

# Working Group I: Global Issues on Satellite Systems and Telecommunication Coordination

CGMS 40

WG-I

# Purpose

Address items requiring detailed discussions by the relevant CGMS telecommunications experts. Provide technical assessments and recommendations to the plenary session supporting:

- Optimizations, best practices and standardisation of satellite telecommunication systems including Direct Broadcast,
- Coordinated CGMS position on frequency protection and frequency management (for telecommunications, and for active/passive remote sensing).
- Working by consensus, WG I makes recommendations and proposes actions which are reported to the plenary session.
- It is the prerogative of the CGMS plenary to review the WG I report and to endorse, or decide differently, on the actions and recommendations made by the WG I members.

## Topics of Interest to Plenary

- The lists the frequencies used by current and future satellite systems provided by CMA,EUM and NOAA. Information from these report will be the basic input for the WMO OSCAR. Compilation of the these data would provide a better means to view and analyze spacecraft parameters.
- Informed on the implementation of the 2010 US President's Broadband Initiative. It remains a U.S. government priority.
  - Interference at critical locations and at hundreds of unprotected POES and MetOp High-Resolution Picture Transmission (HRPT) locations outside exclusion zones remains a NOAA issue.
  - LightSquared has expressed a desire to share the 1675-1680 MHz band with current GOES back-up operations and NOAA radiosondes. Analysis is in the preliminary stage.

# Topics of Interest to Plenary

- Based on CGMS action 39.43, analysis performed regarding the suitability of the existing CGMS Global Specification CGMS 04 (Direct Broadcast Services: LRPT/AHRPT Global Specification) to support these services in future missions:
  - Conclusion is that the existing Global Specification is not suitable for specifying Direct Broadcast Services for future missions. If the specifications stay as they are, none of the future missions will be compliant with it, as for instance EPS-SG and JPSS will transmit data on different transmission frequency bands.
  - A major update of the CGMS Global Specification (CGMS 04) needs to be performed. A draft for the revised Global Specification 04 is provided to WG-I and WG-IV of CGMS-40 for consideration and review by CGMS members for CGMS-41.
  - The proposed update removes mission specific details from the global specification and aligns structure and contents with CGMS 03 (Global Spec for LRIT/HRIT) aiming to ensure commonalities between the data decomutation and packet reconstruction of the receiving systems.

# Topics of Interest to Plenary

- A report to CGMS of the WMO survey on L-Band / X-Band Direct Broadcast in response to action 39.45. The survey was performed among WMO Members in order to reassess the need for low-data rate services in L-band in addition to future high data rate services in X-band. As of 15 October 2012, the results of the survey were the following:
  - 36 WMO Members have responded, reporting on 46 receiving stations;
  - 23 of these Members (24 stations) have stated a need of both L-Band and X-Band.While X-Band will be required on future LEO systems to achieve sufficient data throughput for full resolution data, replies to the survey confirmed a need of low data rate stream in L-Band.

The Commission for Basic Systems (CBS-XV) therefore recommended:

  - To WMO Members to prepare for receiving Direct Broadcast of full resolution data from future polar-orbiting satellites in X-Band and to register their receiving stations with national authorities;
  - To satellite operators to implement Direct Broadcast in both X-Band, for full resolution data, and L-Band, for a subset of data, since L-Band will provide independent, weather resilient, and more affordable low rate data access;
  - To satellite operators to supplement the Direct Broadcast service with near real time retransmission of key data sets on regional broadcast services (such as EUMETCast or CMACast) where appropriate.CGMS satellite operators are invited to note the CBS-XV recommendations and the resulting WMO requirement for Direct Broadcast from polar-orbiting meteorological satellites.

## WGI contributions to the HLPP

- Review and address concerns on satellite systems and telecommunication issues for meteorological satellites including direct readout services
- EESS X-band congestion and interference assessments
  - Interference assessments will be performed on a regular basis and as necessary.
- DCP and A-DCS status and evolution including International channels, Tsunami alert systems and buoys
  - CGMS to share lessons learnt and share experiences on certification of DCS platforms (especially HR platforms) for CGMS 41.
  - CGMS members to share information on the development of their HRD platforms and share lessons learned on mitigating interference between DCPs
- Sharing of the Ka-band (LEO and GEO systems)
  - Establish coordination mechanisms for sharing and using this band (both GEO and LEO systems and inter-agencies)

# WGI contributions to the HLPP (con't)

- CGMS Direct Broadcast Global Specification
  - Evaluate the set of applicable (or TBD) standards for direct and other dissemination mechanisms in use by CGMS members and assess if there is a need, in view of future systems, to amend, modify or revise such standards (or to derive new ones).

## Other emerging themes

- Alternatives to direct read-out
  - CGMS members to work together to define a set of recommendations seeking affordable future receiving stations or alternatives to direct read-out solutions.
- Other
  - To confirm user requirements for sharing data/information delivered using DCS (outside the regional area). Data mechanisms to share DCP data.

# Long-term Horizon WGI

- **Horizon/vision for the next 15-30 years**
- Provide a forum to coordinate the use of the frequency band and make recommendations on frequency expansion and interference mitigation.
- Continue to inform CGMS members of radio frequency management activities that could possibly affect frequencies used by meteorological satellites and coordinate standardisation of satellite communication systems.
- Facilitate an effective preparation of national WRC positions favorable for the CGMS related issues.
- Continue to support the availability of sufficient and well-protected frequency spectrum for telemetry/telecommand as well as for satellite downlink of the collected data.