

RADIO-FREQUENCY PROTECTION MATTERS

(Submitted by the WMO Secretariat)

Summary and Purpose of Document

This document informs on radio-frequency protection matters of relevance to ET-SAT, based on the outcome of the Steering Group on Radio Frequency Coordination (SG-RFC) meeting held in January 2011 and the progress of preparatory discussions for the World Radio Conference 2012.

It highlights the preparations in place for the next world radio conference (WRC-12) along with potentially important emerging issues on radio frequency protection.

It notes the important role of ET-SAT in contributing to the work of the SG-RFC as well as potential benefits to ET-SAT members and other earth observing satellite coordination groups in taking advantage of WMO's observer status with ITU for providing a link into ITU processes.

ACTION PROPOSED

The Expert Team is invited:

- To note the report on WMO Radio Frequency Coordination
- To task its members to review the WMO Position Paper on WRC-12 Agenda and provide feedback on the Position Paper and emerging issues to the SG-RFC through the secretariat prior to last quarter of 2011 .
- To, in addition to informing SG-RFC of relevant issues from the space community, revitalise links with the SG-RFC and secretariat to ensure effective WMO representation of Earth Observation Satellite providers and users in ITU processes.

Appendix: Report on WMO Radio Frequency Coordination

Report on Radio Frequency Coordination RADIO-FREQUENCY PROTECTION MATTERS

1. Preparation for WRC-12

The WMO Commission for Basic Systems (CBS) Steering Group on Radio Frequency Coordination (SG-RFC) met in July 2008, September 2009 and January 2011. It initially reviewed the outcome of the ITU-R World Radio Conference 2007 (WRC-07), and the planned agenda items for WRC-12 and identified those agenda items that could have an impact on WMO activities involving radio frequency. It prepared a WMO Preliminary Position Paper¹ on the draft Conference Preparation Meeting (CPM) report which was circulated more widely following the September 2009 SG-RFC meeting, and finalised following a meeting of the SG-RFC in January 2011, Geneva. Items 1.3 (Unmanned Aircraft Systems (UAS)) and 1.7 (Aeronautical mobile under Resolution 222 (Rev. WRC-2007)) were removed from the position paper. The meeting also agreed to rearrange the items into a single list of 13 items concerning frequency bands or issues of prime interest/concern for Meteorology, as follows:

- Agenda item 1.2 : Enhancing the international regulatory framework
- Agenda item 1.5 : Electronic News Gathering (ENG)
- Agenda item 1.6 (Res. 950) : Passive service between 275 and 3000 GHz
- Agenda item 1.8 : Fixed service between 71 and 238 GHz
- Agenda item 1.15 : Oceanographic radars in the frequency range 3-50 MHz
- Agenda item 1.16 : Lightning detection below 20 kHz
- Agenda item 1.19 : Software Defined Radio (SDR) and Cognitive Radio Systems (CRS)
- Agenda item 1.20 : High Altitude Platform Stations (HAPS) in the range 5 850 7 075 MHz
- Agenda item 1.22 : Effect of emissions from short-range devices (SRD)
- Agenda item 1.24 : Extension of the 7 750 7 850 MHz Metsat band to the band 7 850-7 900 MHz
- Agenda item 1.25 : Mobile Satellite Service
- Agenda item 8.1.1 : (issue C) Resolution 673 (WRC-07) on Radiocommunications use for Earth observation applications
- Agenda item 8.2 : WRC-2015 Agenda

The final WMO Position Paper² was submitted to ITU CPM-11 as a formal document for consideration of CPM-11. In addition to the position paper, SG-RFC also prepared three papers with specific recommended changes to the draft CPM guidance document. These were on agenda items 1.18 and 8.1.1 as well as one joint submission (with Spain, France, Italy, Lithuania, UK, Sweden, CRAF, and EUMETSAT).

The SG-RFC plans to meet in September/October in Geneva to review WMO Members' preparation for WRC-12, and to prepare briefing material for those representing WMO at WRC-12, and to allow Members to be aware of the need to support WMO representatives at the WRC.

2. Representation of earth observation satellite in ITU processes

WMO held a small side meeting at CPM-11 with some earth observation satellite representatives and SG-RFC representatives. It was noted that several coordinating bodies concerned with earth observing satellites, did not have any international body representation at ITU. An outcome of this meeting was to remind WMO and groups such as ET-SAT to make use of WMO's position as an

¹ 2009 WMO Preliminary Position Paper on relevant ITU-R, World Radio Conference 2012 (WRC-12) agenda items.
http://www.wmo.int/pages/prog/www/TEM/WMO_RFC/documents/WMO%20preliminary%20position%20on%20WRC-12_20090928.doc

² 2011 WMO Position Paper on relevant ITU-R, World Radio Conference 2012 (WRC-12) agenda items.
http://www.wmo.int/pages/prog/www/WIS/wiswiki/tiki-view_blog_post.php?postId=28

observer at ITU, to help represent special needs of the satellite community. To this end it is important that CBS expert teams such as ET-SAT liaise closely with the SG-RFC and the secretariat to ensure such representation is effective through WMO.

3. Emerging issues

The SG-RFC is monitoring many other issues associated with radio frequency, including the pressure of the community requiring mobile broadband to share spectrum presently reserved for earth observation systems and meteorological aids. There is a series of national initiatives such as the proposed sharing of the L-Band used for download of remote sensing data from earth observation satellites, first evident in the USA and now appearing in the UK. It is noted that both WMO and CGMS have written to the US authorities expressing high concerns regarding the potential use of the METSAT L-Band for 4G Mobile communications applications. The WMO Secretariat was furthermore invited to express its views on the subject at the NOAA Satellite Direct Readout Conference in presence of the US telecommunications administration (Miami, 4-8 April 2011).

The January 2011 meeting was informed by the chairman of SG-RFC, Mr Philippe Tristant, about various ITU-R activities related to satellite remote sensing and in particular:

- The adoption of the ITU-R Handbook on “Earth Exploration Satellite Service”
- The adoption of ITU-R Recommendation RS.1859 on “Use of remote sensing systems for data collection to be used in the event of natural disasters and similar emergencies”
- The adoption of ITU-R Recommendation RS.1883 on “Use of remote sensing systems in the study of climate change and the effects thereof”
- The adoption of ITU-R Recommendation RS.1861 on “Typical technical and operational characteristics of Earth exploration-satellite service (passive) systems using allocations between 1.4 and 275 GHz”
- The revision of ITU-R Recommendation RS.1813 on “Reference antenna pattern for passive sensors operating in the Earth exploration-satellite service (passive) to be used in compatibility analyses in the frequency range 1.4-100 GHz”
- The adoption of ITU-R Report RS.2165 on “Identification of degradation due to interference and characterization of possible interference mitigation techniques for passive sensors operating in the Earth exploration satellite service (passive)”

These ITU-R Recommendations related to remote-sensing are available for download from the ITU web site at the following URL: <http://www.itu.int/rec/R-REC-RS/en> .

The meeting was also informed that, following concerns raised by WMO, EUMETSAT and ESA in ITU-R WP5C about Report F.2107, a revision of this Report is now on-going to clarify the situation of Fixed Service applications around 120 GHz that are, in the current version of the Report, depicted as using the band 114.25-116 GHz covered by RR N°5.340.

4. Handbook on “Use of Radio Spectrum for Meteorology”

WMO Executive Council and CBS have both expressed concern about the level of support for the essential role of radio frequency coordination and concern for the awareness levels of Members of how important this activity is.

The ET-SAT is reminded of the usefulness of the ITU-WMO Handbook on “Use of Radio Spectrum for Meteorology: Weather, Water and Climate Monitoring and Prediction” in helping people understand the role of radio frequencies in earth observation systems and the need to protect relevant frequencies. The 2008 edition of the handbook is available free of charge in electronic form in six languages, through a joint WMO-ITU cooperation. The revised handbook is an important reference documentation for both meteorological/earth observation and radiocommunication communities. (See: <http://www.itu.int/pub/R-HDB-45-2008/en>)

5. Coordination with GEO

The SG-RFC activities contribution also continues to provide the main outcome of GEO Task AR-06-11 (SG-RFC vice chairman, Gilles Fournier, is the lead)

6. Support to SG-RFC

The space based components of the earth observing systems are a critical component in today's environmental monitoring as well as contributing to more and better quality services for weather, climate and water, in particular the Global Data-processing and Forecasting System. These space based components are also some of the most vulnerable to competition for radio frequency, and the input of the ET-SAT has been invaluable to allowing the SG-RFC to keep aware of and address relevant issues. This support has been greatly appreciated by the SG-RFC and it encourages the ET-SAT to monitor SG-RFC activity and to continue to provide guidance and feedback.