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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document No:** |
| **The 3rd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-3)** | **APG19-3/OUT-12** |
| 12 – 16 March 2018, Perth, Australia | **16 March 2018** |

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) infrastructure in order to develop Recommendations, Reports and/or Handbooks, as appropriate.

ITU-R Working Party 5D (WP 5D), which is the responsible group on Agenda Item 9.1 (Issue 9.1.8), is developing working document towards a preliminary draft of new ITU-R Report M.[IMT. MTC], as stated in Document [5D/875 Chapter 3](https://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5D-C-0875!H03!MSW-E) (Attachment 3.2), and the draft CPM text in [Chapter 3 (attachment 3.11) to document 5D/875](https://www.itu.int/dms_ties/itu-r/md/15/wp5d/c/R15-WP5D-C-0875!H03!MSW-E.docx). ITU-R WPs 1B and 5A as the concerned groups, have also developed working document towards a preliminary draft of new ITU-R Report SM.[LPWAN.MTC], as explained in Document [1B/237 Annex 9](https://www.itu.int/dms_ties/itu-r/md/15/wp1b/c/R15-WP1B-C-0237!N09!MSW-E.docx) and working document towards a preliminary draft new Report ITU-R M.[NON\_IMT.M2M\_USAGE], as explained in Document [5A/650 Annex 33](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0650!N33!MSW-E.docx).

Current progress on the working documents state 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/875 Chapter 3-Attachment 3.2).

**2. Documents**

**2.1 Input Documents:**

[APG19-3-INP-15](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-15_IND_WP2_0.docx), (KOR), [INP-29(Rev.1)](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-29Rev.1_IRN_WP2.docx) (IRN), [INP-35](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-35_New_Zealand_WP2_0.docx) (NZL), [INP-42](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-42_Australia_WP2.docx) (AUS), [INP-50](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-50_Japan_WP2.docx) (J), [/INP-72](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-72_Singapore-Thailand_WP2.docx) (SNG & THA), [INP-75](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-75_Malaysia_WP2.docx) (MLA), [INP-79](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-79_Indonesia_WP2.docx) (INS), [INP-83](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-83_Vietnam_WP2.docx) (VTN), [INP-87](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-87_China_WP2.docx) (CHN), [INP-97](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-97Rev.1_BGD_WP2.docx)(Rev.1) (BGD)

**2.2 Information Documents:**

[APG19-3/INF-06](https://www.apt.int/sites/default/files/2018/03/APG19-3-INF-06_CEPT_Preparation.pdf) (CEPT), INF-08 Rev.1 (CITEL), [INF-09](https://www.apt.int/sites/default/files/2018/03/APG19-3-INF-09_IARU_INF.DOCX) (IARU),

**3. Summary of Discussion:**

**3.1 Summary of Members’ view**

**3.1.1 India – Document** [APG19-3-INP-15](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-15_IND_WP2_0.docx)

India is of the view that IMT-based MTC/IoT applications should be able to use existing frequency bands allocated to MOBILE service that could support mobile broadband deployment. This includes frequency bands identified for IMT. There is no need to specify dedicated spectrum or indicate which frequency arrangement would be used exclusively for MTC/IoT applications.

India supports retaining the current conclusion in the draft CPM text for WRC-19 agenda 9.1, issue 9.1.8: “*Analysis of the current and future spectrum use for narrowband and broadband machine type communications (MTC), as expressed in Resolution 958 (WRC-15), concluded that there is no need to identify specific spectrum for those applications in the Radio Regulations. MTC/IoT applications and devices can be used effectively with all the benefits of the existing bands and the new frequency bands under study for IMT*”

**3.1.2 Korea – Document** [APG19-3/INP-22](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-22_KOR-WP2.docx)

The Republic of Korea proposes modification to the APT preliminary views adopted at the APG19-2, as stated below:

“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)**.

APT Members are of the view that the possible harmonized use of spectrum to support MTC can be achieved through ITU-R Recommendations/Reports and no change to the Radio Regulations is required under this issue.”

**3.1.3 Iran – Document** [APG19-3/INP-29(Rev.1)](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-29Rev.1_IRN_WP2.docx)

This administration supports 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)**.

This administration is in view of that there is no need to make any changes to the Radio Regulations nor for any identification to support MTC.

**3.1.4 New Zealand – Document** [APG19-3/INP-35](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-35_New_Zealand_WP2_0.docx)

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.

**3.1.5 Australia – Document** [APG19-3/INP-42](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-42_Australia_WP2.docx)

Australia supports the development of appropriate ITU-R Recommendations, Reports and/or Handbooks on technical and operational aspects of using different radio networks and systems for the implementation of narrowband and broadband machine-type communication infrastructures.

However, Australia is of the view that it is unnecessary to identify spectrum for machine-type communication infrastructures and no changes are required in the Radio Regulations as an outcome of this Issue. This is consistent with the current draft CPM Report conclusion (Document 5D/875 [Chapter 3](https://www.itu.int/dms_ties/itu-r/md/15/wp5d/c/R15-WP5D-C-0875!H03!MSW-E.docx) - Attachment 3.11)

Any future study can be accommodated in the scope of work of the ITU Radiocommunication Sector (ITU-R).

Accordingly, number 3 of the Annex to Resolution **958 (WRC-15)** can be suppressed.

**3.1.6 Japan – Document** [APG19-3/INP-50](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-50_Japan_WP2.docx)

Japan supports the ITU-R 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 there is no need to identify specific spectrum for MTC applications in the ITU Radio Regulations.

**3.1.7 Singapore and Thailand – Document** [APG19-3/INP-72](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-72_Singapore-Thailand_WP2.docx)

Singapore and Thailand support ITU-R studies currently undertaken by WP 5D on the technical, operational and spectrum aspects of the terrestrial component of the International Mobile Telecommunication (“IMT”) for narrowband and broadband MTC.

Both Administrations are of the view that MTC / Internet of Things (“IoT”) applications should be able to use existing frequency bands allocated to mobile service that could support mobile broadband deployment, including those already identified for IMT. These applications could also be used on non-IMT bands and there is no need to specify dedicated spectrum or indicate which frequency arrangement would be used exclusively for MTC/IoT applications.

**3.1.8 Malaysia – Document** [APG19-3/INP-75](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-75_Malaysia_WP2.docx)

Malaysia is of the view that no specific spectrum is required for MTC infrastructure and no modification to Radio Regulations is necessary to resolve Agenda item 9.1 (Issue 9.1.8).

The requirement for MTC infrastructure can be satisfied through ITU-R Recommendation, Report and/or Handbook.

**3.1.9 Indonesia – Document** [APG19-3/INP-79](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-79_Indonesia_WP2.docx)

Indonesia follows up the study on the technical and operational aspects including the potential harmonized spectrum usage to support the implementation of narrowband and broadband machine-type communication infrastructures, until the relevant study is finished.

**3.1.10 Vietnam – Document** [APG19-3/INP-83](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-83_Vietnam_WP2.docx)

Viet Nam has a preliminary view that no need to identify a new spectrum dedicated exclusively for MTC/IoT for any change in the Radio regulations.

Viet Nam notes that MTC/IoT applications can be used effectively with all the benefits of the existing bands (None- IMT bands and IMT bands) as well as the new frequency bands under study for IMT.

Viet Nam proposes to invite APT/AWG to assist 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.

**3.1.11 China – Document** APG19-3/INP-87

China's preliminary views are as follows:

1. China supports ITU-R studies on the technical and operational aspects of radio networks and systems, as well as spectrum needed, for the narrowband and broadband machine type communications.
2. China supports APT to formulate preliminary views as early as possible subject to discussion and agreement, and to actively harmonize with other ITU-R regions.
3. China is of the view that the existing frequency arrangements for IMT, detailed in Rec. ITU-R M.1036, can help enable a wide range of narrowband and broadband MTC applications and devices, both above and below 1 GHz. And there is no need to make any changes to the Radio Regulations nor for any identification to support MTC.

**3.1.12 Bangladesh – Document** [APG19-3/INP-97](https://www.apt.int/sites/default/files/2018/03/APG19-3-INP-97Rev.1_BGD_WP2.docx)(Rev.1)

Bangladesh 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 only.

**3.2 Summary of issues 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/875-Chapter 3-Attachment 3.11)

Viet Nam invited APT/AWG to assist concerning the implementation of narrowband and broadband machine-type communication infrastructures. In this regard, APT members agreed to send a liason statement to APT/AWG to seek information regarding the progress of their work on MTC/IoT.

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

APT Members support 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)**.

APT Members are of the view that the possible harmonized use of spectrum to support MTC can be achieved through ITU-R Recommendations/Reports and there is no need to make any changes to the Radio Regulations nor for any identification of spectrum to support MTC.

**5. Other View(s) from APT Members**

None

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

None

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document** APG19-2/INF-01

ASMG supports 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.

**7.1.2 ATU**

* None (http://atu-uat.org/)

**7.1.3 CEPT** - **Document** [**APG19-3/INF-06**](https://www.apt.int/sites/default/files/2018/03/APG19-3-INF-06_CEPT_Preparation.pdf)

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 is of the view that no modifications to the Radio Regulations are required in order to resolve Agenda item 9.1 issue 9.1.8.

CEPT supports the consideration of IMT technologies within Agenda item 9.1 issue 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.

**7.1.4 CITEL** - **Document** [**APG19-3/INF-**](file:///D:\APG\APG19-2\OUT-27)**08Rev.1**

**(**IAP)

No Change to the regulations, identification of spectrum for applications to be addressed via ITU reports and recommendations

**7.1.5 RCC** - **Document** [**APG19-2/INF-05**](file:///D:\APG\APG19-2\OUT-27)

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 understand 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.

**7.2 International Organisations**

**7.2.1 IARU** - **Document** [**APG19-3/INF-09**](https://www.apt.int/sites/default/files/2018/03/APG19-3-INF-09_IARU_INF.DOCX)

The IARU supports the use of spectrum efficient technologies for MTC within the spectrum identified for IMT.

**7.2.2 ICAO**

* None (https://www.icao.int/Pages/default.aspx)

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