

**54<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGIONS**

*Ulaanbaatar, Mongolia  
07 — 11 August 2017*

AGENDA ITEM 3:       AVIATION SAFETY AND  
                              AIR NAVIGATION

**STANDARD RISK-BASED PRINCIPLES FOR VALIDATION OF  
CIVIL AERONAUTICAL PRODUCTS**

(Presented by the United States)

**INFORMATION PAPER**

**SUMMARY**

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

## STANDARD RISK-BASED PRINCIPLES FOR VALIDATION OF CIVIL AERONAUTICAL PRODUCTS

### 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 their 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 their level of confidence in the aviation safety system of the Certifying Authority (CA) that issued the certificate, and the VA assesses whether the product or article meets minimum safety standards and operational requirements of their civil aerospace system.

1.2 Despite these common focus areas, the United States, in partnership with other Member States, has 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 an appreciable effect on safety.

1.3 The United States believes that standard risk-based principles and best practices for validation must be considered for adoption or adaption by ICAO Member States to better facilitate and safely promote the global aviation industry.

### 2. DISCUSSION

#### CONFIDENCE THROUGH PARTNERSHIP

2.1 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 their overall aviation safety system. The United States believes it is essential to engage in close and productive partnerships with ICAO Member States to enhance confidence in the certification systems of the various SoDs.

2.2 The need for confidence in the SoD 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 United States believes 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. It is essential that all parties engage in close and productive partnerships to develop a level of confidence in the SoD's certification and continued operational safety systems.

2.3 As an example, the United States recently expanded bilateral agreements with select partner Member States and jurisdictions to allow for immediate acceptance of certain certificates and design approvals with limited or no technical review being conducted upon receipt of the application materials. These agreements provide for a *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 environment. Essential to this streamlined process is conducting an audit or evaluation of these certificates and design approvals based on random statistical sampling to document issues or anomalies, which are then discussed and reviewed during routine partnership meetings. Through these activities, the United States is able to maintain and expand our confidence level with select partner Member State's aviation safety system.

## **EFFICIENCY THROUGH HARMONIZATION**

2.4 The United States continually strives to improve our internal validation procedures for both exported and imported products by working with Member States to identify areas needing better harmonization. Working with Member States through partnership teams, we continue to promote greater understanding to partner certification systems and harmonize regulations and standards, develop consistent interpretations of agreements, and create joint training opportunities to develop a shared understanding of new technologies, unique designs, and advanced research initiatives. Additionally, harmonization efforts have helped develop State-level working procedures for unique situations to ensure that consistent interaction among authorities' occurs at the working level.

2.5 The United States, Australia, China, Hong Kong, Singapore, and New Zealand partnered in June 2015 to develop risk-based principles and best practices for validation of type certificates issued by a foreign SoD. While this effort was tasked to the Member States in the Asia Pacific Region, the recommendations were developed with a global perspective and for consideration by all Member States.

2.6 The Validation Procedures Working Group (VPWG) developed recommendations as a result of conducting a risk-assessment similar to that described in ICAO Annex 19, Safety Management Manual, as well as United States and Australian risk management documents. Through a risk-assessment process, recommendations were derived in a manner that provided clear rationale and justification for the proposal.

2.7 The United States conducted a proof of concept activity by processing previously approved validation applications using the draft risk-based principles and best practices recommended by the VPWG at the time. This activity validated that a risk-based approach is more efficient than traditional methods. The outcome and feedback from this activity was considered by the VPWG and resulted in further refinement of the recommendations.

## **RISK-BASED APPROACH**

2.8 The United States supports a risk-based approach when validating certificates and design approvals issued by competent SoDs when we have developed a high degree of confidence in the SoD's aviation safety system.

2.9 Developing standard risk-based principles and best practices for validation of SoD's certificates will ensure aviation safety is maintained despite the growing challenges and complexities associated with the globally distributed manufacturing approach among aviation design holders.

## **3. ACTION BY THE CONFERENCE**

3.1 The Conference is invited to note the information contained in this Paper.

— END —