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| **The 2nd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-2)** | **APG19-2/OUT-27** |
| 17 – 21 July 2017, Bali, Republic of Indonesia | **21 July 2017** |

Working Party 2

**preliminary views on WRC-19 agenda item 9.1 (Issue 9.1.8)**

**Agenda Item 9.1 Issue 9.1.8:**

*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, in accordance with Resolution* ***958 (WRC-15)***

**1. Background:**

Resolution **958 (WRC-15)** calls for ITU-R to study technical and operational aspects of radio networks and systems, as well as spectrum needed, including possible harmonized use of spectrum for narrowband and broadband machine-type communication (MTC) frastructure in order to develop Recommendations, Reports and/or Handbooks, as appropriate. ITU-R Working Party 5D (WP 5D), which is responsible group on Agenda Item 9.1 (Issue 9.1.8), is developing working document towards a preliminary draft new Report ITU-R M.[IMT. MTC] and the draft CPM texts. Current progress on the working document states that the identification of spectrum for mobile communications (voice and data) for narrowband and broadband IMT machine type communications already guarantees quality of service (QoS). MTC applications and devices can be used effectively with all the benefits of the existent mobile broadband bands and the new frequency bands under study for IMT. This approach avoids the necessity of identifying new spectrum dedicated exclusively for MTC applications and thus no changes are needed in the Radio Regulations under Resolution **958 (WRC-15)**. (Document 5D/666-Chapter 3-Attachement 3.2).

**2. Documents**

**2.1 Input Documents:**

* [APG19-2/INP-09](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-09_KOR-WP2.docx) **(KOR),** [APG19-2/INP-21](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-21_NZL_WP2.docx) **(NZL),** [APG19-2/INP-29](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-29_AUS_WP2_0.docx) **(AUS),** [APG19-2/INP-35](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-35_IRN_WP2.docx) **(IRN),** [APG19-2/INP-40](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-40_INS_WP2.docx) **(INS),** [APG19-2/INP-56](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-56_J_WP2.docx) **(J),** [APG19-2/INP-69](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INP-69_THA_WP2.docx) **(THA)**

**2.2 Information Documents:**

* [APG19-2/INF-01](http://www.aptsec.org/sites/default/files/2017/05/APG19-2-INF-01_Status_of_Preparation_of_Regional_Groups.docx)**(**Chairman, APG-19 : information for **ASMG, CEPT, ATU, RCC)**

[APG19-2/INF-04](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INF-04_CITEL_Preparation.pdf) **(CITEL),** [APG19-2/INF-05](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INF-05_RCC.docx%22%20%5Ct%20%22_blank) **(RCC),** [APG19-2/INF-06](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INF-06_IARU_0.docx) **(IARU),** [APG19-2/INF-14](http://www.aptsec.org/sites/default/files/2017/07/APG19-2-INF-14_CEPT_Preparation_for_WRC-19.pdf) **(CEPT)**

**3. Summary of Discussion:**

**3.1 Summary of Members’ view**

**3.1.1 Korea**

The Republic of Korea supports ITU-R studies on technical and operational aspects of radio networks and systems, as well as on spectrum needed, including possible harmonized use of spectrum for narrowband and broadband machine-type communication (MTC) infrastructure in order to develop Recommendations, Reports and/or Handbooks, as appropriate.

The Republic of Korea has a preliminary view that APT Members consider the following frequency bands, as categorized on a regulatory basis, for possible harmonized use of spectrum to support the implementation of MTC applications taking into account example frequencies in relevant ITU-R documents:

* The existing and future IMT identification bands taking into account IoT applications of IMT-based technologies.
* License-exempt bands such as 900 MHz, 1.7GHz, 2.4 GHz, 5.8 GHz taking into account Low Power Wide Area Network technologies.

**3.1.2 New Zealand**

New Zealand is of the view that there is no need to identify dedicated spectrum for Internet of Things (IoT) or Machine-type communication (MTC) in the Radio Regulations. IoT/MTC could be deployed in frequency bands already allocated to Mobile Service, or already identified for IMT use. Such applications can be clarified through development of appropriate ITU-R Recommendations, Reports and/or Handbooks.

**3.1.3 Australia**

Australia supports ITU Radiocommunication Sector (ITU-R) studies on technical and operational aspects of narrowband and broadband machine type communications. Studies should focus on the development of ITU-R Recommendations, Reports and/or Handbooks, as appropriate.

Australia is of the view that no change to the Radio Regulations is required under this issue.

**3.1.4 Iran**

Considering the ongoing related studies of WP 5D activities, this administration is in view of:

* Supporting 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 MTC infrastructures, in order to develop Recommendations, Reports and/or Handbooks, as appropriate.
* Introduction of any MTC to the frequency bands, shall not put additional constrain on applications that are in operation or planned to operate in future in accordance with the table of frequency allocations.
* Should APT support identification of spectrum for M2M, it would more appropriate to consider higher frequency bands, such as parts of those bands referred to in AI. 1.13 perhaps, upper parts of 24 GHZ band, or above, as appropriate. However, such identification should be based on the results of studies yet to be done, by ITU-R for the reasons mentioned above.
* This preliminary view may be changed, modified and updated as results of ongoing studies in the ITU-R and other regional organizations.

**3.1.5 Indonesia**

Indonesia is **of** the view that there are several relevant ITU-R Resolutions including Resolution ITU-R 66 “Studies related to wireless systems and applications for the development of the Internet of Things and Resolution ITU R 54 2 “Studies to achieve harmonization for short-range devices”. Indonesia follow up the study on the technical and operational aspects of radio networks and systems, as well as spectrum needed, as these machine type communications are expected to grow rapidly.

**3.1.6 Japan**

Japan supports the 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 accordance with Resolution 958 (WRC-15). Japan also supports to conduct these studies in light of IMT and non-IMT technologies for MTC applications.

Japan is of the view that IMT technologies for MTC applications are designed to be used technically within any of the frequency arrangements for IMT bands, and this feature avoids necessityof further identification of spectrum dedicated to MTC applications.

**3.1.7 Thailand**

Thailand supports studies currently undertaken by ITU-R Working Party 5D on technical, operational, and spectrum aspects of the terrestrial component of international mobile telecommunication (IMT) for narrowband and broadband machine-type communication.

Thailand notes that Machine Type Communication/Internet of Things (IoT) applications can be used both in IMT and non-IMT bands. For IMT band, Thailand is of the view that technical and operational aspects of radio networks and systems require further study, particularly with regard to common and appropriate air interface of such system. For non-IMT band, Thailand is of the view that harmonized use of spectrum on regional level would benefit IoT growth. Thailand is planning to introduce the 920-925 MHz band for IoT applications. Thailand further encourages APT Member countries to find appropriate band for regional harmonization.

**3.2 Key points raised during the meeting**

APT Members endorse the current conclusion of draft CPM text that no change to the Radio Regulations is required under this issue. (Document 5D/666-Chapter 3-Attachment 3.11)

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

APT Members support studieson 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, in accordance with Resolution **958 (WRC-15)**.

**5. Other Views:**

None

**6. Views from Other Organisations**

**6.1 ASMG**

Support the use of regionally or globally harmonized frequency bands in the frequency bands identified for IMT systems for Internet of Things (IoT) applications and systems.

**6.2 CITEL**

**Brazil and Canada**

These administrations have analyzed the current and future spectrum use for MTC and IoT, also, are taking in to account the importance to know the development and eventual findings of the studies related to issue 9.1.8 of Agenda Item 9.1 of the WRC-19. Accordingly, MTC and IoT applications and devices can be used effectively with all the benefits of the existent mobile broadband bands and the new frequency bands being studied for IMT. This approach avoids the necessity of stablish dedicated spectrum exclusively for MTC and IoT applications on identified IMT bands.

**6.3 RCC**

The RCC Administrations support the development of ITU-R Recommendations, Reports and/or Handbooks on technical and operational aspects of using different radio networks and systems, as well as on spectrum needed and experience in spectrum use, to support the implementation of narrowband and broadband machine-type communication infrastructures.

The RCC Administrations understood that the practicability for harmonization of any frequency bands for narrowband or broadband machine-type communication shall be justified taking into account features and prospects of the introduction of such systems both within IMT and non-IMT technologies.

**6.4 CEPT**

CEPT supports 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.

CEPT supports the consideration of IMT technologies within Agenda Item 9.1Issue 9.1.8 as well as the consideration of non-IMT technologies in the purview of WPs 1B and 5A related to machine-type communications.

**6.5 IARU**

The IARU supports the use of spectrum efficient technologies for MTC. Because MTC devices typically will be co-located with stations in the amateur service, the use of spectrum allocated to the amateur service would be problematic for both uses.

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

APT Members are encouraged to provide input contributions to the next APG meeting, taking into account the progress of ITU-R studies.

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