



WORKING PAPER

TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 6: Future direction

6.2: Standardization – approach to SARPs development in support of One Sky

A NEW APPROACH TO ICAO STANDARDS DEVELOPMENT

(Presented by the Civil Air Navigation Services Organisation)

SUMMARY

The deployment of the various ATM modernization programs will require inter alia the development and delivery of a significant number of ICAO standards to States and industry. Currently applied processes will most likely not be sufficient to address these requirements in a prompt and timely manner. This contribution addresses the necessary evolution of ICAO policies and practices related to the development of Standards and Recommended Practices (SARPs) as contained in Assembly Resolution A37-15, Appendix A.

Action: The Conference is invited to agree on the recommendation contained in paragraph 6.

1. INTRODUCTION

1.1 The deployment of the various air traffic management (ATM) modernization programs will require inter alia the development and delivery of necessary ICAO Standards and Recommended Practices (SARPs) to States and industry. Also, corresponding guidance material on the practical application of SARPs will be required.

1.2 The processes currently applied by ICAO will most likely not be sufficient to address these requirements in a prompt and timely manner. In the past, lead time before standardization work combined with several years previously required to develop SARPs have meant that standards have lagged too far behind rapidly evolving technologies, making them sometimes obsolete when eventually adopted. This becomes increasingly problematic if standards are to be used strategically as a means of stimulating innovation and promoting interoperability.

1.3 A dedicated Civil Air Navigation Services Organisation (CANSO) contribution to this conference regarding global standards for system-wide information management (SWIM) provides a practical example which may serve as a “test case” for the further evolution of ICAO policies related to SARPs development.

¹Arabic, Chinese, English, French, Spanish and Russian versions provided by CANSO.

2. THE CURRENT ICAO STANDARDIZATION PRINCIPLES

2.1 The current ICAO policy on the formulation of SARPs as well as Procedures for Air Navigation Services (PANS) for complex aeronautical systems is contained in Appendix A of Assembly Resolution A37-15 entitled “Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation” (Doc 9958). It creates a three-level hierarchy of requirements and specifications with:

- a) “core” SARPs consisting of broad, high-level requirements in Annexes;
- b) technical specifications in appendices to Annexes; and
- c) related detailed technical specifications in separate documents.

2.2 In applying this policy ICAO is requested to utilize, to the maximum extent, the work of other recognized standards-making organizations subject to a verification and validation process.

2.3 The practical experience however with the utilization of the work of other recognized standards-making organizations has been less positive. Although a good collaboration exists with such organizations, the incorporation of their work in ICAO standards has proved to be rather difficult. In particular the verification and validation process required before such material can be referenced in ICAO documentation is seen as a potential weakness and needs attention.

3. A NEW APPROACH

3.1 In certain parts of the world such as Europe innovative instruments to remove barriers to free circulation of goods and services have been developed with the view to limit public intervention to what is essential and leave industry the greatest possible choice on how to meet their public obligations. Among these, a new approach to product regulation and conformity assessment has materialized.

3.2 This approach is based on the following principles:

- a) legislative harmonization is limited to essential requirements;
- b) technical specifications meeting the essential requirements are laid down in harmonized standards;
- c) application of harmonized standards remains voluntary and other technical specifications to meet the requirements may be applied; and
- d) products manufactured in compliance with harmonized standards benefit from the presumption of conformity with the essential requirements.

3.3 The operation of such an approach requires that the standards offer a guaranteed level of compliance with regard to the essential requirements and that national authorities carry out their responsibilities in particular with regard to compliance oversight. Also, a safeguard mechanism is necessary to allow the possibility of contesting the conformity of a product, or failures or shortcomings of harmonized standards. In addition, conditions for reliable conformity assessment are necessary.

4. A REVISED ICAO POLICY ON STANDARDIZATION PRINCIPLES

4.1 A major objective of this paper is to highlight the need for more emphasis on identifying and developing effective responses to standardization needs. Studies need to be initiated on the necessary evolution of ICAO policies and practices related to the development of SARPs taking into account safety, operational and interoperability implications. In this regard, the following non-exhaustive list is presented for consideration:

4.1.1 ICAO should focus its involvement in the development of essential requirements contained in “core” SARPs (level 1); i.e. SARPs shall consist of broad, mature and stable provisions specifying functional and performance requirements that provide for the requisite levels of safety, efficiency and interoperability.

4.1.2 Supporting technical (level 2) and detailed technical (level 3) specifications meeting the essential requirements as contained in “core” SARPs, should be placed in separate documents and developed to the extent possible by recognized industry standards-making organizations.

4.1.3 Past experience with SARPs development has shown that a proper attribution of specifications between level 2 (i.e. technical specifications published in appendices to Annexes) and level 3 (i.e. detailed technical specifications published in separate documents) can be problematic. This raises the need for frameworks aimed at merging level 2 and level 3 specifications.

4.1.4 Introduction of a recognition activity whereby ICAO (or a designated organization on their behalf) may formally recognize such technical specifications as “harmonized aviation specification” when meeting the essential requirements laid down in “core” SARPs.

4.1.5 The application of harmonized aviation specifications remains voluntary and other technical specifications to meet the requirements may be applied to demonstrate compliance with the essential requirements as contained in the “core” SARPs.

4.1.6 Promote the use of current international conformity assessment activities (such as ISO/IEC 17025, 17050, ISO Guidelines 65 – ISO/CASCO Toolbox).

4.1.7 Introduction of an ICAO Mark program, as a voluntary program, permitting manufacturers and service providers to make a visible declaration that their equipment conforms to ICAO SARPs and harmonized aviation specifications.

4.1.8 National competent authorities carry out their responsibilities in particular with regard to compliance oversight of essential requirements contained in ICAO “core” SARPs.

4.1.9 A safeguard mechanism should be in place to allow the possibility of contesting failures or shortcomings of harmonized aviation specifications.

5. CONCLUSION

5.1 Standardization has to be understood as a strategic activity for securing ATM performance improvements and a key tool for safety, interoperability, knowledge dissemination and promotion of innovation. To respond rapidly to evolving needs, a comprehensive, inclusive, efficient and technically up-to-date standardization system will be required.

5.2 CANSO promotes that international harmonization through ICAO SARPs is focused on essential requirements and ICAO concentrates its involvement in “core” SARPs development (level 1).

5.3 The wider use of industry specifications can be a powerful tool for promoting regulatory convergence. CANSO therefore advocates more emphasis on the utilization of industry specifications developed and maintained by recognized standards-making organizations.

5.4 Supporting technical (level 2) and detailed technical (level 3) specifications meeting the essential requirements as contained in “core” SARPs, should be placed in separate documents and developed, to the extent possible, by recognized standards-making organizations. A framework aiming at merging levels 2 and 3 specifications is needed.

5.5 Initiate studies to improve the verification and validation process required within ICAO before material developed by recognized standards-making organizations can be referenced in ICAO documentation taking into account the specific proposals contained in paragraph 4.

5.6 Amend the ICAO policy on the formulation of SARPs and PANS for complex aeronautical systems as contained in Appendix A of Assembly Resolution A37-15 to reflect the above.

5.7 Further opportunities to increase convergence with industry specifications should be explored. In particular the introduction of a recognition activity whereby ICAO may formally recognize such supporting detailed technical specifications as “harmonized aviation specification” when meeting the essential requirements laid down in “core SARPs” requires further study.

6. RECOMMENDATIONS

6.1 The Conference is invited to task ICAO as a matter of urgency with initiating studies promoting the revised ICAO policy on SARPs development and implementation as outlined above. The Conference is invited to agree to the following recommendation:

Recommendation 6/x – New approach to SARPs development

That the Conference:

- a) urge ICAO to initiate studies on the necessary evolution of ICAO policies and practices related to Standards and Recommended Practices (SARPs) development with a view to concentrate its involvement in “core” SARPs development, and that technical (level 2) and detailed technical (level 3) specifications meeting the essential requirements as contained in “core” SARPs be placed in separate documents developed and maintained, to the extent possible, by recognized standards-making organizations;
- b) endorse the need to develop a framework aimed at merging levels 2 and 3 specifications;
- c) request ICAO to initiate studies to improve the verification and validation process required within ICAO before material developed by recognized standards-making organizations can be referenced in ICAO documentation;
- d) urge ICAO to develop guiding principles promoting the new approach concept in Standards and Recommended Practices development and implementation; and
- e) amend Assembly Resolution A37-15, Appendix A, accordingly.

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