

### INTERNATIONAL CIVIL AVIATION ORGANIZATION

# SECONDARY SURVEILLANCE RADAR CODES ALLOCATION STUDY GROUP (SSRCASG)

SECOND MEETING (Cairo, Egypt, 04-05 March 2008)

The views expressed in this Report should be taken as those of the SSRCASG/2 and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be published in due course as a Supplement to the Report.

Approved by the Meeting and published by authority of the Secretary General

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## SSRCASG/2 History of the Meeting

### **PART I – HISTORY OF THE MEETING**

#### 1. PLACE AND DURATION

1.1 The Second Meeting of the Secondary Surveillance Radar Codes Allocation Study Group (SSRCASG) was held at the ICAO Middle East Regional Office, Cairo, Egypt, 04-05 March 2008.

#### 2. OPENING

- 2.1 The meeting was opened by Mr. Jehad Faqir, ICAO Deputy Director, Middle East Regional Office. In his opening remarks, Mr. Faqir welcomed all delegates to Cairo and the meeting itself. He expressed appreciation at the efforts taken by the States, Organizations and the delegates to participate in the meeting. Mr. Faqir expressed recognition of the support that EUROCONTROL continues to extend to the efforts of the MIDANPIRG activities and thanked them for in particular for participating at the SSRCASG/2 meeting.
- 2.2 Mr. Faqir highlighted the importance of progress of the Study Group, noting that there had been a low level of responses regarding information and data requested from States on Flight Data Processing Systems capabilities and traffic volume patters. He urged States to make the information available as this was essential for the Study Group to complete its work.

#### 3. ATTENDANCE

3.1 The meeting was attended by a total of 17 participants from five (5) States (Egypt, Iran, Saudi Arabia, Syria and United Arab Emirates) and one (1) International Organization (EUROCONTROL). The list of participants is at **Attachment A** to the Report.

#### 4. OFFICERS AND SECRETARIAT

4.1 The temporary Rapporteur was Mr. Ahmad Reza Pirhadi from Iran, who was unanimously recognized by the meeting to assist in the absence of Mr Saud Humaid Al-Adhoobi from Oman, who could not attend meeting due to unavoidable circumstances. Mr. Seboseso M. Machobane, Regional Officer/ATM/SAR was the Secretary of the meeting. Mr. Jehad Faqir, Deputy Regional Director, and Mr. Raza A. Gulam, Regional Officer CNS from the ICAO Middle East Office supported the meeting.

### 5. LANGUAGE

5.1 The discussions were conducted in the English language and documentation was issued in English.

#### 6. AGENDA

The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda

## SSRCASG/2 History of the Meeting

Agenda Item 2: Follow up on MIDANPIRG Conclusions and Decisions relevant

to SSR Code Allocation

Agenda Item 3: Review and analysis of the SSR Code Allocation requirements

data and related information

Agenda Item 4: Review of long term measures for MID SSR Code Allocation

Agenda Item 5: Future Work Program

Agenda Item 6: Any other business

### 7. CONCLUSIONS AND DECISIONS – DEFINITION

7.1 The MIDANPIRG records its actions in the form of Conclusions and Decisions with the following significance:

- a) Conclusions deal with matters that, according to the Group's terms of reference, merit directly the attention of States, or on which further action will be initiated by the Secretary in accordance with established procedures; and
- b) **Decisions** relate solely to matters dealing with the internal working arrangements of the Group and its Sub-Groups

#### 8. LIST OF CONCLUSIONS AND DECISIONS

DRAFT CONCLUSION 2/1: SSR CODES SHARING

DRAFT CONCLUSION 2/2: REDUCTION OF SSR CODE OCCUPANCY TIME

DRAFT CONCLUSION 2/3: COLLECTION OF TRAFFIC VOLUME AND PATTERN DATA

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## PART II: REPORT ON AGENDA ITEMS

## REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

- 1.1 The meeting was presented with a Provisional Agenda. After reviewing the Provisional Agenda, the meeting adopted it as at paragraph 6 of the History of the Meeting.
- 1.2 The Terms of Reference (TOR) of the SRRCASG are at  $\bf Appendix~\bf A$  to the Report on Agenda Item 1.

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# SSRCASG/2 Appendix 1A to the Report on Agenda Item 1

## SSR CODES ALLOCATION STUDY GROUP (SSRCASG)

#### TERMS OF REFERENCE

(Revised)

- 1- Assess the SSR Code allocation system situation in the MID Region and the adjacent ICAO Regions.
- 2- Propose short term solutions to address the identified SSR Code allocation system problems
- 3- Evaluate the advantages/disadvantages of a single *Participating Area* (PA) versus multiple PAs.
- 4- Analyze the development of PAs taking into consideration the following:
  - Operational consideration for the definition of PAs (scope and number);
  - Volume of traffic;
  - Impact on adjacent FIRs/Pas;
  - National defense requirements;
  - Automation system limitations;
  - Duration of code usage within a particular area.
- 5- Analyze the application the *Originating Region Code Assignment Method* (ORCAM) in the MID Region.
- 6- Identify long term measures
- 7- The Study Group will have the mandate to discuss, within its TORs, with adjacent ICAO Regions without having to go through the ATM/SAR/AIS SG.
- 8- The Study Group will consist of the following MID States and International Organizations:

#### **STATES**

Egypt, Iran, Oman, Saudi Arabia, Syria and UAE.

#### **ORGANIZATIONS (AS OBSERVERS)**

IATA, ICAO and, EUROCONTROL (on ad-hoc basis).

## REPORT ON AGENDA ITEM 2: FOLLOW UP ON MIDANPIRG CONCLUSIONS AND DECISIONS RELEVANT TO SSR CODE ALLOCATION

- 2.1 The meeting reviewed four Draft Decisions and Conclusions of the ATM/SAR/AIS Sub-Group meeting related to the SSRCASG and noted that the Draft Decisions and Conclusions or the SSRCASG/1 meeting had been endorsed by the ATM/SAR/AIS SG/9 meeting in November 2007.
- 2.2 The meeting noted the follow up action taken by various parties regarding the Draft Decisions and Conclusions, as well as the action that was expected to be taken by the SSRCASG/2.

## REPORT ON AGENDA ITEM 3: REVIEW AND ANALYSIS OF THE SSR CODE ALLOCATION REQUIREMENTS DATA AND RELATED INFORMATION

- 3.1 The meeting recalled that the SSRCASG/1 meeting, when considering the matter of Originating Region Code Assignment Method (ORCAM), agreed in principle on three Participating Areas (PAs) for the MID Region. The SSRCASG/1 meeting had however, also agreed that more data was necessary in order for the Study Group to reach finality on the structure of the PAs and codes allocated to the PAs. Specifically, the data and information had to include traffic patterns and volume, Flight Data Processing Systems' (FDPS) capabilities, and requirements in adjacent ICAO Regions.
- 3.2 The meeting noted the action taken by the Secretariat to obtain the data and information required. Furthermore, that eight (8) States had provided the FDPS information as requested and four (4) Sates had completed and returned the questionnaire forms for the traffic volume patterns. The meeting agreed that the available data was not adequate to facilitate the decision of the Study Group on the PAs. The meeting acknowledged the support from EUROCONTROL by providing the FDPS questionnaire template which was adapted for the MID Region as well as the analysis of data provided by the States, and requested the Secretariat to write to EUROCONTROL acknowledging the support with appreciation, and to request further support as indicated in this agenda item.
- Regarding data and information from other ICAO Regions, the meeting noted that with regard to the AFI Region, there were no requirements or special issues to be considered, other than the Region's Code Allocation Plan (CAP) in AFI ANP Doc 7474 FASID Table ATS 3. With regard to the APAC Regions, the meeting noted that in addition to their CAP, the APAC Regions were facing code shortages as a result of which they were implementing code sharing by applying the directional assignment approach.
- 3.4 The meeting also noted that another problem experienced in the APAC Region, i.e. States not complying with their FASID allocation and issuing codes from another State's allocation. This gave rise to complaints by the receiving States with regards to flights entering on 'incorrect' codes that result, *inter alia*, in duplications in the receiving States surveillance systems. The meeting was of the opinion that the same problem was also experienced in the MID Region.
- 3.5 The meeting noted the traffic volume pattern data that had been presented in a chart form prepared by EUROCONTROL, reflecting the situation in the interface areas of the EUR Region, as part of the information and data required by the meeting for its decision on PAs.
- 3.6 The meeting reaffirmed that the FDPS capabilities and traffic data it was essential for its decision on PAs.

# REPORT ON AGENDA ITEM 4: LONG TERM MEASURES FOR MID REGION SSR CODE ALLOCATION

- 4.1 The meeting referred to the FDPS capabilities and traffic data required to facilitate the decision of the Study Group which was discussed under Agenda Item 3, and recalled that as a result of the low responses to the MID Regional Office State Letters requesting information, further efforts were necessary to collect the data and information before the Study Group could finalize its decision on the configuration of the PAs and the allocation of codes thereto.
- 4.2 The meeting reiterated the importance of completeness of the data it had required, to facilitate its decision on the PA configuration and code allocation, and accordingly requested the Secretariat to continue the collection of the data in order to facilitate the above-motioned finalization, by the next meeting. The Study Group was conscious that a solution to the MID Region code allocation shortage could not be delayed much and that the Study Group had to complete its work.
- 4.3 The Study Group discussed the issues of "code sharing" and of reduction of the current three hour code occupancy time, which had been noted in past meeting (SSRCASG/1). The Study Group noted that these two aspects could not only significantly increase the availability of codes but could also be part of the long term measures to address the code shortage in the MID Region. To further facilitate the discussions, EUROCONTROL made a brief two-part presentation on the EUR Region ORCAM system and how it interfaces with the MID Region, as well as on the aspect of directional assignment of SSR codes with examples of benefits thereto.
- 4.4 With regards to the code sharing, the meeting agreed to its implementation, after following appropriate procedures, coordination and amendment of the MID ANP FASID. The meeting noted however, that more successful implementation of code sharing would be supported by FDPS capabilities for directional assignment. To this end, the meeting agreed to request the CNS Sub-Group to consider the issue of upgrades of FDPSs for directional assignment, noting that not all FDPSs need to necessarily have the capability in order for directional assignment to be successful applied. The meeting accordingly agreed to the following Draft Conclusion:

#### DRAFT CONCLUSION 2/1: SSR CODES SHARING

That, in order to increase the availability of SSR cods in the MID CAP:

- a) the MID Region adopt the approach of "code sharing" between FIRs that are geographically adequately disparate and where directional assignment of SSR codes makes "code sharing" practical;
- b) the "code sharing" be implemented after an amendment of the MID ANP FASID to this effect has been approved, appropriate safety assessments have been carried out, and the concerned FIRs signed the relevant Letters of Agreement (LOA), except where a Regional arrangement obviates such action: and

- c) the CNS Sub-Group be requested to consider the feasibility of FDPS upgrades in the MID Region.
- 4.5 With the regard to the reduction of code occupancy time, which is currently three hours in the MID CAP, the meeting agreed that most States/FIRs in the MID Region could successfully reduce code occupancy from three to two hours. However, some large FIRs, such as Jeddah and Tehran had to study the effect of reduction more closely. Consequently the meeting agreed to a flexible approach to the reduction of code occupancy from three hours, making room for large FIRs to effect less reductions or even retention of the three hour procedure if necessary. The meeting therefore, agreed to the following Draft Conclusion:

#### DRAFT CONCLUSION 2/2: REDUCTION OF SSR CODE OCCUPANCY TIME

That, in order to increase the availability of SSR codes allocated to each MID FIR:

- a) the SSR code occupancy time be changed from three hours to a maximum of two hours where practicable;
- b) the time to be applied by each FIR continue to be predicated by safety and be based on the requirement of the FIR as dictated by such factors as the size of the FIR; and
- c) the Secretariat take appropriate measures to accordingly amend the MID ANP FASID Part V Attachment B.
- The Study Group noted also, from the EUROCONTROL presentation, the impact of appropriate traffic volume patterns in determining configuration of PAs. The meeting noted for instance, that it is possible an FIR like Kabul could have very limited need to change codes as codes from westbound traffic could be changed by Tehran or Turkmenabat/Ashgabat and for eastbound traffic by Karachi/Lahore FIRs. This could result in limited transit codes having to be allocated to Kabul, and can similarly affect the decision on which PA it could optimally be placed.
- 4.7 Egypt pointed out that some AFI FIRs, such as Khartoum and Tripoli, while assigned SSR codes, do not use these codes and this resulted in Cairo FIR having to use more of its codes for flights arriving from the said FIRs without transit codes. Egypt requested that the matter be addressed with the AFI Region.
- It was proposed that as the EUR/NAT Regions were moving towards *central code management*, the MID Region should consider the same as this would significantly increase codes' availability. The meeting noted that this could be achieved through a similar approach as the Integrated Flight Plan Processing System (IFPS) project that has been hosted by Bahrain. The meeting however, agreed that this could only be in the context of the future, beyond the current scope of the SSRCASG, and hence the meeting would request the CNS Sub-Group to include it in their agenda.

4.9	The meeting noted that although Mode S has been implemented for many years in the
EUR Reg	ion, Mode S has not been used for aircraft identification on a Regional basis.

#### REPORT ON AGENDA ITEM 5: FUTURE WORK PROGRAMME

- 5.1 The meeting noted that ICAO initiated the development of a Business Plan along with performance measures for the Organization. The Business Plan is designed to translate the Strategic Objectives of the Organization into action plans and ensure a link between planned activities, organizational cost and performance assessment. Accordingly, the SSRCASG/1 meeting had adopted the list of tasks to be carried out by the Study Group. As a standard undertaking, in order to facilitate performance monitoring, the meeting developed a draft follow-up Action Plan as at **Appendix 5A** to the Report on Agenda Item 5
- The meeting discussed the matter of its next meeting in light of the data that still had to be provided by the States. To this end, EUROCONTROL advised the meeting that in order for the traffic data to be adequately useful in supporting the decisions that the Study Group had to take, it was necessary that the traffic be collected by segment, for the three consecutive busiest hours of the day, over a seven day period. This would also facilitate EUROCONTROL to use their existing technology to assist with the analysis thereof. In order to facilitate harmonized capture and reporting of the data, EUROCONTROL offered to assist with a template which could be used by the FIRs. Based on the above, the meeting agreed to the following Draft Conclusion:

#### DRAFT CONCLUSION 2/3: COLLECTION OF TRAFFIC VOLUME AND PATTERN DATA

That, in order to facilitate an effective, technology supported analysis of the traffic statistics required for decision on PAs:

- a) MID FIRs provide traffic data for the three consecutive busiest hours of day for a seven day period; and
- b) traffic data be collected segment by segment using a template that will be provided by the Secretariat.
- 5.3 The meeting noted that in accordance with the MID Region CAP as approved by MIDANPIRG/9, the SSR code series 75 and 76 were not in use in the MID Region. However, these codes were in use in some FIRs in other ICAO Regions. The meeting accordingly requested the Secretariat look into the possible use of these code series as this could provide immediate relief which is required by some MID FIRs.
- 5.4 The meeting considered the fact that collection of the traffic data as indicated above could for some FIRs necessitate waiting to collect the data in the coming months, which would be the busiest period for a particular FIR. It was worth considering that the meeting could not be scheduled too soon after the data would have been collected, as time had to be allowed for communication and analysis of the data prior to the meeting. The meeting however, recognized that scheduling the meeting for late in 2009 was not acceptable.

5.5 The meeting agreed that the next SSRCASG/3 meeting could be scheduled tentatively for the last week of January 2009. States should consider, and will be requested to use data from previous months or year to avoid collection data too close to the forthcoming meeting. The meeting acknowledged that the final arrangements regarding the dates would be determined by the MID Regional Office after taking into account the necessary considerations. The meeting should be for a duration of two (2) days, and the venue will be the MID Regional Office in Cairo, unless a State shows interest in hosting the meeting. The meeting agreed to the tentative agenda as at **Appendix 5B** to the Report on Agenda Item 5.

## SSRCASG/2 Appendix 5A to the Report on Agenda Item 5

## DRAFT FOLLOW-UP ACTION PLAN

CONC/DEC NO STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
Draft Con 2/1:	SSR Codes Sharing	That, in order to increase the availability of SSR cods in the MID CAP:  a) the MID Region adopt the approach of "code sharing" between FIRs that are geographically adequately disparate and where directional assignment of SSR codes makes "code sharing" practical;  FASID amendment Office				
		b) the "code sharing" be implemented after an amendment of the MID ANP FASID to this effect has been approved, appropriate safety assessments have been carried out, and the concerned FIRs	FASID amendment  Implementation of Code Sharing where necessary	MID Regional Office and States	Amended MID code Allocation Plan  Increased code availability as necessary	September 2008 Ongoing

CONC/DEC No STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
		signed the relevant Letters of Agreement (LOA), except where a Regional arrangement obviates such action; and				
		c) the CNS Sub-Group be requested to consider the feasibility of FDPS upgrades in the MID Region.	FDPS capability inclusion in CNS SG agenda	MID Regional Office and CNS SG	FDPS capability issue considered	November 2008
Draft Conc. 2/2:	Reduction of SSR Code Occupancy Time	That, in order to increase the availability of SSR codes allocated to each MID FIR:  a) the SSR code occupancy time be changed from three hours to a maximum of two hours where practicable;				
		b) the time to be applied by each FIR continue to be predicated by safety and be based on the requirement of the FIR as dictated by such factors as the size of the FIR; and		States	Safety assessments	February 2009

CONC/DEC NO STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
		c) the Secretariat take appropriate measures to accordingly amend the MID ANP FASID Part V Attachment B.	FASID amendment		Flexible code occupancy procedure	September 2008
Draft Conc. 2/3:	Collection of Traffic Volume and Pattern Data	That, in order to facilitate an effective, technology supported analysis of the traffic statistics required for decision on PAs:				
		a) MID FIRs provide traffic data for the three consecutive busiest hours of day for a seven day period; and	State Letter and Provision of template  Provision of traffic	MID Regional Office		May 2008
		b) traffic data be collected segment by segment using a template that will be provided by the Secretariat.	data as described in Draft Conclusion and template	Succes	Decision on configuration of PAs	February 2009

# SSRCASG/2 Appendix 5B to the Report on Agenda Item 5

# MID REGION SECONDARY SURVEILLANCE RADAR CODES ALLOCATION STUDY GROUP (SSRACSG)

### THIRD MEETING

### PROVISIONAL AGENDA

	Agenda Item 1:	Adoption of the Provisional Agenda
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Agenda Item 2: Review of SSRCASG/2 Conclusions/Decisions

Agenda Item 3: SSR Code Allocation Systems' Capabilities, Traffic Data and

Related Information Analysis

Agenda Item 4: Long term Measures for MID SSR Code Allocation

Agenda Item 5: Future Work Programme

Agenda Item 6: Any other Business

### REPORT ON AGENDA ITEM 6: ANY OTHER BUSINESS

6.1 Under this agenda item, the meeting considered a proposal for a technical solution to the shortage of codes by adopting the use of "X" bits in addition to current bits (Ref. Annex 10, Vol IV Para 3.1.1.6.2 & related note) to double the available codes. The meeting noted that the proposal was very technical, and referred it to the CNS Sub-Group.

Note: The CNS SG/1 noted that the "X" pulse reply by SSR transponders was being used to distinguish unmanned aerial vehicles (UAVs) from other aircraft in some States. Moreover, the presence of a pulse in the X pulse position has the effect of invalidating Mode A replies in systems used by some States. Any air vehicle transmitting the X pulse may therefore, not be visible to the ground surveillance radar. As such, the X pulse should not be used for the identification of UAVs or any other purposes. A proposal to amend Annex 10 for the purpose of forbidding the use of X pulse was being prepared.

6.2 The meeting noted an information paper regarding the implementation of Mode S in the EUR Region. The meeting also noted a presentation by Saudi Arabia regarding traffic statistics and growth in the MID compared to past years, and between major airports in the Region.

## SSRCASG/2 Attachment A to the Report

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