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| **The 2nd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-2)** | **APG19-2/OUT-37 (Rev.1)** |
| 17 – 21 July 2017, Bali, Republic of Indonesia | **21 July 2017** |

Working Party 4

**PRELIMINARY VIEWs on WRC-19 agenda item 1.2**

**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)****;*

**1. Background**

**Resolution 765 (WRC-15)** “Establishment of in-band power limits for earth stations operating in mobile-satellite service, the meteorological-satellite service and the Earth exploration-satellite service in the frequency bands 401-403 MHz and 399.9 400.05 MHz”, calls for the necessary technical, operational and regulatory consideration of the possibility of establishing in-band power limits for earth stations in the EESS and MetSat in the frequency bands 401-403 MHz and in the MSS frequency band 399.9-400.05 MHz.

Earth exploration-satellite service (EESS), meteorological satellite service (MetSat) and mobile-satellite service (MSS) systems in these frequency bands are currently used for data collection systems (DCS). These systems are deployed worldwide in order to essentially collect weather and climate data in the frequency band 399.9-400.05 MHz (Earth-to-space) under MSS and in the frequency band 401-403 MHz (Earth-to-space) under EESS and MetSat. In these bands, earth stations, also called platforms, are deployed and send specific information (essential weather and climate data) to dedicated DCS satellites (GSO and non-GSO) which collect the corresponding data when the platforms are in the satellite footprint. DCS stations usually operate using moderate/low power levels.

However recently, there is a significant increase in use of the frequency bands 399.9-400.05 MHz (Earth-to-space) and 401-403 MHz (Earth-to-space) for telemetry, tracking and command (TT&C) purposes under the EESS, MetSat or MSS allocations. This is largely attributable to increased interest by educational institutions and especially by private and commercial entities seeking to operate large fleets and constellations of satellites. The output power levels of the earth stations referred to these telecommand links (Earth-to-space) can be much higherthan the moderate/low power levels traditionally used for the operation of EESS, MetSat or MSS systems.The proliferation of such TT&C usage potentially poses a significant risk to the large number of existing low power DCS stations communicating to sensitive receivers on GSO and non-GSO satellites. Therefore, in order to ensure long term operations of existing and future DCS, work under this item is to determine the potential impact of high power TT&C operations and what, if any, power limitations are appropriate to protect the DCS operations.

ITU-R Working Party 7B (WP 7B) is designated as the responsible group for this agenda item.

Recent developments at the April 2017 WP 7B meeting are:

* A revised version of the preliminary draft new Report ITU-R SA.[400 MHz-LIMITS] was agreed (Document 7B/170 [Annex 18](https://www.itu.int/dms_ties/itu-r/md/15/wp7b/c/R15-WP7B-C-0170!N18!MSW-E.docx)). The ‘Analysis’ section (6) of this Report is not yet developed however the intention is to provide a ‘Method’ to derive the relevant power/e.i.r.p. limits under this agenda item.
* The preliminary draft revision to Recommendation ITU-R SA.1163-2 *Interference criteria for service links in data collection systems in the Earth exploration-satellite and meteorological-satellite services* (Document 7B/170 [Annex 16](https://www.itu.int/dms_ties/itu-r/md/15/wp7b/c/R15-WP7B-C-0170!N16!MSW-E.docx)) proposes updates to include changes to EESS and MetSat systems characteristics since the last revision in 1999. It also proposes to limit the Recommendation to the case of GSO satellites as NGSO satellites are covered in Recommendation ITU-R SA.2044.
* The preliminary draft revision to Recommendation ITU-R SA.1164-2 *Sharing and coordination criteria for service links in data collection systems in the Earth exploration‑satellite and meteorological-satellite services* (Document 7B/170 [Annex 17](https://www.itu.int/dms_ties/itu-r/md/15/wp7b/c/R15-WP7B-C-0170!N17!MSW-E.docx)) proposes updates to include changes to allocations and increases in spectrum usage since the previous revision in 1999. To be consistent with revisions to SA.1163 it also proposes to limit SA.1164 to the case of GSO satellites, since GSO satellites are covered in SA.2044.
* WP7B has developed a method to establish in-band power limits and duty cycle for GSO and non-GSO satellites respectively. The final values of these power limits and duty cycle will be finalized in the next WP7B meeting.
* Draft CPM text (Document 7B/170 [Annex 1)](https://www.itu.int/dms_ties/itu-r/md/15/wp7b/c/R15-WP7B-C-0170!N01!MSW-E.docx) was further developed but no ‘Methods’ to satisfy the agenda item have been developed.

**2. Documents**

* Input Documents APG19-2/INP-11(KOR), INP-31 (AUS), INP-37(IRN),   
  INP-52 (CHN), INP-58(J)
* Information Documents APG19-2/INF-01, INF-04, INF-05, INF-14

**3. Summary of Discussions**

**3.1 Summary of Members’ view**

**3.1.1 Korea (Republic of)**

The Republic of Korea supports the ITU-R studies in accordance with Resolution 765 (WRC-15) to conduct and complete, in time for WRC-19, the necessary technical, operational and regulatory studies on the possibility of establishing in-band power limits for earth stations in the EESS and MetSat in the frequency band 401-403 MHz and the MSS in the frequency band 399.9-400.05 MHz.

**3.1.2 Australia**

Contingent upon results of ITU-R studies, Australia supports the establishment of appropriate in band power limits for MSS, MetSat and EESS Earth stations operating in the 401-403 MHz and 399.9 400.05 MHz bands (Earth-to-space) in order to ensure compatibility between existing and future applications with these and other services operating in the frequency bands.

**3.1.3 Iran (Islamic Republic of)**

Taking into account the result of ITU-R studies, This Administration may agree that for ensuring long term continuity of the operation of satellite data collection systems, the establishment of in-band power limits for earth stations operating in the MSS in the frequency band 399.9-400.05 MHz and in the EESS and MetSat in the frequency band 401-403 MHz is necessary.

**3.1.4 China (People’s Republic of)**

China supports the studies on this agenda item carried out by ITU-R WP 7B. China also supports the establishment of the power limits set forth under this agenda item and is of the view that the limits should not constrain the reception of uplink data in the current allocated service in the 399.9-400.05 MHz band and the operation of the current data collection systems in the 401-403MHz band.

**3.1.5 Japan**

Since the frequency band 401-403 MHz is also used by EESS (Earth-to-space) for non-DCS purpose in Japan, this Administration is of the view that careful consideration should be given not to impose undue constraints on EESS (Earth-to-space) earth stations in this frequency band.

**3.2 Key points raised during the meeting**

None.

**4. APT Preliminary View(s)**

APT Members support the ITU-R studies in accordance with Resolution **765 (WRC-15)** to conduct and complete, in time for WRC-19, the necessary technical, operational and regulatory studies on the possibility of establishing in-band power limits for earth stations in the EESS and MetSat in the frequency band 401-403 MHz and the MSS in the frequency band 399.9-400.05 MHz, without any constraint to existing services (including DCS and non-DCS systems).

**5. Other Views**

None.

**6. Views from Other Organisations**

**6.1 CEPT**

In order to ensure long term continuity for the operation of satellite data collection systems, CEPT supports the establishment of in-band power/e.i.r.p limits, as appropriate, for earth stations in the EESS and MetSat in the frequency band 401-403 MHz and the MSS in the frequency band 399.9-400.05 MHz, taking into account the result of studies. In addition, for the frequency band 401-403 MHz, CEPT is of the view that different sets of limits have to be established for GSO and non-GSO systems.

**6.2 CITEL**

**CAN, USA**

To support conducting and completing the necessary technical, operational, and regulatory studies on the possibility of establishing in-band power limits for earth stations in the EESS and MetSat service in the frequency band 401-403 MHz and the MSS in the frequency band

399.9-400.05 MHz.

**6.3 RCC**

The RCC Administrations consider that studies should be conducted to identify and establish power limits for earth stations used for space operation functions in the frequency bands 401-403 MHz and 399.9−400.05 MHz in order to avoid interference to data collection systems in the meteorological-satellite service, Earth exploration-satellite service and mobile-satellite service.

**6.4 ASMG**

Follow up the ongoing studies in the ITU-R.

Supporting the ongoing studies in order to establish in-band power limits for earth stations operating in Mobile satellite service (MSS), Meteorological satellite service (MetSat) and Earth exploration service in the frequency bands 401-403MHz and 399.9-400.05MHz, in order to ensure the protection of the existing services without imposing any additional constraints in these services due to the massive usage of the fixed and mobile services in these frequency bands in the countries.

**6.5 ATU** (APG19-2/INF-01)

No preliminary position on this agenda item yet.

**7. Issues for Consideration at Next APG Meeting**

APT Members are encouraged to participate in and contribute to the work of WP 7B at its next meeting in October 2017 and as well as to APG19-3.

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