International Civil Aviation Organization

Regional Aviation Safety Group - Middle East

Sixth Meeting (RASG-MID/6)
(Bahrain, 26-28 September 2017)

Agenda Item 5: Update from and Coordination with MIDANPIRG

AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS)

(Presented by Secretariat)

SUMMARY

This paper presents the status of implementation of the Aviation System Block Upgrades (ASBU) B0-ACAS and urge States to take necessary measures to enhance the level of compliance with ICAO provisions related to TCAS v7.1.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/16 Report
- MID Air Navigation Strategy (MID Doc 002)

1. INTRODUCTION

1.1 The Airborne Collision Avoidance System II (ACAS II) was introduced in order to reduce the risk of mid-air collisions or near mid-air collisions between aircraft. It serves as a last-resort safety net irrespective of any separation standards.

1.2 The difference between ACAS I and ACAS II is that the first one gives Traffic Advisories (TAs) but does not recommend any manoeuvres. However, ACAS II gives Traffic Advisories (TAs) and Resolution Advisories (RAs) in the vertical sense (direction).

1.3 The SARPS related to ACAS are contained in ICAO Annexes 6 and 10. The ICAO Doc 9863 provides guidance on technical and operational issues applicable to ACAS, as specified in Annex 10. The necessary procedures related to ACAS are defined in PANS-ATM, Doc 4444 and in PANS-OPS, Doc 8168. The required Avionics related to the carriage of TCAS v7.1 are defined in RTCA DO185B / EUROCAE DO143 and RTCA DO325 Annex C.

2. DISCUSSION

2.1 The meeting may wish to recall that Amendment 85 to ICAO Annex 10 volume IV, published in October 2010, introduced the following provisions:

- all new ACAS installations after **1 January 2014** shall be compliant with version 7.1; and
- all ACAS units shall be compliant with version 7.1 after **1 January 2017**

2.2 The Aviation System Block Upgrades (ASBU) B0-ACAS is among the ASBU Modules considered as priority one for implementation in the MID Region, which are included in the MID Region Air Navigation Strategy (MID Doc 002).

2.3 B0-ACAS (ACAS Improvements) provides short-term improvements to existing Airborne Collision Avoidance Systems (ACAS) to reduce nuisance alerts while maintaining existing levels of safety. This will reduce trajectory deviations and increase safety in cases where there is a breakdown of separation. The Safety and operational benefits increase with the increase in the proportion of equipped aircraft.

2.4 The Performance Indicators/Supporting Metrics, applicability and target included in the MID Region Air Navigation Strategy, are reproduced here below:

B0 – ACAS: ACAS Improvements			
Elements	**Applicability**	**Performance Indicators/Supporting Metrics**	**Targets**
Avionics (TCAS V7.1)	All States	Indicator: % of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons Supporting metric: Number of States requiring carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons	100% by Dec. 2017 **Status 73%**

2.5 The meeting may wish to note that States need to have the necessary regulation for the carriage of TCAS v7.1 for the aircraft with a max certificated take-off mass greater than 5.7 tons, and to provide its reference to the ICAO MID Regional Office.

2.6 States need to develop/maintain a database related to the carriage of the TCAS v7.1, in accordance with their national regulations.

2.7 MIDANPIRG CNS Sub-Group is the main Regional monitoring body for the collection of data related to the B0-ACAS implementation in the MID Region.

2.8 The status of implementation of the B0-ACAS is at **Appendix A**.

2.9 The main challenges facing the implementation of B0-ACAS are related to the development of necessary civil aviation regulations to mandate carriage of ACAS (TCAS v 7.1) for aircraft with a max certificated take-off mass greater than 5.7 tons and to ensure compliance by the air operators.

3. ACTION BY THE MEETING

3.1 The meeting is invited to

a) review and update the status of implementation of the B0-ACAS in **Appendix A;** and

b) urge States, that have not yet done so, to:

i. develop regulations to mandate the carriage of TCAS7.1;

ii. ensure that air operators comply with the ICAO requirements related to ACAS; and

iii. develop/maintain a database related to the carriage of the TCAS v7.1, in accordance with their national regulations.

Table B0-ACAS

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Status of implementation of Flexible Use of Airspace (FUA). The Implementation should be based on the published aeronautical information:
- FI – Fully Implemented
- PI – Partially Implemented
- NI – Not Implemented

3 Total Number of ATS Routes in the State.

4 Total number of required routes (through Regional Agreement) to be implemented through segregated areas

5 Number of routes that are NOT implemented in the State due military restrictions (segregated areas)

6 Remarks

State	Status	Regulation Reference	Remarks
1	2	3	4
Bahrain	Y	Aeronautical Circular AC/OPS/05/2015 dated 10th of March 2015	Air Navigation Technical Regulations (ANTR) updated to reflect Annex 10 (Volume IV) Reference needs to be provided http://www.mtt.gov.bh/content/caa-laws-and-regulations
Egypt	Y	ECAR Part 121.356 & ECAR Part 91.221	Egyptian Civil Aviation Regulation (ECAR) Parts 121 and 91 have been updated in accordance with the relevant provisions of ICAO Annex 10, Volume IV, Ch.4 http://www.civilaviation.gov.eg/Regulations/regulation.html
Iran	Y	Aeronautical Telecommunications by law, articles 3 & 4	According to articles 3 and 4 of Iran aeronautical telecommunications by law, ratified by board of ministers, Airborne collision avoidance systems are categorized as aeronautical telecommunications systems and should be manufactured, installed and maintained according to standards of Annex 10. -Since no difference to ICAO annex 10 is notified, ACAS V 7.1 is mandatory according to provisions of annex 10 amendment 85. -Airworthiness directives issued by FAA and EASA shall to be implemented by Iranian AOC holders.
Iraq	N		
Jordan	Y	JCAR-OPS.1 (1.668 airborne collision avoidance system)	
Kuwait	Y	Kuwait Civil Aviation Safety Regulations – Part 6 – Operation of Aircraft, Para. 6.20.4	
Lebanon	Y		Regulation reference needs to be provided
Libya	N		
Oman	Y		Regulation reference needs to be provided

State	Status	Regulation Reference	Remarks
1	**2**	**3**	**4**
Qatar	Y	QCAR – OPS 1, Subpart K, QCAR – OPS 1.668 – Airborne collision avoidance system QCAR Part 10 - Volume4 Chapter 4 Airborne Collision Avoidance System	References: http://www.caa.gov.qa/en/safety_regulations
Saudi Arabia	Y	GACAR PART 91 – Appendix C	
Sudan	Y	Amended ANNEX 10 (V4)- ANNESX 6 (V2)	According to adopted ANNEXEX TO SUDAN REGULATION (SUCAR 10 V4 Par. 4.3.5.3.1 AND SUCAR 6 V2 par 2.05.15)
Syria	N		
Unite Arab Emirates	Y	CAR-OPS 1.668 Airborne Collision Avoidance System (See IEM OPS 1.668) and CAAP 29 And AIP 1.5.6.6	https://www.gcaa.gov.ae/en/ePublication/Pages/CARs.aspx?CertID=CARs
Yemen	Y		Regulation reference needs to be provided

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