International Civil Aviation Organization

**Middle East Air Navigation Planning and
Implementation Regional Group (MIDANPIRG)**

Fourteenth Meeting
(Jeddah, Saudi Arabia, 15-19 December 2013)

Agenda Item 4: **Performance Framework for Regional Air Navigation Planning and
Implementation:**
4.6   CNS/ATM

SURVEILLANCE DEVELOPMENT IN THE MID REGION

(Presented by the Secretariat)

SUMMARY
This paper presents issue related to Mode S IC allocation and MID Surveillance Strategy taking into account the AN-Conf/12 Recommendations. Action by the meeting is at paragraph 3.

REFERENCES
-    AN-Conf/12 Recommendations -   CNS SG/5 Report -   MIDANPIRG/13 Report

1.   INTRODUCTION

1.1   The Fifth Meeting of the CNS Sub Group was held at the ICAO Middle East Regional Office, Cairo, Egypt, 11 – 13 December 2012. The meeting was attended by a total of twenty-seven (27) participants, which included delegates from six (7) States and one (1) Organization.

1.2   The ICAO Twelfth Air Navigation Conference (AN-Conf/12) was held in Montreal, Canada, 19-30 November 2012. The Conference agreed that the ASBUs and associated technology roadmaps were an integral part of the GANP and a valuable implementation tool kit.

2.   DISCUSSION

2.1   The meeting may wish to recall MIDANPIRG/13 *CONCLUSION 13/4-MID REGION PROCESS FOR MODE S IC CODES ALLOCATION,* defined the process of IC code allocation in the MID Region.

2.2   The CNS SG/5 meeting was apprised of a recent incident occurred where IC code conflict was observed; accordingly, the meeting emphasized that when programming Mode S interrogators, Mode S operators have to comply with the following:

- the allocated IC provided in the latest issued IC allocation;
- the surveillance and lockout coverage provided in this issued IC allocation; and
- ensure that the Mode S interrogators are correctly programmed in order to avoid an IC conflict.

2.3   Based on the above, the CNS SG/5 meeting requested the Mode S Radar operators to develop an IC and coverage map programming procedures, taking their own specificities into account. As a minimum, local procedures have to include the following verification steps, to be completed for each interrogator parameter change:

a)   verification of the compliance of the programming parameters with the IC allocation data, including: position of the radar; IC; lockout range and coverage map, if applicable;

b)   verification of the validity status of the IC allocation used for programming;

c)   verification of parameters related to II/SI Code Operation, if applicable and default parameters to apply when the coverage map is not correctly loaded;

d)   when operating in a cluster, verification that all cluster states parameters are compliant with the IC allocation data; and

e)   verification of the correct application of the programmed data, including following radar chain switch-over and switch-off/switch-on cycles.

2.4   The CNS SG/5 meeting reviewed the IC code allocation for the MID Region as at **Appendix A** to this working paper, which is extracted from the MICA web allocation. It is to be noted that States can also obtain the list of IC for their own Radars provided that they access the MICA application by registering as users. The meeting may wish to note that EUROCONTROL experts could provide training for the MID Region on the application when needed. The MICA application can be accessed at https://extranet.eurocontrol.int/http://prisme-oas.hq.corp.eurocontrol.int/mica/Index.action

2.5   The meeting may recall that MIDANPIRG/13 reviewed the MID Region Surveillance Strategy and timelines for the ADS-B out implementation as developed by the MID Surveillance workshop, and agreed on *DECISION 13/42-MID REGION SURVEILLANCE STRATEGY* tasking the CNS SG to develop consolidated MID Surveillance Strategy.

2.6   Furthermore, the meeting noted that Bahrain had been exchanging surveillance data with Kuwait, Qatar, and providing UAE with surveillance data. Qatar and UAE have been also exchanging surveillance data. Furthermore, MIDANPIRG/13 meeting recalled MIDANPIRG/12 *Conclusion 12/46: Exchange of Surveillance data* and encouraged all MID States to share surveillance data to significantly reduce surveillance gaps in order to enhance safety and efficiency with no huge investments.

2.7   The meeting may wish to note the following AN-Conf/12 *Recommendation 1/7 – Automatic dependent surveillance — broadcast*

That States:

a)   *recognize the effective use of automatic dependent surveillance — broadcast (ADS-B) and associated communication technologies in bridging surveillance gaps and its role in supporting future trajectory-based air traffic management operating concepts, noting that the full potential of ADS-B has yet to be fully realized;*

b) recognize that cooperation between States is key towards improving flight efficiency and enhancing safety involving the use of automatic dependent surveillance — broadcast technology; and

That ICAO:

c) urge States to share automatic dependent surveillance — broadcast (ADS-B) data to enhance safety, increase efficiency and achieve seamless surveillance and to work closely together to harmonize their ADS-B plans to optimize benefits.

2.8   Based on all the above, the CNS SG/5 meeting reviewed the MID Region Surveillance Strategy and timelines for the ADS-B implementation, and developed a revised MID Region Surveillance Strategy that was further updated/refined by the Secretariat as at **Appendix B** to this working paper. The CNS SG/5 meeting agreed to the following Draft Conclusion:

Why	Update MID Surveillance Strategy
What	MID Surveillance Strategy
Who	MIDANPIRG/14
When	19 December 2013

DRAFT CONCLUSION 5/6:   MID SURVEILLANCE STRATEGY

*That, the MID Surveillance Strategy be adopted as at **Appendix 4.6X** to the Report on Agenda Item 4.6.*

3.   ACTION BY THE MEETING

3.1   The meeting is invited to:

a) urge States to assign focal points to use the MICA application;

b) encourage Mode S Radar operators to include verification steps in para 2.2, in their local programming procedures;

c) task the CNS SG to update MID Region process for Mode S IC codes allocation to include verification steps in para 2.2;

d) urge MID States to share (ADS-B) data to enhance safety, increase efficiency and achieve seamless surveillance; and

e) endorse Draft Conclusion in para 2.7.

Mod S IC Allocation

Allocations

Region:	MID		Allocation Reference between:		and:		Ad hoc:	Yes
Country:			Allocation Status:	Issued	Cluster:		Regular:	Yes
Organisation:			Sensor Id:		Interrogator Code:		Processing Cycle:	

Allocation Ref	Organisation	Sensor ID	Status	IC	Effective Date	Cluster	Process ID	Country	Regions
MICA/ALLOC 461	NANSC	Aswan ERR	Issued	II = 02	2009-05-14		Ad Hoc 2009-05-14	Egypt	MID
MICA/ALLOC 462	NANSC	Asyut ERR	Issued	II = 03	2009-05-14		Ad Hoc 2009-05-14	Egypt	MID
MICA/ALLOC 464	NANSC	Hurghada ERR	Issued	II = 05	2009-05-14		Ad Hoc 2009-05-14	Egypt	MID
MICA/ALLOC 465	NANSC	Mersa Matruh ERR	Issued	II = 06	2009-05-14		Ad Hoc 2009-05-14	Egypt	MID
MICA/ALLOC 467	Lebanon DGCA	Baysour	Issued	II = 02	2009-04-23		Ad Hoc 2009-04-23	Lebanon	MID
MICA/ALLOC 529	GACA	MADINAH	Issued	II = 04	2010-03-17		Ad Hoc 2010-04-06	Saudi Arabia	MID
MICA/ALLOC 530	GACA	RAFHA	Issued	II = 05	2010-03-17		Ad Hoc 2010-04-06	Saudi Arabia	MID
MICA/ALLOC 531	GACA	TURAIF	Issued	II = 10	2010-03-17		Ad Hoc 2010-04-06	Saudi Arabia	MID
MICA/ALLOC 567	GACA	AL JOUF	Issued	II = 08	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 568	GACA	AL-WEJAH	Issued	II = 01	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 569	GACA	GASSIM	Issued	II = 03	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 570	GACA	HAIL	Issued	II = 02	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 571	GACA	KAIA	Issued	II = 08	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 572	GACA	TABUK	Issued	II = 06	2010-10-21		ICAC 11	Saudi Arabia	MID
MICA/ALLOC 615	MOTC	Muscat	Issued	II = 11	2010-06-29		Ad Hoc 2010-06-22	Oman	MID
MICA/ALLOC 630	NANSC	Cairo ERR	Issued	II = 11	2011-04-07		ICAC 12	Egypt	MID
MICA/ALLOC 631	GACA	ABHA	Issued	II = 02	2011-04-07		ICAC 12	Saudi Arabia	MID
MICA/ALLOC 632	GACA	BAHA	Issued	II = 06	2011-04-07		ICAC 12	Saudi Arabia	MID
MICA/ALLOC 633	GACA	KFIA	Issued	II = 08	2011-04-07		ICAC 12	Saudi Arabia	MID
MICA/ALLOC 634	GACA	KKIA	Issued	II = 01	2011-04-07		ICAC 12	Saudi Arabia	MID
MICA/ALLOC 635	GACA	QAISUMAH	Issued	II = 06	2011-04-07		ICAC 12	Saudi Arabia	MID

Allocation Ref	Organisation	Sensor ID	Status	IC	Effective Date	Cluster	Process ID	Country	Regions
MICA/ALLOC 636	GACA	SODA	Issued	II = 11	2011-04-07		ICAC 12	Saudi Arabia	MID
MICA/ALLOC 644	GACA	Training Station	Issued	II = 09	2011-03-02		Ad Hoc 2011-03-04	Saudi Arabia	MID
MICA/ALLOC 674	GACA	AFIF	Issued	II = 10	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 675	GACA	HARAD	Issued	II = 11	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 676	GACA	Khayber	Issued	II = 07	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 677	GACA	SHARURAH	Issued	II = 08	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 678	GACA	SHAYBAH	Issued	II = 07	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 679	GACA	WADI AL-DAWASIR	Issued	II = 07	2011-09-22		ICAC 13	Saudi Arabia	MID
MICA/ALLOC 743	BCAA	Site 116	Issued	II = 04	2011-12-17		Ad Hoc 2011-12-21	Bahrain	MID
MICA/ALLOC 744	BCAA	Site 117	Issued	II = 09	2011-12-17		Ad Hoc 2011-12-21	Bahrain	MID
MICA/ALLOC 823	Jordan CARC	ModeS-1	Issued	II = 12	2012-08-23		ICAC 15	Jordan	MID
MICA/ALLOC 884	DGCA Kuwait	ASR	Issued	II = 07	2013-07-25		ICAC 17	Kuwait	MID
MICA/ALLOC 973	Abu Dhabi Airports	AUH	Issued	II = 01	2014-01-09		ICAC 18	United Arab Emirates	MID
MICA/ALLOC 974	Dubai Air Navigation	DWC Thales	Issued	II = 06	2014-01-09		ICAC 18	United Arab Emirates	MID
MICA/ALLOC 975	Dubai Air Navigation	DXB Thales	Issued	II = 03	2014-01-09		ICAC 18	United Arab Emirates	MID
MICA/ALLOC 977	GCAA Air	RAK	Issued	II = 05	2014-01-09		ICAC 18	United Arab Emirates	MID

APPENDIX B

MID REGION SURVEILLANCE STRATEGY

Considering that:

a)   Cooperation between States is the key to achieve harmonized ATM system operations;

b)   States are implementing CNS/ATM systems to gain safety, efficiency and environmental benefits;

c)   the future air traffic environment will require increased use of aircraft-derived surveillance information;

d)   the 12th Air Navigation Conference endorsed Aviation System Block Upgrades (ASBU) framework with modules specifying effective use of ADS-B/MLAT and associated communication technologies in bridging surveillance gaps and its role in supporting future trajectory-based ATM operating concepts;

e)   cooperation between States is key towards improving flight efficiency and enhancing safety involving the use of ADS-B technology;

f)   the 38th ICAO Assembly endorsed 4th edition of the Global Air Navigation Capacity & Efficiency Plan along with technology roadmaps;

g)   SARPs, PANS and guidance material for the use of ADS-B have been developed;

h)   ADS-B avionics and ground systems are available;

i)   Multilateration is a technology that can supplement SSR, ADS-B and SMR; and

The MID Region Surveillance Strategy is to:

1)   implement surveillance technologies in close collaboration with users;

2)   be evolutionary and consistent with the Global Air Navigation Plan taking into consideration MID Region priorities;

3)   maximize contiguous coverage and use of ADS-B on major routes/terminal areas;

4)   implement ADS-B according to MID Region Air Navigation agreed priorities and set 2017 as implementation timeline;

5)   prioritize ADS-B implementation in areas where there is no radar coverage followed by areas where implementation would otherwise bring capacity and operational efficiencies and when cost/benefit models warrant it;

6)   identify sub-regional areas where the implementation of ADS-B would result in a positive cost/benefit in the near term, while taking into account overall Regional developments and implementation of ADS-B in adjacent homogeneous ATM areas;

7) ensure that the surveillance technologies including ADS-B deployment should be associated at early stages in coordination with the States/Regional/International Organizations responsible for the control of adjacent areas,;

8) share ADS-B data to enhance safety, increase efficiency and achieve seamless surveillance;

9) ensure before implementing ADS-B that aircraft are equipped with adequate avionics;

10) minimise the reliance on voice position reporting, for surveillance of aircraft;

11) utilise the SSR Mode 'S' capabilities, fully and reduce reliance on 4 digit octal code;

12) make use of ADS-C when ADS-B, SSR or multilateration not supported;

13) encourage Multilateration for surface, terminal & area surveillance;

14) improve safety through sharing ATS surveillance data across FIR boundaries;

15) increase use of Aircraft Derived Data; and

16) ensure that implementation of Surveillance technologies are harmonized, compatible and interoperable with respect to operational procedures, supporting data link and ATM applications;

17) implement surveillance technologies following successful trial programmes with regards to safety and operational feasibility, taking into account studies and implementation experiences from other ICAO Regions;

18) request airspace users periodically to provide information on aircrafts surveillance equipage,

19) consider implementing surveillance for surface movement control by the implementing the required technologies as per the global plan roadmaps and MID Air Navigation Strategy; in the Global plan; and

20) ensure that implementation is according to SARPs, ASBU working document; and MIDANPIRG conclusions and according to MID Surveillance Strategy and implementation should be monitored to ensure collaborative development and alignment with the MID Region projects.

- END **-**