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| **The 5th Meeting of the APT Conference Preparatory****Group for WRC-19 (APG19-5)** | **APG19-5/OUT-23** |
| 31 July – 6 August 2019, Tokyo, Japan | 5 August 2019 |

Working Party 3

**APT View and Preliminary APT Common Proposal on**

**WRC-19 Agenda Item 9.1 Issue 9.1.9**

**Agenda item 9.1 - Issue 9.1.9:**

*Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space), in accordance with Resolution* ***162 (WRC-15)****.*

**1. Background**

WRC-19 agenda item 9.1, issue 9.1.9, in accordance with Resolution **162 (WRC-15)**, invites ITU-R to conduct studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space) limited to feeder links for geostationary satellite orbit use.

Working Party 4A (WP 4A) has been identified as the responsible ITU-R group for the studies on WRC-19 Agenda item 9.1, issue 9.1.9. Till now, following progress were made:

* Draft new Report ITU-R S. [Specrum needs] was approved by SG4, which conclude that the additional allocation to FSS being considered is beneficial to make broadband connections more accessible to communities regardless of their geographical location and with more affordable costs as achieved by HTS (High throughput Satellite) systems;
* Draft new Report ITU-R S.[Spectrum Sharing] was approved by SG4, which address the compatibility between FSS and existing services currently allocated as FS, MS, RAS in the same bands and as EESS (passive), SRS (passive), RAS in the adjacent bands;
* The CPM report for WRC-19 agenda item 9.1, issue 9.1.9 was finalized by CPM19-2 meeting, which include consideration to make an allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth‑to‑space) under the condition of compatibility with existing services currently allocated based on the results of ITU-R studies, and relevant regulatory considerations are also included*.*

As indicated in the CPM report, the protection of non-GSO EESS (passive) sensors operating in the frequency band 52.6-54.25 GHz can be achieved by limiting the FSS earth station unwanted emissions falling in the passive frequency band as follows:

 a power level between −39 to −34 dBW in any 100 MHz of the EESS (passive) frequency band for FSS ES with antenna elevation angles lower than a value between 74° to 78°;

 a power level between −52 to −49 dBW in any 100 MHz of the EESS (passive) frequency band for FSS ES with antenna elevation angles equal or higher than a value between 74° to 78°.

As also indicated in the CPM report, regarding the protection of future GSO EESS (passive) sensors, it was found that angular separations between GSO FSS and GSO EESS (passive) satellites in the order of 0.0-3.2 degrees would be necessary for unwanted emission levels of the FSS earth stations falling in the passive frequency bands of −84 dBW/100 MHz and −34 dBW/100 MHz respectively. One of the following procedures (or alternatives to them) could be implemented to address this issue.

Option 1:

 Ensuring a minimum angular separation in the GSO arc between the FSS and the EESS (passive) space stations. The orbital separation would vary between 0.0 and 3.2 degrees, depending on the FSS ES unwanted emission levels falling in the passive frequency band. The regulatory implementation of this procedure could be that the BR identifies the GSO EESS (passive) satellites operating within 3.2 degrees from the nominal orbital position of the FSS space station and includes them among the coordination requirements of the FSS network.

Option 2:

Giving priority to a limited number of orbital positions in the GSO arc for the operation of GSO EESS (passive) sensors. The GSO FSS networks with space stations located at less than 3.2 degrees separation of such positions should adjust the unwanted emission levels from earth stations to protect the EESS (passive) sensors on board the GSO satellite. Protection is needed for the following orbital positions of EESS (passive) sensors on board GSO satellites: 0º, 3.5ºE, 9.5ºE, 41.5ºE, 76ºE, 79ºE, 86.5ºE, 99.5ºE, 105ºE, 112ºE, 123.5ºE, 133ºE, 165.8ºE, 3.2ºW, 14.5ºW, 75ºW, and 137ºW.

**2. Documents**

* Input Documents: APG19-5/INP-26 (BGD), APG19-5/INP-44R1 (AUS), APG19-5/INP-51 (INS), APG19-5/INP-67 (CHN), APG19-5/INP-100 (THA), APG19-5/INP-129 (KOR)
* Information Documents: APG19-5/INF-18 (CEPT) , APG19-5/INF-19 (ATU), APG19-5/INF-20 (CITEL), APG19-5/INF-22 (RCC)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Bangladesh (People’s Republic of)-APG19-5/INP-26**

According to RR Article 5, 51.4 – 52.4 GHz is allocated for fixed and mobile service as primary basis. This spectrum band is being considered for IMT-2020 identification through WRC-19 AI 1.13. Studies have been conducted for the sharing between the application of IMT and FSS (Earth-to- space). Study result shows that Sharing through separation distances between FSS earth stations and IMT-2020 stations is feasible. Bangladesh supports the possibility of primary allocation to the fixed-satellite service (Earth-to-space) in the frequency band 51.4-52.4 GHz in accordance with Resolution **162 (WRC-15)**.

**3.1.2 Australia**- **Document APG19-5/INP-44 Rev/1**

Australia supports the possibility of an allocation to the fixed-satellite service (Earth-to-space) in the frequency band 51.4-52.4 GHz in accordance with Resolution **162 (WRC-15)**.

Australia proposes a Preliminary APT Common Proposal that aligns with the views listed above, and including the following regulatory change:



**3.1.3 Indonesia (Republic of)** - **Document APG19-5/INP-51**

Indonesia is of the view to support a new primary allocation to the FSS in the frequency band 51.4-52.4 GHz (Earth-to-space) in RR limited to FSS gateway links for geostationary orbit use while taking into account the protection the existing services in the same frequency band and in adjacent frequency bands.

**3.1.4 China (People’s Republic of)** - **Document APG19-5/INP-67**

Taking into account the results of studies conducted by ITU-R with regard to WRC-19 Agenda item 9.1 (9.1.9) and APT Preliminary Views, China would like to express the views and proposals on AI 9.1.9 as follows, which are expected to be included into APT Views and Preliminary APT Common Proposals on AI 9.1.9 .

* Supports a new primary allocation to the FSS (Earth-to-space) in the frequency band 51.4-52.4 GHz in the Radio Regulations limited to geostationary satellite networks subject to protection of the current allocated services.
* Supports modifications to Article 5, Article 21, Appendix 4, Appendix 7, and Resolution 750 (Rev.WRC-15) of the Radio Regulations as the example contained in section 3/9.1.9/4 of the CPM Report to ensure the sharing and compatibility between the FSS and the existing allocated services including EESS (passive) in the near frequency band.

The embedded file as attachment below provides proposals of China for preliminary APT common proposals on WRC-19 Agenda item 9.1.9.



**3.1.5** **Thailand** - **Document APG19-5/INP-100**

Thailand supports the single method indicated in the CPM report for new allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space), limited to FSS gateway links for geostationary orbit use while protecting currently allocated services in the same frequency band and in adjacent frequency bands.

**3.1.6 Korea (Rep. of)** - **Document APG19-5/INP-129**

The Republic of Korea supports making a new primary allocation to the fixed-satellite service (FSS) (Earth-to-space) in the frequency band 51.4-52.4 GHz limited to FSS gateway links for geostationary orbit use subject to regulatory provisions to ensure protection of currently allocated services in the same frequency band and in adjacent frequency bands.



**3.2 Summary of issues raised during the meeting**

None.

**4. APT View(s)**

APT Members support a new primary allocation to the fixed-satellite service (Earth-to-space) in the frequency band 51.4-52.4 GHz limited to FSS gateway links for geostationary orbit use subject to regulatory provisions to ensure protection of currently allocated services in the same frequency band and in adjacent frequency bands.

**5. Preliminary APT Common Proposals**



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