International Civil Aviation Organization
CAR/SAM Regional Planning Implementation Group (GREPECAS)
CNS/ATM Subgroup
Coordination meeting of the ATN ground-ground and ground-air applications project
(Lima, Peru, 19 to 20 May 2010)

Agenda Item 1: **Review of the ATN CAR/SAM planning / implementation activities**

Agenda Item 4: **Review of the working programme of the ATN projects established in the CNS/ATM/SG/1 Meeting**

ICAO SEMINAR ON THE IMPLEMENTATION OF ATN GROUND/GROUND AND AIR/GROUND APPLICATIONS

(Presented by the Secretariat)

SUMMARY

This working paper presents a briefing on the ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications and due to the importance of the information provided in this events, it is recommended the consideration of this information for the development of the activities of the Ground-Ground and Ground-Air Communication Infrastructure Program of the CNS/ATM/SG of GREPECAS.

References:

- GREPECAS 15/ Meeting Report; and
- Global Air Navigation Plan Doc 9750.

ICAO strategic objectives:	*A - Safety* *D - Efficiency*

1. Introduction

1.1 In accordance with GREPECAS Conclusion 15/40 – Seminar/Workshop on the Implementation of Air-Ground Data Links and their Applications, ICAO carried out the ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications and ATS Messaging Management Centre (AMC) User Training Course for the NAM/CAR/SAM Regions in the Dominican Republic from 23 to 27 November 2009.

2. Seminar Highlights

2.1 The Seminar looked to support the implementation of the Global Plan Initiatives GPI-17 – Data link applications and GPI-22 – Communication infrastructure by emphasizing the importance of data link applications and their benefits, as well as aspects to be considered while adapting the aeronautical communications network infrastructure to the growing need to compile and exchange information within the future environment of navigation services. With the information provided in this event, the CAR/SAM States were more knowledgeable to conduct their study for a trial plan on air-ground data links and its corresponding applications.

2.2 The purpose of this seminar was to provide participants with a forum to exchange experiences, aspects and relevant information to be considered in the planning and implementation of ground-ground applications; knowledge on the current and future status of data links and ATN air-ground applications; as well as guidelines on the ATN implementations within the ICAO global ATM operational concept.

2.3 The Seminar had several points of view from the users' perspective (States, AIRBUS and IATA), the manufacturer/ vendor perspective (SITA, COMSOFT, THALES, etc.), ICAO SARPs guidance and other ICAO regions experience in the implementation of ATN Applications. They were a total of 38 presentations related with the ATN and its applications, and covering the following main topics:

a) The ICAO Standards on ATN Applications
b) ATN Architecture in the CAR/SAM Regions and Experience of other regions
c) ATN Ground-Ground Applications – AMHS System
d) ATN Ground-Ground Applications – AIDC Application
e) Air-Ground Datalink Applications
f) Regional Considerations on Air-Ground Datalinks
g) Trial Plan for the Implementation of Datalink and Air-Ground Applications

Due to its size, the presentations of this seminar are only available on ICAO Offices and will be provided in the meeting.

2.4 On **Appendix A** and **Appendix B** to this paper are the event programme and the relevant conclusions of this event.

2.5 The event presentations offers a up-to-date information of the implementation and standards and are highly recommended for the work to be carried out by the Ground-Ground and Ground-Air Communication Infrastructure Program of the CNS/ATM/SG of GREPECAS, in its respective projects: ATN ground-ground and ground-air applications Project and the CAR/SAM ATN architecture Project.

3. Suggested action

3.1 The Meeting is invited to:

a) review the information provided in the presentations of this seminar and its relevant conclusions and take the relevant consideration of the development of their work programme activities, and

b) Take any other action that the Meeting considering necessary.

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APPENDIX A

International Civil Aviation Organization / Organización de Aviación Civil Internacional

ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications and ATS Messaging Management Centre (AMC) User Training Course for the NAM/CAR/SAM Regions / Seminario de la OACI sobre implementación de Aplicaciones Tierra/Tierra y Aire/Tierra del ATN y Curso de instrucción sobre el Centro de Gestión de Mensajes ATS (AMC) para las Regiones NAM/CAR/SAM

Dominican Republic, 23 to 27 November 2009

República Dominicana, 23 al 27 de Noviembre de 2009

Objectives

a) Provide a forum for the provision of information, analysis, debate and exchange of experiences and aspects to be considered in the planning and implementation of ground-ground ATN applications;

b) provide information on the CAR/SAM ATN arquitecture implementation plan

c) provide knowledge on the current and future status of Datalink and air-ground applications;

d) provide guidance on the ATN implementation within the global operational concept framework of the ICAO; and

e) provide a general vision of the AMC application (ATS Messaging Management Centre), explain how it works and the procedures for the registration and operation of the AMC by the States that have installed or have plan to implement AMHS system

The event is addressed to:

Technical professionals dedicated to the planning and implementation of fixed and mobile services for the provision of air navigation services, as well as operative professionals who are in charge of the aeronautical telecommunication services management (AFTN, AMHS and other related services) within States, Territories and International Organizations in the CAR/SAM Regions.

The revised draft programme is presented as follows.

Objetivos:

a) Proporcionar de un foro de información, análisis, debate e intercambio de experiencias y aspectos a considerar en la planificación e implementación de las aplicaciones tierra-tierra del ATN;

b) proporcionar información sobre planes de implantación de la arquitectura de la ATN en las Regiones CAR/SAM.

c) proporcionar conocimientos sobre el estado actual y futuro de los enlaces de datos y aplicaciones aire-tierra;

d) orientar sobre las implementaciones ATN en el marco del concepto operacional global de la OACI; y

e) proporcionar una visión general de la aplicación AMC (Centro de Gestión de Mensajes ATS), explicar su funcionamiento y los procedimientos para el registro y operación del AMC por parte de los Estados que poseen o tienen planes para implantar sistemas AMHS

El evento está dirigido a:

Profesionales del área técnica dedicados a la planificación e implantación de los servicios fijos y móviles para la provisión de los servicios de navegación aérea así como profesionales del área operativa que están a cargo de la gerencia de los servicios de telecomunicaciones aeronáuticas (AFTN, AMHS y otros servicios afines) de los Estados, Territorios y Organizaciones Internacionales de las Regiones CAR/SAM

El programa provisional revisado se presenta a continuación.

International Civil Aviation Organization / Organización de Aviación Civil Internacional

ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications and ATS Messaging Management Centre (AMC) User Training Course for the NAM/CAR/SAM Regions / Seminario de la OACI sobre implementación de Aplicaciones Tierra/Tierra y Aire/Tierra del ATN y Curso de instrucción sobre el Centro de Gestión de Mensajes ATS (AMC) para las Regiones NAM/CAR/SAM

Dominican Republic, 23 to 27 November 2009
República Dominicana, 23 al 27 de noviembre de 2009

PROGRAMME / PROGRAMA
(20/11/09)

DAY ONE / DÍA UNO
Monday 23 November 2009 / Lunes 23 de noviembre de 2009

08:15 – 09:00	Registration / Registro
09:00 – 09:30	Opening Ceremony / Ceremonia de Apertura
	Remarks by / Palabras de apertura de • *International Civil Aviation Organization – ICAO* *Organización de Aviación Civil Internacional – OACI* • *Instituto Dominicano de Aviación Civil (IDAC)* *Instituto Dominicano de Aviación Civil (IDAC)*
Foto de Grupo	
Global Air Navigation Plan /Plan Mundial de Navegación Aérea ***ICAO Standards on ATN Applications / Normativas de la OACI sobre las aplicaciones del ATN***	
09:30 – 10:00	***Performance Based Approach and ATN considerations within the Operational Global ATM Concept / Enfoque basado en la performance y consideraciones ATN dentro del Concepto Operacional Mundial ATM*** *Julio C. Siu* *ICAO NACC Regional Office / Oficina Regional NACC de la OACI*
10:00 – 10:30	***ICAO Aeronautical Telecommunication Network (ATN)*** ***Red de telecomunicaciones aeronáuticas (ATN) de la OACI*** *Vaughn Maiolla* *ICAO / OACI*
10:30 – 10:45	***Coffee Break / Pausa para el Café***
ATN Architecture in the CAR/SAM Regions and Experience of other regions/ ***Arquitectura de la ATN en las Regiones CAR/SAM y experiencias de otras regiones***	
10:45 – 11:15	***CAR/SAM Regional Plan for ATN Implementation: ATN Architecture*** ***Plan Regional CAR/SAM para la implementación de la ATN: Arquitectura de la ATN*** *Onofrio Smarrelli* *ICAO SAM Regional Office / Oficina Regional SAM de la OACI*
11:15 – 11:30	***CNS/ATM Implementation Benefits for the Region*** ***Beneficios de la implantación CNS/ATM para la Región*** *Julio Siu, ICAO NACC Regional Office / Oficina Regional NACC de la OACI* *On behalf of IATA / En representación de IATA*
11:30 – 12:00	***The Need for Integrated National ATM Networks /*** ***La necesidad de redes nacionales ATM integradas*** *Patrick Geurts* *SITA*

12:00 – 12:30	***ATN, X.25, IPv4, IPv6 Integration / Integración ATN, X.25, IPv4, IPv6*** *Luci Holemans* *United States*
12:30 – 13:00	***ATN in Argentina / ATN en Argentina*** *Gustavo Adolfo Chiri* *Argentina*
13:00 – 14:00	***Break for Lunch/ Pausa para el Almuerzo***
14:00 – 14:30	***SESAR Programme / SWIM Concept / Programa SESAR / Concepto SWIM*** *Vaughn Maiolla, ICAO / OACI* *On behalf of EUROCONTROL / En representación de EUROCONTROL*
14:30 – 15:00	***Pan European Network (PEN) / Red Pan-Europea (PEN)*** *Vaughn Maiolla, ICAO / OACI* *On behalf of EUROCONTROL / En representación de EUROCONTROL*
15:00 – 15:30	***The PENS Project as an example of a Performance-Based Regional Network*** ***El Proyecto PENS como ejemplo de una red regional basada en la performance*** *Patrick Geurts* *SITA*
15:30 – 15:45	***Coffee Break / Pausa para el café***
ATN Ground-Ground Applications – AMHS System / Aplicaciones tierra-tierra del ATN – Sistema AMHS	
15:45 – 16:15	***CAR/SAM Regional AMHS Transition Plan*** ***Plan Regional CAR/SAM de Transición AMHS*** *Dulce Roses* *United States*
16:15 – 16:45	***AFS Network Strategy / Estrategia de la Red AFS*** *Luci Holemans* *United States*
DAY TWO / DÍA DOS ***Tuesday 24 November 2009 / Martes 24 de noviembre de 2009***	
09:00 – 09:20	***AMHS Current and Future / AMHS actual y futuro*** *Patrick Geurts* *SITA*
09:20 – 09:50	***The Next Step in the Evolution of ATS Messaging Systems*** ***El siguiente paso en la evolución de los sistemas de gestión de mensajes ATS*** *Tony Ghiraldo* *Radiocom*
09:50 – 10:20	***Thales AMHS solution: Implementation, Transition and Interoperability /*** ***La solución AMHS de Thales: Implantación, transición e interoperabilidad*** *Frederic Cuq* *Thales*
10:20 – 10:50	***AMHS Implementation in the EUR Region reported at the AFSG/12 Meeting in April 2009 / Implantación AMHS en la Región EUR informada durante la Reunión AFSG/12 en abril de 2009*** *Kolja Wabra, Germany* *On behalf of EUR AFSG / En representación de EUR AFSG*

10:50 – 11:05	***Coffee Break / Pausa para el Café***
11:05 – 11:25	***ICAO AMHS Testing Strategy in the EUR Region /*** ***La estrategia de ensayos AMHS de la OACI en la Región EUR*** *Kolja Wabra, Germany* *On behalf of EUR AFSG / En representación de EUR AFSG*
11:25 – 11:45	***AMHS Trials – Planification Strategy: AMHS Interopeability Trials*** ***Ensayos AMHS – Estrategia de planificación: Ensayos de interoperabilidad AMHS*** *Onofrio Smarelli, ICAO SAM Regional Office / Oficina Regional SAM de la OACI* *On behalf of AENA / En representación de AENA*
11:45 – 12:05	***The AMC: ATS Messaging Management Centre – Important Instrument supporting the migration from AFTN to AMHS in EUR Region / El AMC: El Centro de Gestión de Mensajes ATS (AMC) – Instrumento importante para el apoyo en la migración del AFTN hacia el AMHS en la Región EUR*** *Kolja Wabra, Germany* *On behalf of EUROCONTROL / En representación de EUROCONTROL*
12:05 – 12:35	***AMHS in Argentina / AMHS en Argentina*** *Gustavo Adolfo Chiri* *Argentina*
12:35 – 13:30	***Break for Lunch/ Pausa para el Almuerzo***
13:30 – 13:50	***AMHS System in Brazil / Sistema AMHS en Brasil*** *Carlos E. de Almeida Barbosa* *Brazil / Brasil*
13:50 – 14:15	***AFTN Messaging Migration in the Central American FIR –*** ***AMHS Future of COCESNA*** ***Migración de la Mensajeria AFTN en la FIR Centroamerica –*** ***Futuro AMHS de COCESNA*** *Mayda Ávila* *COCESNA*
14:15 – 14:40	***AMHS System in Paraguay / Sistema AMHS en Paraguay*** *Alejandro Ibarrola Gonzalez* *Paraguay*
14:40 – 15:05	***AMHS Messaging Switching System in Peru /*** ***Sistema de Conmutación de Mensajería AMHS de Perú*** *José Luis Paredes Dávila / Luis Ojeda* *Perú*
15:05 – 15:30	***PERU AMHS Implementation /*** ***Implementación AMHS del PERU*** *Uwe Kurpat,* *COMSOFT*
15:30 – 15:45	***Coffee Break / Pausa para el Café***

ATN Ground-Ground Applications – AIDC Application /
Aplicaciones tierra-tierra del ATN – Aplicación AIDC

15:45 – 16:15	***ATS/AIS/MET Automation in Dominican Republic /*** ***Automatización ATS/AIS/MET en la República Dominicana*** *Fernando Cassó* *República Dominicana*

16:15 – 16:45	***CAR/SAM Regional Plan for ATN Implementation: ground-ground applications*** ***Plan Regional CAR/SAM para la implementación de la ATN: Aplicaciones tierra-tierra*** *Onofrio Smarrelli* *ICAO SAM Regional Office / Oficina Regional SAM de la OACI*
16:45 - 17:00	***AIDC and AMHS advances in the ASIA/PAC Region*** ***Progreso en el AIDC y AMHS en la Región ASIA/PAC*** *Julio Siu, ICAO NACC Regional Office / Oficina Regional NACC de la OACI* *On behalf of the ICAO ASIA/PAC Regional Office* *En representación de la Oficina Regional ASIA/PAC de la OACI*

DAY THREE / DÍA TRES
Wednesday 25 November 2009 / Miércoles 25 de noviembre de 2009

09:00 – 09:30	***MESANGE (New Generation of Aeronautical Messaging) –*** ***A Joint Project by DSNA (France) and Skyguide (Switzerland)*** ***MESANGE (Una nueva generación de gestión de mensajes aeronáuticos) – Un proyecto conjunto de DSNA (Francia) y Skyguide (Suiza)*** *Jean-Marc Vacher* *France*

Air-Ground Datalink Applications
Regional Considerations on Air-Ground Datalinks /
Aplicaciones de enlaces de datos aire-tierra
Consideraciones regionales sobre aplicaciones de enlaces aire-tierra

09:30 – 10:00	***ICAO ATN Air-Ground Datalink Applications*** ***Aplicaciones de enlaces de datos aire-tierra de la OACI*** *Julio Siu* *ICAO NACC Regional Office / Oficina Regional NACC de la OACI*
10:00 – 10:30	***IP Protocol for Air-Ground ATN Applications and New Air-Ground Communication / Protocolo IP para las aplicaciones ATN aire-tierra y nuevas comunicaciones aire-tierra*** *Vaughn Maiolla* *ICAO / OACI*
10:30 – 10:45	***Coffee Break / Pausa para el Café***
10:45 – 11:15	***CAR/SAM Regional Plan for ATN Implementation: ground-air applications /*** ***Plan Regional CAR/SAM para la implementación de la ATN:*** ***Aplicaciones tierra-aire*** *Onofrio Smarrelli* *ICAO SAM Regional Office / Oficina Regional SAM de la OACI*
11:15 – 11:45	***Air-Ground Datalink Implementation in the ICAO EUR/NAT Region*** ***Implantación de enlaces de datos aire-tierra en la Región EUR/NAT de la OACI*** *Julio Siu, ICAO NACC Regional Office / Oficina Regional NACC de la OACI* *On behalf of the ICAO EUR/NAT Regional Office* *En representación de la Oficina Regional EUR/NAT de la OACI*
11:45 – 12:15	***ATS Datalink Applications & CAR/SAM Implementation Experience*** ***Aplicaciones de enlaces de datos ATS & Experiencia en la implantación CAR/SAM*** *Adriana Mattos* *SITA*
12:15 – 12:45	***Datalink Status in the EUR Region: The ATN/VDLm2 Mandate*** ***Estado de los enlaces de datos en la Región EUR: El Mandato ATN/VDLm2*** *Patrick Geurts* *SITA*

12:45 – 13:00	***Implementation of Datalink Services in AENA /*** ***Implantación de los servicios de enlaces de datos en AENA*** *Julio Siu, ICAO NACC Regional Office / Oficina Regional NACC de la OACI* *On behalf of AENA / En representación de AENA*
13:00 – 14:00	***Break for Lunch/ Pausa para el Almuerzo***
14:00 – 14:30	***SSR Data in Mode S Air-Ground Link /*** ***Datos SSR del enlace aire-tierra en Modo S*** *Vaughn Maiolla* *ICAO / OACI*
14:30 – 15:00	***Datalink in Airbus Aircraft / Enlaces de datos en las aeronaves de Airbus*** *Stephane Tamalet* *Airbus*
15:00 – 15:15	***Coffee Break / Pausa para el Café***
15:15 – 15:45	***Scope on future Datalink systems and its air-ground application /*** ***Panorama general de los futuros sistemas de enlaces de datos y su aplicación aire-tierra*** *Vaughn Maiolla* *ICAO / OACI*

Trial Plan for the Implementation of Datalink and Air-Ground Applications
Plan de ensayos para la implantación de enlaces de datos y aplicaciones aire-tierra

15:45	*Conclusions and Relevant Aspects of the Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications* *Conclusiones y aspectos relevantes del Seminario sobre implementación de Aplicaciones Tierra/Tierra y Aire/Tierra del ATN* *Considerations for the implementation of link trials and air-ground applications (ATIS-D, ADS/CPDLC, VDL link for ATS applications, etc.) and preparation of Action Plans* *Consideraciones para la implementación de ensayos sobre enlaces y aplicaciones aeroterrestres (ATIS-D, ADS/CPDLC, enlace VDL para aplicaciones ATS, etc.) y elaboración de planes de acción* *ICAO Secretariat / Secretaría de la OACI*

ATS Messaging Management Centre (AMC) Users Training Course
Curso de instrucción sobre el Centro de Gestión de Mensajes ATS (AMC)

DAY FOUR / DÍA CUATRO
Thursday 26 November 2009 / Jueves 26 de noviembre de 2009

9:00 – 9:45	*Introduction, framework and technical overview* *Introducción, estructura y perspectiva general*
9:45 – 10:45	*User interface and Regions* *Interfaz del usuario y las regiones*
10:45 – 11:00	***Coffee Break / Pausa para el Café***
11:00 – 12:00	*AMF-O Overview – Network Inventory* *Perspectiva general AMF-O – Inventario de la red*

12:00 – 13:00	*Routing Management* *Gestión del enrutamiento*
13:00 – 14:00	***Break for Lunch/ Pausa para el Almuerzo***
14:00 – 15:00	*Address management* *Gestión del direccionamiento*
15:00 – 15:15	***Coffee Break / Pausa para el Café***
15:15 - 17:00	*Exercises*

DAY FIVE / DÍA CINCO
Friday 27 November 2009/ Viernes 27 de noviembre de 2009

09:00 – 10:00	*Address management, including relation with ICAO Headquarters* *Gestión del direccionamiento, incluyendo su relación con la Sede de la OACI*
10:00 – 11:00	*Simulation of AIRAC cycle* *Simulación del ciclo AIRAC*
11:00 – 11:30	***Coffee Break / Pausa para el Café***
11:30 – 12:30	*AMF-I Overview* *Perspectiva general del AMF-I*
12:30 – 13:00	*Question and Conclusions on ATS Messaging Management Centre (AMC) Users Training Course* *Preguntas y Conclusiones al Curso de instrucción para usuarios al Centro de Gestión de Mensajes ATS (AMC)*
13:00	***Closing Ceremony / Ceremonia de Clausura***

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APPENDIX B

ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications and ATS Messaging Management Centre (AMC) User Training Course for the NAM/CAR/SAM Regions

Dominican Republic, 23 to 27 November 2009

Relevant Considerations

ICAO Seminar on the Implementation of ATN Ground/Ground and Air/Ground Applications

1. Global Air Navigation Plan / ICAO Standards on ATN Applications

1.1 The ICAO Performance Based Approach (PBA) provides a consistent approach to achieve an interoperable global Air Navigation system for all users during all phases of flight, focusing in desired/ required results, relying on facts and data for decision making, and enforcing the adoption of performance management techniques. In this regard, States, Territories and International Organizations are urged to apply this approach in their national planning and implementation activities.

1.2 Regarding ICAO ATN related documentation, take in consideration the following:

a. The new ATN/IPS SARPs introduced the ATN/IPS in parallel to ATN/OSI, reference Amendment 83 – Annex 10 Vol. III.

b. Doc 9578 (Manual of the ATN) is currently obsolete.

c. Doc 9880 has partially replaced Doc 9705.

d. Doc 9896 (ATN/IPS) has provisions for ATSMHS and all applications over TCP/IP while specifying an IPv6 network service.

e. Doc 9739 (Comprehensive ATN Manual) to be updated.

1.3 IATA's position, for the short to medium term, indicates that CNS/ATM infrastructure improvements is to maximize the existing capabilities that are on aircraft today and to support the implementation of the following technologies where operationally feasible, in consultation with airlines:

- Voice migrating to data link as the primary means of controller-pilot communication while continuing the provision of voice communication as a backup and for non-routine communications.
- IATA's support to:
  - ✓ the transition from ACARS Systems to VDL 2.
  - ✓ Rapid decommissioning of the AFTN and replacement by AMHS.

- ✓ AIDC deployment as the primary mean of coordination between ATC facilities.

- IATA do not support VDL 3 nor VDL 4 use.

2. ATN Architecture in the CAR/SAM Regions and Experience of other region

2.1 For the implementation of the CAR/SAM Regional ATN IP network the following aspects are being considered:

- For the interconnection of ATN Applications, use the CAR/SAM IPv4 addressing scheme for the intraregional links (Conclusion 5/1 of ATN/TF/5 Meeting)
- Continue with the trials to determine the bandwidth requirement for the ground-ground ATN Applications
- Complete the study on the optimum ATN CAR/SAM Architecture
- Complete the CAR/SAM Regional address Plan for IPv6
- Concerning the registration of IPv6 addresses with IANA/LIR, this issue should be reconsidered due to the use of closed and private network and cost.

2.2 In the implementation of national IP networks, it is recommended:

- avoiding to employ different equipment providers
- Centralized technical management.
- Must be scalable to increases in air traffic volume (both for AIS and data on surveillance and Flight plan data and AIS)
- Accommodates voice either through a common IP backbone or through multiplexing solution
- Is based on COTS and state-of-the-art IP products
- Supports the ground leg of Air/Ground data communications

2.3 In the AMHS implementation, the transition to IPv6 from existing AMHS platform is possible (OSI or IPv4) and the use of dual stacks AMHS is recommended (RFC1006 and RFC2126) when required.

2.4 To take in consideration the experience, status and lessons learned with the current activities in the Pan-European Network Services (PENS) Project in Europe.

3. ATN Ground-Ground Applications – AMHS System

3.1 The development of applications that are capable of running within the AMHS environment will greatly enhance the potential of this type of system, considering for the long term the operation of Extended AMHS.

3.2 The AMHS Testing strategy and the related test documentation provided in the ICAO EUR AMHS Manual (Appendix D and E) could be used to form a appropriate baseline for AMHS Testing requirements for the Car/SAM Regions.

3.3 For the planning and implementation of AMHS Systems, the information presented by the different AMHS Systems Providers should be use as reference.

3.4 Similarly the learned lessons and experience gained in the implementation of AMHS by the States (such as training, etc) could be taken in consideration by the others ANSP and States for the planning, implementation and improvements of their AMHS systems. In this regard the continuous sharing of knowledge and expertise on these issues among AMHS implemented States and the ones planning to implement the AMHS, is strongly recommended.

3.5 The meeting was informed with the AMC's objectives, history and development, the ATS Messaging Management Manual as the baseline document for the AMC Operations, practical experiences with the AMC in Europe and the importance of a global implementation on AMHS Addressing (allocation and management of AMHS addresses) as agreed between ICAO and EUROCONTROL. And considering the ICAO State letter, reference AM7-49.1-039/34, the COM center representative should register to become a user of the AMC using the referred procedures on this letter.

4. ATN Ground-Ground Applications – AIDC Application

4.1 For the gradual AIDC implementation, States/ Territories/ International organizations should:

- For the CAR/SAM Regions, the Interface Control Document (ICD), approved by GREPECAS, Conclusion 14/43, should be used as a guidance material for the selection of the critical ATS messages (notification, hand-over, etc) and for the transmission of information.
- Consider use of AFTN (Optional Heading Information on IA5 format) for this implementation or AMHS system, if available
- Consider adequate training for ATS and AIDC management personnel
- The AIDC implementation should envised its implementation in a ATN IPS environment.
- Established memorandum of Understanding (MOU) between AIDC involved States, and
- When implementing AIDC, the new flight plan format requirements should be satisfied.

4.2 Where available in their automated systems, and where operational benefits could result, the OLDI protocol could be considered

4.3 The meeting was informed that Argentina implemented an AIDC application in a IPS environment and a preoperational trial was made between the Ezeiza ACC and Cordoba ACC.

4.4 The Meeting was informed of the status of AMHS/ AIDC implementation in the Asia/PAC Region, detailing the learned lessons with the trials, the availability of guidance documentation, their Interface Control Document version 3 and their future plans for the AIDC implementation within the region and the NAM region. This important material could be taken in consideration by the others ANSP and States for the planning, implementation and improvements of their AMHS systems.

5. Air-Ground Datalink Applications / Regional Considerations on Air-Ground Datalinks

5.1 For the datalink matters, the following documentation should be considered: ICAO SARPS: ANNEX 10, Vol III, Doc 9776 Manual on VHF Digital Link Mode 2, Doc 9805 Manual on VHF Digital Link Mode 3, Doc 9816 Manual on VHF Digital Link Mode 4, Doc 9694 Manual of ATS Datalink Applications, Doc 9741 Manual on HF Data Link, Doc 9861 Manual on the Universal Access Transceiver (UAT), Doc 9869 Manual on RCP and Doc 9718 Handbook on Radio Frequency Spectrum Requirements for Civil Aviation. As well as the ICAO OPLINK Panel future works for the development of the datalink application harmonization document.

5.2 Due to the operational benefits of the ADS-C and CPDLC applications, on oceanic and remote airspaces; and considering the percentage of FANS equipped aircrafts, States and Territories should evaluate this consideration and conduct trials.

5.3 When replacing VHF radio equipments, States, Territories and International Organizations may consider acquiring this equipment with VDL mode 2 capabilities.

5.4 DATIS and DVOLMET applications should be evaluated and implemented accordantly, to improve voice based services and reduced workload.

5.5 CAR/SAM States and Territories, based on their national planning and improvement foreseen, should complete the CAR/SAM CNS Table on Air-ground ATN application implementation (CNS Table 1Bc).

5.6 CAR/SAM States/ Territories, in coordination with airspace users, should establish and execute ADS-B trials according to GREPECAS guidelines.

5.7 The Meeting was informed of the CPDLC mandate (FANS based implementation) for the upper North Atlantic (NAT) Region airspace, the evolutionary implementation of ADS and CPDLC for core European and the guidance implementation documentation for this implementation.

5.8 For the implementation of data link to satisfy the required communication performance, in accordance to GREPECAS and ICAO SARPS, it is important the coordination and cooperation among the States, Air Navigation Service Providers, users and other related parties.

5.9 The meeting was informed with an overview of the Air Traffic Services Applications implemented on Airbus Aircraft, covering a description of the functional content and the integration in the cockpit, the Air Traffic Services datalink and communication packages currently available on the different Airbus Aircraft Families, and the future evolutions. This information should be considered for the datalink application planning.

5.10 SSR Mode-S Datalink Communication - although ICAO had developed a comprehensive suite of documentation on this subject, new technologies such as ADS-B are using the same facilities and radio frequency spectrum. Also technologies better suited to air-ground datalink communication are available today. There are no reported plans to implement Mode-S datalink systems, so it is recommended that States pursue other solutions for air-ground datalink while taking steps to optimize ADS-B implementation.

5.11 Scope on future datalink systems and their application to Air-Ground application - As NextGen (US) and SESAR (Europe) are planning some significant datalink-based developments beginning in the 2014/15 timeframe, CAR/SAM States are urged to initiate datalink trials now in order to obtain intial experience and thus position themselves to capitalize on the benefits derived from NextGen and SESAR. States are urged to choose trials based on either FANS-1/A or LINK 2000+ technology.

ATS Messaging Management Centre (AMC) User Training Course for the NAM/CAR/SAM Regions

5.12 Taking in consideration that for the short- to medium-term, ICAO will utilize the European ATS Messaging Management Centre (AMC), provided by EUROCONTROL, to coordinate the allocation and management of AMHS addresses; it is important that all States and/or ANSPs, operating international COM Centres, with the intention of implementing AMHS in the foreseeable future, register to the AMC System and made the corresponding accreditation with their corresponding ICAO Regional Office, as recommended in the ICAO State Letter 09-34 dated 14th April 2009.

5.14 The ATS Messaging Management Centre AMC comprises:

a) a management organization and framework

b) AMC systems

c) functions and procedures

d) support and operator resources

5.15 The AMC provides off-line network management services in support of AFTN/CIDIN/AMHS operation and AMHS deployment in the EUR/NAT ICAO Regions and the external COM Centres (NAM/CAR/SAM).

5.16 With the implementation of the AMC the following are observed/ expected users' benefits:

a) Coordination of integration of a new COM centre, and upgrade to AMHS, in the network.

b) Coordination of AMHS address changes, including PRMD-names, addressing schemes and detailed CAAS tables, to be performed on AIRAC dates.

c) Helpdesk support for off-line network management during office hours.

d) Tools used by the coordinating COM centres to facilitate network operation.

e) Interaction with the COM centres and Regional Offices in the other ICAO regions.

f) Download update AMHS address information of all States that have implemented AMHS or are in the process to do.

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