

## **Aeronautical Mobile Communications Panel**

### **Working Group F : Second Meeting**

**Bangkok 5-14 May 1999**

**(Presented by the Secretariat)**

#### **Agenda item 3. Review of comments from States on the draft ICAO position for the ITU World Radiocommunication Conference 2000**

##### **1 Introduction**

- 1.1 State Letter E 3/5-98/98 of 31 December 1998 with the draft ICAO Position for the ITU WRC-2000 as prepared by the AMCP WGF at its first meeting in September 1998 and approved by ICAO Council, has been sent to member States. The comments received are presented separately for consideration by the meeting.
- 1.2 Since the compilation and approval of the ICAO Position in 1998, a number of developments have taken place necessitating additions to the present ICAO Position. These are addressed in Paragraph 2 below together with recommendations for amendment to the document.
- 1.3 Attachment A is an updated version of the ICAO Position with the recommendations incorporated.

##### **2 Recent Developments.**

**2.1. Agenda item Resolves 1.6.1 : review of spectrum and regulatory issues for advanced mobile applications in the context of IMT-2000, noting that there is an urgent need to provide more spectrum for the terrestrial component of such applications and that priority should be given to terrestrial mobile spectrum needs, and adjustments to the Table of Frequency Allocations as necessary. ( Ref RF handbook Page 7-81) :**

2.1.1 The frequency bands allocated to the Radionavigation and Radiolocation service are used extensively by 10 cm radar for airport and en route surveillance and other operational uses at airports., as well as for radiolocation in national defence functions. Modern techniques, such as frequency diversity and pulse repetition frequency discrimination are employed to improve their functional capabilities. Radars at these frequencies can provide high definition and can have ranges out to 100 NM making them particularly useful for non cooperative surveillance at short and medium ranges. It is likely that these radar station will be retained for a considerable time in high density terminal airspace.

2.1.2 To meet the extensive spectrum required for the IMT2000, for which frequencies in the 1 to 3 GHz range are particularly suitable, some regions, notably Europe, have intensified their examination of the use of these radar bands. The programme of study consists of a data collection of present use, then sharing studies based on typical characteristics, and finally a determination of future requirements. When this is completed a conclusion may be possible on future (re)-allocation possibilities to the Aeronautical Radionavigation Service and the (Land) Mobile Service.

2.1.3. In addition to these activities, which in the ITU are concentrated in Task Force 8/1, ITU-R WP8B under its Study Question ITU-R 216 -1/8 is attempting to generate an accurate picture of the use of 10 cm radars around the world. **Document 8B/TEMP/61 dated 24 February** is the latest statement from this group. WP8B has also sent a liaison statement to ITU-R Task Group 8/1 reminding that group that reference is necessary to WP8B for technical aspects of the use of these radar stations. This is contained in **Document 8BTEMP/59 dated 24 February 1999**.

2.1.4. It is clear that considerable study must be made of this question before any proposals can be made for allocation reductions to the aeronautical radionavigation service, or sharing with the mobile service. In the past hasty decisions at ITU Conferences have not always been easily corrected due to reluctance from administrations to remove changes made in their recent past. The proposed ICAO position is that of a cautious approach resisting any change to the existing allocations. The pressure for examination is likely to be maintained and the aviation response can only be one that insists on these being thorough and comprehensive. Attempts may be made to arrive at conclusions in time for WRC2000. Such representations should be resisted if the full picture of aviation use of these frequency bands is not available at that time.

2.1.5. The proposed amendment to the ICAO Position is at Paragraph 3.6 and Page A-19 on Attachment A.

**2.2. Agenda item Resolves 1.9: To take into account the results of ITU-R studies in evaluating the feasibility of an allocation in the space-to-Earth direction to the mobile-satellite service (MSS) in a portion of the 1559 - 1567 frequency range, in response to Resolutions 213 (WRC-97) and 220 (WRC-97).**

2.2.1. Since the compilation of the ICAO position for the WRC-99 in 1998, studies on this matter have continued (in the GNSS Panel and, in Europe, by Eurocontrol) to determine the sharing conditions to ensure compatibility of the two services in the band. All of these studies have concluded that sharing between the Radionavigation Satellite Service and the mobile-satellite service is not feasible. On the basis of the work in the GNSS Panel the ICAO has submitted proposals to ITU-R WP8D. in October 1998 and April 1999.

2.2.2. The 8<sup>th</sup> meeting of ITU-R WP8D (October 1998) have reported sharing in the 1559 to 1567 MHz is not feasible. This conclusion now provides a firm basis for an ICAO position to oppose to an allocation to the Mobile Satellite Service in the band 1559 to 1610 MHz. The possibility exists that an allocation be proposed at the WRC-2000 (or the option might be kept open for an allocation to the MSS at later Conferences) on the assumption that with the proposed allocation, GPS is protected. The ICAO GNSS panel has concluded that such is not the case and that the band 1559 - 1567 MHz is required for certain augmentation systems to GPS. An allocation to the MSS in this band would prohibit such further developments.

2.2.3. An amendment to the ICAO Position is necessary and has been made at Pages A-7 and A19 of Attachment A.

**2.3. Agenda item Resolves 1.10 : to consider results of ITU-R studies carried out in accordance with Resolution 218 (WRC-97) and take appropriate action on this subject.**

2.1.3. Discussions and studies have continued on the matter of the protection of safety-of-life services in the 1.5/1.6 GHz bands which prior to the WRC-97 were allocated to the Aeronautical Mobile Satellite (R) Service. To ITU-R WP8D (October 1998 and April 1999) material on future spectrum estimates for AMS(R)S, developed by IATA and ICAO, has been presented in response to Resolution No 218. These estimates, in the preparation of which AMCP WGA was also involved, indicate that 11 MHz of spectrum for the years up to 2010 is required. An additional 7 MHz is necessary for aeronautical use in the period between 2010 and 2018. These requirements are for safety traffic only and do not include passenger or airline administrative communications.

2.3.2. Aeronautical concerns have grown steadily with respect to the inability of footnote S5.357A to guarantee access to spectrum for aeronautical services in the years ahead. The maritime footnote S5.353A has also been criticized by the maritime community on the same grounds. The situation is that all of the mobile satellite spectrum

in the bands at 1.5/1.6 MHz has been made available for use by mobile satellite systems, of which only few small are being used for AMS(R)S purposes. Changes to footnote S5.357A are considered necessary to strengthen its provisions and to provide a positive mechanism for spectrum increase in the quantity required in the years ahead as the AMS(R)S service expands, in addition to the re-insertion in the Radio Regulations of an allocation to the AMS(R)S.

2.3.3. Resolution No 218 also called for studies of pre-emption of non-safety communications within a network (a network is defined as a single satellite with its ground stations), and for interoperability between the various mobile satellite services. This work has advanced in WP8D and CPM text is in draft form awaiting the 8D meeting in April 1999. This work has confirmed that pre-emption within a network is feasible, and has further identified the technical conditions to be observed for all of the elements in the system to be pre-emption capable. The subject of pre-emption between networks is not addressed, and is generally accepted by experts as not practical or possible. Band segmentation where by coordinated agreement between the countries supporting space system providers agree such a procedure, is a further issue which is addressed.

## **2.4. Agenda item Resolves 1.15.1: to consider new allocations to the radionavigation-satellite service in the range from 1 GHz to 6 GHz**

2.4.1. In the GNSS panel studies are proceeding towards a proposal to use the frequency 1176.42 MHz  $\pm$  12 MHz to be used as an additional frequency in the GPS system. This new frequency supports the GPS L1 frequency in the 1559 to 1610 MHz band. The requirement would be for a band width of 24 MHz. The DME band is heavily utilized in some parts of the world, and this particular sub-band is paired with VOR. The portion of the DME band considered is used in the ground-to-air direction. The GNSS panel is reviewing the criteria to be applied in the shared use of this band. These criteria will be used in assessing the effect the use of L5 on the DME frequency plan. Also the onboard interference from DME into the L5 receivers need to be assessed by the GNSS panel.

Eventually, if the proposal is considered acceptable, an allocation to the Radionavigation Satellite Service, on a primary world wide basis, would be required in the chosen band section .

2.4.2. The GNSS panel has concluded that additional spectrum for new GNSS systems should not be accommodated in the 5 GHz band.

## **4 Action by WGF**

4.1 The AMCP WGF is invited to consider the amendments to the ICAO Position described in this paper, and incorporated in Attachment A, and to make suitable Recommendations for their treatment in the finalization of the document.

**Attachment A : Amended version of the ICAO Position.**