

Report from the 2007 World Radiocommunication Conference

NOAA-WP-10 presents a summary of the 2007 World Radiocommunication Conference (WRC-07) regarding frequency issues concerning metsats.

This document provides information to CGMS Members regarding radio frequency activities that could possibly affect frequencies used by metsats.

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The demanding 4-week 2007 World Radiocommunication Conference (WRC-07) considered 21 agenda items, five that concerned frequency bands or issues of direct interest for operators of meteorological satellites, viz.:

- **Agenda item 1.2:** Extension of the 18 GHz Metsat allocation and protection of the 10.6-10.68 and 36-37 GHz Earth exploration-satellite service (EESS) (passive) bands
- **Agenda item 1.12:** Coordination and notification procedures for EESS (active and passive) sensors
- **Agenda item 1.17:** Protection of the 1.4 GHz EESS (passive) band
- **Agenda item 1.20:** Unwanted emissions in several EESS (passive) bands
- **Agenda item 7.2:** WRC-11 agenda

AGENDA ITEM 1.2:

Extension of the existing 18 GHz Metsat allocation: WRC-07 considered a 100-MHz extension of the existing 18.1-18.3 GHz Metsat allocation. [Footnote **5.519:** *Additional allocation:* the band 18.1-18.3 GHz is also allocated to the meteorological-satellite service (space-to-Earth) on a primary basis. Its use is limited to geostationary satellites.] Even though a global allocation was preferred, during the discussions two views emerged from which it was not possible to find a common position. In the end, the extension was approved in 18-18.1 GHz for Region 2 (North and South America) and in 18.3-18.4 GHz for Region 1 (Europe, Africa) and Region 3 (Asia-Pacific).

Protection of the EESS (passive) in the 10.6-10.68 GHz and 36-37 GHz bands:

These bands are shared with active services and the discussions focused on possible limits to be applied to those active services in order to ensure the protection of passive sensors.

The positions between administrations supporting mandatory limits and those supporting only recommended limits were quite balanced and it quickly appeared that for the 10.6-10.68 GHz band finding a solution would not be easy, since either the band was quite heavily used in some countries or because some administrations were not willing to modify the existing limits in footnote **5.482**. [Footnote **5.482:** In the band 10.6-10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna shall not exceed –3 dBW. These limits may be exceeded subject to agreement obtained under No. **9.21**. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Tajikistan and Turkmenistan, the

restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.]

A solution was only found at the end of the third week of the conference, viz., for a global compromise for all passive bands being considered under agenda items 1.2 and 1.20.

For agenda item 1.2, the conclusions were to recommend levels for the band 10.6-10.68 GHz and to impose mandatory limits on active services in the 36-37 GHz band, respectively found in **Resolutions 751** and **752**. The recommended levels in **Resolution 751** are associated with *resolves 1* that includes the following text: “noting that EESS (passive) sensors provide worldwide measurements that benefit all countries, even if these sensors are not operated by their country”. This text will hopefully make such administrations deploying active services in this band have a clear knowledge of the importance of passive sensing.

On the positive side, China, Japan and Latvia deleted their country name from the provision of footnote **5.482**, excluding themselves from applications of any limits prior WRC-07. Unfortunately, 12 new administrations added their names, including eight Arab countries.

AGENDA ITEM 1.12:

The formal registration of active and passive sensors was made possible by incorporating modifications to Appendix 4 of the ITU Radio Regulations.

AGENDA ITEM 1.17:

Without surprise, since all positions presented at the conference were consistent, the secondary MSS feeder link allocation close to the 1.4 GHz passive band was deleted.

AGENDA ITEM 1.20:

Unlike agenda item 1.2, agenda item 1.20 concerned the protection of passive sensing in the 1.4, 24, 31, 50 and 52 GHz bands from unwanted emissions produced by active services allocated in adjacent bands. This issue, which has been on the agenda of the last three WRCs, again started with opposing sides, i.e. administrations supporting mandatory limits and those supporting only recommended levels or even no limits at all.

Although for the 1.4 GHz band, the positions were more balanced, mainly due to the fact that a number of active services around this band (Fixed, Mobile or Radars) are heavily deployed, a large majority of administrations were supporting mandatory limits for the higher bands, recognizing their importance for remote sensing of the atmosphere.

The final agreements, found in **Resolution 750**, were to impose mandatory limits for the active services close to the 24, 31, 50 and 52 GHz bands and recommended levels for active services around 1.4 GHz. As was accomplished for agenda item 1.2, the recommended levels are associated with text in *resolves 2* that states: “noting that EESS (passive) sensors provide worldwide measurements that benefit all



countries, even if these sensors are not operated by their country”, hopefully giving those administrations deploying active services in these bands a clear knowledge of the importance of passive sensing.

AGENDA ITEM 7.2:

A number of proposed agenda items for the next WRC-11 were made by several administrations or regional groups and, after lengthy discussions, WRC-07 agreed on an WRC-11 agenda including 25 different items (**Resolution 805**), two having direct interest to CGMS, viz.:

- **Agenda item 1.6:** Passive bands requirements above 275 GHz (presented by different regional groups and WMO), associated with **Resolution 950 (Rev. WRC-07)**
- **Agenda item 1.24:** Extension of the non-geostationary Metsat allocation at 7.8 GHz (presented by Europe and WMO), even though the initial proposal was reduced from 100 MHz to only consider an extension of 50 MHz in the 7850-7900 MHz, associated with **Resolution 672**

There are other agenda items that could have some impact on meteorological interests. While it may be premature to determine the amount of their impact, items 1.8, 1.14, 1.22 and 1.25 should be monitored closely.

Even though the proposal on "Earth Observation Recognition" (presented by Europe and WMO) was not placed on the WRC-11 agenda, WRC-07 did agree on a resolution, viz., **Resolution 673** "Radiocommunications use for Earth observation applications" calling for studies and a report to WRC-11. Such recognition of this issue, though not formally calling for any additional allocation or regulatory measures, is similar to having an agenda item. One can also note that, in particular, this resolution emphasises the importance of frequencies for Earth observation and clearly mentions GEO (Group on Earth Observation) and GEOSS (Global Earth Observation System of Systems).