|  |  |  |
| --- | --- | --- |
| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY | **Document No:**  |
| **The 4th Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-4)** | **APG19-4/INP-109** |
| 7 – 12 January 2019, Busan, Republic of Korea | **31 December 2018** |

**Bangladesh (People’s Republic of)**

**preliminary views on WRC-19 agenda itemS 1.13, 1.16, 9.1.1, 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**

Evolution in IMT systems and its usage like enhanced mobile broadband (eMBB), massive machine-type communications (mMTC) and ultra-reliable low-latency communications (URLLC) need large block of spectrums. As the higher frequency bands are better to use advanced antenna systems, multiple-input and multiple-output (MIMO) and beam-forming techniques in supporting eMBB, agenda item 1.13 considers possible new IMT identifications and mobile service spectrum allocations for such in the frequency range of 24.25-86 GHz.

Agenda item 1.13 as per Resolution 238 (WRC-15), determines the spectrum needs for the terrestrial components of IMT in the frequency range between 24.25 and 86 GHz as follows:

* Sharing and compatibility studies for 24.25-27.5 GHz, 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.

After considering the development of TG 5/1, the responsible group for conducting the sharing and compatibility studies in accordance with Resolution 238 (WRC-15), as expressed in CPM report, Bangladesh sets its preliminary view on this agenda item 1.13.

**2. Preliminary Views**

Bangladesh supports-

* Method A2 Alternative 2 condition A2A (option-1)- IMT Identification for 24.25-27.5 GHz band.
* Method B1 (NOC), the only method in CPM text, for 31.8-33.4 GHz band as coexistence is not possible.
* Method C2 Alternative 2- IMT Identification for 37-40.5 GHz Band.
* Method D2 Alternative 2- IMT Identification for 40.5-42.5 GHz Band.
* Method E2 Alternative 2- IMT Identification for 42.5-43.5 GHz Band.

Bangladesh is also considering 45.5-50.2 GHz, 47.0-47.2 GHz, 50.4-52.6 GHz, 66-76 GHz and 81-86 GHz bands for IMT identification.

**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**

 The demand for mobile broadband applications especially for WAS/RLANs has been growing rapidly. Resolution 239(WRC-15) in ITU-R studies indicate that the minimum spectrum needs for WAS/RLAN in 5 GHz frequency band in the year 2018 is estimated at 880 MHz. This figure includes 455-580 MHz already utilized by non-IMT mobile broadband applications operating within the 5 GHz band resulting in 300-425 MHz additional spectrum being required. WRC-15 examined the possibility of additional global allocations to the mobile service for terrestrial mobile broadband applications, including in the 5 GHz band, to facilitate contiguous spectrum for WAS/RLAN, thereby enabling the use of wider channel bandwidths to support higher data throughput.

 Resolution **239 (WRC 15),** calls for ITU-R to study WAS/RLAN technical characteristics and operational requirements in the 5 GHz frequency range. It also calls for ITU-R to perform sharing 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 5 150-5 350 MHz, and potential mobile service allocations to accommodate WAS/RLAN operations 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.

The frequency bands investigated under this agenda item is divided into 5 bands which are denoted by the following letters:

A

B

C

D

E

5150-5250 MHz

5250-5350 MHz

5350-5470 MHZ

**5150 MHz and 5925 MHz**

5725-5850 MHz

5850-5925 MHz

Regulatory procedures associated with some of the methods as expressed by the associated letter and a numerical suffix (Method A1, Method A2, Method A3) if multiple methods are proposed for a particular frequency band. When only one method is proposed for a particular frequency band, the method is expressed by the associated letter (A, B, C etc.)

**2. Preliminary Views**

Bangladesh supports method A2 for the Frequency Band A, method B, method C, method D2 for the Frequency band D and method E.

**Frequency Band A2: (5150-5250 MHz)**

Method A2 defines the revision of Resolution 229 (WRC-12) to enable outdoor RLAN operations including possible associated conditions for new e.i.r.p limits while addressing the protection of incumbent services.

**Frequency Band B: (5250-5350 MHz)**

Method B defines No change to RR in the frequency band 5250-5350 MHz.

**Frequency Band C: (5350-5470 MHz)**

Method C defines No change to RR in the frequency band 5350-5470 MHz.

**Frequency Band D: (5725-5850 MHz)**

Method D2 defines the use of 5725-5850 MHz bands by the mobile service for the implementation of WAS, including RLAN.

**Frequency Band E: (5850-5925 MHz)**

Method E defines No change to RR in the frequency band 5850-5925 MHz.

# Agenda Item 9.1, Issue 9.1.1

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

**1. Background**

The frequency bands 1 885-2 025 MHz and 2 110-2 200 MHz have been identified in the Radio Regulations (RR) for use by IMT. Within these broader frequency ranges, the frequency bands 1 980‑2 010 MHz and 2 170-2 200 MHz are allocated to the FS (Fixed Service), MS (Mobile Service) and MSS (Mobile-Satellite Service) on a co-primary basis. The MSS allocation is in the Earth‑to-space direction in the 1 980-2 010 MHz frequency band, and in the space-to-Earth direction in the 2 170‑2 200 MHz frequency band. Both the satellite and terrestrial components of IMT have been deployed or are being considered for further deployment within the 1 980-2 010 MHz and 2 170‑2 200 MHz frequency bands.

Resolution **212 (Rev.WRC-15)** invites *“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”*.

In accordance with Resolution **212 (Rev.WRC-15)**, coexistence and compatibility between the terrestrial component of IMT (in the MS) and the satellite component of IMT (in the MS and the MSS) in neighboring countries/different concerned countries/adjacent geographical areas across different countries were studied to facilitate the development of both the satellite and terrestrial components of IMT.

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.

**2. Preliminary Views**

Bangladesh 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).**

The 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.

Bangladesh is of the view that the proposed interference mitigation techniques in draft CPM text and recommendation/report for space component IMT, should be feasible due to the current technological advancement.

# Agenda Item 9.1, Issue 9.1.8

*Issue 3) in the Annex to Resolution* ***958 (WRC-15)***

*Harmonised use of spectrum to support the implementation of narrowband and broadband machine-type communication infrastructures;*

**1. Background**

Machine Type Communications (MTC), which are also known as Machine-to-Machine (M2M) communications or Internet of Things (IoT), describe communication between devices that do not require human intervention. The topic known as Internet of Things (IoT) is vastly discussed across different sectors of the ITU in the context of the development of a whole range of technologies and networks. Based on that, WRC-15 decided to conduct a study taking into account the rapid growth expected for Machine Type Communication (MTC) and the advantages of wireless technologies instead of cabling, for instance: reduced complexity of installation, no damage to cables, increased machine deployment, mobility and flexibility.

WP 5D, as the responsible group, with other concerned WP 5A, have developed :

* Draft new Report ITU-R M.[IMT.MTC] “*The use of the terrestrial component of International Mobile Telecommunication (IMT) for Narrowband and Broadband Machine-Type Communication*”;
* Preliminary draft new Report ITU-R M.[NON\_IMT.M2M\_USAGE] “*Technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT)”*.

The draft CPM report for WRC-19 Agenda Item 9.1, Issue 9.1.8 states that, there is no need for any regulatory action in the Radio Regulations. To address the harmonised use of spectrum to support the implementation of machine-type communication, the work in ITU-R Study Groups including the development of ITU-R Recommendations, Reports and/or Handbooks, as appropriate can be developed.

**2. Preliminary Views**

Bangladesh supports no change to the Radio Regulations. Bangladesh is of the view that there is no need to identify specific spectrum for the use of narrowband and broadband MTC applications in the Radio Regulations. MTC could be deployed in frequency bands already allocated to Mobile Service, or already identified for IMT use.

Bangladesh supports that development of appropriate ITU-R Recommendations, Reports and/or Handbooks for such kind of applications.

\_\_\_\_\_\_\_\_\_\_\_\_