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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 4th Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-4)** | **APG19-4/INP-60** |
| 7 – 12 January 2019, Busan, Republic of Korea | **28 December 2018** |

Japan

**preliminary views on WRC-19 agenda ITEMS 1.13, 1.16 AND 9.1(ISSUE 9.1.1, 9.1.5 AND 9.1.8)**

**Agenda Item 1.13:**

*to consider identification of frequency bands for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, in accordance with Resolution****238 (WRC‑15)****;*

**1. Background**

Resolution **238 (WRC-15)** *resolves to invite ITU-R*:

1 to conduct and complete in time for WRC-19 the appropriate studies to determine the spectrum needs for the terrestrial component of IMT in the frequency range between 24.25 GHz and 86 GHz;

2 to conduct and complete in time for WRC‑19 the appropriate sharing and compatibility studies[[1]](#footnote-1), taking into account the protection of services to which the band is allocated on a primary basis, for the frequency bands:

– 24.25-27.5 GHz[[2]](#footnote-2), 37-40.5 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 47.2-50.2 GHz, 50.4-52.6 GHz, 66-76 GHz and 81-86 GHz, which have allocations to the mobile service on a primary basis; and

– 31.8-33.4 GHz, 40.5-42.5 GHz and 47-47.2 GHz, which may require additional allocations to the mobile service on a primary basis.

In accordance with this Resolution, ITU-R Task Group 5/1 (TG 5/1) has completed the sharing and compatibility studies between IMT and other services in the frequency bands under study in agenda item 1.13. The details of studies are captured as annexes to the TG 5/1 Chairman’s Report for its final meeting in Document [5-1/478](https://www.itu.int/md/R15-TG5.1-C-0478/en).

The TG 5/1 has also finalized the draft CPM text for WRC-19 agenda item 1.13, which has been captured in the draft CPM Report based on the review by the CPM Management Team.

**2. Discussion**

Protection of the incumbent services needs to be established appropriately for identification of the frequency bands for IMT. In other words, the Conditions/Options which are listed in the methods to satisfy the agenda item need to be carefully selected based on the results of sharing and compatibility studies. Among the various Conditions/Options to protect the incumbent services, difficult discussions would be expected towards WRC-19 for the following two protection measures:

* Protection measures for the EESS (passive),
* Protection measures for the FSS (Earth-to-space) receiving space stations.

Regarding the protection measure for the EESS (passive), there are a number of studies and these studies indicate different levels of unwanted emissions of IMT stations to protect the EESS (passive). In the case of protection of the EESS (passive) in the 23.6-24 GHz frequency band, Japan recognizes that other regional groups have already decided or are studying these levels, such as:

* CEPT: supporting the limits of −42 dB(W/200 MHz) for base stations and −38 dB (W/200 MHz) for mobile stations;
* ASMG and ATU: studying the limits of −32 to −37 dB(W/200 MHz) for base stations and −28 to −30 dB (W/200 MHz) for mobile stations.

Japan believes that it would be essential for APG-19 to start studying these levels and reconcile views among APT members as soon as possible. Therefore, Japan is of the view that considerations by APT members on the unwanted emission levels to protect the EESS (passive) should be captured based on contributions and discussions at the APG19-4 meeting.

In this regard, Japan considers that the following aspects need to be further analyzed when defining the unwanted emission levels:

* Apportionment value for the EESS (passive) protection criterion (i.e., interference margin for interference from all other sources), which relates to possibility whether a country deploying IMT systems in a frequency bands deploys systems or stations of other services in the same frequency band. For example, Report ITU-R RS.2336 assumes 1 dB interference margin.
* Antenna model of IMT stations (i.e., single-element antenna pattern model or beamforming antenna model), which relates to modeling of adjacent frequency-band antenna pattern when Advanced Antenna System (AAS) is adopted in IMT-2020 stations,
* Associated conditions to specify the unwanted emission levels of IMT-2020 stations, which may not be fully clarified in the TG 5/1 studies and draft CPM Report.
  + For example, in Resolution **750 (Rev.WRC-15)**, the unwanted emission level of IMT-2020 mobile station in the frequency band 1 427-1 452 MHz is specified as the level measured with the mobile station transmitting at an average output power of 15 dBm.
  + Achievable unwanted emission levels in IMT equipment would be better than those specified in the standards as the values specified in these standards include margin for implementation of the equipment. Such margin could be taken into account when determining the unwanted emission levels of IMT-2020 stations.

Other aspects may need to be further investigated when studying the unwanted emission levels and reconciling views among APT members.

Regarding the protections measures for the FSS (Earth-to-space) receiving space stations, Japan has provided a separate contribution to this APG19-4 meeting in order to further explain the concept of mandatory epfd↑ limits at the geostationary-satellite orbit by emissions from all the IMT BSs in the territory of an administration implementing IMT system(s) in the frequency band 24.25-27.5 GHz.

**3. Preliminary Views**

Japan supports globally or regionally harmonized identification of frequency bands for IMT among those bands listed in *resolves to invite ITU-R* 2 of Resolution **238 (WRC-15)** taking into account:

* the results of ITU-R studies on spectrum needs for the terrestrial component of IMT in the frequency range 24.25-86 GHz, and;
* the results of ITU-R sharing and compatibility studies to protect the incumbent services to which the band is allocated on a primary basis.

In particular, taking into account the results of ITU-R studies, Japan supports identification of IMT in the frequency bands below 43.5 GHz together with adoption of appropriate Condition(s)/Option(s) for these frequency bands, which are listed in the methods to satisfy the agenda item.

**Agenda Item 1.16:**

*To consider issues related to wireless access systems, including radio local area networks (WAS/RLAN), in the frequency bands between 5 150 MHz and 5 925 MHz, and take the appropriate regulatory actions, including additional spectrum allocations to the mobile service, in accordance with Resolution 239(WRC-15)*

**1. Background**

There has been considerable growth in the demand for WAS/RLAN applications with multimedia capabilities, and there is a need to continually take advantage of technological developments in order to increase the efficient use of spectrum and facilitate spectrum access. As traffic on broadband WAS increases, the use of wider bandwidth channels in order to support high data rates creates a need for additional spectrum for indoor and outdoor use. Resolution **239 (WRC-15)** in its *recognizing b)* includes the results of ITU-R studies that estimate additional spectrum need for WAS/RLAN in the 5GHz frequency range in the year of 2018.

Resolution **229 (Rev. WRC-12)** resolves that the use of the bands 5 150-5 350 MHz and 5 470-5 725 MHz by the mobile, except aeronautical mobile, service will be for the implementation of WAS/RLAN. In accordance with Resolution **229 (Rev. WRC-12)**, the use of the band 5 150-5 250 MHz by the mobile service is restricted to indoor operations while outdoor use is allowed in the bands of 5 250-5 350 MHz and 5 470-5 725 MHz. Therefore relaxing conditions for outdoor use in the band of 5 150-5 250 MHz is required to meet the demand for additional spectrum for outdoor use in order to provide flexible and large coverage.

In the light of rapid growth in the demand for WAS/RLAN, Resolution **239 (WRC-15)** calls for ITU-R to performsharing and compatibility studies between WAS/RLAN applications and incumbent services in the frequency bands 5 150-5 350 MHz, 5 350-5 470 MHz, 5 725‑5 850 MHz and 5 850-5 925 MHz while ensuring the protection of incumbent services including their current and planned use, to consider enabling outdoor WAS/RLAN operations in the band 5 150-5 250 MHz, relaxing conditions for outdoor WAS/RLAN operations in the band 5 250-5 350 MHz, and potential mobile service allocations to accommodate WAS/RLAN use in the 5 350‑5 470 MHz and 5 725‑5 850 MHz frequency ranges, and identify potential WAS/RLAN use in 5 850‑5 925 MHz frequency range.

**Status of studies on the 5 150-5 250 MHz band in ITU-R**

ITU-R Working Party 5A is the responsible group for this agenda item. At the May 2018 meeting, the draft CPM text was completed, and currently sharing studies are mainly discussed for this agenda item.

1. Draft CPM Report (Document CPM19-2/1, Section 2/1.16/4):

For the 5 150-5 250 MHz band, there are four Methods. Three of them propose to relax the existing conditions specified in Resolution **229 (Rev. WRC-12)** as follows.

* Method A1: No Change to the RR.
* Method A2: Revision to Resolution **229 (Rev.WRC-12)** to enable outdoor RLAN operations including possible associated conditions for new e.i.r.p. limits (to enable outdoor RLAN operations with new e.i.r.p. limits while addressing the protection of incumbent services).
* Method A3: Revision to Resolution **229 (Rev.WRC-12)** to enable outdoor RLAN operations by applying the same conditions of use as defined for the 5 250-5 350 MHz band in resolves 4 of Resolution **229 (Rev.WRC-12)** (to align the technical and regulatory conditions with those defined for the adjacent frequency band 5 250-5 350 MHz in *resolves 4* of Resolution **229 (Rev.WRC-12)** to protect incumbent services)**.**
* Method A4: Revisions to Resolution **229 (Rev.WRC-12)** to enable in-vehicle use of RLAN operation with e.i.r.p. up to 40 mW (to provide the same level of protection established by Resolution **229 (Rev.WRC-12)** to incumbent services).

For the 5 725-5 850 MHz band, three methods are proposed as follows.

* Method D1: No Change to the RR.
* Method D2: A new worldwide or Regional primary MS allocation.
* Method D3: Accommodate WAS/RLAN in an existing or new footnote.

For other frequency bands, only No Change to the RR is proposed.

(2) Sharing studies and further discussions:

Regarding sharing studies, discussions are mainly focused on whether sharing between WAS/RLANs and existing services is possible or not if outdoor operations of WAS/RLANs in the 5 150-5 250 MHz band is allowed. The existing services in that band are MSS feeder links which operate in accordance with **5.447A**, the ARNS (aeronautical radionavigation service) and the AMT (aeronautical mobile telemetry for Region 1 and Brazil). Some contributions show that sharing is possible depending on the conditions of mitigation measures; some other contributions show that sharing is not possible if the effect of mitigation measures is not enough.

In the discussions on the draft CPM text and sharing studies, conditions and the effect of mitigation measures for outdoor operations in the 5 150-5 250 MHz band is a main topic.

With regard to mitigation measures which enable WAS/RLAN outdoor operations in the 5 150-5 250 MHz band, discussions are focused on limitation of the number of outdoor WAS/RLAN access points (APs). For example, some contributions from several countries show that if the outdoor use ratio of RLANs or the number of outdoor RLANs is limited, the aggregated interference level does not exceed the threshold to protect the existing services. In addition, in the Document 5A/922 from an MSS operator, the following description on the operational conditions for outdoor WAS/RLAN is included, “If outdoor access points were deployed, Administrations would be required to maintain records of deployment so that when interference occurs, remedial action can be taken by the correct Administration to eliminate the interference. ”

The above condition suggests an important direction towards a possible regulatory measure for Administrations to adopt in order to adequately protect the incumbent services.

Furthermore, as an example with respect to the limitation of the number of deployed APs, it is noted that ITU-R has developed Recommendation ITU-R F.1613-0 (Operational and deployment requirements for FWA systems in the 5 250-5 350 MHz band) which recommends a maximum density of base stations within a certain area. This version of the Recommendation is incorporated by reference in the footnote No. **5.447E** of the Radio Regulations, and, thus, the sharing between the relevant services has been successful for long years. This approach might be useful and would be considered to facilitate sharing for outdoor WAS/RLANs in the 5 150-5 250 MHz band.

**Examples of mitigation measures for outdoor use in Japan**

In Japan, mobile communication traffic via smartphones and tablets is increasing, especially the use of WAS/RLAN is increasing in the educational fields such as schools and commercial facilities such as stadium. To cope with increasing WAS/RLAN demand, Ministry of Internal Affairs and Communications (MIC) conducted studies to determine technical conditions for outdoor usage of WAS/RLAN in the 5 150-5 250 MHz band.

The results of studies show that with necessary mitigation measures, outdoor usage of WAS/RLAN in the band does not cause harmful interference to existing services including MSS feeder links and the Radiodetermination Service. The mitigation measures to prevent harmful interference to existing services include limitation of the number of outdoor APs based on the records of deployment and e.i.r.p. limitation depending on the AP’s elevation angle. Based on the results of the studies, the regulatory modifications were agreed to allow outdoor use of this frequency band under the above mitigation measures.

With regard to the Methods of Draft CPM Report, Method A1 and Method A4 do not allow outdoor RLAN operations. Method A3 is more suitable than Method A2 to implement the above mitigation measures including limitation of the number of outdoor APs.

* Method A1: No Change to the RR, and outdoor RLAN operations are not allowed.
* Method A2: Outdoor RLAN operations including possible associated conditions for new e.i.r.p. limits are allowed. The number of outdoor RLANs is not limited.
* Method A3: Outdoor RLAN operations with the same conditions as defined for the 5 250-5 350 MHz band in Resolution **229 (Rev.WRC-12)** are allowed. Administrations are requested to take appropriate measures that will result in the predominant number of stations in the mobile service being operated in an indoor environment.
* Method A4: In-vehicle use of RLAN with e.i.r.p. up to 40 mW is allowed. The number of in-vehicle RLANs is not limited, and outdoor RLAN operations are not allowed.

**Examples of regulations to allow outdoor use in Japan**

In Japan, the domestic regulation was newly adopted on June 29, 2018 to allow outdoor use of WAS/RLANs in the 5 150-5 250 MHz band under certain conditions. Considering that a footprint of MSS feeder links covers Japan, the administration controls the locations, the number and the technical conditions for all outdoor WAS/RLAN APs so as to avoid harmful interference to the existing services.

The conditions of outdoor use of WAS/RLANs in the 5 150-5 250 MHz band in Japan are summarized as follows (also included in the current working document (Annex 18 to 5A/976) “WORKING DOCUMENT TOWARDS A PRELIMINARY DRAFT NEW REPORT ITU-R M.[RLAN SHARING 5 150-5 250 MHz]” ):

* For APs:

1 Technical conditions:

• Dedicated APs must be operated that satisfy technical conditions that are the same as specified for the 5 250-5 350 MHz band in Resolution **229 (Rev. WRC‑12)** with maximum e.i.r.p. of 1 W and elevation angle masks.

2 Registration procedures:

• Registration to the administration in advance is required, and the administration keeps the record of deployment. The procedures are simplified compared with the license procedures. Block registration of multiple devices is possible.

• To avoid harmful interference to existing services, the administration may stop accepting new applications for registration or put a limitation on operations of existing WAS/RLAN devices that are already registered and installed.

• Application of registration must be done by a qualified person.

3 Limitation of the location for operations:

• The location for installation is limited to avoid harmful interference to the existing services. The regulatory rules specify the limitation.

* For terminals:

• Outdoor use of a terminal is allowed only when it is associated with an AP that satisfies the above conditions.

• Registration is not required, which is the same as before, since terminals are controlled by APs.

**2. Preliminary Views**

Japan is of the view that existing services should be protected adequately in all the frequency ranges to be considered in this agenda item.

Japan supports sharing and compatibility studies being conducted in ITU-R.

Japan supports enabling outdoor WAS/RLANs operations in the frequency band 5 150- 5 250 MHz with associated conditions to protect the existing services and modifying the Radio Regulations in this regard.

Japan is of the view that the total interference level from WAS/RLANs should be limited to protect existing services, and Method A3 satisfies this requirement.

**Agenda Item 9.1, Issue 9.1.1:**

*Resolution 212 (Rev.WRC 15)*

*Implementation of International Mobile Telecommunications in the frequency bands 1 885-2 025 MHz and 2 110-2 200 MHz*

**1. Background**

Historically, and to this day, it is recognized that co-coverage, co-frequency deployment of independent satellite and terrestrial IMT components is not feasible unless techniques, such as the use of an appropriate guardband or other mitigation techniques, are applied to ensure coexistence and compatibility between the terrestrial and satellite components of IMT. This recognition is described in noting further a) of Resolution 212 (Rev.WRC-15). In addition, some MS systems and some MSS systems are already being deployed as described in noting a) and b) of Resolution 212 (Rev.WRC-15).

Though the above situation was recognized, as the result of WRC-15, Resolution 212 was revised and ITU-R was invited to study the technical and operational measure to avoid harmful interference between the terrestrial and satellite components of IMT in the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz in adjacent geographical areas.

Within ITU-R, Working Party 4C (WP 4C) and Working Party 5D (WP 5D) are designated as the responsible groups for the preparatory work on this issue.

Currently, WP 4C and WP 5D are developing the Working Document towards the Preliminary Draft New Report or Recommendation ITU-R M.[MSS&IMT-ADVANCED SHARING], in accordance with Resolution 212 (Rev.WRC-15).

Though Draft CPM Report is already available, some technical studies are still under discussion. In particular, for the Scenario A1 (Interference from terrestrial component of IMT into satellite component of IMT in the frequency band 1 980-2 010 MHz), ITU-R is still discussing some inconsistencies (e.g., calculation results of base station antenna gain values), uncertainty of validity/appropriateness of the methodologies (e.g., LEO/MEO analysis) and technical/operational assumptions (e.g., base station deployment scenario).

**2. Preliminary Views**

Japan supports the technical and operational studies in ITU-R on coexistence and compatibility between the terrestrial component of IMT and the satellite component of IMT in the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz. Japan is of the view that no modification of the Radio Regulations (RR) which stipulate additional provisions to address the coexistence and compatibility should be supported, since ITU-R studies showed that several mitigation measures exist and any new provisions to the RR would limit the present flexibility of each Administration for deployments of either terrestrial or satellite components of IMT.

**3. Proposed Modification to APG Preliminary View**

Japan proposes the modification to APT Preliminary View of WRC-19 agenda item 9.1, Issue 9.1.1, which is contained in Attachment with the revision marks.

**Attachment**

Working Party 2

**PRELIMINARY VIEWs on WRC-19 agenda item 9.1 (ISSUE 9.1.1)**

**Agenda Item 9** *to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with* ***Article 7*** *of the Convention:*

**9.1.** *on the activities of the Radiocommunication Sector since WRC-15;*

**Issue 9.1.1: Resolution 212 (Rev.WRC-15)**

*Implementation of International Mobile Telecommunications in the frequency bands 1 885-2 025 MHz and 2 110 -2 200 MHz*

1. **Background**

Resolution **212 (Rev. WRC-15)** invites the ITU-R to study possible technical and operational measures to ensure coexistence and compatibility between the terrestrial component of IMT (in the mobile service) and the satellite component of IMT (in the mobile service and the mobile-satellite service) in the frequency bands 1 980–2 010 MHz and 2 170–2 200 MHz where those frequency bands are shared by the mobile service and the mobile-satellite service in different countries, in particular for the deployment of independent satellite and terrestrial components of IMT and to facilitate development of both the satellite and terrestrial components of IMT.

The terrestrial component of IMT has already been deployed or is being considered for deployment in the frequency bands 1 885–1 980 MHz, 2 010–2 025 MHz and 2 110–2 170 MHz. Both the terrestrial and satellite components of IMT have already been deployed or are being considered for deployment in the frequency bands 1 980–2 010 MHz and 2 170–2 200 MHz.

It was noted that co-frequency deployment of independent satellite and terrestrial IMT components in the same geographical area is not feasible unless technique, such as the use of an appropriate guardband or other mitigation techniques are applied to ensure coexistence and compatibility between the terrestrial and satellite components of IMT.

It was also noted that satellite and terrestrial IMT components deployed in adjacent geographical areas might require technical and operational measures to avoid harmful interference between them.

Within ITU-R, WP 4C and WP 5D which are responsible for the studies, have jointly developed the working document towards a preliminary draft new [Recommendation/Report] ITU-R M.[MSS&IMT-ADVANCED SHARING]. This working document provides the ITU-R studies conducted in the frequency bands 1 980-2 010 MHz and 2 170–2 200 MHz for the co-existence and the compatibility between the satellite component of IMT and terrestrial component of IMT in adjacent geographical areas across different countries. The above ITU-R studies found several technical and operational measures which can be implemented on a bilateral consultation basis without additional regulatory constraints in the Radio Regulations.

Taking into account such studies, ITU-R has produced a Draft CPM Report, which will assist administrations to consider this issue with a view to producing CPM Report from the CPM19-2 meeting in February 2019.

1. **Documents**

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1. **Summary of Discussions**
   1. **Summary of APT Members’ view**

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* 1. **Summary of issues raised during the meeting**

Some APT Members expressed the view that these measures should be carefully studied in order to provide flexible and implementable solutions by taking into account actual and realistic system characteristics/conditions rather than the worst-case characteristics/conditions only. It is important to avoid applying a unitary solution based on the worst-case interference conditions, especially to the actual and realistic interference case in which less interference levels could be expected.

Some other APT Members expressed the view that some system parameters, as well as deployment and propagation models in current studies, are from ITU-R Recommendations, therefore the study results are preliminary reliable (ITU-R characteristics and conditions have been considered and issues studied by both WP 4C and WP 5D carefully) Based on actual and realistic system characteristics, a variety of technical and operational measures should be considered in order to ensure coexistence and compatibility on a bilateral basis.

APT members considered that it is not appropriate to discuss any regulatory constraints based on the analysis which does not take into account the realistic system characteristics or whose technical validity is uncertain. In particular, for the Scenario A1 (Interference from terrestrial component of IMT into satellite component of IMT in the frequency band 1 980-2 010 MHz), ITU-R is still discussing some inconsistencies (e.g., calculation results of base station antenna gain values), uncertainty of validity/appropriateness of the methodologies (e.g., LEO/MEO analysis) and technical/operational assumptions (e.g., base station deployment scenario). Thus, no regulatory constraints on either services for Scenario A1 should be discussed.

During the discussion on the proposal of one administration for protection of existing utilizations, it was concluded that it is premature to determine an implementation future date for utilization of the bands 1 885–2 025 MHz and 2 110–2 200 MHz by the terrestrial and satellite components of IMT before conclusion of ITU-R studies on technical and operational measures, to ensure protection of existing utilizations from the interference that may be caused by new comer terrestrial and satellite components of IMT in above frequency bands.

Pursuant to the Resolution **212** (**Rev. WRC-15**), protection of services in the frequency bands adjacent to 1 885–2 025 MHz and 2 110–2 200 MHz has not been studied yet within WP 4C or WP 5D at the moment. APT members are encouraged to submit contributions addressing adjacent band protection issue and confirming that whether it is in the scope of studies, if necessary, to the above working parties directly.

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

APT members supports conducting ITU-R studies on possible technical and operational measures to ensure coexistence and compatibility between the terrestrial component of IMT and the satellite component of IMT in the frequency bands 1 980–2 010 MHz and 2 170–2 200 MHz in different countries, in accordance with Resolution **212 (Rev.WRC-15)**.APT has a view that no modification of the Radio Regulations (RR) which stipulate additional provisions to address the coexistence and compatibility should be supported, since ITU-R studies showed that several mitigation measures exist and any new provisions to the RR would limit the present flexibility of each Administration for deployments of either terrestrial or satellite components of IMT.

1. **Other View(s)**

Some APT Members have a view that since the Radio Regulations did not establish priority neither between terrestrial and satellite components of IMT, nor between mobile and mobile-satellite services in the bands 1 980-2 010 MHz and 2 170-2 200 MHz. Implementation of these technical and operational measures could be considered for new services to be deployed after a specific future date decided by WRC-19 while existing services already deployed before this date would not be constrained by these measures.

Some APT Members expressed the view that studies should be conducted with a view of protecting terrestrial IMT systems operating in the adjacent frequency bands 1 920 – 1 980 MHz and 2 110–2 170 MHz.

Some APT Members expressed the view thatpreliminary results of sharing study show that potential harmful interference would occur from terrestrial IMT BSs into satellites in the band 1 980-2 010 MHz and also from satellites into terrestrial IMT UEs in the band 2 170-2 200 MHz, in case that no mitigation technique is used. Therefore, it should be taken measures by both terrestrial IMT and satellite IMT systems to ensure coexistence and compatibility, as appropriate. The ITU-R studies regarding this issue have not been completed yet.

APT Members are of the view that the compatibility between stations in terrestrial component of IMT and earth stations in satellite component of IMT can be ensured by application of the current coordination procedure specified in the provisions of RR Article 9.

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

APT Members are encouraged to submit their contributions for APT common proposal at the next APG19 meetings, taking into account progress of ITU-R studies and CPM Report.

1. **Views from Other Organizations**

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**Agenda Item 9.1, Issue 9.1.5:**

*Consideration of the technical and regulatory impacts of referencing Recommendations ITU-R M.1638-1 and ITU-R M.1849-1 in Nos. 5.447F and 5.450A of the Radio Regulations*

**1. Background**

Recommendation ITU-R M.1638-0 identifies the characteristics of, and protection criteria for sharing studies for radiolocation, aeronautical radionavigation, and meteorological radars operating in the frequency range 5 250-5 850 MHz. It is incorporated in the ITU Radio Regulations as a reference in the footnote No. **5.447F** and **5.450A**.

During the last study cycle, Recommendation ITU-R M.1638-0 was revised. In this revision process, several new radars with different system characteristics were included in Recommendation ITU-R M.1638-1, and the technical characteristics and protection criteria for ground based meteorological radars were removed and are not included in Recommendation ITU-R M.1638-1 and were instead relocated to Recommendation ITU-R M.1849-1 and several new meteorological radars were added to Recommendation ITU-R M.1849-1 during this revision process.

Consistent with the provisions of Resolution **27 (Rev.WRC-12)**, for an ITU-R Recommendation (e.g. ITU-R M.1638), the reference in the Radio Regulations shall continue to apply to the earlier version incorporated by reference until such time as a competent WRC agrees to incorporate the new version. Given the potential impact on the widespread deployment of RLANs in the 5 250-5 350 MHz and 5 470-5 725 MHz frequency ranges and the provisions of RR No. **5.447F** and **5.450A**, WRC-15 decided to study this matter under WRC-19 agenda item 9.1, issue 9.1.5. For this consideration, this agenda item invites ITU-R to investigate the technical and regulatory impacts by replacing M.1638-0 with M.1638-1 and newly adding M. 1849-1 in RR No. **5.447F** and **5.450A**.

**2. Preliminary Views**

Japan supports the studies for updating the reference in the footnotes 5.447F and 5.450A to latest recommendations, while ensuring that undue constrains are not imposed on services referenced in these footnotes.

**Agenda Item 9.1, Issue 9.1.8:**

*Issue 3) in the Annex to Resolution 958 (WRC-15) - Urgent studies required in preparation for the 2019 World Radiocommunication Conference*

*3) Studies on the technical and operational aspects of radio networks and systems, as well as spectrum needed, including possible harmonized use of spectrum to support the implementation of narrowband and broadband machine-type communication infrastructures, in order to develop Recommendations, Reports and/or Handbooks, as appropriate, and to take appropriate actions within the ITU Radiocommunication Sector (ITU-R) scope of work.*

**1. Background**

As machine type communications (MTC) are expected to grow rapidly, WRC-15 decided that urgent studies should be carried out “to support the implementation of narrowband and broadband machine-type communication infrastructures” as one of the urgent studies required in preparation for WRC-19. This Issue is included as issue 3) in the Annex to Resolution **958 (WRC-15)**. In accordance with this Resolution, results of the studies will be reported to WRC-19, as appropriate, under agenda item 9.1 “*on the activities of the Radiocommunication Sector since WRC-15*”.

Within ITU-R, for this Issue, Working Party 5D (WP 5D) is the responsible group and Working Parties 1B (WP 1B) and 5A (WP 5A) are the concerned groups, respectively.

WP 5D has completed the development of the draft CPM text at its 30th meeting in June 2018, and the Report ITU-R M.[IMT.MTC] for possible harmonization of spectrum on MTC at the 31st meeting in October 2018. On the draft CPM text, the results of ITU-R studies concluded that there is no need for any regulatory action in the Radio Regulations with regard to specific spectrum for use by those applications in the Radio Regulations. Currently, the majority of views within WP 5D is that there is no necessity to identify specific spectrums for MTC in the ITU Radio Regulations, and possible spectrum harmonization could be addressed by developing ITU-R deliverables.

According to the latest information from the other regional groups, CEPT and CITEL, no modification to the Radio Regulations is also supported in their preliminary views.

**2. Preliminary Views**

Japan supports the ITU-R studies on the technical and operational aspects of radio networks and systems, as well as needed spectrums, including possible harmonized use of spectrum to support the implementation of narrowband and broadband machine-type communication infrastructures, in accordance with Resolution **958 (WRC-15)**, from the viewpoint of IMT and non-IMT technologies.

Japan is of the view that there is no need to identify specific spectrums for MTC applications according to the ITU Radio Regulations. Because, at least for MTC using IMT, it is available flexibly in the allocated frequency bands identified for IMT.

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1. Including studies with respect to services in adjacent bands, as appropriate. [↑](#footnote-ref-1)
2. When conducting studies in the band 24.5-27.5 GHz, to take into account the need to ensure the protection of existing earth stations and the deployment of future receiving earth stations under the EESS (space-to-Earth) and SRS (space-to-Earth) allocation in the frequency band 25.5-27 GHz. [↑](#footnote-ref-2)