



WORKING PAPER

ASSEMBLY — 39TH SESSION

TECHNICAL COMMISSION

Agenda Item 35: Aviation safety and air navigation standardization

**DEVELOPING A RISK-BASED MODEL FOR VALIDATION OF CIVIL
AERONAUTICAL PRODUCTS**

(Presented by the United States, Australia, New Zealand, Singapore)

EXECUTIVE SUMMARY

Recognizing the broad benefits of a risk-based approach, the sponsoring Member States supports a collaborative effort among interested Member States to apply risk based decision making concepts in developing standardized policies and best practices for validation of foreign products.

Action: The Assembly is invited to:

- a) consider the proposal to incorporate a risk based validation approach into the corresponding ICAO Standards and Recommended Practices and guidance material; and
- b) recommend that the ICAO Council direct the Airworthiness Panel to undertake such a study as a part of their work programme for the upcoming triennium

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective.
<i>Financial implications:</i>	It is expected the triennium programme budget would cover this activity.
<i>References:</i>	Annex 19 — <i>Safety Management</i> Annex 8 — <i>Airworthiness of Aircraft</i> Doc 9859, <i>Safety Management Manual (SMM)</i> (Third Edition) Doc 9760, <i>Airworthiness Manual</i> (Third Edition)

1. INTRODUCTION

1.1 The aviation manufacturing industry, design approval holders (DAH), and operators rely on Member States to support each new State of Registry (SoR) in its effort to efficiently validate a certificate or approval issued by a competent State of Design (SoD). The International Civil Aviation Organization (ICAO) Annexes offer the SoR, or validating authority (VA), the option to recognize, issue, or approve a comparable certificate based in part or whole on the SoD certificate. All validation procedures generally share two areas of focus: the VA assesses its level of confidence in the aviation safety system of the certificating authority (CA) that issued the certificate, and the VA assesses whether the product or article meets minimum safety standards and operational requirements of its civil aerospace system.

1.2 Despite these similarities, the sponsoring Member States have observed that validation processes among authorities are not always consistent. It has been noted there is a growing trend by VAs to rely more on detailed technical reviews of the aeronautical product rather than taking full advantage of the demonstrated competency of the CA in issuing the certificate. This trend has increased the general demand on resources for all parties while not having a commensurate effect on safety.

1.3 As proposed in this paper, we believe standard risk-based principles and best practices for validation need to be developed by Member States to better facilitate and safely promote the global aviation industry.

2. DISCUSSION

2.1 Confidence through Partnership

2.1.1 Upon close review of any validation process, the primary focus is on the degree of *confidence* one State has in another State's certificate. That certificate in practice serves as a demonstration of the SoD's competency in certifying the product and as an outcome of its overall aviation safety system. The sponsors believe it is essential to engage in close and productive partnerships with Member States to enhance confidence in the certification systems of the various SoDs.

2.1.2 The need for confidence in the SoD certification system does not conclude when the importing State accepts the SoD's certificate, but continues beyond and includes the SoD's ability to oversee the continued airworthiness of the product. The sponsors believe global aviation safety can only be ensured through strong partnerships both during the initial validation of a certificate and throughout the life of the product. The sponsors believe it is essential to engage in close and productive partnerships with Member States to develop and understand what our level of confidence is in how certification is achieved and safety is maintained by the SoD.

2.1.3 As an example of productive partnerships, the United States has recently expanded agreements with select partner States to allow for immediate acceptance of certain certificates and approvals without any further technical evaluation being conducted. These agreements, built on a foundation of substantiated confidence, provide for this *streamlined* validation process to expedite the processing of certain certificates and approvals that present low or acceptable levels of risk to the United States aviation system. Essential to this streamlined process is the conducting of an internal audit review and randomly sampling the approved applications to document issues or anomalies, which are then

discussed and reviewed during routine partnership meetings. Through these partnerships the United States is able to maintain and expand our confidence level with each State's aviation safety system.

2.2 Asia Pacific (APAC) Validation Principles Working Group (VPWG)

2.2.1 In June 2015, Australia, China (including Hong Kong-China), New Zealand, Singapore, and the United States established a partnership to develop risk-based principles and best practices for validation of Type Certificates issued by a foreign SoD. While this effort was tasked by the Member States in the Asia Pacific Region, the recommendations were developed with a global perspective and for consideration by all Member States.

2.2.2 The VPWG developed recommendations as a result of conducting a risk-assessment similar to that described in ICAO Annex 19, the *Safety Management Manual* as well as United States and Australian risk management documents. With this approach, the VPWG developed recommendations and an overall validation model.

2.3 ICAO SARPs, Circulars, Manuals

2.3.1 The sponsors support ICAO Standards and Recommended Practices (SARPs), guidance material, and manuals that Member States use to issue certificates for products. We believe it is essential to complement these with guidance for best practices in conducting validation activities.

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