



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 4: Aeronautical Mobile Services

**UPDATE ON USE OF SATELLITE VOICE COMMUNICATIONS
FOR ATC PURPOSES**

(Presented by Australia)

SUMMARY

This paper summarizes work undertaken by ICAO in the field of Satellite Voice Communication (SCV) for use for ATS purposes and makes recommendations in relation to its development and use in the APAC Region.

This paper relates to

Strategic Objectives:

- D. Efficiency – Enhance the efficiency of aviation operations
- E. Continuity – Maintain the continuity of aviation operations

Global Plan Initiative:

GPI-22 Communication infrastructure

1. Introduction/Background

1.1 During the development of satellite-based communications in the mid 1990s, and especially for CPDLC (Controller Pilot Digital Data Link) procedures to support FANS-1, the consensus within ICAO and industry was that, due to a range of human factors, technical and costing reasons, standards would not be developed to allow the use of SCV for ATC purposes beyond that for emergencies and non routine communications. This policy was supported and endorsed by APANPIRG and has been re-affirmed in subsequent APAC meetings.

1.2 Recently Australia and other States in the region have had submissions from operators to use SCV using aeronautical mobile satellite (route) service (AMS(R)S), *voice avionics* as an approved communications media for routine ATS operations. Investigations revealed that the North Atlantic Systems Planning Group (NAT SPG) had created a SATCOM Task Force that had recommended the use of SCV for routine ATS operations. A draft Regional Supplementary Procedures (Doc 7030) amendment (see Attachment 1) enabling such use of SCV in North Atlantic airspace had been distributed as a State Letter. Following comments to that letter ICAO created an Inter-regional

ASIAPAC/NAT ICAO SATCOM Task Force to examine the issue. The Terms of Reference for the Task Force are attached.

2. Discussion

2.1 The proposed Doc 7030 amendment would allow a State of Registry to approve an operator to use SCV for routine ATS communications in the North Atlantic. The proposal seeks that SCV be used for MEL (Minimum Equipment List) relief against the carriage of one HF set.

2.2 Concerns raised by States and industry this proposal include:

- a. The Annex 10 requirements for Aeronautical Mobile Satellite (Route) Service (AMS(R)S voice avionics and the supporting ground system requirements and performance standards are not sufficiently robust to support the desired use as a substitute to HF as a long range communication system,
- b. Many ANSPs do not have the supporting infrastructure nor ATC procedures to use SCV as an alternative to HF,
- c. Pilot and ATC procedures are not fully developed ,
- d. SCV, unlike HF, would not be globally available, and
- e. The lack of guidance on the separations standards for which SCV is intended to be used.

2.3 A review in Australia has concluded that the current Annex 10 standards are not sufficient to support routine ATS communications, that current ATC facilities are not established to accommodate its use and that the benefit of investment in additional infrastructure to accommodate SCV in addition to HF and CPDLC may be difficult to establish. Also, as many ANSPs now have their SCV facilities provided by third-party operators, the connection between SCV and its use for specific separation standards needs to be documented.

2.4 The review also noted that while Australia remains committed to embracing future technologies, at this time there is insufficient evidence to promote independent support for either a trial or implementation of the use of SCV.

2.5 For note, Australia has already had a number of international aircraft flight plan into the Australian FIRs using SCV as the only available long range communication system.

3. Action by the Meeting

3.1 The meeting is invited to take the following action:

- a. Note and discuss the contents of this paper.
- b. Endorse the continued development of ICAO global AMS(R)S voice avionics standards and procedures, and
- c. Recommend to APANPIRG, that given the concerns and limitations expressed in the use of SCV, that States in the region "*confine/retain SCV use to emergency and non-routine purposes*" and do not approve the use of SCV for routine ATS communications until globally accepted standards are in place and that regional ANSPs are capable of supporting the technology.

Attachment 1

**PROPOSAL FOR AMENDMENT TO THE
REGIONAL SUPPLEMENTARY PROCEDURES – DOC. 7030/5**

NORTH ATLANTIC (NAT) REGION

(Serial No. EUR/NAT-S 08/12 - NAT 3-3)

a) Regional Supplementary Procedures:

Doc 7030/4 – NAT SUPPs

b) Proposed by:

Canada and the United Kingdom

c) Proposed amendment:

Modify the following in Chapter 3, Section 3.4:

**“3.4 SATELLITE VOICE COMMUNICATIONS (SATCOM)
(A2 – Chapter 3; P-ATM – Chapter 15; P-OPS, Vol. 1)**

3.4.1 Aircraft with installed **Aeronautical Mobile Satellite (Route) Service (AMS(R)S) voice avionics**, as approved by the State of Operator or the State of Registry may use such equipment for ATS communications **in accordance with the provisions of State AIPs.**

3.4.2 Pilots electing to use **AMS(R)S** voice remain responsible for operating SELCAL in accordance with section 3.5.1 or maintaining a listening watch on the assigned HF frequency. **AMS(R)S** voice communications should be made to facilities rather than ATC centres unless the urgency of the communication dictates otherwise. **AMS(R)S** voice communication initiated due to HF propagation difficulties does not constitute urgency and should be addressed to the air-ground radio facility.

Proposer's reason for amendment:

The current restriction on the use of AMS(R)S voice for emergencies and non-routine communications dates back to the tenth Air Navigation Conference. Since then, the costs of AMS(R)S voice has reduced significantly and the technology has improved therefore providing a cost effective and reliable means of communications.

The authorisation for the use of AMS(R)S voice for all ATS communications would provide States with an opportunity to ease the requirements regarding operating HF equipment. Instances of partial failure of the HF communications, one of two radios for example, but

with fully functioning AMS(R)S equipment, has led to the aircraft being held on the ground for repairs thereby incurring considerable penalties to the users.

This migration should be viewed as an upgrade to the AMS(R)S voice service (currently limited to emergency and non-routine communications), and not as a technology alternative to Controller Pilot Data Link Communications (CPDLC). These data link capabilities would continue to remain high priority in the NAT Region planning. The AMS(R)S voice should also not be seen as a stand-alone alternative to HFcommunications but rather a means to provide for MEL relief by removing a requirement to carry two HF radios. It also should be noted that any MEL relief is subject to approval by State authorities.

d) Proposed implementation date of the amendment:

Upon approval by Council.

Attachment 2: Terms of Reference of the ICAO interregional SATCOM voice task force

Deliverable(s)

- a) A globally applicable Guidance Material for the use of AMS(R)S voice for ATS communications.

Scope of work

The following are the broad principles describing the scope of work:

- a) Take into account the NAT and any other existing guidance material related to the use of SATCOM voice for ATS communications;
- b) In the spirit of the NAT SPG Conclusion 44/11 and NAT SPG/45, paragraph 2.2.4, the guidance material would be developed within the global ICAO RCP framework to provide States with some flexibility to apply different standards for different uses, without implication to seamless operations;
- c) Take into account the FAA PARC CWG work on developing a performance based specification to evaluate third party SATCOM voice as an approved long range communication system (LRCS).
- d) Take account of the ongoing revision of the aircraft equipment approval guidance material, e.g. by EASA and FAA; and
- e) Accommodate any ICAO AMS(R)S compliant system.

The following items/scenarios should be considered in the scope of work:

- a) Use of AMS(R)S voice for ATS communications via third party radio operator (No MEL relief considerations);
- b) Minimum Equipment List (MEL) relief 1 HF + 1 SATCOM;
- c) Use of portable SATCOM phones;
- d) 1 or 2 portables or installed satellite phones and no HF radio at all; and
- e) Use of SATCOM voice direct to controller communications.

Composition

Additional membership should be invited including aircraft operators, aircraft and equipment manufacturers, and satellite communications service providers.

Conduct of the work and schedule

The completion of this task requires more availability of resources than it was foreseen for the first 2 steps by the state letter EUR/NAT 10-0165.TEC. It would require a series of direct meetings among task force members in addition to teleconferences and other electronic means of communications. The ICAO

Secretariat is ready to continue supporting this work but more involvement from the States will be required. The tentative completion date for this task, provided that this ToR is approved by the NAT SPG and APANPIRG and resources are made available, would be December 2011.
