

AERONAUTICAL SURVEILLANCE PANEL (ASP)

**AIRBORNE SURVEILLANCE SUB-GROUP
THIRD MEETING**

Paris, September, 2008

ASSG Agenda Item: Future Works

**Note on RSP developments in the draft AS
Timeline**

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SUMMARY

This flimsy provides the draft notes on future works on RSP in the draft AS timeline. This is a reaction to new action item which is generated at the ASSG#3 meeting. The ASSG members share the parts of action item onto the ASSG which is generated at the ASP/WG#4 meeting on May 2008.

The WG tasked ASSG to update the AS Timeline in time for presentation to the ASP/1 Panel Meeting on December 2008.

References

- [1]. ICAO: "Annex 10, volume IV", amendment 82, effective on November 2007
- [2]. Ken Carpenter: "timeline", attached file to e-mail from Dr. Ken Carpenter, June 28, 2006
- [3]. Ken Carpenter: "Consultation on Attachment B to the AS timeline", communication to ASASSG, November 5, 2006
- [4]. ICAO/ASP/ASSG: "ICAO provisions relating to airborne surveillance applications", ASP/WG #1, Flimsy ASP01-5 rev.1, November 2006
- [5]. ICAO/ASP/ASSG: "Airborne surveillance timeline", ASP/WG #1, Flimsy ASP01-5 rev.1 Attachment B v0.5, November 2006
- [6]. Jean-Marc Loscos: "ASAS activities at the ICAO level: steps towards global standardization", ASAS-TN2 workshop, Paris, April, 2008
- [7]. Jean-Marc Loscos: "FUTURE WORK ON AIRBORNE SURVEILLANCE", ASP/WG #4, WP ASP04-18 rev.1, Bangkok, May, 2008
- [8]. EUROCONTROL: "SESAR-D5", April, 2008
- [9]. Jean-Marc Loscos: "AGENDA AND ACTION ITEMS", WP ASSP03-00 after the meeting, September, 2008
- [10]. ASSG: "ICAO provisions relating to airborne surveillance applications", Flimsy ASSG03-xx after the meeting, September, 2008

1. Introduction

1.1 The list of tasks for ASP/ASSG was generated at ASP/WG4 meeting in Bangkok on May 2008. The list includes the task on airborne surveillance timeline, i.e., AS timeline, as follows.

New Action ASP04-08: ASSG to update the AS Timeline in time for presentation to the ASP/1 Panel Meeting.

New Action ASP04-09: ASSG to update and revise the future work plans for ICAO according to the revised timeline; to identify the scope of what items can be delivered by ASP/ASSG in the given timescales and to elaborate on those items.

1.2 This flimsy provides the draft notes on RSP in the draft AS timeline. This is a reaction to new action item which is generated at the ASSG#3 meeting. The ASSG members share the parts of action item onto the ASSG.

New Action ASSG03-xx: Shigeru to draft the notes on RSP to explain the future work in the draft AS time line.

2. ICAO documents on RSP for airborne surveillance applications

2.1 ASP WG#4 meeting agree to amend the Annex 10 volume 4 to add new chapters 7 and 8 for airborne surveillance functions and RSP. In this amendment, draft RSP is proposed for GSA, Ground Surveillance Application, on ATC separation provision. New chapters will be proposed at ASP1 meeting.

2.2 The existing chapter 5 has a note on requirements as follows. This part has already been added by amendment 82 to annexes, and became effective on November 2007.

CHAPTER 5. MODE S EXTENDED SQUITTER

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5.1 MODE S EXTENDED SQUITTER TRANSMITTING SYSTEM CHARACTERISTICS

Note.— Many of the requirements associated with the transmission of Mode S extended squitter are included in Annex 10, Volume IV, Chapter 2 and Chapter 3 for Mode S transponder and non-transponder devices using the message formats defined in the Technical Provisions for Mode S Services and Extended Squitter (Doc 9871). The provisions presented within the following subsections are focused on requirements applicable to specific classes of airborne and ground transmitting systems that are supporting the applications of ADS-B and TIS-B.

2.3 The existing chapter 5 has functional requirements and some essential requirements for radio systems such as transmitting power and receiver sensitivity as well. These parameters are defined by categories for each of transmitter and receiver. A combination

of them will provide essential parameters to estimate the surveillance range for the pair. A range of combinations will be identified for each airborne surveillance application in future when the requirements will be developed for the application.

2.4 On the other hand, the chapter 5 does not have typical RSP elements which assure the safety of applications, such as availability, integrity and so on. Because, most RSP elements will be provided with their numbers after the works which have never been completed, such as the definition of operational procedure in the application, operational safety analysis, operational performance analysis and extracting the requirements for inter-operability. These works are under going for initial airborne surveillance applications in the requirement focus group.

2.5 Drafting RSP for each airborne surveillance application will be the future work which is required to establish the commonality or compatibility of airborne surveillance applications and equipments. This is the area that ICAO is expected to publish documents with taking the output from related activities into account.

3. **Draft notes on RSP to explain the pertinent items in AS timeline**

3.1 The draft AS timeline has two new items for future work on RSP, Required Surveillance Performance, for ASA, Airborne Surveillance Application. The future works on RSP are defined with step by step actions to synchronize the development of ASA.

3.2 Before these new items, the development of AS-CoU, Airborne Surveillance - Concept of Use, has already explained in the note 5 of last report to ICAO on AS timeline as follows.

5 Develop concept of RSP for airborne surveillance

RSP will be one element of required total system performance, which was identified in the global ATM operational concept.

It is proposed to develop the concept of RSP for airborne surveillance after having gained experience on airborne surveillance applications.

3.3 The first new item is found on 2011 as “Definition of RSP for initial ASA”. The note for this item is suggested as follows.

Definition of RSP for initial airborne surveillance applications

RSP will be needed for each airborne surveillance application to assure their inter-operability with required level of safety in the assumed ATM environment. RSP will be developed after the works including the definition of application, operational safety analysis, operational performance analysis, and extracting the requirements for inter-operability. In addition, experiences of trial will be required to verify them.

3.4 The second new item is found on 2015 as “Definition of RSP for future ASA”. The note for this item is suggested as follows.

Definition of RSP for future airborne surveillance applications

RSP for future airborne surveillance applications will be provided after the similar work for initial applications. The future applications may include requirements for new separation modes in new ATM environments. These applications are estimated to need more work and time to develop RSP. Also, other elements, for example, datalink communication, will need to be coordinated to design entire application.

4. **Conclusions**

4.1 ASAS-SG members are invited to review the draft notes on RSP developments to explain the future work in the draft AS timeline.

4.2 Author of this paper welcome the comments to improve the notes.

