



WORKING PAPER

TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 1: 1: Strategic issues that address the challenge of integration, interoperability and harmonization of systems in support of the concept of “One Sky” for international civil aviation

1.1: Global Air Navigation Plan (GANP) – framework for global planning

**ASSESSMENT OF THE AVIATION SYSTEM BLOCK UPGRADE (ASBU)
SYSTEM PROPOSED BY ICAO**

(Presented by the Russian Federation)

EXECUTIVE SUMMARY

This paper presents an assessment of the ICAO ASBU concept and describes its advantages and disadvantages. It also provides an assessment of the applicability of the Block B0 and B1 Modules for the Russian Federation. Reasons are cited for why the content of the ASBU implementation strategy requires some adjustment in order for the strategy to continue to be used to draft the new edition of the Global Air Navigation Plan.

Action: The Conference is invited to take into consideration the recommendations in paragraph 3.

1. INTRODUCTION

1.1 Research has been conducted in the Russian Federation to assess the structural principles of the ICAO aviation system block upgrade (ASBU) concept. The following aspects of the structure have been examined:

- a) general approach to the aviation system upgrade;
- b) classification of the aviation system upgrade areas;
- c) principles of grouping modules in blocks, and implementation timelines;
- d) assessment of the degree of readiness of Blocks B0 and B1 for implementation; and
- e) completeness of the cost-benefit analysis.

1.2 The main results of the research are presented in brief below.

2. BACKGROUND

2.1 The strategy proposed by ICAO for implementing the aviation system block upgrades has several objective advantages, of which the following stand out:

- a) the process of the system upgrade as a whole and its individual elements are clearly depicted, i.e. it is a systematic approach to solving the problem;
- b) the connection between modules within one block is shown, as is the connection between different blocks;
- c) a five-year planning period is used for each block, which ensures sufficient depth for the implementation of a single module;
- d) a modular approach is used, making it possible to introduce new modules without adjusting the others; and
- e) detailed descriptions of the individual modules and blocks are provided.

2.2 In addition to the advantages listed, the implementation strategy for the ASBU block upgrades includes several elements of a debatable nature, possibly including the following:

- a) the wording of several modules is vague and non-specific, which makes it difficult to understand and implement them;
- b) each module is linked to a large number of key performance areas (KPA), which makes it considerably more difficult to conduct a cost-benefit analysis (CBA);
- c) plans to start implementing the ASBU in 2013 raise some doubt, considering that for many Block B0 modules, ICAO SARPs, procedures, and manuals have not yet been developed;
- d) it would appear superfluous to introduce a classification of modules by performance improvement area in the absence of a clear foundation for the connection between the performance improvements proposed in the modules and the components of the Global ATM Operational Concept; and
- e) either a cost-benefit analysis has not been conducted for several modules, or it has been done but does not account for the specificities or nature of the facility where it will be applied (airspace types, airports, air traffic density, etc.), which complicates the process of assessing the advisability of its implementation and of the State making a decision on the implementation of each individual module.

2.3 In order to determine whether it is possible and advisable for Russia to implement the ASBU concept proposed by ICAO, a review was conducted, resulting in an assessment of the applicability of the modules of ASBU Blocks B0 and B1 to the ATM system of the Russian Federation. The results are presented in the appendix to this working paper.

3. CONCLUSION

3.1 The Russian Federation:

- a) endorses, on the whole, the approach to building the Global Air Navigation System and the aviation system block upgrade (ASBU) concept proposed by ICAO, as well as the use of the ASBU concept in the new Global Air Navigation Plan;
- b) confirms that the application of Modules B0 and B1 is relevant, on the whole, to building a forward-looking Russian air navigation system;
- c) confirms that several B0 Modules applicable to Russian airspace are currently being implemented or planned for the near future; and
- d) considers it possible to make adjustments to the work plans and programmes to create a forward-looking Russian air navigation system in accordance with ICAO ASBU modules to ensure the provision of seamless air navigation service on a global scale.

3.2 The Conference is invited to agree to the following recommendation:

Recommendation 1/x — Assessment of the aviation system block upgrade concept

That the Conference:

- a) take the aviation system block upgrade concept proposed by ICAO as the basis for developing the new edition of the Global Air Navigation Plan; and
- b) recommend that ICAO note the above-mentioned advantages and, when developing the new edition of the Global Air Navigation Plan, give equal consideration to these advantages and to the fact that some elements of the aviation system block upgrade application strategy are debatable in nature.

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APPENDIX

ASSESSMENT OF THE APPLICABILITY OF THE MODULES OF ASBU BLOCKS B0 AND B1 TO THE ATM SYSTEM OF THE RUSSIAN FEDERATION

ICAO ASBU Module	Relevance	Domain	Area of application	Implementation stage	Implementation timeline
Performance Improvement Area 1: Greener Airports					
B0-65 Optimization of approach procedures including vertical guidance	High	TMA	Main airports	Being implemented	2012+
B1-65 Optimized Airport Accessibility	High	TMA	Main airports	Being implemented	2012+
B0-70 Increased Runway Throughput through Wake Turbulence Separation	Medium	TMA	Largest airports	Being studied	2013+
B1-70 Increased Runway Throughput through Dynamic Wake Turbulence Separation	Medium	TMA	Largest airports	Being studied	2018+
B0-75 Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	Medium	APT	Largest airports	Being implemented	2012+
B1-75 Enhanced Safety and Efficiency of Surface Operations (A-SMGCS/SURF-IA) and EVS	Medium	APT	Largest airports	Planned	2015+
B0-80 Improved Airport Operations through Airport-CDM	High	APT	Largest airports	Planned	2015+
B1-80 Optimized Airport Operations through A-CDM Total Airport Management	High	APT	Largest airports	Planned	2018+
B1-81 Remotely Operated Aerodrome Control	Medium	APT	To be determined	Being studied	To be determined
B0-15 Improve Traffic Flow Through Runway Sequencing (AMAN/DMAN)	High	TMA	Largest airports	Planned	2015+
B1-15 Improve Traffic Flow Through Runway Sequencing (AMAN/DMAN)	High	TMA, APT	Largest airports	Planned	2018+

ICAO ASBU Module	Relevance	Domain	Area of application	Implementation stage	Implementation timeline
Performance Improvement Area 2: Globally Interoperable Systems and Data					
B0-25 Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	Medium	N/A	Consolidated Centre of the Unified ATM System	Being implemented	2012+
B1-35 Increased Interoperability, Efficiency and Capacity through FF-ICE/1 application before Departure	Medium	N/A	Consolidated Centre of the Unified ATM System	Planned	2013+
B0-30 Service Improvement through Digital Aeronautical Information Management	Medium	N/A	ANS	Planned	2012+
B1-30 Service Improvement through Integration of all Digital ATM Information	Medium	N/A	ANS	Planned	2012+
B1-31 Performance Improvement through the application of System Wide Information Management (SWIM)	High	N/A	ANS	Planned	2012+
Performance Improvement Area 3: Optimum Capacity and Flexible Flights					
B0-10 Improved Operations through Enhanced En-Route Trajectories	Medium	ENR, TMA, ORP	N/A	Being implemented/implemented	2012+
B1-10 Improved Operations through Free Routing	Medium	ENR, TMA, ORP	N/A	Planned	2016+
B0-35 Improved Flow Performance through Planning based on a Network-Wide view	High	All	State ATM Corporation / Single ATM System Area Centre	Being implemented	2012+
B1-35 Enhanced Flow Performance through Network Operational Planning	High	All	State ATM Corporation / Single ATM System Area Centre	Planned	2015+
B1-105 Enhanced Operational Decisions through Integrated Meteorological Information (Planning and Near-term Service)	Medium	N/A	Single ATM System District Centre / Single ATM System Area Centre / Main airports	Planned	2018+

ICAO ASBU Module	Relevance	Domain	Area of application	Implementation stage	Implementation timeline
B0-85 Air Traffic Situational Awareness (ATSA)	Low	ENR, TMA	civil aviation, general aviation, helicopters	Being implemented/ trials	2012+
B1-85 Increased Capacity and Efficiency through Interval Management	Medium	ENR, TMA	To be determined	Study	To be determined
B0-86 Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	Low	ORP	CA/Oceanic Sectors of Single ATM System District Centre	Planned	2016+
B0-101 ACAS Improvements	High	ENR, TMA	civil aviation	Planned	2012+
Performance Improvement Area 4: Efficient Flight Path					
B0-05 Improved Flexibility and Efficiency in Descent Profiles (CDOs) using VNAV	High	TMA	Main airports	Being implemented	2012+
B1-05 Improved Flexibility and Efficiency in Descent Profiles (OPDs)	High	TMA	Main airports	Being implemented	2012+
B0-40 Improved Safety and Efficiency through the initial application of Data Link En-Route Element 1: Using ADS-C in ocean and remote regions	Medium	ORP	ORP UACC	Implemented/planned	2014+
B0-40 Improved Safety and Efficiency through the initial application of Data Link En-Route Element 2: Using CPDLC in continental regions	Medium	ENR	UACC	Planned	2012+
B1-40 Improved Traffic Synchronisation and Initial Trajectory-Based Operation	Medium	All	To be determined	Planned	2013+
B0-20 Improved Flexibility and Efficiency in Departure Profiles -	To be determined	ENR, TMA	Main airports	Being studied	To be determined