



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 4: Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)

4.3: Implementing ASBUs for performance improvement

**CONTRIBUTION WITH INDICATORS FOR AVIATION SYSTEM PERFORMANCE
MEASUREMENT AT A NATIONAL, REGIONAL AND GLOBAL LEVEL**

(Presented by Colombia)

EXECUTIVE SUMMARY

The *Air Navigation Plan for Colombia* (ANP COL) has developed a set of indicators for the monitoring and measurement of operational benefits expected as a result of the implementation of the *Global Air Navigation Plan* (GANP, Doc 9750) ASBU-B0 upgrades.

Colombia is submitting this set of indicators to be considered and examined by the Conference for the purpose of moving forward with the consolidation of a joint framework of indicators at a national, regional and global level, which would enable us to visualize GANP implementation progress.

Action: The Conference is invited to agree to the recommendation in paragraph 3.

1. INTRODUCTION

1.1 Colombia developed the first official version of the *Air Navigation Plan for Colombia* (ANP COL) in 2008 and since then, this strategic document has been periodically updated. In 2013 Colombia adopted ICAO's aviation system block upgrade (ASBU) framework, which resulted in version 07 of Volumes I and II of the ANP COL.

1.2 The ANP COL consists of three volumes. Volume I sets out the operational requirements for meeting the projected service demand within an efficient, safe and environmentally sustainable civil aviation system. This volume also proposes the roadmap on air traffic management (ATM), aeronautical information management (AIM), meteorological (MET) and search and rescue (SAR) matters. Volume II focuses on presenting the communications, navigation, and surveillance (CNS) infrastructure and airport services (rescue and fire-fighting services (RFF), aviation security (AVSEC), medical services, environment, operations, facilitation, visual aids and physical infrastructure) required to meet Volume I

¹ Spanish version provided by Colombia.

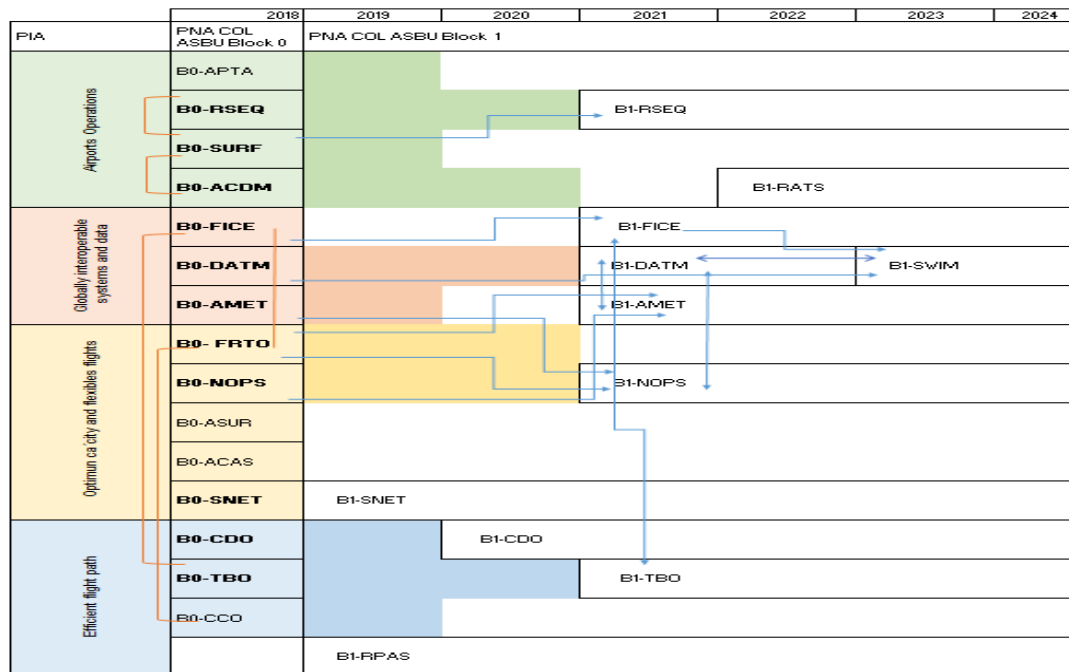
requirements. Volume III identifies the amendments that need to be made to national technical regulations in order to enable the operational upgrades envisaged in Block 0 and the 15 ASBU-B0 modules to proceed. The ANP COL is comprised of several documents, which are published at <http://www.aerocivil.gov.co/servicios-a-la-navegacion/planes-de-navegacion-aerea-para-colombia>.

1.3 The ANP COL is a strategic-level document, which sets out the priorities for achieving operational upgrades in the short (ASBU Block 0), medium (ASBU Block 1) and long term (ASBU Blocks 2 and 3), thus enabling us to meet the operational needs of domestic and international aviation, whilst also endeavouring to deliver the expected benefits in terms of efficiency, capacity, environmental impact, flexibility, access and equity.

2. DISCUSSION

2.1 Colombia has made progress towards achieving the internationally set targets. It has also made progress in its search for operational benefits at a domestic level by implementing the ASBU framework.

2.2 In accordance with the partial results obtained from implementation of the Block 0 upgrades and faced with the synchronization of certain main threads and elements still missing, that are needed to move onto Block 1, we have foreseen the following:



2.3 The operational benefits must be verified in order to confirm whether airspace users' expectations have been met or not. Therefore, Colombia proposes that the Conference should consider the set of indicators for the 15 Block 0 modules published in the ANP COL, as a contribution to the construction of a joint framework of indicators. See Attachment.

3. CONCLUSION

In light of the above, the Conference is invited to agree to the following recommendation:

Recommendation 1.2/x - Air navigation performance improvement and measurement through the aviation system block upgrades (ASBUs)

That the Conference calls on ICAO and the States to agree to a joint framework of indicators, which will enable States to report their operational benefits, and these measurements can then be used as a basis for regional and global monitoring of GANP implementation.

APPENDIX

PNA COL ASBU B0	1- Access and Equality	2 - Capacity	4 - Efficiency	5 - Environment	10 - Operational Safety
B0-APTA	APV Baro VNAV procedures published for instrument runways	Increase runway capacity = operations / hour offered with procedure - operations / hour offered without procedure	Airport fuel savings = (estimated IFSET with procedure - estimated IFSET without procedure) aircraft, period / (estimated IFSET without procedure) <0	Lower airport CO2 emission = (estimated IFSET CO2 with procedure- estimated IFSET CO2 without procedure) / (estimated IFSET CO2 without procedure) <0	Increase of stabilized approaches using APV airport = Number of APV operations (current period- previous period) / (previous period)> 0
B0-RSEQ		Increase airport arrival rate = arrivals average period (after implementation- before implementation) / (before implementation)> 0	Increase airport departure rate = departures average period (after implementation- before implementation) / (before implementation)> 0		
B0-SURF		Constant capacity with Low Visibility -LV- airport = capacity normal condition - capacity in condition LV = 0			Lower runway incursion airport = Number of incursions (after implantation - before implantation) / before implantation <0
B0-ACDM		Actual capacity offered / declared capacity Actual time parking positions occupied / authorized time in parking position	Reduction hour landing = (estimated hours (ELDT) - actual hours (ALDT)) Compliance with ETOT estimated take-off time = estimated take off time regular flights ETOT - ATOT actual time Compliance with calculated off-block time (COBT) - actual off-block time (AOBT)	Reduction engine start time on the ground = taxi time in IAP (AXOT) - actual taxi time (EXOT)	

² English and Spanish versions provided by Colombia.

			Adherence to the arrival SLOT = (Time SLOT assigned (RIBT) - actual time of arrival (AIBT)) Adherence to the departure SLOT = (Time SLOT assigned (RIBT) - actual time of departure (AIBT))		
B0-FICE		NM separation reduction between ACC xxx and ACC yyy	Reduced transfer time per operation between ACC xxx and ACC yyy		
B0-DATM					Reduction in information inconsistencies <> eAIP delivery to feed devices on board (EFB)
B0-AMET					Compliance with the event = 80% success in TAF due to aviation adverse events (period, aerodrome)
B0-NOPS		Compliance with CTOT = Calculated takeoff time (CTOT) - Actual takeoff time (ATOT)	Decrease departure taxi time = (Estimated taxi time (EXOT) - Actual taxi time (AXOT)) Compare between several periods, seasonality. Decrease taxi time arrival = (Estimated taxi time (EXIT) - Actual taxi time (AXIT)) Compare between several periods, seasonality. Flight time reduction = estimated flight time (EET) - actual flight time (AEET)		
B0-ASUR		Upper airspace capacity increase = (capacity with ADS / MLAT operation - capacity without ADS / MLAT operation) / operation capacity without ADS /			

		MLAT > 0			
B0-ACAS					Decrease RA alerts
B0-SNET					Decrease of major incidents due to ground proximity = (Incidents current period - incidents previous period) / incidents previous period <= 0
B0- FRTO		Increase of civil operations in restricted airspaces = civil operations current period - civil operations previous period / civil operations previous period > 0		Lower CO2 emission ROUTE = (estimated IFSET CO2 conventional route - estimated IFSET CO2 route PBN) / estimated IFSET CO2 without PBN	
B0-CDO				Lower CO2 emission airport = (estimated IFSET CO2 without procedure - estimated IFSET CO2 with procedure) / estimated IFSET CO2 without procedure	
B0-CCO				Lower CO2 emission airport = (estimated IFSET CO2 without procedure - estimated IFSET CO2 with procedure) / estimated IFSET CO2 without procedure	
B0-TBO		Upper airspace capacity increase = (operations with CPDLC - operations without CPDLC operation) / operations without CPDLC > 0			Reduction of misinterpretations = Number of reported incidents due to misinterpretation (period with CDPDLC - period without CPDLC) / (period without CPDLC) < 0