SoD) has already done in order to get its own satisfactory evidence of appropriate compliance to airworthiness standards.

Action: The Conference is invited to support the Airworthiness Panel as they continue to develop risk-based validation principles and agree to the recommendations in paragraph 3.1.

1. INTRODUCTION

1.1 The *Convention on International Civil Aviation* (Doc 7300), Article 31 states, "Every aircraft engaged in international navigation shall be provided with a certificate of airworthiness issued or rendered valid by the State in which it is registered."

1.2 A State of Registry (SoR) is charged with the issuance or validation of Certificates of Airworthiness by virtue of Article 31 of the Convention. A State of Design (SoD) is responsible for the issuance of the original type certificate. The SoR and SoD may be different States, with separate functions and duties but with a common safety objective.

1.3 As specified in Annex 8 — *Airworthiness of Aircraft* to the Convention on International Civil Aviation, Part II, Chapter 3, each SoR shall either issue or render valid a Certificate of Airworthiness on the basis of satisfactory evidence that the aircraft complies with the applicable Standards of [Annex 8] through compliance with appropriate airworthiness requirements. The SoR has

the option to recognize, issue, or approve a comparable certificate based in part or in whole on the SoD Certificate of Airworthiness.

1.4 Often, SoRs conduct detailed technical reviews of design approvals issued by a SoD, rather than acknowledging the demonstrated competence of the SoD's technical agent that issued the original approval. In the absence of good guidance, validation processes among SoRs are not always consistent. There is a growing trend by the SoR to rely increasingly on detailed technical reviews of the aeronautical product. This trend has increased the general demand on resources for the SoD and the SoR while not resulting in additional safety benefit.

1.5 When the technical agent for a SoD presents satisfactory evidence to another State that an aircraft complies with the applicable standards, an appropriate risk assessment may guide the importing SoR towards a more limited level of technical review.

1.6 The United States continues to promote standardized risk-based validation principles and best practices through its work with the ICAO Airworthiness Panel. Using these developing tools, SoRs can give maximum credit to the type certification work performed by the SoD and minimize duplicative work that adds little or no value to the safety of the aeronautical product.

2. DISCUSSION

2.1 There is a lack of guiding principles to assist the SoR when validating design approvals that would provide for better recognition of the SoD's demonstrated competence. SoRs are reluctant to reduce their technical reviews without this guidance resulting in the increased demand on resources for all parties with no appreciable increase in safety.

2.2 Guided by an appropriate risk assessment, a detailed technical review may be avoided to address this inefficiency in safety. Standardized risk-based principles and best practices for validation, as developed and agreed to by Member States, will reduce the demand on regulatory resources through a reduction in duplicative certification actions by SoRs.

2.3 The aviation industry would benefit from use of common risk-based validation principles and would realize reduced costs and a shorter time-to-market by having experienced SoDs share their best practices to address import requirements imposed by SoRs.

2.4 The United States has incorporated risk-based validation principles into its policies and most recent bilateral agreements with certain member States. The principles and policies are built on a foundation of sustained confidence and present low or acceptable levels of risk to the United States aviation system. The initial experience of the United States in applying risk-based validation principles is encouraging, and the partner authorities and industry alike are seeing increased efficiency.

2.5 A new job card on this subject was accepted by the Airworthiness Panel and currently waiting for formal approval by the Air Navigation Commission.

3. CONCLUSION

3.1 In light of the above, the Conference is invited to agree to the following recommendations:

That the Conference:

a) request ICAO to review and develop materials for inclusion in the *Airworthiness Manual* (Doc 9760), *Safety Management Manual (SMM)* (Doc 9859) , Annex 8 — *Airworthiness of Aircraft* , and/or Annex 19 – *Safety Management*, for States of Registriess to determine the appropriate level of involvement in validation/recognition principles for States of Design (SoD) approvals;

b) request ICAO and Member States to support the Airworthiness Panel as they determine the need for developing new materials to support further reduction in duplicative certification activity, by conducting a feasibility study for developing common standards and recommended best practices for recognizing the capabilities of SoD certification systems (including design approvals/design organization recognition); and

c) request ICAO and Member States to support the development of ICAO Standards and Recommended Practices (SARPs), guidance material, and manuals that Member States use to issue certificates for products, and complement them with guidance for best practices in conducting validation activities.

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