ASIA-PACIFIC TELECOMMUNITY
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xx December 2018

Thailand

PRELIMINARY VIEW ON WRC-19 AGENDA ITEMS 1.2, 1.3 AND 1.7

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)"

Background

Comment [chez1]: ใช้ข้อความจาก draft CPM report : Executive summary

Taking into account the results of ITU-R studies, the objective of WRC-19 agenda item 1.2 is to consider establishing, within the Radio Regulation, in-band power limits applicable to earth stations transmissions in the frequency bands 399.9-400.05 MHz and 401-403 MHz in order to ensure the operation of existing and future systems that usually implement low or moderate output powers for mobile-satellite service (MSS), Earth exploration-satellite service (EESS) and meteorological satellite service (MetSat) systems.
PDN Report ITU-R SA.[400MHz-LIMITS] compiles elements related to background on WRC-19 agenda item 1.2 as well as technical considerations on MSS, EESS and MetSat and associated space operation functions according to RR No. **1.23** in the frequency ranges of 399.9-400.05 MHz and 401-403 MHz bands. This Report includes an analysis section providing a guidance to derive the possible e.i.r.p. (equivalent isotropically radiated power) and e.i.r.p. density limits under this agenda item while recognizing that some current and planned systems using space operation functions according to RR No. **1.23** in these bands will not be able to comply with a given set of limits.
For the band 399.9-400.05 MHz, three different methods are proposed.
For the band 401-403 MHz, two different methods are proposed.
~~Working Party 7B is currently undertaking studies in response to Resolution 659 (WRC-15), on the suitability of existing allocations below 1 GHz for telemetry, tracking and command in the space operation service (SOS) for non-GSO satellites with short duration missions. The studies, once completed, will present conclusions on whether spectrum requirements could be met in the existing allocations, and if not, additional compatibility studies will be presented for possible new and/or upgraded allocations.~~

Preliminary View

Comment [chez2]: ใช้ข้อความจาก APG19-3/OUT-18

APT members support 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, adding a new footnote in the Table of Frequency Allocations in RR Article 5, in order to ensure the operation of existing and future systems that usually implement with low or moderate output powers for MSS, EESS and MetSat systems.
APT members are of the view that transitional arrangements are needed to ensure that the existing telecommands for EESS, including those systems to be notified/brought into use before a certain date (e.g. the November 22, 2019), may continue to operate.

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~~Thailand supports adding a new footnote, in-band power limits applicable to earth stations, in the bands 399.9-400.05 MHz and 401-403 MHz in the Table of Frequency Allocations in RR Article 5 in order to ensure the operation of existing and future systems that usually implement with low or moderate output powers for MSS, EESS and MetSat systems.~~

Content / Method	NOC	ADD new footnote e.i.r.p limit	No e.i.r.p. limit	Period for grand fathering system	ADD new footnote for prectection EESS/MetSat	Frequency band (MHz)
Thailand supports adding a new footnote, in-band power limits applicable to earth stations, in the bands 399.9-400.05 MHz and 401-403 MHz in the Table of Frequency Allocations in RR Article 5 in order to ensure the operation of existing and future systems that usually implement with low or moderate output powers for MSS, EESS and MetSat systems.		X			X	399.9-400.05 MHz and 401-403 MHz
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, adding a new footnote. APT members are of the view that transitional arrangements are needed to ensure that the existing telecommands for EESS, including those systems to be notified/brought into use before a certain date (e.g. the November 22, 2019), may continue to operate.		X		22 Nov 2019		399.9-400.05 MHz and 401-403 MHz
A	X					399.9-400.05 MHz
B		399.9-400.03 MHz (5.A12)	400.03 -400.05 MHz	22 Nov 2014		
C		399.9-400.05 MHz (5.B12)		22 Nov 2014		
D		399.9-400.03 MHz (5.C12)	400.03 -400.05 MHz	22 Nov 2019		
E		401-403 MHz (5.D12)				401-403 MHz
F		401-403 MHz +eirp density limit (5.E12)			5.F12	

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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)"

Background

This agenda item aims at determining the possibility of upgrading the secondary meteorological-satellite service (MetSat) (space-to-Earth) allocation to primary status and adding a primary Earth exploration satellite-service (EESS) (space-to-Earth) allocation in the frequency band 460-470 MHz.
This has to be performed while providing protection and not imposing any additional constraints on existing primary services to which the frequency band is already allocated and to services in the adjacent frequency bands, and maintaining the conditions contained in RR No. 5.289. In addition, the resultant power flux-density (pfd) mask will be no less restrictive than −152 dBW/m2/4 kHz.
The PDN Report ITU-R SA.[460 MHZ METSAT-EESS] provides the studies and compiles elements related to background on WRC-19 agenda item 1.3. This Report also includes initial technical considerations on EESS and MetSat in the 460-470 MHz band and other services allocated in this band and adjacent bands, namely the mobile, maritime mobile, mobile-satellite, fixed and broadcasting services.
The studies resulted in the development of pfd limits for non-GSO satellites and separate pfd limits for GSO satellites that would protect the incumbent in-band and adjacent channel service operations.
The single Method proposes Radio Regulations (RR) changes that upgrade the MetSat and EESS allocations to primary in the frequency band 460-470 MHz.
~~Working Party 7B is currently undertaking studies in response to Resolution 765 (WRC 15), on consideration of possible upgrading of the secondary allocation to the meteorological-satellite service (space-to-Earth) to primary status and a primary allocation to the Earth exploration-satellite service (space-to-Earth) in the frequency band 460-470 MHz. The studies, once completed, will present conclusions providing protection and not imposing any additional constraints on existing primary services to which the frequency band is already allocated and in the adjacent frequency bands as well as maintaining the conditions contained in RR No. 5.289. Also, the resultant pfd mask will be no less restrictive than -152 dBW/m^2/4 kHz.~~

Preliminary View

~~Thailand supports upgrading the MetSat (space-to-Earth) allocation from secondary to primary status and a new primary EESS (space-to-Earth) allocation in the frequency band 460-470 MHz with priority of MetSat over EESS as currently expressed in the RR. Moreover, the protection of primary services in this frequency band and in adjacent frequency bands is ensured. In addition, the primary services in this frequency band are not constrained by an upgrade of the MetSat allocation to primary status and the new allocation of EESS as primary service.~~

APT members support the single Method indicated in the draft CPM report, proposing Radio Regulations (RR) changes by upgrading the MetSat and EESS allocations to primary in the frequency band 460-470 MHz. Moreover, the pfd limits for non-GSO and the single pfd limits for GSO satellites are preferable that would protect the incumbent in-band and adjacent channel service operations.

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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)"

Background

Comment [chez5]: ใช้ข้อความจาก draft CPM report : Executive summary

In accordance with Resolution **659 (WRC-15)**, ITU-R has performed studies on spectrum needs for telemetry, tracking and command (TT&C) in the space operation service (SOS) for non-GSO satellites with short duration (non-GSO SD) missions, to assess the suitability of existing allocations to the SOS and, if necessary, to consider possible new allocations.
Typical non-GSO SD TT&C technical parameters were developed for use in the studies.
The studies show that the amount of spectrum required for non-GSO SD systems is 0.682 MHz to 0.938 MHz for non-GSO SD earth station uplink (depends on scenario) and 0.625 MHz to 2.5 MHz for non-GSO SD satellite downlink (depends on scenario).
Furthermore, technical and regulatory studies including sharing studies were carried out.
Four methods and associated regulatory texts were developed to satisfy this agenda item. Methods B1 and B2 propose a new allocation (see Resolution **659 (WRC-15)** *invites* 3) and Method C proposes to use existing allocations (see Resolution **659 (WRC-15)** *invites* 2):

– Method A proposes no change to the Radio Regulations;
– Method B1 proposes a new SOS (Earth-to-space) allocation for non-GSO SD systems in the frequency range 403-404 MHz;
– Method B2 proposes a new SOS (Earth-to-space) allocation for non-GSO SD systems in the frequency range 404-405 MHz;
– Method C proposes to use the SOS allocation in the frequency band 137-138 MHz for downlink and the band 148-149.9 MHz for uplink and to provide appropriate associated regulatory provisions in the Radio Regulations for telecommand links of non-GSO SD missions.

~~Working Party 7B is currently undertaking studies in response to Resolution 659 (WRC-15), on the suitability of existing allocations below 1 GHz for telemetry, tracking and command in the space operation service (SOS) for non-GSO satellites with short duration missions. The studies, once completed, will present conclusions on whether spectrum requirements could be met in the existing allocations, and if not, additional compatibility studies will be presented for possible new and/or upgraded allocations.~~

Preliminary View

APT Members are of the view that:

- ITU-R studies should be continued in accordance with Resolution **659** (**WRC-15**).
- Protection of existing services is necessary and any new allocations or upgrades of existing allocations to the space operation service should be applied without any constraint to the incumbent services and their future development, both in-band as well as adjacent bands.
- The following frequency ranges should not be considered:
  - Maritime mobile VHF radiocommunication in the frequency ranges 156-157.45 MHz, 160.6-160.975 MHz and 161.475-162.05 MHz, in accordance with RR No. **5.226** and Appendix **18** **(Rev. WRC-15).**
  - The frequency range 406-406.1 MHz that is dedicated for satellite emergency position-indicating radio beacons, in accordance with Resolution **205** (**Rev. WRC-15**); and
  - Frequency bands used by Global Maritime Distress and Safety System (GMDSS) included in Appendix **15** of RR.

APT Members are of the view that protection of existing services is necessary and any new allocations or upgrades of existing allocations to the space operation service should be applied without any constraint to the incumbent services and their future development, both in-band as well as adjacent bands

~~Thailand reiterates its view mentioned at the APG19-2 in which Thailand supports studies currently undertaken by ITU-R Working Party 7B. Nevertheless, there exists a concern on sharing between existing services (meteorological aids service) and the upgrade of existing SOS allocations. Thai government agencies currently use radiosonde for weather forecast which operates in frequency band 400.15-406 MHz with 20 kHz bandwidth. Thailand is of the view that these usages must be protected from the possible new allocation of SOS.~~

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