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International Civil Aviation Organization

SIP/2012/ASBU/Dakar-WP/24F

Aviation System Block Upgrades Module N° B0-101/PIA-3

ACAS Improvements

Workshop on preparations for ANConf/12 – ASBU methodology (Dakar, 16-20 July 2012)

Module N° B0-101 ACAS Improvements



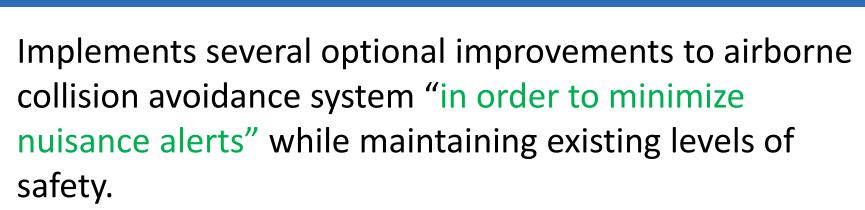
Summary	collision avoidance s nuisance alerts wh	nents to existing airborne systems (ACAS) to reduce nile maintaining existing				
	levels of safety.					
Main Performance Impact	KPA-04 Efficiency, KPA-10 Safety					
Domain / Flight Phases	En-route flight phases and approach flight phases.					
Applicability Considerations	Safety and operational benefits increase.					
Global Concept Component(s)	CM – Conflict Management.					
Global Plan Initiatives ()	GPI-2 reduced vertical separation minima					
	GPI-9 situational awareness					
	GPI-16 Decision support systems and alerting systems					
Pre-Requisites	Νο					
Global Readiness Checklist		Status (ready now or estimated date)				
	Standards Readiness	v				
	Avionics Availability	v				
	Ground Systems Availability	N/A				
	Procedures Available	v				
	Operations Approvals	v				

Module N° B0-101 - Baseline



- ACAS is subject to global mandatory carriage for aeroplanes with a MTCM greater than 5.7 tons.
- The current version of ACASII is 7.0.

Module N° BO-101 – Change Brought by the Module



- Element → Improved ACAS operations
 - TCAS version 7.1 introduces significant safety and operational benefits for ACAS operations.
 - Agreed to mandate the improved ACAS (TCAS version 7.1) for new installations as of 1/1/2014 and for all installations no later than 1/1/2017.

Module N° B0-101 – Intended Performance Operational Improvement



Efficiency	ACAS	impro	vem	ent	will	reduce
		,				reduce
	trajectory perturbation					

Safety ACAS increase safety, as collision avoidance system and case of failure of the separation provision.

CBA TBD

Module N° B0-101 – Necessary Procedures (Air & Ground)



 ACAS procedures are defined in PANS-ATM (Doc 4444) and in PANS-OPS (Doc 8168)

Module N° B0-101 – Necessary System Capability



• Avionics

- RTCA DO185B / EUROCAE DO143 MOPS are available for TCAS implementation.
- RTCA DO325 Annex C is being modified to accommodate the 2 functions (APFD and TCAP). It should be ready by Q1 2013.
- Ground Systems
 - Not Applicable



- Training in the operational standards and procedures are required
- Likewise, the qualifications requirements are identified in the regulatory requirements
- Training guidelines are described in the ACAS Manual (Doc 9863). Recurrent training is recommended.
- Likewise, the qualifications requirements are identified in the regulatory requirements

Module N° B0-101 – Regulatory/standardization needs and Approval Plan (Air & Ground)



• Regulatory/Standardization:

- Use current published requirements
- Approval Plans:
 - Must be in accordance with application requirements e.g. EASA NPA 2010-03 requirement of 1/3/2012 for new installations and 1/12/2015 for all installations, or ICAO mandate of 1/1/2014 for new installations and 1/1/2017 for all installations.

Module N° B0-101 – Reference Documents



• Standards

- ICAO Annex 6 Operation of Aircraft, Part I International Commercial Air Transport Aeroplanes. carriage requirements;
- ICAO Annex 10 —. Aeronautical Telecommunications, Volume IV Surveillance Radar and Collision Avoidance Systems;. (Including Amendment 85- July 2010)
- EUROCAE ED-143 / RTCA DO-185B, Minimum Operational Performance Standards for Traffic Alert and Collision Avoidance System II (TCAS II);
- RTCA DO-325, Minimum Operational Performance Standards (MOPS) for Automatic Flight Guidance and Control Systems and Equipment. Appendix C estimated 2013
- RTCA DO185B / EUROCAE DO143 MOPS for TCAS implementation.

Procedures

- ICAO Doc 4444, Procedures for Air Navigation Services Air Traffic Management;
- ICAO Doc 8168, OPS Aircraft Operations, Volume I Flight Procedures.
- Guidance Material
 - ICAO Doc 9863, Airborne Collision Avoidance System (ACAS) Manual.
- Approval Documents
 - FAA TSO-C119c; EASA ETSO-C119c; FAA AC120-55C; FAA AC20-151a; RTCA DO-185B, MOPS for TCAS II;
 RTCA DO-325, Appendix C, for APFD and TCAP; EUROCAE ED-143, MOPS for TCAS II.

Module N° B0-101 Implementation - Benefits and Elements



ACAS Improvements

Benefits - Main Key Performance Areas (KPA)							
KPAs	Access	Capacity	Efficiency	Environment	Safety		
Applicable	N	Ν	Y	Ν	Y		

Element: ACAS II (TCAS version 7.1)

To be reflected in ANRF

Uniting Aviation on Safety | Security | Environment

ICAO SIP 2012- ASBU WORKSHOP

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