



CGMS-35, NOAA-WP-12
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Discussed in WG1

Technical Input to the Space Frequency Coordination Group and ITU-R

NOAA-WP-12 presents a summary of technical inputs provided by NOAA to the Space Frequency Coordination Group and various ITU-Radiocommunication groups during 2006-2007 as well a summary of the frequency issues concerning metsats. Also included is a brief summary of the WMO Steering Group on Radio Frequency Coordination.

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

Technical Input to the Space Frequency Coordination Group and ITU-R

1. Introduction

There are various international groups, some ad hoc in nature that meets on a regular basis to discuss management of radio frequencies. Decisions reached by these groups can often affect the future access to the spectrum by meteorological satellites (metsats). NOAA is actively engaged in defending as well as promoting the use of the radio frequencies for metsats in order to meet the needs of our satellite missions. Such spectrum use includes not only communication links, both space-to-Earth and Earth-to-space, but also use for passive and active sensing needs.

2. Space Frequency Coordination Group (SFCG)

The 26th meeting of SFCG was held in Bonn, Germany from 19-27 September 2006 and SFCG-26 met in Maspolamas, Spain during 19-27 September 2007. This ad hoc international group meets annually to discuss radio frequency matters of interest to the various civil space agencies. SFCG is the pre-eminent radio-frequency collegiate of space agencies and related national and international organizations through which global space systems spectrum resources are judiciously husbanded for the benefit of humanity. The input documents are usually attributed to one of several working groups. The two working groups of most importance to metsats are the "ITU Matters and preparation for WRC-07" and the "EES and Metsat". (Note: EES = Earth exploration satellite).

NOAA inputs to SFCG-26 summarized the June 2006 passive microwave workshop held in Silver Spring, Maryland; presented alternatives for resolving 6-7 GHz band EES compatibility issues; proposed changes to the SFCG resolution covering metsat operations in the 7750-7850 MHz band; discussed ways to protect downlinks in 25.5-27 GHz used for manned missions; and provided an updated list of present and future radio frequency requirements of NOAA satellite networks.

NOAA inputs to SFCG-27 summarized the May 2007 passive microwave workshop held in Silver Spring, Maryland; presented alternatives for resolving 6-7 GHz band EES compatibility issues; discussed ways to protect downlinks in 25.5-27 GHz used for manned missions as well as for the future 15 or so NPOESS SafetyNet Earth stations; and provided an updated list of present and future radio frequency requirements of NOAA satellite networks.

SFCG-26 the working group on ITU Matters and preparation for WRC-07 finalized the resolution dealing with WRC-07 agenda items of importance to the SFCG membership. Those items critical to metsats were discussed in detailed in CGMS-XXXIV NOAA-WP-07. At last year's SFCG meeting the working group on EES and metsat reviewed many input documents and focused its discussion on active and passive sensors, meteorological issues (metatids and metsats), and ultra wideband devices. The group also reviewed the many resolutions and recommendations attributed to EES and metsats. Of interest to CGMS are the discussions on

protection of passive sensor frequencies and the communications links used by metsats.

International Telecommunication Union – Radiocommunication (ITU-R) sector Working Parties 7B and 7C (WP7B, WP7C)

The ITU-R WP7B and WP7C met once in the last 12 months (6-9 February 2007). WP7B is concerned with space radio systems, i.e. the transmissions between the Earth and satellites, both uplinks and downlinks. A major topic of interest to CGMS under consideration in this WP is furthering technical studies toward gaining approval of expanding the existing geostationary metsat space-to-Earth allocation at 18.1-18.3 GHz by 0.1 GHz, i.e. by 50%. As a result of previous inputs, those introduced by EUMETSAT at this meeting, and the continued coordination with the fixed-satellite service, the preparatory work was completed at the meetings. The Conference Preparatory Meeting (CPM) text, finalized in February 2007, supports the expansion of this metsat allocation.

WP 7B also considers all of the ITU Radiocommunication Bureau recommendations dealing with communication links to and from metsats. At its last meeting, WP 7B considered further revisions to ITU-R Recommendation SA.1026 entitled "Interference criteria for space-to-earth data transmission systems operating in the earth exploration-satellite and meteorological-satellite services using satellites in low-earth orbit". This recommendation is in need of a major update to include, among other changes, the necessary interference criteria for the NPOESS satellite network. Work on the update to this recommendation could not be completed at the meeting and will require additional work at the next meeting of the Working Party tentatively scheduled for April 2008. It was noted that revision of the recommendation will likely impact other recommendations and that the overall effect made by substantial if it is to be fully rigorous.

WP7C covers applications in the EES concerning active and passive sensors as well as metajets, i.e. radiosondes. The major thrust in WP7C during the last meeting of interest to CGMS is to address the WRC-07 agenda item concerning sharing in 10.6-10.68 and 36-37 GHz between passive sensors and the active fixed and mobile services. Additionally, there was much exchange of information concerning protection of passive sensors between WP7C Task Group (TG) 1/9 (Compatibility between passive and active services, i.e. unwanted emissions into passive sensors).

3. World Meteorological Organization (WMO) Commission for Basic Systems (CBS) Steering Group on Radio Frequency Coordination (SG-RFC)

The WMO's SG-RFC met in 2007 to discuss topics related to metajets and metsats. The major topic of interest to metsat operators was to finalize the WMO position on WRC-07 topics of concern to metsats and metajets. The completed document was distributed among the metsat/metajet community earlier in 2007 as a guide for SG-RFC members to lobby radio frequency managers within their respective administrations on those WRC-07 agenda items that directly impact the meteorology community. The attendees also discussed updates to the handbook entitled "Use of Radio Spectrum for Meteorology". Completion of revisions to the handbook will permit availability of a new edition sometime in 2008, updating the original edition published in 2002.

4. International Telecommunication Union's World Radiocommunication Conference 2007 (WRC-07)

Unfortunately the 4-week WRC-07 will be ongoing during the CGMS-35, concluding on 16 November 2007. Thus there will not be a summary of the outcome regarding the agenda items of interest to CGMS members until the 2008 meeting of the group. The agenda items of interest include:

1.2 – to consider allocations and regulatory issues related to Earth exploration-satellite (passive) service, space research (passive) service and the meteorological satellite service in accordance with Resolutions 742 and 746

1.3 – in accordance with Resolution 747, consider upgrading the radiolocation service to primary allocation status in the bands 9000-9200 MHz and 9300-9500 MHz and extending by up to 200 MHz the primary allocations to the Earth exploration-satellite (active) and space research service (active) in the band 9500-9800 MHz without placing undue constraint on the services to which the bands are allocated.

1.4 – to consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution 228

1.8 – to consider the results of ITU-R studies on technical sharing and regulatory provisions for the application of high altitude platform stations operating in the bands 27.5- 28.35 GHz and 31-31.3 GHz in response to Resolution 145

1.12 – to consider possible changes in response to Resolution 86 of the Plenipotentiary Conference: "Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks" in accordance with Resolution 86

1.20 – to consider results of studies, and proposals for regulatory measures if appropriate regarding the protection of Earth exploration-satellite (passive) service from unwanted emissions of active services in accordance with Resolution 738

7.2 – to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 803

A full report regarding the outcome on these agenda items will be provided to CGMS-36.