CGMS-48-CGMS-WP-04
V1, 8 May 2020

Prepared by EUMETSAT
Agenda Item: 3.1
Discussed in WG I

Report from the CGMS/SFCG Liaison Officer

This document provides a report from the CGMS/SFCG Liaison Officer on the discussions and outcome of SFCG-39 (1 – 8 July 2019, Berlin, Germany) on frequency matters of mutual interest/concern, namely

- WRC-19 issues of mutual interest/concern to SFCG and CGMS,
- Databases SFCG Remote Sensing Disaster Database (RSDD) and IEEE GRSS Database,
- Space weather observations using radio frequencies,
- RFI to EESS(passive) sensors and interference reporting,
- Optimisation of the use of the S-band (2025-2110 MHz and 2200-2290 MHz,
- SFCG-Recommendations related to the new EESS uplink allocation in 7190-7250 MHz.

Furthermore, information is also provided on consequential/resulting activities in WMO Steering Group for Radio Frequency Coordination (SG-RFC), on issues of relevance to CGMS.

CGMS is invited to note this report and to provide feedback and information on its activities to SFCG-40 (September 2020) on any frequency related matter as appropriate.

Action/Recommendation proposed: None.

REPORT FROM THE CGMS/SFCG LIAISON OFFICER

1 INTRODUCTION

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CGMS is invited to note this report and to provide feedback and information on its activities to SFCG-40 (September 2020) on any frequency related matter as appropriate.

2 WRC-19 ISSUES OF MUTUAL INTEREST/CONCERN SFCG AND CGMS

SFCG finalised its objectives for WRC-19 issues of relevance to SFCG member agencies. Those objectives were largely in line with the positions of WMO, both presented to WRC-19.

A detailed report on the outcome of WRC-19 is provided in document CGMS-48-CGMS-WP-05 and therefore not further discussed here.

3 DATABASES

3.1 SFCG Remote Sensing Disaster Database (RSDD)

SFCG maintains a Remote Sensing Disaster Database (RSDD). This database provides information on instruments, mission, frequency of operation, data product, product usage, and data latency on remote sensing missions and instruments that can support disaster management and relief support efforts.

SFCG-39 discussed the value of the RSDD database and the proposal to evolve the RSDD towards a remote sensing database. There was agreement that it is important to appropriately capture information/characteristics of active and passive remote sensing instruments/missions in a database, including those sensors data currently captured in the RSDD. However, any such remote sensing database should not be a copy of the WMO OSCAR database.

Therefore, it was concluded to first attempt to gather data in form of the data set captured by the OSCAR database and to find out how most efficiently inject the gathered data into the OSCAR database via the responsible persons for the OSCAR data updates.

For this purpose SFCG Action Item 39/7 was agreed, requesting SFCG agencies to provide information about their current and planned remote sensing systems in the format outlined in the action, and with this information to consider attempting also the revision of the remote sensing data as presented in OSCAR database.

Additionally, SFCG requested member agencies submit input contributions containing detailed information on current and future remote sensing payloads (both active and passive).

The activities on this SFCG Action Item 39/7 are still ongoing with the involvement and in exchange with those responsible in WMO for the OSCAR database.

Concerning the future of the RSDD, SFCG agreed for the time being to keep it as it is now for 1-2 years without updating it. In the meantime, the potential development/evolution of remote sensing data gathering SFCG Action Item 39/7 into a dedicated SFCG database, or a procedure for updating data in the OSCAR database, needs further consideration at the next SFCG meetings.

In addition, it was agreed to request member agencies to submit high level information about their remote sensing instruments as part of the annual reporting of current/future missions (mission list) (SFCG Action Item 39/6). Information provided in accordance with the agreed format will then be discussed further in SFCG.

3.2 IEEE GRSS Database

IEEE Geoscience and Remote Sensing Society (GRSS) provided an update on the progress in the development of a new web application with two interesting capabilities for remote sensing:

- lookup and display of frequency allocations, with particular attention to the EESS bands;
- database of RFI instances detected worldwide by active and passive sensors.

It was noted that it is important to ensure transparency about the source of information available in this IEEE Web application, when last updated and whether the RFI has already been reported to the administrations with jurisdiction over the territories where the RFI sources have been located.

Furthermore, IEEE GRSS presented document SF39-49/D in which it is proposed that the SFCG include a link in its Home page to the IEEE/GRSS FARS database in a fashion similar to the other databases already linked there. It was concluded that it would not be sufficient to just refer to the FARS database. It was felt necessary to devote much more space and explanation on the issue of RFI reporting on the SFCG website, providing an explanation on RFI reporting, the corresponding ITU-R mechanism and links to databases like the FARS database. For the establishment of this new section on the SFCG website, Action Item 39/8 was agreed.

4 SPACE WEATHER OBSERVATIONS USING RADIO FREQUENCIES

Despite the general support from SFCG for an agenda item for WRC-23 on space weather, only one regional group in ITU-R actually proposed to deal with this issue at WRC-23.

There was support from individual countries from around the world, but this was not sufficient to push WRC-19 to agree on a WRC-23 agenda item with a mandate to determine binding regulatory conditions to protect space weather sensors as an outcome of WRC-23.

Consequently, WRC-19 decided to include Agenda Item 9.1a) *"to review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to describing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services."*

The objective of this Agenda Item 9.1a) is to gather information on space weather sensors/instruments/missions, identify their spectrum requirements and protection needs, and ways to reflect space weather in the ITU Radio Regulations. Only at WRC-27 such regulatory text/conditions/recognition related to space weather maybe envisaged. For this, a preliminary WRC-27 agenda item was established to be confirmed at WRC-23.

As the group in ITU-R dealing with remote sensing applications, ITU-R Working Party 7C already developed Report ITU-R RS.2456 in preparation for WRC-19, summarising the technical and operational characteristics of RF-based space weather sensors. It also provides a categorization of selected RF-based sensors, which was supposed to help in consolidating the scope and objectives of the WRC-23 agenda item. This report can now serve as a starting point for the deliberations on WRC-23 Agenda Item 9.1a) on space weather.

5 RFI TO EESS (PASSIVE) SENSORS AND INTERFERENCE REPORTING

SFCG considered it necessary to devote a new section on the SFCG website, providing an explanation on RFI reporting, the corresponding ITU-R mechanism and links to appropriate databases.

To continue emphasizing the importance of reporting of RFI to EESS (passive) sensors to relevant Administrations and sharing this information with other SFCG members a corresponding new SFCG Action Item 39/11 was agreed.

6 OPTIMISATION OF THE USE OF THE S-BAND (2025-2110 MHZ AND 2200-2290 MHZ

As per SFCG Action Item 38/7, several SFCG member agencies presented, through their administrations, to the May 2019 meeting of ITU-R Working Party 7B updates to an ITU-R Preliminary Draft New Recommendations ITU-R SA.[S-band DN use OPT] and SA.[SBAND UP USE], initially drafted during SFCG-38.

At the May 2019 meeting of ITU-R Working Party 7B, several approaches were considered, with two main options:

> Option 1, to use the current text as baseline, focusing on bandwidth limits and facilitation of efficient use/sharing and operations, which would need to more precisely define what bandwidth is used;
>
> Option 2, to define an alternative approach, aiming at more accurate and precise Advanced Publication Information (API) filings in the ITU-R, with the goal of reducing the amount of coordination related activities/correspondence required.

In SFCG no conclusion on the preferred approach was reached. Also on the need to define the suitability and applicability of a recommended bandwidth limitation at emission, system or satellite network level was discussed, no consensus was reached. Furthermore, considerations were raised about the need to have a wider forum, not restricted to SFCG members, to progress with this topic. SFCG agreed that no follow on actions are needed at SFCG level, and discussions should continue at ITU-R level in Working Party 7B.

7 SFCG-RECOMMENDATIONS RELATED TO THE NEW EESS (EARTH-SPACE) ALLOCATION IN 7190-7250 MHZ

A new EESS uplink allocation was added to the Radio Regulations frequency allocation table at WRC-15 in the 7190-7250 MHz band. This band may be used for TT&C in combination with the EESS downlink allocation in the 8025-8400 MHz band, or even the MetSat allocation at 7750-7900 MHz.

Considering the complex usage situation in S-Band due to the large number of systems using this band and the consequential difficulty to agree on some limitations for the usage of the S-Band, SFCG considered that it would be useful to provide some guidance upfront about the use of this new EESS uplink allocation for TT&C before the band gets populated. As this new EESS uplink allocation at 7190-7250 MHz overlaps with the existing Space Research Service (SRS) allocation in the band 7190-7235 MHz these guidelines will also cover SRS.

SFCG-39 agreed on the following two Provisional New Recommendations:

- SFCG 39-1 (Interference Mitigation Techniques for Future EESS Systems Planning to operate in the 7190-7250 MHz Band), containing a recommended bandwidth limitation applicable to the modulation schemes considered for telecommand uplinks in CCSDS 401.0-B-29. Further work to address different modulation schemes, including spread-spectrum, needs to be included in a future revision of this Recommendation.

- SFCG 39-2 (Limitations on Earth-Space Link power levels in the EESS 7190-7250 MHz Band), containing guidelines on the EIRP limits on Earth-to-space links, i.e. minimum antenna diameter and related power thresholds.

SFCG adopted those two New Recommendations as provisional, meaning that they will be finalised at SFCG-40 if no additional inputs are received.

8 RELATED MEETINGS/FORA ON FREQUENCY ISSUES OF INTEREST TO CGMS

8.1 Outcome of World Radiocommunication Conference 2019 (WRC-19), 28 October to 22 November 2019

A detailed report on the outcome of WRC-19 is provided in document CGMS-48-CGMS-WP-05.

8.2 Yearly meeting of the WMO Steering Group for Radio Frequency Coordination (SG-RFC), 11-13 February 2020

At the 2020 meeting of WMO Steering Group for Radio Frequency Coordination (SG-RFC), held on 11-13 February 2020, the outcome of WRC-19 was reviewed and the Agenda for WRC-23 was assessed. The preliminary position of WMO on relevant WRC-23 agenda items are outlined in document CGMS-48-WMO-WP-02.

SG-RFC also discussed the issue of availability of Spectral Response Functions. Radio Frequency administrations are requesting more and more such information in discussions on protection of passive sensors.

An input paper on the issue of SRFs is presented in Working Group II addressing the issue of frequency protection and the need for more accurate SRFs for radiative transfer modelling.
