



International Civil Aviation Organization

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

Sixth Meeting of the CNS Committee of the GREPECAS ATM/CNS Subgroup
(CNS/COMM/6)

Santo Domingo, Dominican Republic, 30 June to 4 July 2008

CNS/COMM/6-WP/03

26/05/08

Agenda Item 1: Development of Communication Systems

1.2 Follow up to the implementation/planning of air-ground data links

REVISION OF THE AIR-GROUND DATA LINK PLAN

(Presented by the Secretariat)

SUMMARY	
This working paper contains a summary of matters relating to the implementation of air-ground data links and considerations about their implementation.	
References: <ul style="list-style-type: none">• Report of the CAR/WG/1 meeting;• Report of the NACC/WG/02 meeting;• Reports of the GREPECAS/13 and GREPECAS/14 meetings;• Global Air Navigation Plan Doc. 9750 AN/968; and• Information from the ICAO ACP Panel.	
Strategic Objectives:	<i>This working paper is related to Strategic objectives A and D.</i>

1. Introduction

1.1 With the revision of the *CAR/SAM Regional Plan for the Aeronautical Mobile Service (AMS) and the Aeronautical Mobile Satellite Service (AMSS)* contained in Table CNS 2A of the CAR/SAM Regional Air Navigation Plan, Doc 8733, Volume II (FASID), which includes VHF, HF, and satellite communication as well as Mode S data link requirements, the Fifth Meeting of the CNS Committee completed the update of this Plan.

1.2 This update was reported to the States through the ICAO Regional Offices as an amendment to the CAR/SAM Regional Air Navigation Plan, Doc 8733, Volume II (FASID).

1.3 The Regional Plan (Table CNS 2A) was updated bearing in mind the regional guidelines agreed by GREPECAS and specifically those adopted by GREPECAS/13 through its Conclusions 13/71 and 13/72:

- a) Conclusion 13/71 – *Update and implementation of the AMS and AMSS satellite, HF, and VHF Voice Communication Plan*, which, among other things, urged aeronautical administrations to expedite the execution of plans to improve and alleviate VHF and HF/AMS coverage and to complete the implementation of satellite voice communications.

- b) 13/72 – *Regional strategy for the update and progressive implementation of the air-ground data link plan*, through which it adopted the Regional strategy for the update and implementation of the air-ground data link plan consisting of the Plan of activities and the Implementation programme presented in Appendices AW and AX to the Report of the GREPECAS/13 Meeting, under Agenda Item 3.

1.4 The Regional strategy for the update and implementation of the air-ground data link plan agreed in Conclusion 13/72 is consistent with the Global Air Navigation Plan (Doc 9750 – AN/963) Initiative IPM-17 – *Implementation of data link applications*, which promotes increased use of data link applications. From this, the following can be highlighted:

- a) Implementation of less complex data link services (for example: pre-departure clearance, oceanic clearance, D-ATIS, automatic position report, etc.) can produce immediate benefits in terms of the efficiency of ATS service provision. Transition to more complex safety-related data link communication applications is already successfully underway, taking advantage of a wide variety of controller-pilot data link communication (CPDLC) messages, including ATC clearances.
- b) Use of CPDLC and other data link applications instead of voice communications can yield significant advantages insofar as pilot and controller workload and safety are concerned. These applications can, in particular, provide efficient links between ground and aircraft systems, better data management and transfer, less channel congestion, fewer communication errors, the possibility of having inter-operational communication media, and a lighter workload. Reduction of the workload per flight translates into an increase in capacity and safety.

1.5 The aforementioned global initiative should be considered together with Initiative IPM-22 – *Communication Infrastructure*, which offers a strategy for the evolution of aeronautical mobile and fixed communication infrastructure so that it can be applied to voice and data communications, accommodate new functions and provide appropriate service capacity and quality to meet ATM requirements.

2. Discussion

2.1 The **Appendix** to this working paper contains a summary of action and considerations undertaken in the CAR and SAM Regions, respectively, with regard to the implementation of air-ground data links.

2.2 ICAO plans to implement an electronic version of the Air Navigation Plans called eANP, which will facilitate the coordination and implementation of such plans, thus supporting the Global Air Navigation Plan and contributing to the future development of such planning, while permitting the latest information to be available for use by States/Territories/International Organisations. eANP planning allows for changes in the contents and formats of such plans.

2.3 The work programme of the CNS Committee, reference CNS/2-1.2.3, calls for the development and application of a VDL implementation plan, as set forth in Table CNS 2A of the CAR/SAM Regional Plan for the Aeronautical Mobile Service (AMS) and the Aeronautical Mobile Satellite Service (AMSS).

2.4 The Aeronautical Communications Panel (ACP) of ICAO, through its Working Group M, which will meet on 16-20 June 2008, is planning to address the following matters related to data links:

- a) Completion of the frequency assignment planning criterion for VDL Mode 4;
- b) Completion of part 3 of the AMS(R)S Manual, including identified RF compatibility aspects between Inmarsat/MTSAT and the Iridium satellite systems;
- c) Advancing work on an OFDM system for interactive HF digital voice transmission.

2.5 Work is underway within other ACP work groups on the coordination and definition of interoperability aspects of the different technologies and systems, in order to continue providing the service at the efficiency and safety levels required for the operation. For further details about these developments, visit the ACP Panel website at: <http://www.icao.int/anb/panels/acp/>.

2.6 The regional strategy for the update and implementation of the air-ground data link plan approved by the GREPECAS 13 meeting through Conclusion 13/72 considers the establishment of and participation in a trial and demonstration programme for that purpose.

2.7 Considering that new versions and models of radio equipment are being produced with data transmission (generally VDL Mode 2) capability and that some CAR/SAM States have acquired these new versions of VHF radio equipment and that radio-equipped aircraft with data transmission (VDL 2) capability are operating in the region today, studies could be undertaken for conducting VDL data transmission trials.

2.8 In order to support the study of a plan for air-ground data transmission trials, it would be advisable for ICAO to plan a seminar for the dissemination of experiences in the implementation of data transmission in other Regions, the functions or applications implemented through these links, ICAO SARPs in force and those planned in this respect, together with information about future air-ground data communication systems being considered by ICAO. The seminar could be held in the last quarter of 2009. The CNS Committee, as part of its CNS/2-1.2.3 task, would develop the tentative topics to be addressed and the scope of the seminar and coordinate its implementation with ICAO.

3. **Suggested action**

3.1 The Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) review the proposal for conducting a study and a seminar on VDL data links presented in paragraph 2.8, bearing in mind the considerations about VDL implementation described in section 2 and the appendix to this working paper; and
- c) consider and recommend other relevant action.

APPENDIX A

AIR-GROUND DATA LINK IMPLEMENTATION ACTIVITIES IN THE CAR/SAM REGIONS

CAR REGION

1. In the update of the *CAR/SAM Regional Plan for the Aeronautical Mobile Service (AMS) and the Aeronautical Mobile Satellite Service (AMSS)* contained in Table CNS 2A of the CAR/SAM Regional Air Navigation Plan, Doc 8733, Volume II (FASID), it can be noted that several States/Territories have plans to provide data link automatic terminal information service (D-ATIS).
2. Several States/Territories/International Organisations in the CAR Region have renewed their AMS VHF radio equipment, of which some is compatible with or capable of establishing VDL data links through configuration of the equipment or the acquisition of additional modules.
3. COCESNA has reported that its current Control Centre in CENAMER has ADS data processing capability and provides CPDLC service through data links *via* its data link server processors (DLSP).
4. During the first meeting of the CAR/NAM Working Group, CAR/WG/01, a recommendation was made in Conclusion 1/5 b) to amend the format of FASID Table CNS 2A by combining all of the data communication requirement columns [columns: 4 (VHF data), 6 (HF data), 8 (satellite data) and 9 (Mode S)] in a single column entitled "A/G data" and to estimate a completion date later than 2015.
5. Both the first and second meetings of the CAR/NAM Working Group, NACC/WG, agreed, in order to orient the definition of national implementation plans, to review, complete and execute the respective Action Plan for implementation of ground-ground and air-ground voice and data communication based on the format presented in an attachment to this appendix.

SAM REGION

1. Brazil has implemented data link automatic terminal information service (D-ATIS) at its Rio de Janeiro and Sao Paulo airports. The ADS/CPDLC FANS 1/A system is expected to enter into operation in its Oceanic FIR by April 2009.
2. Chile and Argentina have started implementing ADS and CPDLC functions in their oceanic FIR and plan to complete the process by 2009.
3. Many States in the SAM Region have implemented VHF radio systems with VDL capabilities, even though they have no short-term plans as yet for their operational use.

ATTACHMENT

ACTION PLAN FOR THE FOLLOW UP AND IMPLEMENTATION OF AIR-GROUND AND GROUND-GROUND COMMUNICATIONS

State/Organisation

Fecha:

No.	Strategic Objective Objetivo	Global Plan/ Plan Mundial - GP	GREPECAS No. Con/Dec/Pa	Target Activity/ Actividad Meta	Follow-up Action/ Acción de seguimiento	To be developed by/ A ser desarrollado por	Deliverable/ Entregable	Target date/ Fecha límite	Remarks/ Observaciones
1	2	3	4	5	6	7	8	9	10
1	A, D	GPI-17	13/71 a)	Improve or mitigate VHF and HS/AMS (r) coverages		States and International Organizations	Fulfillment of required coverage		
2	A, D	GPI-17	13/71 b)	Implement the satellite voice communications that may be needed		States and International Organizations	Implement the required voice communications		
3	A, D	GPI-17	13/71 b)	Review and propose an amendment to FASID Table CNS 2A, in accordance with the results of action 13/71 a)		States and International Organizations	Proposal of amendment		
4	A, D	GPI-17	13/71 c)	Inform the ICAO NACC Office about the progress made in actions a) and b) of Con. 13/71		States and International Organizations	Information sent		
5	A, D	GPI-17	13/72 a)	Draw up an evolutionary air-ground data link implementation plan based on the Plan of Activities and the Implementation Programme presented in Appendices AW and AX to the GREPECAS/13 Report, under Agenda Item 3		States and International Organizations	Plan drawn up		
6	A, D	GPI-17	13/72 b)	Review and propose an amendment to FASID Table CNS 2A, in accordance with the results of action 13/72 a)		States and International Organizations	Proposal of amendment		
7	A, D	GPI-17	13/72 c)	Inform the ICAO NACC Office about the results of actions a) and b) of Con. 13/72		States and International Organizations	Information sent		
8	A, D	GPI-17	13/74	Insert the proposal of amendment according to the ATN regional plan format		ICAO	Proposal of amendment inserted		
9	A, D	GPI-17	13/75 a)	Analyse requirements and draw up plans for implementing ATN ground-ground applications, such as AMHS and AIDC		States and International Organizations	Plan drawn up		
10	A, D	GPI-17	13/75 a)	Inform the ICAO NACC Office about the results of Con. 13/75, action a).		States and International Organizations	Information sent		
11	A, D	GPI-17	13/78	Undertake activities for the deployment of the ATN and its applications, in keeping with the target dates and strategy presented in Appendix BA to the report of the GREPECAS/13 meeting, under Agenda Item 3		States and International Organizations	ATN deployment in keeping with planned dates		
12	A, D	GPI-17	13/79	Develop national plans for AMHS and AIDC implementation, thereby contributing to ATM automation		States and International Organizations	Plan prepared		