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2nd ITU INTER-REGIONAL WORKSHOP ON WRC-19 PREPARATION (Geneva, 20-22 November 2018)

Science services WRC-19 agenda items 1.2, 1.3 & 1.7

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For Chapter 4

WRC-19 Agenda Items (AI)

- **AI 1.2** - in-band power limits for earth stations in bands 401-403 MHz and 399.9-400.05 MHz.
  Resolution 765 (WRC-15)

- **AI 1.3** - upgrading of the secondary allocation to the meteorological-satellite service and the Earth exploration-satellite service (space-to-Earth) in band 460-470 MHz.
  Resolution 766 (WRC-15)

- **AI 1.7** - spectrum needs for TT&C for non-GSO satellites with short duration missions and possible new allocations.
  Resolution 659 (WRC-15)

WRC-19 Agenda Item 1.2

to consider in-band power limits for earth stations operating in the mobile-satellite service, meteorological-satellite service and Earth exploration-satellite service in the frequency bands 401-403 MHz and 399.9-400.05 MHz, in accordance with Resolution 765 (WRC-15)

The aim of this AI is to ensure the operation of existing and future systems that usually implement low or moderate output powers such as Data Collection Platforms (DCP) where other systems ae using the bands for high power telecommands.

- 3 methods are proposed for the band 399.9 – 400.05 MHz
- 2 methods are proposed for the band 401 – 403 MHz

WRC-19 Agenda Item 1.2
Band 399.9 – 400.05 MHz

- **Method 1**

  To include in the RR the relevant e.i.r.p. limits by adding a new footnote for the bands 399.9-400.03 MHz and a grandfathering period up to 22 November 2024 for telecommand systems.

- **Method 2**

  To include in the RR the relevant e.i.r.p. limits by adding a new footnote for the band 399.9-400.05 MHz and a grandfathering period up to 22 November 2024 for telecommand systems.

- **Method 3**

  To include in the RR the relevant e.i.r.p. limits by adding a new footnote for the bands 399.9-400.03 MHz and a grandfathering period up to 22 November 2029 for telecommand systems.

WRC-19 Agenda Item 1.2
Band 401 – 403 MHz

- **Method 1**

  To include in the RR the relevant e.i.r.p. limits by adding a new footnote for the band 401-403 MHz and a grandfathering period up to 22 November 2029 for telecommand systems.

- **Method 2**

  To include in the RR the relevant e.i.r.p. limits by adding a new footnote for the bands 401-401.7 MHz and 402.85-403 MHz and a grandfathering period up to 22 November 2029 for telecommand systems.

  In the band 401.7-402.85 MHz an e.i.r.p. density limit is proposed for telecommand operations.

WRC-19 Agenda Item 1.3

to consider possible upgrading of the secondary allocation to the meteorological-satellite service (space-to-Earth) to primary status and a possible primary allocation to the Earth exploration-satellite service (space-to-Earth) in the frequency band 460-470 MHz, in accordance with Resolution 766 (WRC-15)

In the band 460-470 MHz this AI aims at :

- upgrading the secondary meteorological-satellite service (MetSat) (space-to-Earth) allocation to primary status;
- adding a primary Earth exploration satellite-service (EESS) (space-to-Earth) allocation.

In addition, a resultant power flux-density (pfd) mask to be no less restrictive than −152 dBW/m^2 /4 kHz is proposed.

WRC-19 Agenda Item 1.3
Band 460 – 470 MHz

- **One Method**

  - upgrade of the MetSat (space-to-Earth) allocation from secondary to primary status;
  - primary EESS (space-to-Earth) allocation;
  - pfd limits to protect terrestrial services.
  - Resolution to provide transitional measures for the existing Metsat/EESS frequency assignments

WRC-19 Agenda Item 1.7

to study the spectrum needs for telemetry, tracking and command in the space operation service for non-GSO satellites with short duration missions, to assess the suitability of existing allocations to the space operation service and, if necessary, to consider new allocations, in accordance with Resolution 659 (WRC-15)

Typical non-GSO Short Duration (less than 3 years) TT&C technical parameters were developed for use in the studies.

Below 1 GHz the amount of spectrum required for non-GSO SD systems is 0.682 MHz to 0.938 MHz uplink and 0.625 MHz to 2.5 MHz for non-GSO SD satellite downlink.

Sharing studies were performed in bands below 1 GHz and resulted in 4 different methods for SOS allocation.

WRC-19 Agenda Item 1.7

- **Method 1** 
  no change to the Radio Regulations;
- **Method 2**
  new SOS (Earth-to-space) allocation for non-GSO SD systems in the frequency range 403-404 MHz;
- **Method 3**
  new SOS (Earth-to-space) allocation for non-GSO SD systems in the frequency range 404-405 MHz;
- **Method 4**
  use of the SOS allocation in the band 137-138 MHz for downlink and the band 148-149.9 MHz for uplink while providing appropriate regulatory provisions in terms of pfd or bandwidth.