

RADIO FREQUENCY MATTERS

(Submitted by WMO)

Summary and purpose of document

The document reviews the outcome of the World Radiocommunication Conference 2000, and considers the issues that should be addressed for the preparation of WRC 2003.

ACTION PROPOSED

The meeting is invited to consider the information provided and plan relevant further action.

Appendix Resolution 227 [COM5/30] (WRC-2000)

DISCUSSION

World Radiocommunication Conference 2000 (May 2000)

1. The outcome of the World Radiocommunication Conference 2000 was very favourable as regards the several items of concern for meteorology. The active participation of several NMHSs, meteorological satellite agencies and WMO in the ITU preparatory activities (ITU-R groups and Conference Preparatory Meetings) was instrumental in ensuring that meteorological requirements were recognized and supported.

2. The main decisions of WRC-2000 relevant to meteorological activities are summarized as follows:

- Meteorological requirements in the band 401-406 MHz for meteorological aids (radiosondes) and meteorological satellite operation were acknowledged for the foreseeable future. Resolution 219 (WRC-97), which requested the assessment of meteorological requirements in the band 401 - 406 MHz and the possible transition out of the band 405 - 406 MHz, is suppressed. This decision is an important achievement for meteorological operations, concluding a tough debate since 1992;
- Current allocations were not changed in the band 1670-1710 MHz, which is a main band for meteorological satellite operation worldwide and for radiosondes operation by many NMHSs in its lower part. The possible allocation of part of the band to the mobile-satellite service has also been debated since 1992. WRC-2000 suppressed Resolution 213 (Rev. WRC-95) that addressed the whole band 1675-1710 MHz and adopted a new resolution on sharing studies and possible allocations to the mobile-satellite service in the 1-3 GHz range, including consideration of the band 1683-1690 MHz and the assessment, with the participation of WMO, of the current and future meteorological spectrum requirements;
- The allocations to spaceborne passive remote sensing in the Earth Exploration-Satellite Service in the frequency range 71-275 GHz were re-organized to meet present and foreseeable future requirements, taking into account technological and scientific advances. These decisions complement those taken by WRC-97 in the frequency range 50-71 GHz;
- The band 18.6-18.8 GHz was allocated worldwide to spaceborne passive remote sensing, solving an issue that was debated for 15 years;
- Regulatory provisions were decided to ensure an acceptable protection of spaceborne passive sensors in the band 55.78-56.26 GHz (oxygen absorption band);
- The 2 700-2 900 MHz band, which is worldwide allocated to meteorological radars and aeronautical radionavigation radars, was not retained as a band for the IMT-2000 operation (third generation of mobile phones).

Main issues for future WRCs

3. The pressure on radio frequency bands would continue with the increasing development and expansion of new radiocommunication systems. WMO/EC-LII re-emphasized the importance of continuing to defend the frequency allocations to meteorological systems and environmental satellites.

The preliminary agenda for the next World Radiocommunication Conference (WRC-2003) includes items of importance for meteorology, and in particular the following:

1.20 to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz, in accordance with Resolution 214 (Rev.WRC-2000).

Although Resolution 219 (WRC-97) on the band 401 - 406 MHz was suppressed, it shall be noted that Resolution 214 (Rev.WRC-2000) makes it possible to address any band below 1 GHz with respect to possible additional allocations for the non-GSO MSS. Developments on this matter should be carefully watched.

1.31 to consider the additional allocations to the mobile-satellite service in the 1-3 GHz band, in accordance with Resolutions [COM5/29] (WRC-2000) and [COM5/30] (WRC-2000).

Resolution 227 [COM5/30] (WRC-2000) is attached for ease of reference. It requests that the technical and operational studies on the feasibility of sharing between MSS and MetSat in the band 1 683-1 690 MHz be completed. Previous studies concluded that "sharing between MetSat and MSS in the band 1 675-1 690 MHz is feasible if appropriate separation distances are maintained". This requests is an opportunity to revisit criteria for sharing and coordination with a view to an outcome possibly more favourable to MetSat stations (e.g. increased separation distances), taking due account of GVAR and S-VISSR stations that were not fully recognized in the current Recommendation ITU-R SA.1158-2.

Resolution 227 [COM5/30] (WRC-2000) also requests to assess, with the participation of WMO, the current and future spectrum requirements (of the MetAids service, taking into account improved characteristics, and) of the MetSat service in the band 1 683-1 690 MHz, taking into account future developments. The Resolution notes "that sharing between MetSat and MSS may not be feasible in those countries where a large number of MetSat stations are deployed". In this regard, MetSat operators, NMSs and WMO shall provide to ITU-R Working Party 7C all the relevant information **on the current status and future plans** of MetSat receiving stations in all countries, in particular with respect to GVAR and S-VISSR stations. WMO considers dispatching a questionnaire to all NMSs concerned, but complementary investigation, such as involving manufacturers, should be devised in order to reach and assess **all current and potential users**.

It shall be noted that, taking into account the schedule of the various ITU-R meetings involved in the preparation of WRC-2003, most -if not all- of the contributions mentioned above should be submitted to the next session of WP 7C planned from 9-17 May 2001. WMO plans a session of the CBS Steering Group on Radio-Frequency Co-ordination (SG-RFC) just prior to the WP 7C meeting to finalise the WMO contribution.

4. As the pressure from the radiocommunication industry will continue on radio frequency bands, it is particularly important that the meteorological community agrees on clear and solid strategy and guidelines for the utilisation of frequency bands allocated to multiple meteorological radiocommunication services. This strategy is urgently required for the bands 401-403 MHz and 1670-1700 MHz that are shared by MetSat and MetAids. The CBS Steering Group on Radio-Frequency Co-ordination is expected to address this issue in its forthcoming activities. The "internal" partitioning of the band 1675-1710 MHz for MetSat operations (1675-1690-1698-1710 MHz) should also be carefully revisited, in order to offer a strong rationale for possible studies in the future, and CGMS is invited to consider this issue.

APPENDIX

RESOLUTION 227 [COM5/30] (WRC-2000)

Sharing studies for, and possible additional allocations to, the mobile-satellite service (Earth-to-space) in the 1-3 GHz range, including consideration of the band 1 683-1 690 MHz

The World Radiocommunication Conference (Istanbul, 2000),

considering

- a) that ITU-R has established that, so as to meet projected mobile-satellite service (MSS) requirements in the frequency range 1-3 GHz, spectrum of the order of two times 123 MHz will be required by 2005 and of the order of two times 145 MHz will be required by 2010;
- b) that, at this conference, proposals have been made for worldwide allocation of the band 1 683-1 690 MHz to the MSS (Earth-to-space);
- c) that the frequency band 1 675-1 710 MHz is allocated to the MSS (Earth-to-space) in Region 2 on a co-primary basis;
- d) that the band 1 683-1 690 MHz is mainly used by the meteorological-satellite (MetSat) and meteorological aids (MetAids) services;
- e) that, while there are only a limited number of main MetSat earth stations operating in this band in all three Regions, there are a large number of MetSat earth stations operating in Regions 2 and 3, and the locations of many of these stations are unknown;
- f) that use of these stations in Regions 2 and 3 by government, commercial and private users for public safety and enhancement of national economies is on the increase;
- g) that sharing between MetSat and MSS in the band 1 675-1 690 MHz is feasible if appropriate separation distances are maintained by means of coordination under No. **S9.11A**;
- h) that sharing between MetSat and MSS may not be feasible in those countries where a large number of MetSat stations are deployed;
- i) that Recommendation ITU-R SA.1158-2 indicates that additional studies are required in order to determine the criteria for coordination between MSS and the MetSat service for GVAR/S-VISSR stations operated in the band 1 683-1 690 MHz in Regions 2 and 3;
- j) that sharing of the band 1 690-1 710 MHz between MSS and MetSat is not feasible;
- k) that co-channel sharing between MSS and MetAids is not feasible;
- l) that co-frequency sharing between MetAids and MetSat services is not feasible;
- m) that WMO has identified future spectrum requirements for MetAids operations as 1 675-1 683 MHz in the band 1 675-1 700 MHz, but some administrations will continue to require spectrum in the range 1 683-1 690 MHz for MetAids operations;

n) that MSS operation should not constrain current and future development of the MetSat service, as specified in No. **S5.377**;

o) that new coordination parameters for MetSat earth stations have been adopted at this conference which will require a review of assumptions made in earlier ITU-R studies,

recognizing

that there remains an unsatisfied need for additional uplink MSS spectrum on a global basis, preferably in the vicinity of the existing 1.6 GHz allocations,

noting

a) that no further study is required on sharing between the services identified under *considering* above and MSS in the bands 1 675-1 683 MHz and 1 690-1 710 MHz;

b) that Resolution **[COM5/29] (WRC-2000)** addresses sharing studies for possible additional allocations to MSS (space-to-Earth) in the 1-3 GHz range, including consideration of the band 1 518-1 525 MHz,

resolves to invite ITU-R

1 to complete, as a matter of urgency and in time for WRC-03, the technical and operational studies on the feasibility of sharing between MSS and MetSat, by determining appropriate separation distances between mobile earth stations and MetSat stations, including GVAR/S-VISSR stations, in the band 1 683-1 690 MHz, as stated in Recommendation ITU-R SA.1158-2;

2 to assess, with the participation of WMO, the current and future spectrum requirements of the MetAids service, taking into account improved characteristics, and of the MetSat service in the band 1 683-1 690 MHz, taking into account future developments;

3 in the event that the studies of the specific frequency band referred to in this resolution lead to an unsatisfactory conclusion, to carry out sharing studies in order to recommend alternative MSS (Earth-to-space) frequency bands in the 1-3 GHz range, but excluding the band 1 559-1 610 MHz, for consideration at WRC-03;

4 to bring the results of these studies to the attention of WRC-03,

further resolves

to recommend that WRC-03 consider making new allocations to the MSS (Earth-to-space), on a global basis, preferably in the vicinity of the existing allocation around 1.6 GHz,

urges

administrations and interested parties such as WMO to participate actively in these studies by submitting contributions,

instructs the Secretary-General

to bring this resolution to the attention of WMO.