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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-05** |
| 12 – 16 March 2018, Perth, Australia | **16 March 2018** |

Working Party 1

**PRELIMINARY VIEWs on WRC-19 agenda item 1.12**

**Agenda Item 1.12:**

*to consider possible global or regional harmonized frequency bands, to the maximum extent possible, for the implementation of evolving Intelligent Transport Systems (ITS) under existing mobile-service allocations, in accordance with Resolution* ***237 (WRC-15)****;*

**1. Background**

As the responsible group of WRC-19 Agenda item 1.12 in ITU-R, Working Party 5A (WP5A) had one meeting since APG19-2 meeting. WP5A developed a preliminary draft CPM text for this agenda item. WP 5A has also developed a working document towards a preliminary draft new Report ITU-R M.[ITS USAGE] covering overall ITS usage in various countries and a preliminary draft new Recommendation ITU-R M.[ITS\_FRQ] dealing with harmonized frequency bands. In addition, AWG is developing a working document towards a preliminary draft revision of APT Report on “The Usage of ITS in APT countries” (APT REPORT#18 (REV.2)).

Relevant ITU-R Reports/Recommendations, APT Reports/Recommendations and ongoing studies are as follows:

* Recommendation ITU-R M.1890, “Intelligent Transport Systems – Guidelines and Objectives”, 2011
* Recommendation ITU-R M.1453-2, “Intelligent Transport Systems – Dedicated Short Range Communications at 5.8 GHz”, 2005.
* Recommendation ITU-R M.1452-2, “Millimetre wave radiocommunication systems for ITS applications”, 2012.
* Report ITU-R M.2228, “Advanced Intelligent Transport Systems (ITS) radiocommunications”, 2012.
* Preliminary draft revision of Recommendation ITU-R M.2084-0, “Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for intelligent transport systems applications” ([Document 5A/650 Annex 30](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0650!N30!MSW-E.docx))
* Working document towards a preliminary draft new Report ITU-R M.[ITS USAGE], “Intelligent transport systems (ITS) usage in ITU Member States” ([Document 5A/650 Annex 29](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0650!N29!MSW-E.docx))
* Preliminary draft new Recommendation ITU-R M.[ITS\_FRQ], “Harmonization of frequency [bands/ranges] for Intelligent Transport Systems in the mobile service” ([Document 5A/650 Annex 31](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0650!N31!MSW-E.docx))
* Preliminary draft revision of APT Report on “The Usage of ITS in APT countries” (APT REPORT#18 (REV.1)). ([Document AWG-22/TMP-47](https://www.apt.int/sites/default/files/2017/10/AWG-22-TMP-47_ITS_Usage_in_APT_Countries.docx))
* Working document towards a preliminary draft new Report ITU-R M.[IMT.BY.INDUSTRIES], "The use of terrestrial component of International Mobile Telecommunication (IMT) by industry sectors" ([Document 5D/875 Attachment 3.13](https://www.itu.int/dms_ties/itu-r/md/15/wp5d/c/R15-WP5D-C-0875!H03!MSW-E.docx))

The current preliminary draft CPM text for WRC-19 agenda item 1.12 (Document [5A/650 Annex 8](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0650!N08!MSW-E.docx)) includes four Methods to satisfy the agenda item:

* **Method A** – No change to the Radio Regulations. Harmonisation is achieved by development of a new Recommendation (containing frequency ranges).
* **Method B** – Add a new Resolution **XXX (WRC-19)**, that:
  + B1 – refers to a new Recommendation (ITS-FRQ) containing the harmonised frequency ranges; or
  + B2 – explicitly includes the harmonised frequency ranges.
* **Method C –** Addfootnotes to the relevant parts ofRadio Regulations which refer to most recent version of Recommendation ITU-R M.[ITS\_FRQ].
* **Method D –** Addfootnotes to the relevant parts of Article 5 in the Radio Regulations. [Add a new WRC Resolution **[B112 ITS] (WRC-19)**]

All methods above request to suppress Resolution **237 (WRC-15).**

**2. Documents**

* Input Documents: APG19-3/INP-08 (AWG), APG19-3/INP-21 (KOR), APG19-3/INP-34 (NZL), APG19-3/INP-41 (AUS), APG19-3/INP-49 (J), APG19-3/INP-59 (THA), APG19-3/INP-78 (INS), APG19-3/INP-82 (VTN), APG19-3/INP-86 (CHN)
* Information Documents: APG19-3/INF-06 (CEPT), APG19-3/INF-08(Rev.1) (CITEL), APG19-3/INF-09 (IARU)

**3. Summary of discussions**

**3.1 Summary of APT Members’ views**

**3.1.1 Republic of Korea - Document APG19-3/INP-21**

Republic of Korea proposes modifications to the APT Preliminary View adopted at the APG19-2 meeting as stated below:

“APT Members support studies under Resolution **237 (WRC-15)** toward possible harmonization of frequency bands in existing mobile-service allocations for the implementation of evolving Intelligent Transport Systems (ITS) through ITU-R Recommendations/Reports. APT Members are of the view that there is no need to change the Radio Regulations (RR).”

**3.1.2 New Zealand -** **Document APG19-3/INP-34**

New Zealand supports the ITU-R studies undertaken in accordance with Resolution **237 (WRC-15)**, in order to harmonise frequency bands within existing mobile service allocations for the implementation of evolving Intelligent Transport Systems (ITS).

New Zealand is of the view that the new generation of co-operative ITS should operate within those frequency bands that are already being adopted for ITS use on a regional (or sub-regional) basis within existing mobile service allocations, or an immediately adjacent frequency band that is also appropriate for such use.

New Zealand is also of the view that Agenda item 1.12 can be satisfied through non-mandatory ITU-R Recommendation and/or Report without any changes to the Radio Regulations.

**3.1.3 Australia -** **Document APG19-3/INP-41**

Australia supports possible harmonisation of frequency bands in existing mobile service allocations for the implementation of evolving Intelligent Transport Systems (ITS).

Consistent with Method A of the draft CPM Report text (Document 5A/650 Annex 08) Australia supports no change to the Radio Regulations to satisfy this agenda item, and no new WRC Resolution. Spectrum harmonisation is best achieved by development of ITU-R Recommendations and supported by relevant new and/or revised ITU-R Reports.

Furthermore, Australia is also of the view that the ITU-R studies and any harmonised frequency bands for ITS should not be restricted to, nor exclude, any particular ITS technology.

**3.1.4 Japan -** **Document APG19-3/INP-49**

Japan supports ongoing studies of ITS applications in ITU-R toward possible global or regional harmonized frequency bands, including frequency bands currently using for ITS applications in Japan.

**3.1.5 Thailand - Document APG19-3/INP-59**

* Thailand supports ITU-R studies under Resolution 237 (WRC-15) toward possible harmonization of frequency bands in existing mobile-service allocations for the implementation of evolving Intelligent Transport Systems (ITS).
* Thailand is of the view that the implementation of harmonized frequency bands for ITS should not impose additional constraints on any application of the primary services to which these frequency bands are already allocated.
* Thailand is of the view that ITS systems, including those used for safety related applications, should be designed and deployed in such a way to ensure they can operate facing the potential interference generated by Fixed Satellite Service (FSS) transmitting earth stations in the frequency band 5 850‑5 925 MHz.

**3.1.6 Republic of Indonesia** - **Document APG19-3/INP-78**

Indonesia is of the view that the harmonized frequency bands at global and/or regional levels within existing mobile service allocations for evolving Intelligent Transport System (ITS) shall not impose additional constraints on other primary services and shall minimize the potential interference to the existing mobile service application/systems already deployed in these frequency bands. Indonesia also support studies undertaken by ITU-R WP 5A on evolving ITS.

**3.1.7 Socialist Republic of Viet Nam** - **Document APG19-3/INP-82**

Viet Nam supports studies under Resolution **237 (WRC-15)** toward possible harmonisation of frequency bands in existing mobile service allocations for the implementation of evolving Intelligent Transport Systems (ITS).

Viet Nam is also in view that the harmonized use of frequency bands by ITS should not impose additional constraints on other primary services to which these frequency bands are already allocated in the Radio Regulations.

**3.1.8 People’s Republic of China - Document APG19-3/INP-86**

China supports the existing APT Preliminary Views from APG19-2 meeting, and China also supports to consider following view points as APT preliminary views of APT in this meeting:

1. China supports the method of adding one new WRC Resolution to satisfy WRC-19 Agenda item 1.12 for global or regional harmonized frequency bands of evolving Intelligent Transport Systems, and consequently suppress the *Resolution* ***237 (WRC-15)***.
2. China supports that LTE-V2X and its evolution technologies should be considered within the scope of WRC-19 Agenda Item 1.12 as the evolving ITS technologies, and any harmonized frequency bands for evolving ITS should not be restricted to, nor exclude, any particular evolving ITS technology.
3. China supports to consider 5 850-5 925MHz or part of this frequency range as global or regional harmonized frequency band for evolving Intelligent Transport Systems.

**3.2 Summary of issues raised during the meeting**

Four key issues were discussed during the meeting based on APT Members’ contributions: ITS technologies, frequency bands to be harmonized, other primary services in the bands, and Methods to satisfy the agenda item.

* The standardization progress of ITS technology was introduced in the meeting and it was noted that the air interface standardizations of LTE based V2X, which is based on 3GPP Rel-14 LTE based V2X technology, was completed by China Communications Standards Association (CCSA) in 2017.
* It was noted that the Preliminary draft revision of APT Report on “The Usage of ITS in APT countries” (APT REPORT#18 (REV.1)). ([Document AWG-22/TMP-47](https://www.apt.int/sites/default/files/2017/10/AWG-22-TMP-47_ITS_Usage_in_APT_Countries.docx)) will be finalized in April 2018.
* The possible frequency bands to be harmonized for ITS were discussed. However, no consensus was reached.
* When reviewing the current preliminary draft CPM text developed by WP5A, it was noted that there is a potential for harmful interference from FSS earth stations to ITS receivers in the frequency band 5 850‑5 925 MHz, while the probability of interference from ITS devices to FSS space receivers would be negligible. Some APT Members clarified the sharing studies between FSS earth stations and ITS receivers were conducted in the case of the same geographic area by CEPT. Some APT Members are concerned regarding how to ensure the proper operation of ITS devices facing such potential interference.
* Currently, two of the Methods to satisfy the agenda item are supported by various APT Members, while some other APT Members are still considering Methods to satisfy the agenda item.

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

APT Members support studies under Resolution **237 (WRC-15)** toward possible harmonization of frequency bands in existing mobile-service allocations for the implementation of evolving Intelligent Transport Systems (ITS).

APT Members are also of the view that:

* Evolving ITS should not be restricted to, nor exclude, any particular evolving ITS technology including LTE based V2X and its evolution technologies.
* The use of frequency bands by ITS should not impose additional constraints on other primary services to which these frequency bands are already allocated and should take appropriate account of the potential interference from other primary Services, including FSS earth station uplinks.

**5. Other View(s)**

* Some APT Members support to consider the frequency band 5 850-5 925MHz or part of this frequency range as global or regional harmonized frequency band for ITS.
* Some APT Members are of the view that frequency bands with existing mobile service allocations that are already in use by ITS on a regional (or sub-regional) basis, could also be used by the new generation of co-operative ITS.
* Some APT Members support the Method of no changes to the Radio Regulations under this agenda item and satisfy this agenda item through ITU-R Recommendation and/or Report.
* Some other APT Members support the Method of adding one new WRC-19 Resolution under this agenda item for global or regional harmonized frequency bands of evolving Intelligent Transport Systems.

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

* APT Members are encouraged to contribute to the APG19-4 in considering Methods to satisfy the agenda item.
* APT Members are encouraged to review the outcome of the draft CPM text and are invited to contribute on issues in the draft CPM text.
* APT Members are encouraged to contribute to the APG19-4 in considering possible frequency bands to be harmonized for ITS.

**7. Views from Other Organisations**

**7.1 Regional Groups**

**7.1.1 ASMG** - **Document APG19-2/INF-1**

* Follow-up studies, and request administrations to consider the possibility of identifying appropriate frequency bands for these systems within the current allocations of the mobile service.

**7.1.2 ATU** - **Document APG19-2/INF-7**

* No preliminary position on this agenda item yet.

**7.1.3 CEPT** - **Document APG19-3/INF-06**

**Preliminary CEPT position:**

* CEPT is of the view that its existing regional harmonisation measures for ITS in the band 5 855-5 925 MHz are sufficient and no changes to the RR are required in response to WRC-19 Agenda item 1.12. CEPT is developing a revision of its existing harmonisation framework for ITS around 63-64 GHz.
* CEPT is of the view that harmonisation measures for ITS on ITU-R level can be achieved through the development of an ITU-R Recommendation (and an ITU-R Report if needed).
* CEPT is also of the view that harmonisation of ITS under AI 1.12 is limited to the exchange of information to improve traffic management and assisting safe driving.
* In addition, CEPT is of the view that Road tolling (also known as Electronic Toll Collection (ETC)) in 5 795-5 815 MHz is not part of Agenda Item 1.12.

**Preliminary European Common Proposal (ECP):**

NOC

Reasons**:** An ITU-R Recommendation, which is not referenced in the Radio Regulations, is considered sufficient to harmonize frequency bands for ITS pertaining to the exchange of information to improve traffic management and assisting safe driving.

**7.1.4 CITEL** - **Document APG19-3/INF-08**

* 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-5**

* The RCC Administrations consider it reasonable to harmonize frequency bands at global and regional levels within existing mobile service allocations in order to implement evolving Intelligent Transport Systems, including through the development of ITU-R Recommendations and Reports.
* The RCC Administrations are of the view that the implementation of evolving transport systems within existing mobile service allocations shall not impose additional constraints on services already having allocations in these or adjacent frequency bands.

**7.2 International Organisations**

**7.2.1 IARU** - **Document APG19-3/INF-09**

* There is growing interest among radio amateurs in experimentation, investigation of propagation phenomena, point-to-point communication and space communication in this band.
* The IARU is of the view that existing and future amateur use in this band should be protected with special attention to the bands 5 760 to 5 765 MHz and 5 830 to 5 850 MHz.

**7.2.2 ICAO** - **Document APG19-2/INF-2**

* To ensure, on the basis of agreed ITU-R studies, that any regulatory actions within existing mobile-service bands do not impact existing aeronautical systems operating in accordance with the Radio Regulations.

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