



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICA OFFICE**

**Nineteenth Meeting of the AFI Satellite Network Management Committee (SNMC/18)
(Accra, Ghana, 14-18 November 2011)**

Agenda Item 6: Protection of C-Band for VSAT Operation;

(Presented by the secretariat)

SUMMARY

The purpose of this paper is to present the concerned issue on C-Band protection for the operation of Aeronautical VSAT Networks within AFI as raised up by the last Aeronautical Communication Panel working Group F 25th meeting (ACPP WG F/25) and calls upon SNMC States/Administrations to support the remedial actions undertaken by the AFI Frequency Management Group

Reference

Report on ACP WG-F 25th Meeting
Recommendation 724 WRC 07
State Letter T7/7.9.1-0796 dated 25 October 2011

1. Introduction

The LIM/ AFI RAN meeting, Lomé, Togo, 1988 and the following AFI RAN 7 and SP 8, APIRG meetings promoted the use of VSAT technology to support the provision of aeronautical fixed service (AFS), aeronautical mobile service (AMS), aeronautical radio navigation service (ARNS) and aeronautical Surveillance data exchange, mainly due to the difficulties encountered to install and/or maintain aeronautical telecommunication facilities in non accessible areas, such as deserts, oceanic areas and deep forests.

This provision relies on available technology proposed by the satellite service providers namely INTELSAT and IMARSAT for the AFI region.

2. Discussion

2.1 Since the early time of the implementation of VSAT technology for the provision of Air Navigation Service, within AFI Region, the C-Band was recognized as the best technology band range candidate to provide a weather insensitive signal radiation to carry both Aeronautical Fixed and Mobile Service as well as Aeronautical radionavigation and Surveillance services. This band is not subject to the attenuation by oxygen and by vapor of water that are very dense in the tropical region.

Therefore the strategy of the AFI Aeronautical Communication Plan has been based on the implementation of C-Band VSAT networks that operate on the ITU Fixed Satellite Service in the range of **3.4-4.2 GHz** for the downlink.

For the same reasons, other ICAO regions like the Caribbean (CAR), South America (SAM) or Middle East (MID) are making an extensive use of VSAT technology in C-Band for civil aviation services.

2.2 In the aim of facilitating the implementation of VSAT technology for AFS and AMS provision, the aviation community requested and obtained the formulation by the World Radiocommunication Conference held in Geneva on 2007, of **Recommendation 724 WRC 07 Use by civil aviation of frequency allocations on a primary basis to the fixed-satellite service**. This recommendation calls upon administrations, in particular in developing countries and in countries with remote and rural areas to recognize the importance of VSAT operations to the modernization of civil aviation telecommunications systems, encourages the implementation of VSAT systems that could support both aeronautical and other communication requirements, as well as, to the maximum extent possible and as necessary, the expedition of the authorization process to enable aeronautical communications using VSAT technology.

During this conference the emerging **International Mobile Telecommunication (IMT)** devices were candidate to this band although identified as potential cause of harmful interferences to the satellite downlink and therefore to the provision of the backbone supporting CNS components within the AFI region.

2.3 During the WRC-07, lobbying between AFI States and AFI Air Navigation Service providers (Cameroun, Nigeria, Ghana, ASECNA, GCAA, NAMA...) and satellite manufacturers (Intelsat, Inmarsat..) under ICAO auspices allowed to prevent allocation on a primary basis of this band to IMTs. Therefore, **Recommendation 724 WRC 07** also requested arrangements to be made to provide urgent service restoration or alternative routing in case of a disruption of a VSAT link associated with the aeronautical communications and operation frequency bands with a primary allocation to the satellite services. **Recommendation 724 WRC 07** is attached at **Appendix A**.

2.4 However some States agreed with footnotes on the usage of this band by IMT and deployment has started in some AFI region.

2.5 This issue of protection of the C-Band was brought to the agenda of the ACP WG F 25th meeting recently held in Dakar from 10 to 14 October 2011 and discussing on this topic, the meeting considered how best to tackle this concern and although some radio regulatory method may provide an option it was realized that this would not be achievable at the next WRC in 2012. The meeting agreed to form a small correspondence group to look at the options and in particular to see whether it would be possible to develop a proposal for a future WRC that could be presented to the ATU which meets in early November in Geneva. The proposal was drafted circulated and transmitted to ATU by the AFI/FMG Rapporteur.

2.6 Moreover, a coordinated ICAO state letter was issued to address AFI state and call upon them to approach their National Telecommunications Regulation Authority to present the concern and ask for their support during the 3rd ATU preparatory meeting. This letter has been circulated to the other ICAO regions. It should therefore be essential for SNMC members States/Administrations to consider this issue and develop the collaborative arrangements with their National Telecommunication Regulation Authority in order to clearly explain the concern and secure the official support.

3. Action by the meeting

4.

The meeting is invited to:

- a) Take note of the information here given above
- b) Encourage States/Administration to approach their National Telecommunication Regulation Authority in order to ensure their support to the request for an agenda item at WRC 015 for the protection VSAT operating C-Band.
