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Report on Agenda Item 4

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REPORT ON AGENDA ITEM 4: REVIEW OF RECENT DEVELOPMENTS, RESEARCH, TRIALS AND DEMONSTRATIONS IN RELATION WITH THE IMPLEMENTATION OF THE CNS/ATM SYSTEMS AND GLOBAL/REGIONAL PLANS.

4.1   The meeting was presented with an overview of the technical and operational developments related to CNS/ATM systems that took place in year 2000 and up to April 2001. The meeting among other things noted the following:

a)   Development of Global Air Navigation Plan for CNS/ATM Systems.

b)   Summary of work of ICAO=s Planning and Implementation Regional Groups (PIRGs).

c)   Development status of Standards and Recommended Practices (SARPs) and guidance material attached as **Appendix 4A** to the report on Agenda Item 4.

d)   Work programme of various panels and study groups engaged in CNS/ATM related activities attached as **Appendix 4B** to the report on Agenda Item 4.

4.2   Most States attending the meeting presented briefly their recent CNS/ATM implementation activities as follows:

4.3   **BAHRAIN**

4.3.1   Mono-pulse Radar System, has been installed and commissioned at Bahrain International Airport. The Radar has a range of 256nm and covers the whole FIR excluding the southern part over the Empty Quarter. The radar is also integrated with a sophisticated Flight Data Management System (FDMS) which updates the stored flight plans automatically through the AFTN system. The new Radar has the following features:

- Upgradeable to Mode S
- Short Term Conflict Alert (STCA)
- Conflict Prediction
- Multi Range and Bearing capability
- On line/off line map generation
- MSAW

4.3.2   Mandatory carriage of ACAS II with effect from July 2001 has been implemented in accordance with MIDANPIRG/6 Conclusion 6/7.

4.3.3   Communication, Bahrain has agreed with Oman and UAE to install a long range VHF remote station at a convenient location. This will provide VHF coverage for the southern part of the FIR and replace the existing HF communication, and will also provide Direct Controller Pilot Communication (DCPC) which will enable the reduction of longitudinal time separation in that area.

4.3.4   Digital ATIS (d-ATIS) system has been implemented in February 2000 through SITA network and some equipped aircraft reported successful access. In addition, digital VOLMET is also included in the system.

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4.3.5   An ATN working group has been established to carry out studies on ATN and also monitor the developments of the ATN globally.

4.4   **EGYPT**

4.4.1   The GNSS Task Force for the MID region had elected Egypt to be the coordinator for the Action Group for implementation of (ISTB) with ENAV (Italy) and Telspazio for activities to be performed by ENAV to perform test and demonstration using three EGNOS System Test-BED (ESTB) reference stations for early SBAS trials in the MID region.

4.4.2   Within the framework of the air traffic control overall system upgrading and modernization plan, Cairo ATC Center has been modernized since January 2001 with not only the most up to date technologies but also to the most modern criteria as regards safety and reliability as well as offering all the new capabilities used in modern Air Traffic Management Systems recommended by ICAO. An experimental system position for ADS/CPDLC is operating as a stand-alone position but it will be integrated into the operating ATC units by mid. 2002 after successful trials and demonstrations.

4.4.3   RNP 5 airspace has been implemented instead of RNP/RNAV routes for RNAV operations within the Cairo FIR with effect from 9 August 2001above FL285, excluding that portion of southwest in Cairo FIR which is not covered by radar. Navigation error monitoring system was implemented from 1 January 2001 at a total of 5 points in Cairo FIR according to the agreed procedures in the LOA. RNP 5 approval procedures are in place using JAA guidance material on airworthiness and operational criteria. An AIC on the use of GNSS as a supplementary means of navigation in Cairo FIR with effect from January 2002 is in the process of being issued.

4.4.4   RVSM, an AIC indicating the intention to implement RVSM in the Cairo FIR, effective 27 Nov. 2003 was issued on 2 Oct. 2001. Moreover, Seminars and workshops have been held in Cairo Air Navigation Center for the air traffic controllers to familiarize them with all RVSM procedures. Finally, Modification of ATS system with RVSM will be completed before the implementation date of RVSM.

4.4.5   The new automated ATM system in Cairo ACC has incorporated the following capabilities: -

- Short Term Conflict Alarm.
- Restricted Area Intrusion Alert.
- Minimum Safe Altitude Warning.
- Cleared Adherence Monitoring.
- Route Adherence Monitoring
- Conflict Prediction.
- OLDI.

4.5   **IRAN**

4.5.1   New System Iranian National ATM (SINA) project has been declared, under which

surveillance Radar (MSSR) with coverage of 250nm. Moreover, two COSOR Radar are in operation at TEHRAN/ MEHRABAD and Shiraz airports and connected to the system. The whole of Tehran FIR is covered by 10 radar heads installed at following stations:
AHWAZ - IRANSHAHR - JIROFT - LAR - MASHHAD - GORGAN - TABAS -TABRIZ - TEHRAN/KUSHKE BAZM - ZANJAN.

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4.5.2   The SINA project includes a new automation system EUROCAT 2000 and a new voice communication system (VCS).

4.6   **JORDAN**

4.6.1   A Mono-pulse Radar system head up-gradable to Mode S, Eurocat1000 Radar Data Processing and Display system integrated with Flight Data Processing System with a range of 180-230NM covering some of the space of adjacent FIRs has been operational since last May 2001.

4.6.2   Eurocat1000 Radar Processing and Display system consists of the usual Radar Data Processing System (RDPS) and its Display systems integrated with the Flight Data Processing System (FDPS). The main features of Eurocat1000 are:

- Minimum Safe Altitude Warning.
- Conflict Alert

4.6.3   Communication, a new project Voice Communication Switching Systems to be installed in all ATC units. The system will be including an Automatic Terminal Information Service (ATIS) system. The system is expected to be installed and commissioned by July 2002.

4.7   **KUWAIT**

4.7.1   Kuwait Civil Aviation Administration has implemented 1st Phase of its Technical Master Plan by installing an approach Radar and long range MSSR, which consists of the following:

- Primary Radar covering 120 nm
- MSSR covering 250 nm and can be extends to 300 nm
- Minimum safe altitude warning system (MSAW)
- Short Term Conflict Alert System (STCA) and it is according to ICAO requirements
- Target tracking and prediction system
- The system is open architecture design to allow it to interface with a large variety of other future ICAO CNS/ATM System
- Distance From Touchdown Indicator (DFTI) fixed at the tower control
- Low Level Wind Sheer Alert System (LLWAS) to achieve utmost safety

4.8   **YEMEN**

4.8.1   Yemen in early 2000 installed a MSSR Radar station with a range of 250 nm to

stations by the end of 2002 in order

4.8.2   Five VSAT stations have been installed in different locations, in order to cover

4.9   The
Navigation Plan for CNS/ATM Systems
on 15 June 2001 (Council Working Paper/11609), highlighting the changes and the sources the amendment materials stemmed from.

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4.10   o the

meeting would be submitted to the MIDANPIRG/7 meeting in January 2002 for approval.

IATA/AACO CNS/ATM User-Driven Transition Plan

4.11   Under this agenda item the meeting was apprised of the detailed review of the IATA/AACO CNS/ATM user-driven transition implementation plan and the CNS/ATM Implementation Plan for Middle East Region which was carried out by IATA with a view to identify areas in the MID Region Implementation Plan where improvements are needed.

4.12   The meeting noted that the IATA/AACO CNS/ATM transition plan is based on implementation of FANS 1/A packages, and is structured around ARINC 622 specifications for ACARS, which permits ATS applications over the ACARS air/ground network. It was pointed out that although IATA has been an active partner in the elaboration of the ICAO CNS/ATM implementation plan since its inception, this non ATN compliant approach was not endorsed by all States of the MID Region as a transition towards full implementation of CNS/ATM. The meeting however agreed that the CNS/ATM Implementation Plan for MID Region indicates a requirement for implementation of initial ADS through FANS 1/A (or equivalent) packages *(Table 8.4 - ATM requirements for surveillance)*, but was of the view that the matter should be further supported by cost-benefit considerations and the commitment by IATA to finance the ground element of the system through user charges. IATA had reservations on the funding aspects of the ground elements and will provide an updated list of FANS/1A equipped aircraft operating within the MID Region to justify the urgent need for using FANS1/A functionalities in the Region.

4.13   The meeting was informed that the IATA/AACO transition plan comprises of 6 to 8 phases which gradually migrates from the current systems to the final ATN based configurations based on the requirements of the ATS providers and availability of compliant aircraft population.

4.14   IATA pointed out that the ICAO CNS/ATM Implementation Plan for MID Region which covers the operational, technical, economic, financial, legal and institutional elements and describes an overall planning methodology is left to each individual State for the development of their own National CNS/ATM Implementation Plans in accordance with ICAO planning methodology. It was highlighted that although significant inputs were made by operators through MIDANPIRG and the CNS/ATM Sub-Groups, the plan fell short of providing a sequence of implementation based on achievable benefits. Furthermore, there was a need for the transition plans to be properly coordinated/harmonized with adjacent States.

4.15   Taking into consideration the IATA/AACO CNS/ATM User-Driven Transition Plan, IATA presented the following point:

-        The National CNS/ATM transition plans for the MID region are to be coordinated/harmonized among adjacent States or with adjacent Regions in accordance with the timescales set.

4.16   The meeting expressed the view that the comments from IATA will have to be further documented and discussed with the ICAO MID Office, for ensuring the timely and harmonized implementation of CNS/ATM systems in the MID Region.

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4.17   SITA made a presentation on AIRCOM service including the existing ACARS services provided over VHF and Satellite media and the planned future services which will provide an ICAO compliant ATNVDL Mode 2/SATCOM service.

4.18   The meeting noted the overview of the transition strategy from the existing VHF ACARS service which is ICAO compliant ATN/VDL service, SITA stated that the existing VHF

application plan of ATS providers is set to continue for the foreseeable future.

4.19   With respect to ACARS over Satellite, SITA informed that a global service is provided via two grounds earth stations located in France and Australia. SITA envisages replacing the current VHF AIRCOM Ground stations by new generation of stations VGS (VDL Ground Station) supporting both ICAO compliant VDL Mode 2 and ACARS protocols. The eventual deployment of VGS in the MID Region will be driven by both airline and ATS provider requirements for ATN/VDL services.

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service will be available by mid 2002.