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| **The 4th Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-4)** | **APG19-4/INP-61** |
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Japan

**preliminary views on WRC-19 agenda ITEMS 1.4, 1.5, 1.6, 7 AND 9.1 (ISSUE 9.1.2,** **AND 9.1.3)**

**Agenda Item 1.4:**

*to consider the results of studies in accordance with Resolution****557 (WRC‑15)****, and review, and revise if necessary, the limitations mentioned in Annex 7 to Appendix****30 (Rev.WRC‑15)****, while ensuring the protection of, and without imposing additional constraints on, assignments in the Plan and the List and the future development of the broadcasting-satellite service within the Plan, and existing and planned fixed-satellite service networks;*

**1. Background**

WRC-15 adopted Resolution (Resolutions **557 (WRC-15)**) to study possible revisions of the limitations mentioned in Annex 7 to Appendix **30 (Rev.WRC-15)** in order toassure equitable access to orbital resources for broadcasting-satellite-services (BSS). It should be noted that BSS not subject to Appendix **30** (12.5-12.7 GHz) in Region 3 is not the subject of consideration in accordance with Resolution **557 (WRC-15)**.

It should be emphasized that studies calling for revision of Annex 7 to Appendix **30 (Rev.WRC-15)** under Resolution **557 (WRC-15)** in no way was intended to have any impact whatsoever to the integrity of Appendix **30** for Regions 1 and 3.

The Annex 7 to Radio Regulation Appendix **30 (Rev.WRC-15)** contains several orbital position limitations for proposed modifications to the Region 2 Plan and for proposed new or modified assignments in the Regions 1 and 3 List applicable to specific parts of the band 11.7-12.7 GHz.

In the draft CPM Report, three methods have been proposed to satisfy this agenda item; Method A (NOC), Method B and Method C. Both of Method B and Method C include a proposal to suppress A1a with keeping A1b. However, it should be noted that if only A1b is maintained, Region 1 BSS would be prohibited at anywhere further east than 146E, that is, in the 360 deg. orbit and Region 1 BSS cannot be located anywhere. The other end matching with A1b need to be specified for defining the prohibit arc. The same comment applies to the suppression of A2a/A2b with keeping A2c.

**2. Preliminary Views**

Japan is of the view that any possible revision of the limitations of Annex 7 to Radio Regulations Appendix **30 (Rev.WRC-15)** under Resolution **557 (WRC-15)** should not impose any constraints on all assignments of Appendix **30** for Region 3 and ensure protection of existing and planned fixed-satellite service networks. Japan is also of the view that all the Methods in the draft CPM Report would not impose any additional constraints on all assignments of Appendix 30 for Region3, provided appropriate adjustments are incorporated in Method B and Method C.

**Agenda Item 1.5:**

*to consider the use of the frequency bands 17.7-19.7 GHz (space-to-Earth) and 27.5-29.5 GHz (Earth-to-space) by earth stations in motion communicating with geostationary space stations in the fixed-satellite service and take appropriate action, in accordance with Resolution* ***158 (WRC 15****);*

**1. Background**

Earth stations in motion (ESIM) are earth stations that communicate with FSS space stations but operate on moving platforms such as ships, aircraft and land vehicles. ESIM are used to provide broadband connectivity to aircraft, typically used to provide in-flight Internet connectivity for passengers. ESIM installed on ships are used to support broadband communications for passengers and crew, and are also used to support maritime operational requirements. ESIM may also be installed on land vehicles such as trains and buses to provide Internet connectivity for passengers.

WRC-15 introduced regulations for ESIM operating in the frequency bands 19.7-20.2 GHz and 29.5-30 GHz, contained in Resolution **156** (**WRC-15**). Resolution **158** (**WRC-15**) invites the ITU‑R to conduct studies related to the possible extension of the frequency range for ESIM to include the bands 17.7-19.7 GHz and 27.5-29.5 GHz.

WP 4A is developing the [WD] PDNRep on the operation of ESIM communicating with GSO space stations in the fixed-satellite service allocations at 17.7-19.7 GHz and 27.5-29.5 GHz, and the related documents of the [WD] PDNRep on sharing with FS/MS/MSS feeder-link and the [WD] PDNR/PDNRep on measures for LESIM vs FS/MS.

The frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz or some parts of these bands are used or planned to be used by FSS, MS and FS in Japan.

**2. Preliminary Views**

Japan supports ITU-R study activities to ensure protection of the existing services and not impose constraints for future use, on FS, MS and other FSS systems.

**Agenda Item 1.6:**

*to consider the development of a regulatory framework for non-GSO FSS satellite systems that may operate in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5 42.5 GHz (space‑to‑Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space), in accordance with Resolution* ***159 (WRC-15)****;*

**1. Background**

Article 22 of the Radio Regulations contains provisions to ensure compatibility of non-GSO FSS operations with GSO networks. Among these provisions are uplink and downlink equivalent power flux density (epfd↑ and epfd↓) limits to protect GSO networks in the 14/11 GHz and 30/20 GHz frequency bands from unacceptable interference pursuant to RR No. 22.2. In the 50/40 GHz band RR No. 22.2 applies but there are currently no technical measures and regulatory framework for sharing between non-GSO systems and GSO networks.

Under this agenda item, following studies will be carried out:

* technical and operational issues and regulatory provisions for the operation of non-GSO FSS satellite systems in the frequency bands 37.5-42.5 GHz (space-to-Earth) and 47.2-48.9 GHz (limited to feeder links only), 48.9-50.2 GHz and 50.4-51.4 GHz (all Earth-to-space), while ensuring protection of GSO satellite networks in the FSS, MSS and BSS, without limiting or unduly constraining the future development of GSO networks across those bands, and without modifying the provisions of Article 21;
* development of equivalent power flux-density limits produced at any point in the GSO by emissions　from all the earth stations of a non-GSO system in the fixed-satellite service or into any geostationary FSS earth station, as appropriate;
* development of sharing conditions between non-GSO FSS systems operating in the frequency bands listed above;
* possible necessary revisions to Resolution 750 (Rev.WRC-15) to ensure protection of the EESS (passive) in the frequency bands 36-37 GHz and 50.2-50.4 GHz from non-GSO FSS transmission
* studies towards ensuring protection of the radio astronomy frequency bands 42.5-43.5 GHz, 48.94-49.04 GHz and 51.4-54.25 GHz from non-GSO FSS transmissions

Currently, following documents are being considered in Working Party 4A meeting:

* Preliminary draft new Report ITU-R S.[50/40 GSO-NGSO SHARING] – Sharing between 50/40 GHz GSO FSS networks and non-GSO FSS systems
* [Working document towards] a preliminary draft new Report ITU-R S.[50/40 NGSO-NGSO SHARING] – Study of mitigation techniques between non-GSO FSS systems in the bands 36-37 GHz and 50.2-50.4 GHz
* [Working document towards] a preliminary draft new Report ITU-R S.[50/40 GHz ADJACENT BAND STUDIES] – Protection of EESS (passive) and RAS systems from non GSO fixed satellite systems operating in the 37.5-42.5 GHz, 47.2 50.2 GHz and 50.4-51.4 GHz frequency bands under WRC-19 agenda item 1.6
* Preliminary Draft New Recommendation ITU-R S.[50/40 GHZ FSS SHARING METHODOLOGY]

**2. Preliminary Views**

Japan is of the view that appropriate protection of the existing services is necessary.

**Agenda Item 7:**

*to consider possible changes, and other options, in response to Resolution****86 (Rev. Marrakesh, 2002)*** *of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution****86 (Rev.WRC‑07)****, in order to facilitate rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary‑satellite orbit.*

**1. Background**

Issue A deals with the bringing into use (BIU) of frequency assignments to non-geostationary-satellite orbit (non-GSO) satellite systems, and consideration of a milestone-based deployment approach for non-GSO FSS satellite systems in certain bands

Historically, and to this day, the Bureau considers that a frequency assignment to any non-GSO system has been brought into use when one satellite from a planned system in a particular frequency band has been placed into service – irrespective of the number of satellites or of the number of orbital planes indicated in the notification information provided under RR No. **11.2**.

Recently, multiple projects to deploy non-GSO satellite constellations consisting of a large number of satellites have being planned. As a result, there have been a number of ITU-R filings submitted to the Bureau for non-GSO systems, primarily in the FSS, employing hundreds, or thousands of non-GSO satellites. Taking into account this situation, WRC-15 discussed how to consider the BIU of such non-GSO satellite systems consisting of large number of satellites. Since careful consideration should be given to this discussion, WRC-15 did not make decisions on this issue.

ITU-R Working Party 4A (WP 4A) agreed to discuss this as Issue A of WRC-19 agenda item 7. WP 4A discussed that the issue for the definition of BIU and how to check the deployment number of non-GSO satellites can be separately treated. Based on this discussion, WP4A agreed to apply single definition of BIU for all non-GSO satellite networks/systems in all space services, and to apply milestone approach for some specific space services and frequency bands for checking the deployment status after the 7 years regulatory limit of BIU. However, many details still need to be discussed further.

Issue G deals with updating the reference situation for Region 1 and 3 networks under RR Appendices 30 and 30A when provisionally recorded assignments are converted into definitive recorded assignments.

§ 4.1.18 of Appendices 30 and 30A of the Radio Regulations prescribes that in the case of recording in the List with outstanding coordination requirements, this recording shall be provisional, but that the entry shall be changed from provisional to definitive recording in the List if the Bureau is informed that the new assignment in the Regions 1 and 3 List has been in use, together with the assignment which was the basis for the disagreement, for at least four months without any complaint of harmful interference being made. When the provisional recording becomes definitive, the reference situation of the interfered-with network will be updated.

ITU-R Working Party 4A (WP-4A) has been assigned as the responsible group for this Agenda ItemWP 4A developed draft CPM report for WRC-19 Agenda Item 7 – Issue G, including 3 methods to satisfy this Agenda Item.

1. Method G1

The administration with an interfered-with network, depending on the specific situation of its network, will determine whether or not the reference situation shall be updated.

1. Method G2

Quantification of when § 4.1.18 may be used, requirements for both existing and new network to operate exactly at notified parameters, and a Resolution which involves exchange of measurements and outlines how networks can be recorded under § 4.1.18.

1. Method G3

No change to the Radio Regulations.

Issue J deals with the possibility of the exceedance of the pfd (power flux-density) limit for the broadcasting satellite networks in the List. In order to provide broadcasting satellite services like UHDTV (see Rec. ITU-R BT.2020), a modulation scheme with high spectrum efficiency (e.g. APSK) and high required C/N (carrier-to-noise ratio) is necessary (see Rec. ITU-R BO.2098 and Rep. ITU-R BO.2397). In that situation, a pfd value exceeding the limit of −103.6 dB(W/(m2 · 27 MHz)) described in Section 1, Annex 1 of RR AP30 within the service area is required in order to achieve the service availability as same as the conventional broadcasting satellite services.

The pfd limit of −103.6 dB(W/(m2 · 27 MHz)) was established for additional use in Regions 1 and 3 in order to protect BSS networks outside the coordination arc of ±9 degrees. Within the national territory of the notifying Administration, as Administration can at any time apply relevant provisions of RR Article 23 to request the exclusion of its territory from the BSS service areas of other Administrations, BSS networks of other Administrations are not entitled to be protected within the territory of the objecting Administration. According to the idea above, the pfd limit of −103.6 dB(W/(m2 · 27 MHz)) may be exceeded only within the national territory of the notifying Administration. Therefore, this pfd exceedance should not be allowed for networks submitted by an international satellite organization or an Administration that acts on behalf of a group of named Administrations. From the view point of spectrum, the frequency assignment should not overlap with the guardbands in order to ensure the protection of services in adjacent bands.

ITU-R Working Party 4A (WP-4A) has been assigned as the responsible group for this Agenda Item. WP4A developed draft CPM report for WRC-19 Agenda Item 7 - Issue J, including 2 methods. Method J1 proposes modifications to Section 1, Annex 1 of RR Appendix 30 and Method J2 proposes no changes to the Radio Regulations.

Issue H is intending to allow potentially affected administrations to model a non-GSO system as soon as the advanced publication information (API) for frequency assignments to non-GSO systems in frequency bands not subject to coordination under Section II of RR Article **9** is published. For this purpose, it is proposed to add more orbital parameters to the requirement to API and notification for frequency assignments of non-GSO systems in frequency bands not subject to coordination under Section II of RR Article**9**. The proposed orbit parameters to be added are the right ascension of the ascending node, the longitude of the ascending node and the associated date and time, the argument of the perigee, which are already required to be submitted for frequency assignments of non-GSO systems in frequency bands subject to coordination under Section II of RR Article**9**.

These proposed orbit parameters requirements would be mandatory only for constellation-type non-GSO systems, which can be identified by additional RR Appendix **4** data items.

Issue H is also proposing to add new RR Appendix **4** data items for frequency assignments to sun-synchronous non-GSO networks in frequency bands not subject to coordination under Section II of RR Article 9: mandatory items, identifying whether the orbit is sun-synchronous or not, and optional items, providing the local time of the ascending node (LTAN) for sun-synchronous orbits.

Issue M deals with simplified regulatory regime for non-GSO satellite systems with short duration missions.

In the WP4A meeting in July 2018, the CPM text for the WRC-19 agenda item 7, Issue M was developed (Doc. 4A/826, Annex 42) and a new WRC Resolution [A7(M)-NGSO SHORT DURATION] was proposed.

The Annex of the draft new Resolution [A7(M)-NGSO SHORT DURATION] is as follows;

“5 In the application of No. **9.3**, if, upon receipt of the BR IFIC containing information published under No. **9.2B**, any administration believes that interference which may be unacceptable may be caused to its existing or planned satellite networks or systems, it shall within *two/t.b.d by WRC-19 but ≤ 4* months of the date of publication of the BR IFIC communicate to the publishing administration, with copy to the Bureau, its comments on the particulars of the anticipated interference to its existing or planned systems.”

**2. Preliminary Views**

Japan supports to review an advance publication, coordination, notification and recording procedures of satellite networks subject to this agenda item in accordance with Resolution 86 (Rev. Marrakech, 2002). Japan is of the view that the principle that satellite networks should be brought into use after conducting necessary frequency coordination should be maintained and that the procedures and associated regulations would be reviewed not by comprehensive way which may cause adverse impact on existing and future satellite networks, but by careful consideration of each issue under this agenda item respectively taking into account rational and efficient use of orbit/spectrum resources.

With respect to BIU of non-GSO satellite systems (Issue A), Japan supports the current ITU-R studies to maintain the conditions for BIU, with some additional deployment milestones to certain space services and frequency bands, of frequency assignments to non-GSO satellite systems.

With respect to updating the reference situation for Regions 1 and 3 networks under RR Appendices 30 and 30A when provisionally recorded assignments are converted into definitive recorded assignments (Issue G), Japan supports Method G3 to maintain EPM criteria (RR Appendix 30) appropriately and update the reference EPM properly, making a point to protect operation of the existing BSS Plan and List, to ensure smooth introduction of the future BSS and to contribute to the efficient use of the geostationary satellite orbit.

With respect to pfd limit in Section 1, Annex 1 of RR Appendix 30 (Issue J), Japan supports Method J1 to modify the RR AP30 and allow exceedance the pfd limit of -103.6 dB(W/(m2 · 27 MHz)) only within the national territory of notifying Administration and in the assignment frequency not overlapping with the Regions 1 and 3 guardbands, making a point to ensure smooth introduction of the future BSS.

With respect to modifications to RR Appendix 4 items (Issue H), Japan supports the current ITU-R study which is proposing the additional orbital parameters to constellation type non-GSO systems in frequency bands not subject to coordination under Section II of RR Article **9**. With regard to the proposed modifications to RR Appendix 4 items under Issue H for sun-synchronous non-GSO satellite networks, it is desirable to add the option of adding the local sun time of descending node in addition to the current proposal of adding the local sun time of ascending node.

With respect to simplified regulatory regime for non-GSO satellite systems with short-duration missions (Issue M), Japan recognizes the importance of ITU-R studies to develop a new Resolution to simplify regulatory regime for non-GSO satellite systems whose operational lifetime shall not exceed three years from the date of BIU, but it is necessary to study thoroughly, because sufficient time is needed to secure whether harmful interference between the existing or planned satellite networks and the newly proposed non-GSO satellite networks may occur and to prepare comments to the proposing Administration.

**Agenda Item 9.1**:

*to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention on the activities of the Radiocommunication Sector since WRC-15;*

**Issue 9.1.2**: *Resolution* ***761******(WRC-15)*** *Compatibility of International Mobile Telecommunications and broadcasting-satellite service (sound) in the frequency band 1 452-1 492 MHz in Regions 1 and 3*

**1. Background**

At WRC-15, the frequency band 1 452-1 492 MHz was identified for use by administrations wishing to implement IMT. At the same time, in order to address compatibility of IMT and BSS (sound) in Regions 1 and 3, WRC-19 agenda item 9.1, Issue 9.1.2 was established together with Resolution **761 (WRC-15)**, which *resolves to invite ITU-R*:

1 to conduct, in time for WRC-19, the appropriate regulatory and technical studies, with a view to ensuring the compatibility of IMT and BSS (sound) in the frequency band 1 452-1 492 MHz in Regions 1 and 3, taking into account IMT and BSS (sound) operational requirements;

2 to prepare, *inter alia*, the regulatory action that could be taken, based on the studies carried out under *resolves to invite ITU-R* 1 above, in order to facilitate the long-term stability of IMT and BSS (sound) in the frequency band 1 452-1 492 MHz.

Within ITU-R, Working Parties 4A and 5D (WP 4A and WP 5D) are the responsible groups for this Issue to jointly develop the draft CPM text for WRC-19 agenda item 9.1, Issue 9.1.2 and the draft new Report ITU-R M.[IMT&BSS COMPATIBILITY].

At the last WP 4A meeting in 3-14 July 2018, the draft CPM text for WRC-19 agenda item 9.1, issue 9.1.2 was finalized and is captured in the Draft CPM Report, in which 8 (eight) possible actions were developed to solve the issue. Table 1 shows the possible actions for this Issue.

Table 1

**Possible actions with respect to WRC-19 agenda item 9.1, issue 9.1.2, in Regions 1 and 3, pursuant to Resolution 761 (WRC-15) in the Draft CPM Report**

| **Possible action** | **Protection of IMT stations** | **Protection of BSS (sound) receivers** |
| --- | --- | --- |
| 1 | Maintain status quo (i.e. no changes to the Radio Regulations). | Maintain status quo (i.e. no changes to the Radio Regulations). |
| 2 | Maintain status quo (i.e. no changes to the Radio Regulations) for those countries for which the band is not identified for IMT. | Maintain status quo (i.e. no changes to the Radio Regulations) for those countries for which the band is not identified for IMT. |
| 3 | Stipulate pfd limit(s) for BSS (sound) space stations. Three alternatives are available in this action.Alternative 1: The pfd limit is stipulated in RR Table **21-4** under RR No. **21.16** taking into account protection of IMT mobile stations.Alternative 2: The pfd limit is stipulated in RR Table **21-4** under RR No. **21.16** taking into account protection of IMT base and mobile stations. Alternative 3: The pfd limit is stipulated in a new footnote taking into account the operational requirement of BSS(sound) system. | Maintain status quo (i.e. no changes to the Radio Regulations). |
| 4 | Maintain status quo (i.e. no changes to the Radio Regulations). | Stipulate pfd limit for IMT stations by modification of RR Nos. **5.346** and **5.346A**. |
| 5 | Stipulate a new coordination threshold for RR No. **9.11** based on pfd value.The pfd value is stipulated in a new footnote taking into account the e.i.r.p. value of 70.8 dBW for a space station of BSS (sound). | Maintain status quo (i.e. no changes to the Radio Regulations). |
| 6 | Maintain status quo (i.e. no changes to the Radio Regulations). | Stipulate a new coordination threshold for RR No. **9.19** based on pfd value to reach coexistence for protection of BSS (sound) receivers. |
| 7 | Stipulate pfd limit(s) for BSS (sound) space stations. Three alternatives are available in this action.Alternative 1: The pfd limit is stipulated in RR Table **21-4** under RR No. **21.16** taking into account protection of IMT mobile stations.Alternative 2: The pfd limit is stipulated in RR Table **21-4** under RR No. **21.16** taking into account protection of IMT base and mobile stations.Alternative 3: The pfd limit is stipulated in a new footnote taking into account the operational requirement of BSS (sound) system. | Stipulate pfd limit for IMT stations by modification of RR Nos. **5.346** and **5.346A**. |
| 8 | Stipulate a new coordination threshold for RR No. **9.11** based on pfd value.The pfd value is stipulated in a new footnote taking into account the e.i.r.p. value of 70.8 dBW for a space station of BSS (sound). | Stipulate a new coordination threshold for RR No. **9.19** based on pfd value to reach coexistence for protection of BSS (sound) receivers. |

In Japan, within the frequency range 1 427-1 518 MHz, IMT systems have been deployed using the uplink frequencies of 1 427.9-1 462.9 MHz and the downlink frequencies of 1 475.9-1 510.9 MHz. Therefore, in the frequency band 1 452- 1 492 MHz, it is essential to protect both IMT base and mobile stations from BSS (sound) space stations.

The current RR No. **9.11** stipulates the coordination requirement with respect to terrestrial applications. However, as indicated in *recognizing c)* of Resolution **761 (WRC-15)**, “*the application of No. 9.11 does not provide long-term stability for the operation of International Mobile Telecommunications (IMT) due to the fact that only the IMT systems that would come into operation within the next three years would be protected if their coordination is agreed, and only for those three years*”. Consequently, for those countries wishing to implement IMT in the frequency band 1 452-1 492 MHz, it is essential for WRC-19 to take appropriate regulatory action to address the drawback indicated in this *recognizing*.

On the other hand, the current RR No. **9.19** applies with respect to the coordination for potential cross-border interference from IMT systems into the BSS (sound) receivers between different countries within the service area of the satellite network.

In order to promote efficient use of the frequency band and spectrum harmonization in Region 3, the following aspects need to be taken into account in the APG19-4 meeting:

* The frequency band 1 452-1 492 MHz was identified for IMT throughout Region 3 at WRC-15 together with 1 427-1 452 and 1 492-1 518 MHz, and IMT in these frequency bands are expected to be widely used in Region 3 countries.
* According to the survey results in the working document towards a PDN APT Report on harmonized frequency arrangement for band 1 427-1 518 MHz (AWG-24/TMP-16(Rev.1), ANNEX 4), a number of countries (10 out of 14) in Region 3 which responded have already deployed or are considering future implementation of IMT in all or parts of the frequency band 1 427-1 518 MHz.

As most of the above mentioned Region 3 countries have not decided the frequency arrangement to be used for IMT in the frequency band 1 452-1 492 MHz yet, it is essential to consider the protection of both IMT base and mobile stations from BSS (sound) space stations. Furthermore, stipulating additional constraint to IMT stations compared to the current RR No. **9.19** should be avoided.

Considering the above, for these Region 3 countries, Japan believes that it would be preferable to apply the Possible action 3, Alternative 2 in the draft CPM text for WRC-19 agenda item 9.1, Issue 9.1.2.

**2. Preliminary Views**

Japan supports the results of regulatory and technical studies conducted by ITU-R in order to achieve compatibility of IMT and BSS (sound) in the frequency band 1 452-1 492 MHz in Regions 1 and 3.

For the long-term stable operations of IMT systems in this frequency band, Japan believes that it would be preferable to apply Possible action 3 Alternative 2 in the draft CPM text for WRC-19 agenda item 9.1, Issue 9.1.2. which stipulates a PFD limit for BSS (sound) in Table **21-4** under RR No.**21.16** with respect to the protection of IMT base and mobile stations and no change to the Radio Regulations with respect to the protection of BSS (sound) receivers.

**Issue 9.1.3:**

*Resolution 157 (WRC-15) - Study of technical and operational issues and regulatory provisions for new non-geostationary-satellite orbit systems in the 3 700-4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz and 6 725-7 025 MHz frequency bands allocated to the fixed-satellite service;*

**1. Background**

Under this agenda item, following studies will be carried out:

- in the frequency band 3 700-4200 MHz (space-to-Earth), identification of possible revision of Article 21, Table 21-4 for non-GSO FSS satellites, with a view to enabling new non-GSO systems to operate in these FSS frequency bands, while ensuring that existing primary services, i.e. the mobile service and fixed service, are protected and maintaining the existing Article 21 pfd limits for GSO networks;

- in the frequency bands 3 700-4 200 MHz (space-to-Earth) and 5 925-6 425 MHz (Earth to-space), the Article 22 epfd↓ limits and epfd↑ limits applicable to non-GSO systems with a view to enabling additional non-GSO systems to operate in these frequency bands, while ensuring that GSO networks are protected from unacceptable interference pursuant to No. 22.2 and existing protection criteria;

- in the frequency bands 4 500-4 800 MHz (space-to-Earth) and 6 725-7 025 MHz (Earth to-space), the possible development of Article 22 epfd↓ and epfd↑ limits similar to those in other FSS frequency bands with a view to enabling non-GSO systems to operate in these frequency bands, while ensuring that GSO networks are protected from unacceptable interference pursuant to No. 22.2;

- in the frequency band 6 700-7 025 MHz, the protection of feeder links for MSS systems operating in the space-to-Earth direction from unacceptable interference, pursuant to existing criteria, from non-GSO FSS system earth stations operating in the Earth-to-space direction;

- in the frequency band 4 500-4 800 MHz (space-to-Earth), the development of appropriate regulatory provisions for non-GSO FSS systems to protect terrestrial services;

- in the frequency bands 4 500-4 800 MHz (space-to-Earth) and 5 925-6 425 MHz (Earth to- space), the development of regulatory provisions to clarify that Nos. 5.440A and 5.457C wouldapply in a manner to ensure that non-GSO FSS systems do not cause harmful interference to, or claim protection from, AMT for flight testing by aircraft stations,

Currently, this study finds that there is no need to review the values of the existing limits presented in Article 22 (epfd) and Article 21 (pfd) of the Radio Regulations for the 3 700-4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz, and 6 725-7 025 MHz frequency bands.

**2. Preliminary Views**

Japan supports ITU-R studies that it would be difficult to coexistence between NGSO FSS and GSO FSS in the frequency bands 3 700-4 200 MHz, 4 500-4 800 MHz, 5 925-6 425 MHz and 6 725-7 025 MHz. Therefore, Japan supports no change to the RR.

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