**To:** **The WIA President, WIA Board and WIA Spectrum Strategy Committee**

**From:** **Dale Hughes, WIA Special Representative**

**Re:** **Report on APG19-2 meeting**

**Date:** **24 July 2017**

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**Background**

The Asia-Pacific Telecommunity (APT) is a Regional Telecommunications Organisation (RTO) that, among other things, develops the Asia-Pacific regional view on WRC-19 agenda items. The second meeting of the APT Preparatory group for WRC-19 (APG19-2) was held in Bali, Republic of Indonesia over the week 17 to 21 July 2017. Over 450 delegates from APT member states, APT affiliate and associate organisations (incl. the IARU) attended the meeting. The APT preliminary views from APG19-2 will be refined by the upcoming APG19-3 and APG19-4 meetings before being finalised at the APG19-5 meeting just prior to WRC-19. It is important that the amateur service be represented at these meetings to ensure the best outcome for Region 3 amateurs.

Regional views on WRC-19 agenda items (AI's) are important as the various RTO's carry considerable weight at the WRC negotiations. In general the structure of the RTO's and their working methods is very similar to the ITU. The list of RTO's is:

| Region | Details | | |
|---|---|---|---|
| Asia-Pacific | APT | Asia-Pacific Telecommunity | http://www.apt.int/ |
| The Americas | CITEL | Inter-American Telecommunication Commission | https://www.citel.oas.org/en/Pages/default.aspx |
| Africa | ATU | African Telecommunication Union | http://atu-uat.org/ |
| Middle East | ASMG | Arab Spectrum Management Group | http://www.itu.int/en/ITU-R/terrestrial/broadcast/ASMG/Pages/default.aspx |
| Western Europe | CEPT | European Conference of Postal and Telecommunications Administrations | https://cept.org/ |
| Eastern Europe | RCC | Regional Commonwealth in the field of Communications | |

The Australian delegation of 17 members was jointly headed by the ACMA and the Department of Communications and the Arts. Australian delegates represented various government departments, statutory authorities, broadcasters and satellite operators. I represented the WIA (and therefore Australia's amateur service) and I was specifically responsible for WRC-19 agenda items 1.1 and 9.1.6.

Mr. Ken Yamamoto JA1CJP was a member of the Japanese delegation and represented the JARL and the IARU delegates were Mr. Shizuo Endo JE1MUI and Mr. Wisnu Widjaja YB0AZ. Other amateurs were part

of various national delegations or associate organisations covering other non-amateur specific agenda items, and as far as is known, did not address any amateur issues or concerns.

**WRC-19 agenda items relevant to amateurs**

A full list of WRC-19 agenda items may be found in Resolution 809 (WRC-15). The main WRC-19 amateur issue is agenda item 1.1 which is for a possible new amateur allocation in the 50 – 54 MHz frequency band in ITU Region 1 and therefore is not of direct concern for Region 3 amateurs, however it is important to ensure that any decisions made by WRC-19 on this issue do not affect the Region 3 amateur allocations. Achieving positive support for this agenda item will also highlight the ongoing importance of the amateur service and indicate to administrations our continuing interest in protecting and promoting the amateur service and its frequency allocations.

Agenda items of direct concern to the amateur service are 1.12, 1.13 and 1.16 as the relevant WRC-15 resolution covers existing amateur allocations. Other agenda items need to be followed in case any of the proposed solutions impact any amateur allocations e.g. AI's 1.7 and 1.11, or if the agenda item may cause general problems because of interference e.g. AI 9.1.6 (Wireless Power Transmission). Agenda item 1.15 is of interest because of the possibility of future band allocations to the amateur service above 275 GHz.

As the Australian agenda item coordinator for agenda items 1.1 and 9.1.6 I am responsible for the development of Australia's position on these agenda items and presenting such views at ITU and APG meetings. For APG19-2 Australia submitted input contributions on most WRC-19 agenda items including items 1.1 and 9.1.6 and these contributions were considered in developing the preliminary Asia-Pacific regional views and associated output documents.

The preliminary Australia views on all WRC-19 agenda items may be found on the ACMA website. Note: this website is updated after each relevant meeting and it may take some time before it reflects the most up-to-date Australian view.

The IARU preliminary views on relevant agenda items are given in annex 1 of this report

**Meetings**

The first APG19-2 plenary meeting approved working party and drafting group chairman, informed the meeting of general working methods and issues, and then allocated documents to the six working parties which covered all of the WRC-19 agenda items. I was appointed chairman of Drafting Group 1.1 (DG 1.1) which was assigned the task of developing the necessary draft APG preliminary view on agenda item 1.1.

Issues of interest to the amateur service were scattered across a number of working parties:

| WP | CPM Report Chapter | WRC-19 agenda item |
|---|---|---|
| **WP 1** | Chapter 1:<br>Land mobile and fixed | 1.11, 1.12 & 1.15 |

| | | |
|---|---|---|
| | services | |
| **WP 2** | Chapter 2:<br>Broadband applications in the mobile service | 1.13 & 1.16 |
| **WP 3** | Chapter 3:<br>Satellite services | |
| **WP 4** | Chapter 4:<br>Science services | 1.7 |
| **WP 5** | Chapter 5:<br>Maritime, aeronautical and amateur services | 1.1 |
| **WP 6** | Chapter 6:<br>General issues | 9.1.6 |

Draft output documents which give the preliminary APT view on WRC-19 agenda items are created on the basis of consensus by the drafting group (DG) assigned to cover each agenda item. The draft documents are reviewed, edited where necessary, and approved by a relevant working party session before being possibly edited again and approved at the final APG19-3 plenary session.

Each day was divided into a number of meeting sessions: 08:00 – 09:00, 09:00 – 10:30, 10:45 – 12:15, 14:00 – 15:30, 15:45 – 17:15 and 17:30 – 20:00. I attended the three WP 5 meetings, the two main plenary meetings and drafting group meetings for agenda items 1.1, 1.7, 1.11, 1.12, 1.13, 1.15 and 9.1.6. It was not possible to attend all meetings of some DG's as there was some overlap between DG meetings, however the most important meetings were attended.

In addition to APG19-3 meetings it is the practice of the Australian delegation to have a formal delegation meeting each day to discuss progress and any issues that might have arisen. The Australian delegation meetings usually started at 08:15 and I attended all except for one due to an overlap with another drafting group (9.1.6) that I needed to attend.

**Results**

The APG19-2 meeting is early in the WRC-19 cycle and most views on WRC agenda items are still developing (incl. Australia) so the national and regional views are very much preliminary and will be refined over time. The value of being at APG meetings, either as a member of a national delegation or as representative of the IARU, is finding out the various national views and being able to influence national and regional views at an early point in the process. A summary of the main results from APG19-3 is given in the following table:

| Agenda Item | Issue | Preliminary view |
|---|---|---|
| 1.1 | Region 1 50 – 54 MHz amateur allocation | OK |
| 1.7 | Additional spectrum for small satellites | OK, but watch |
| 1.11 | Railway systems; possible new allocation | OK, but watch |
| 1.12 | Spectrum for Intelligent Transport Systems | OK, but remains a threat |
| 1.13 | mm wave spectrum for IMT | OK, but remains a threat |

| | | |
|---|---|---|
| 1.15 | New allocations above 275 GHz | OK |
| 1.16 | Additional RLAN spectrum at 5 GHz | OK, but remains a threat |
| 9.1.6 | Wireless Power Transmission for electric vehicles | OK, but remains a threat |

To work on AI 1.1, DG 1.1 met twice considered or noted 12 input and information contributions and completed its work. The DG 1.1 output document was accepted without modification by the WP 5 meeting and passed through the final plenary with minor editorial changes. This was a good outcome.

**Next APG meetings**

At the second APG19-2 plenary meeting the proposed dates and locations of the next APG meetings were announced:

- APG19-3: Perth, 12 – 16 March, 2018
- APG19-4: Korea, 7 – 12 January, 2019
- APG19-5: Japan, 31 July – 6 August, 2019

It is important that we attend these meetings to ensure that the concerns of the amateur service are adequately expressed and incorporated in the relevant APG views and output texts.

**Future issues and actions**

For all of the relevant agenda items we need to ensure that the views of the WIA are addressed through participation in the Australian WRC preparatory process and attendance at the relevant Australian Radio Study Groups (particularly ARSG-5)and WRC-PG meetings held by the ACMA.

**Conclusion and acknowledgements**

APG19-3 was well run and successful; the views of the amateur service were represented in a professional manner and were noted in the relevant APG output documents. Input to future APG meetings through the WRC processes of each national administration (where possible) and the IARU on agenda items relevant to the amateur service is important and such input must be refined to clearly reflect the needs and concerns of the amateur service.

I thank the WIA President and Board for making the funds available to travel to APG19-3. I also acknowledge the ACMA organisational skills and administrative support in all aspects of WRC-19 preparation. The IARU also deserves considerable thanks for producing and presenting a valuable information contribution to APG19-2.

**Annex 1 follows:**

ASIA-PACIFIC TELECOMMUNITY
**The 2nd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-2)**
17 – 21 July 2017, Bali, Republic of Indonesia

**Document:**
**APG19-2/INF-06**

**10 July 2017**

International Amateur Radio Union (IARU)

# PRELIMINARY VIEWS ON WRC-19 AGENDA ITEMS 1.1, 1.7, 1.11, 1.12, 1.13, 1.15, 1.16 AND 9 (ISSUES 9.14, 9.16 AND 9.18)

## 1. About the IARU

The International Amateur Radio Union (IARU) was founded in 1925 and is the peak body that represents the interests of the amateur and amateur-satellite services at the ITU Radiocommunications sector (ITU-R), the ITU Development Sector (ITU-D) and Regional Telecommunication Organisations. Through these various organisations the IARU takes part in discussions on issues that may affect the amateur and amateur-satellite services. The IARU especially focuses on ITU World Radiocommunication Conference (WRC) agenda items where spectrum allocations are made. Global in scope, the IARU represents more than 160 national amateur radio societies.

The IARU is headed by an International Secretariat which supports the activities of three regional groups that deal with issues for each of the three ITU-R radio regions. IARU-Region 3 covers the Asia-Pacific region and it interacts with the Asia-Pacific Telecommunity (APT) through a Memorandum of Understanding.

IARU-Region 3 is pleased to take part in the APT Conference Preparatory Group for WRC (APG) meetings and present the views of the amateur and amateur-satellite services for consideration at this second meeting of the APG (APG19-2). The preliminary IARU views on WRC-19 agenda items that are relevant to the amateur and amateur-satellite services are presented below.

## 2. Agenda Item 1.1:
***to consider an allocation of the frequency band 50-54 MHz to the amateur service in Region 1, in accordance with Resolution 658 (WRC-15)***

### 2.1 Background

The frequency band 50-54 MHz is currently allocated to the amateur service on a primary basis in Region 2 and Region 3. In Region 1 this band is allocated to the broadcasting service on a primary basis, with additional or alternative allocations to the amateur, fixed, mobile, and/or radiolocation (limited to wind profiler radars) services in some countries.

Worldwide harmonisation of the allocation to the amateur service in this band would promote global efficiency (Refer to considering c) and *recommends 2* parts of RECOMMENDATION 34

(REV.WRC-12): Principles for the allocation of frequency bands (Note)) and fulfil the purposes of the amateur service including communication needs in support of disaster relief.

Note: This RECOMMENDATION is appeared in Volume 3 of the Radio Regulations.
Currently the compatibility studies between the amateur service and incumbent services in Region 1 are being conducted in ITU-R and a working document toward a preliminary draft new Report ITU-R M.[AMATEUR_50_MHZ] is being developed.

In order to achieve inter-regional operability, it is desirable to also allocate frequency band 50-54 MHz to the amateur service in Region 1.

### 2.2 IARU preliminary view on agenda item 1.1

The IARU supports modification of the Table of Frequency Allocations to allocate the band 50-54 MHz to the Amateur Service on a primary basis in Region 1 and so provide a harmonized allocation across all three Regions.

## 3. Agenda Item 1.7:

***to study the spectrum needs for telemetry, tracking and command in the space operation service for non-GSO satellites with short duration missions, to assess the suitability of existing allocations to the space operation service and, if necessary, to consider new allocations, in accordance with Resolution 659 (WRC-15)***

### 3.1 Background

Resolution 659 *invites ITU-R* to study the spectrum requirements for telemetry, tracking and command in the space operation service for the growing number of non-GSO satellites with short duration missions, taking into account RR No. **1.23** (space operation service) and assess the suitability of existing allocations to the space operation service in the frequency range below 1 GHz, taking into account current use and that the existing allocations to the space operation service below 1 GHz, where RR No. **9.21** applies, are not suitable for non-GSO satellites with short duration missions.

If studies of the current allocations to the space operations service indicate that operational requirements cannot be met in existing space operation service bands below 1 GHz, then ITU-R should conduct sharing and compatibility studies, and study mitigation techniques to protect the incumbent services, both in-band as well as in adjacent bands, in order to consider possible new allocations or an upgrade of the existing allocations to the space operation service within the frequency ranges 150.05-174 MHz and 400.15-420 MHz.

Currently relevant ITU-R work in response to the resolution is being conducted. None of the current amateur service and amateur-satellite service bands is included in the study at present.

### 3.2 IARU preliminary view on agenda item 1.7

The IARU supports satisfying the spectrum requirements for non-GSO satellites with short duration missions within the existing allocations for the space operation service or the frequency

ranges identified in *invites ITU-R 3* of Resolution 659 (WRC-15), unless the satellites are amateur satellites as defined in RR Nos. 1.56 and 1.57.

**4. Agenda Item 1.11:**
***to take necessary actions, as appropriate, to facilitate global or regional harmonized frequency bands to support railway radiocommunication systems between train and trackside within existing mobile service allocations, in accordance with Resolution 236 (WRC-15)***

**4.1 Background**

The *invites ITU-R* section of Resolution 236 asks ITU-R to study the spectrum needs, technical and operational characteristics and implementation of railway radiocommunication systems between train and trackside.

Currently relevant ITU-R work in response to the resolution is being conducted and the following three working documents towards a preliminary draft new Recommendation and Reports have been developed:

- Recommendation ITU-R M.[RAIL.RSTT]: Technical and operational characteristics, implementation and spectrum needs of RSTT;
- Report ITU-R M.[RSTT.DESCRIPTION]: Description of railway and radiocommunication systems between train and trackside (RSTT);
- Report ITU-R M.[RSTT. USAGE]: Current and future usage of railway radiocommunication systems between train and trackside (RSTT).

To date no specific frequency or frequency bands to support railway radiocommunication systems between train and trackside have been identified.

**4.2 IARU preliminary view on agenda item 1.11**

The IARU supports satisfying the spectrum needs for railway radiocommunication systems between train and trackside within existing mobile service allocations that are not also allocated to the amateur service.

**5. 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)***

**5.1 Background**

The *invites ITU-R* of Resolution 237 asks ITU-R to carry out studies on technical and operational aspects of evolving ITS implementation using existing mobile-service allocations.

The *noting b)* of Resolution 237 says that outlines of technologies and characteristics for dedicated short-range communications at 5.8 GHz are described in Recommendation ITU-R M.1453-2. In addition *noting c)* says that some administrations in each of the three Regions have deployed radiocommunication local area networks in the frequency band 5 725-5 825 MHz, which is also identified for industrial, scientific and medical (ISM) applications.

In the 5 GHz frequency band, 5 725-5 830 MHz is allocated to the amateur service on a secondary basis and 5 830-5 850 MHz is allocated to the amateur service and amateur-satellite service on a secondary basis.

The frequency band 5 760 to 5 765 MHz is used for amateur weak-signal communication activity including terrestrial and Earth-Moon-Earth communications and propagation beacons.

There is growing interest among radio amateurs in experimentation, investigation of propagation phenomena, point-to-point communication and space communication in this band.

Currently relevant ITU-R work in response to the resolution is being conducted and a working document towards a preliminary draft new Recommendation ITU-R M.[ITS_FRQ] and a working document towards a preliminary draft Report ITU-R M.[ITS_USAGE] are being developed.

At the moment Method A **(**No change) is proposed at the relevant ITU-R study group for the reason that the required harmonisation on frequencies for ITS pertaining to the exchange of information to improve traffic management and assisting safe driving can be achieved with an ITU-R Recommendation.

### 5.2 IARU preliminary view on agenda item 1.12

The IARU is of the view that existing and future amateur use in this band is protected with special attention to the bands 5 760 to 5 765 MHz and 5 830 to 5 850 MHz.

## 6. 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)***

### 6.1 Background

The *resolves to invite ITU-R* section 1 of Resolution 238 asks ITU-R 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. The *resolves to invite ITU-R* section 2 of the Resolution asks ITU-R to conduct and complete in time for WRC-19 the appropriate sharing and compatibility studies including studies with respect to services in adjacent bands, as appropriate, 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, 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.

The IARU is concerned that frequency bands which are allocated to the amateur and amateur-satellite services are included in the identified bands in the *resolves to invite ITU-R* section of the resolution. Those frequency bands are 81-81.5 GHz which is also allocated to the amateur and amateur-satellite services on a secondary basis in footnote 5.561A, and 47-47.2 GHz which is allocated to the amateur and amateur-satellite services on a primary basis. This narrow primary allocation of 47-47.2 GHz to the amateur service is the only spectrum in which amateur experimentation with millimeter wavelengths can be conducted without practical constraints imposed by sharing with other services.

### 6.2 IARU preliminary view on agenda item 1.13

The IARU is of the view that the spectrum requirements identified for IMT in the frequency range between 24.25 GHz and 86 GHz can be fully met in the frequency bands that are already allocated to the mobile service on a primary basis, and do not justify the allocation of 47.0-47.2 GHz to the mobile service. Therefor the IARU opposes additional allocations in this band to other services, including the mobile service. If either or both of the bands that are adjacent to 47.0-47.2 GHz are identified for the terrestrial component of IMT, suitable emission limits must be included in order to ensure the protection of existing and future amateur and amateur-satellite stations in the 47.0-47.2 GHz band. The IARU is further of the view that any allocation to IMT in the frequency range 24.25-27.5 GHz shall include full consideration and protection for the amateur and amateur-satellite service's primary allocation at 24-24.05 GHz.

## 7. Agenda Item 1.15:

***to consider identification of frequency bands for use by administrations for the land-mobile and fixed services applications operating in the frequency range 275-450 GHz, in accordance with Resolution 767 (WRC-15)***

### 7. 1 IARU preliminary view on agenda item 1.15

Resolution 767 (WRC-15) recognizes that the amateur service is developing and demonstrating applications above 275 GHz. As studies proceed to identify candidate frequency bands for the land-mobile and fixed services in the frequency range 275-450 GHz, the IARU supports maintaining access for non-commercial experimentation by stations in the amateur service to as much of the frequency range as possible, consistent with the protection of the passive and other active services.

## 8. 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)***

**8.1 Background**

*Invites ITU-R b)* of Resolution 239 asks ITU-R to conduct studies with a view to identify potential WAS/RLAN mitigation techniques to facilitate sharing with incumbent systems 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.

In the frequency band 5 650-5 850 MHz in Regions 1 and 3 and 5 650-5 925 MHz in Region 2 are allocated to the amateur service on a secondary basis. The frequency band 5 830 to 5 850 MHz is also allocated to the amateur-satellite service on a secondary basis.

The frequency band 5 760 to 5 765 MHz is used for amateur weak-signal communication activity including terrestrial and Earth-Moon-Earth communications and propagation beacons.

Currently studies on sharing and mitigation techniques are being conducted at ITU-R WP 5A and other relevant working parties. A working document towards a preliminary draft new Report ITU-R M.[RLAN REQ-PAR] concerning technical characteristics and operational requirements of WAS/RLAN in the 5 GHz frequency range is being developed.

**8.2 IARU preliminary view on agenda item 1.16**

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

**9. Agenda Item 9, Issue 9.1.4:**
***to conduct studies to identify any required technical and operational measures, in relation to stations on board sub-orbital vehicles, that could assist in avoiding harmful interference between radiocommunication services;***

**9.1 IARU preliminary view on agenda item 9, issue 9.1.4:**

This issue is of concern to the IARU only if spectrum requirements for space planes are identified that are in addition to the existing allocations for aeronautical and space operation services and if, therefore, a possible future agenda item for WRC-23 is developed.

**10. Agenda Item 9, Issue 9.1.6:**
***Urgent studies required in preparation for the 2019 World Radiocommunication Conference: Studies concerning Wireless Power Transmission (WPT) for electric vehicles according to Issue 1) in the Annex to Resolution 958 (WRC-15).***

### 10.1 Background

Annex to Resolution 958 specifies the following subjects on which studies are required in preparation for the 2019 World Radiocommunication Conference.

a) to assess the impact of WPT for electric vehicles on radiocommunication services;
b) to study suitable harmonized frequency ranges which would minimize the impact on radiocommunication services from WPT for electrical vehicles.)

Information in Report ITU-R SM.2303 and draft new Recommendation ITU-R SM.[WPT] shows that candidate frequencies for WPT are 19-21 kHz, 59-61 kHz, 79-90 kHz, 100-300 kHz and 6 765-6 795 kHz.

Within these bands, the frequency band 135.7-137.8 kHz is allocated to the amateur service on a secondary basis. Furthermore, out-of- band emission levels from WPT systems have to be carefully reviewed to avoid harmful interference to the amateur service.

IARU observes that High Power Wireless Power Transfer (HPWPT) is an emerging technology which will in time become deployed on a widespread basis (one in every house). We further observe the ongoing work in ITU and standards organisations to propose frequency ranges for HPWPT.

Currently relevant ITU-R work in response to the resolution is being conducted and a working document towards a preliminary draft new report ITU-R SM.[WPT-SPEC-MNGM] on methodology for spectrum management of wireless power transmission (WPT) is being developed.

### 10.2 IARU preliminary view on agenda item 9, issue 9.1.6

The IARU is of the view that radio frequency emissions resulting from any kind of Wireless Power Transmission (WPT) must be confined to the frequency ranges already identified for equipment used for industrial, scientific, and medical (ISM) applications or if found necessary, to frequencies below 100 kHz.

Since WPT for vehicles involves very large amounts of RF power and a WPT installation involves components connected together in a system with associated power supplies and control equipment, the spurious emissions from all these system parts must be carefully controlled in order to avoid degrading the radio spectrum and causing interference to other radiocommunication systems or services in accordance with RR 15.12 and RR 15.13.

IARU regards cooperation between ITU and Standards organisations to be essential in the evolution of standards and frequencies for WPT operation.

## 11. Agenda Item 9, 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.***

**11.1 IARU preliminary view on agenda item 9, issue 9.1.8**

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.

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