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TECHNICAL COMMISSION

Agenda Item 32: Air Navigation — Policy

ENDORSEMENT OF THE GANP AND PRIORITIZATION OF CRITICAL ELEMENTS OF THE AVIATION SYSTEM BLOCK UPGRADES (ASBUs)

(Presented by the United States)

EXECUTIVE SUMMARY

A significant outcome of ICAO's Twelfth Air Navigation Conference (AN-Conf/12) was an agreement in-principle, by the Conference, to support the Global Air Navigation Plan (GANP, Doc 9750) and the Aviation System Block Upgrade (ASBUs) concept. AN-Conf/12 also recommended that ICAO define a stable and efficient process for endorsing the GANP and ASBUs, by the 38th Session of the ICAO Assembly.

The United States views the endorsement of the GANP as a positive way forward, and the ASBUs as the framework for implementation and interoperability of future systems. This paper details the United States' support for the GANP and ASBUs, and provides a list of standards seen as critical to support modernization. The paper also promotes the regional consideration of such measures.

Action: The Assembly is invited to:
a) Approve the GANP and ASBUs for inclusion in the next triennium work plan;
b) Consider the critical standards needed to be prioritized in order to realize the timely benefits of the ASBUs; and
c) Work with ICAO regional offices and Member States to implement the ASBUs that are most appropriate for each region.

Strategic Objectives:	This working paper relates to all Strategic Objectives.
Financial implications:	None directly. Discussion of the best use of available budget and resources.
References:	Doc 9750, *Global Air Navigation* Plan, 2013 Edition Doc 10007, *Report of the Twelfth Air Navigation Conference* (AN-Conf/12)

(5 pages)

1. INTRODUCTION

1.1 In order to coordinate an evolving global air navigation system, it is important to have a harmonized plan for aviation regulators, operators and industry to follow. The planning, development, training and implementation of a globally harmonized system are contingent on a framework that includes scalable plans and provides an operational, economic and safety benefit.

1.2 The proposed GANP and ASBUs provide the strategic direction and defined and measurable operational improvements for air navigation modernization. The GANP and ASBUs help regulators, operators, and industry derive the positive business cases and allow for a scalable and customized approach. The ASBUs specifically outline relevant equipment, timelines, standards and procedures necessary for implementation.

1.3 With these documents in place, the United States believes ICAO will be in a position to conduct a more thorough review of the work programs and priorities, and identify the skill sets needed by the States, regions, and expert groups to address this work.

2. GANP AND ASBUS

2.1 Simply stated, the GANP is the overarching framework or plan for the next fifteen years of air navigation modernization. The plan includes key civil aviation policy principles to assist ICAO regions, sub-regions and States with the preparation and implementation of air navigation plans. The objective of the GANP is to increase the capacity and efficiency of the global civil aviation system through a harmonized approach, while maintaining or improving safety.

2.2 The framework contained in the GANP outlines a logical architecture for air traffic management to utilize in ensuring that global aviation systems are harmonized and prioritized. The architecture is built around performance-based navigation (PBN) and is also closely tied to the following documents: *Global Air Traffic Management Operational* Concept (Doc 9854), *Manual on Air Traffic Management System* Requirements (Doc 9882) and the *Manual on Global Performance of the Air Navigation* System (Doc 9883).

2.3 The GANP provides greater flexibility on how Member States and regions may move forward with implementation of new systems and technologies. Individual States and regions will be required to actively work collaboratively through the Planning and Implementation Regional Groups (PIRGs) for implementation.

2.4 The ASBUs serve as the "tool box" for implementing the GANP. The concept enables each State, in collaboration with its respective region(s), to determine what technologies and systems will be needed. This helps to ensure harmonization and interoperability within regions and across the globe.

2.5 The ASBUs and modules chosen will be applicable to the needs, capabilities, and resources of each State, and the region in which it resides. ASBU steps should be deployed, if and when, a State or region can benefit from a particular module or upgrade. Some States and regions may only choose to deploy a minimal number of modules, while others may choose to deploy full Blocks. Some will also go beyond the ASBU guidelines. And, there may be implementation differences within regions themselves. This is to be anticipated, as long as harmonization and interoperability are increased across borders.

3. HARMONIZATION, INTEROPERABILITY AND PRIORITIZATION

3.1 As promoted in the GANP, the success of global modernization efforts relies in part on effective collaboration with operators, other air navigation services providers, and international partners. Operators must be able to easily traverse multiple flight information regions (FIRs). Collaboration and harmonized operations decrease inefficiencies and allow for seamless travel across international borders utilizing a more efficient transfer of information. It does not mean that each State or aviation system must be exactly the same. It does, however, mean that the systems must be able to easily transfer data and information, and not slow operations. Ultimately, increased interoperability will improve efficiencies and safety.

3.2 Today, international air traffic is to a certain extent interoperable, but the system can be slow and inefficient. A streamlined, global system will decrease these inefficiencies. Furthermore, many current solutions for increasing interoperability focus heavily on air-to-ground communication, while ground-to-ground solutions are just as important.

3.3 In support of interoperability, harmonization, and prioritization of needs, the United States conducted an analysis of the key provisions of the ASBUs and compared them to the critical implementation, procedures, technologies and timelines for interoperability. The results of the analysis are prioritized in the attached Appendix of this working paper. As ICAO and its Member States consider the further development of standards, recommended practices and guidelines to support modernization, ICAO should utilize smaller and more technical multidisciplinary panels that would be able to focus on specific items and work under the auspices of a higher level established group. Further, collaborative aviation groups already in existence have the capability to supply useful, relevant, and technically sound expertise to ICAO. The expertise and knowledge of these groups should be relied upon moving forward.

4. REGIONAL COLLABORATION

4.1 As previously noted, aviation systems cannot operate to maximum efficiency without the consideration of plans and practices in States in their region and beyond. The ICAO Planning and Regional Implementation Groups (PIRGs) will need to increase cross-regional coordination amongst on another for maximum benefit. In order to efficiently implement steps for modernization, regions, PIRGs and States should establish a systematic process to determine their specific needs. The Unites States recommends a process consisting of stages similar to that of business models. Interoperability should be a goal of the regional plans countries are creating for their particular regions. Included in these plans should be a discussion of necessary equipment and services that can be interchangeable and/or compatible with other systems.

5. CONCLUSION

5.1 The GANP and ASBUs provide a strategic and tactical direction to advancing and harmonizing international air navigation systems in a safe and efficient manner. The success of the GANP and ASBUs is dependent on the acceptance by Member States, timely development and approval of standards and provisions, and regional implementation of these plans.

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APPENDIX

HIGH PRIORITY STANDARDIZATION NEEDS IN SUPPORT OF THE GANP THE VIEW OF THE UNITED STATES

The United States continues to follow the generalized timelines contained in the ASBUs.

Priority Number	Category	Priority Area	Narrative	Block and Module
1	Interoperability	SWIM	Moving from ground-ground to air-ground exchange models. Information Security	B1-SWIM
2	Interoperability	FF/ICE	Improved flight object definition and new provisions, domains, common references	B1-FICE
3	PBN	CCO	Improved flexibility for CCOs	B0-CCO
4	PBN	CDO	Continue update and ICAO incorporation of FAA, EASA, EUROCAE and RTCA technical standards	B1-CDO
5	TBO and Improve Operations	TBO	Continued update of available standards and procedures. Interoperability requirements for ATS application, ADS-Non Radar Airspace and data link apps. Clearances for PBN procedures per RTCA SC 227 and ASAS applications. Standards for APNT based on DO-208 and stringent RNP procedures.	B1-TBO
6	TBO and Improve Operations	ACAS	Endorsement of ACAS-X and subsequent standards and procedures	B2-ACAS
7	TBO and Improve Operations	Airborne Separation	Continued update of available standards and procedures.	B1-ASEP
8	TBO and Improve Operations	Wake Turbulence	Focus on Re-Categorization Phase II	B0-WAKE
9	RPAS Integration	RPAs	Basic operational performance standards to include ADS-B and for operations in non-radar airspace.	B1-RPAs
10	Digital ATM Information Management	AIXM, FIXM, WIXM	Standards and procedures for using and displaying the information with common formats.	B1-DATM
11	MET	WIXM	DATM from MET needs to be developed and integrated into ATM data.	B1-MET
12	Runway Sequencing	Surface Management and CDM	Standards for surface management and CDM.	B0 RSEQ B1-RSEQ
13	Surface Operations	Surface Operations	Standards and procedures for indication and alerts.	B1-SURF
14	Airport Accessibility	GBAS CAT I and II	GBAS CAT I and II Implementation and procedures	B1-APTA
15	Remote Air Traffic Services	Remote ATS	Standards and procedures for remote air traffic services.	B1-RATS

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