

To: For general distribution

From: Dale Hughes, WIA Special Representative

Re: Report on APG19-3 meeting

Date: 18 March 2018

Background

The [Asia-Pacific Telecommunity \(APT\)](http://www.apt.int/) is a Regional Telecommunications Organisation (RTO) that, among other things, develops the Asia-Pacific regional view on WRC-19 agenda items. The third meeting of the APT Preparatory group for WRC-19 (APG19-3) was held in Perth, Australia over the week 12 to 16 March 2018. Approximately 400 delegates from APT member states, APT affiliate and associate organisations (incl. the IARU) attended the meeting. The APT preliminary views from APG19-3 will be refined by the APG19-4 meeting 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
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
Western Europe	CEPT	European Conference of Postal and Telecommunications Administrations	https://cept.org/
Eastern Europe	RCC	Regional Commonwealth in the field of Communications	http://www.en.rcc.org.ru/

The Australian delegation of 47 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.

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 APG19-3 Australia submitted input contributions on all 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 WRC-19 agenda items are given in annex 1 of this report.

Meetings

The first APG19-3 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: Land mobile and fixed services	1.11, 1.12 & 1.15
WP 2	Chapter 2: Broadband applications	1.13 & 1.16

	in the mobile service	
WP 3	Chapter 3: Satellite services	
WP 4	Chapter 4: Science services	1.7
WP 5	Chapter 5: Maritime, aeronautical and amateur services	1.1
WP 6	Chapter 6: 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 plenary 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 two WP 5 meetings, the plenary meetings and drafting group meetings for agenda items 1.1, 1.12, 1.13, 1.16, 9.1.6 and meetings covering administrative and procedural issues. 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 started at 08:00 and I attended all delegation meetings and reported on the agenda items for which I am responsible.

A new initiative from the APG management was the inclusion of presentations covering the status of ITU-R studies on the WRC-19 agenda items and a briefing session for Drafting Group chairs on the working methods and template documents. The briefing session is an attempt to improve consistency of results across all WRC-19 agenda items and to speed up the processing of documents in the working party and plenary sessions. I presented an update on studies covering AI 1.1.

Meeting Results

The APG19-3 meeting is midway in the WRC-19 cycle, most views on WRC agenda items are starting to crystallise (incl. Australia) and will be refined over the next two APG meetings. 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 possibly influence national and regional views. 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	Good
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 watch
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 nine input and information contributions and completed its work. The DG 1.1 output document containing the preliminary APG view was accepted without modification by both the WP 5 and plenary meetings. This was a good outcome.

Progress on AI 9.1.6 occurred and Australian text covering the impact of interference from WPT to other services was included in the APG preliminary view.

The finalised APG19-3 preliminary views on WRC-19 agenda items will appear on the APT website covering [APG meetings](#) under the 'Documents' section in due course.

Next APG meetings

The next APG meetings are planned to be:

- 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 APG19-3.

Annex 1 follows:

Annex 1:



ASIA-PACIFIC TELECOMMUNITY

Document:

The 3rd Meeting of the APT Conference Preparatory Group for WRC-19 (APG19-3) **APG19-3/INF-09**

12 – 16 March 2018, Perth, Australia

15 February 2018

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 9.1.4, 9.1.6 AND 9.1.8)

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 Organizations. Through these various organizations 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 third meeting of the APG ([APG19-3](#)). 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.

Work in response to Resolution **658** is being conducted by ITU-R Working Party 5A and a working document toward preliminary draft new report and preliminary draft CPM text have been developed as follows:

- Report [ITU-R M.\[AMATEUR 50 MHz\]](#): Spectrum needs for the amateur service in the frequency band 50-54 MHz in Region 1 and sharing with mobile, fixed, radiolocation and broadcasting services
- [CPM text](#) for WRC-19 Agenda Item 1.1

In order to achieve inter-regional operability, it is desirable to allocate the 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.

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.

Work in response to Resolution **659** is being conducted by ITU-R and a working document toward preliminary draft new Report and a preliminary draft CPM text have been developed as follows.

- Report [ITU-R SA.\[SHORT DURATION NGSO – SHARING STUDIES\]](#): Studies on the suitability of existing allocations to the space operation service below 1 GHz and additional sharing studies on possible new and/or upgraded allocations
- CPM [Text](#) for WRC-19 Agenda Item 1.7

In the draft CPM text for this Agenda item, the following two methods are identified at this stage.

Method A: No change.

Method B: An allocation to the space operation service, limited to non-GSO satellite systems, in the lower end of the 403-406 MHz allocation which is not subject to coordination under section II of Article 9 of the Radio Regulations.

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 **236** is being conducted and a new report and working document towards a preliminary draft new recommendation have been developed.

In the draft CPM [text](#) for this Agenda item, the following two methods are identified at this stage.

Method A: No change.

Reasons: Recommendation [ITU-R M.\[RSTT FEQ\]](#) is sufficient to provide harmonized frequency bands for RSTT and there is no reason to reference this Recommendation in the RR.

Method B: Propose a new Resolution XYZ (WRC-19) and consequently suppress the Resolution 236 (WRC-15)

Reasons: To facilitate global or regional harmonized frequency bands to support railway radiocommunication systems between train and trackside within existing mobile service allocations.

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 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.

Currently relevant ITU-R work in response to Resolution **237** is being conducted and several recommendations and reports have been developed. In the draft CPM [text](#) for this Agenda item, several Methods including Method A (No change) are identified at this stage.

5.2 IARU preliminary view on agenda item 1.12

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.

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. Therefore 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 identifying 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.

The frequency bands 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 activities 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. In the draft CPM [text](#) for this Agenda item, Method A (No change) is suggested for the frequency band 5 725-5 850 MHz at this stage.

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 should be 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.2303-2](#) 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 should be carefully reviewed to avoid harmful interference to the amateur service.

ITU-R work in response to the Resolution **958** has resulted in development of 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).

10.2 IARU preliminary view on agenda item 9, issue 9.1.6

The IARU observes that high power Wireless Power Transfer is an emerging technology which will, in time, become deployed on a widespread basis (possibly one in every house) and in car parks, including high rise or multi-storey car parks).

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**.

The IARU is of the view that radio frequency emissions resulting from any kind of WPT system must be confined to the frequency ranges already identified for equipment used for industrial, scientific, and medical applications or if found necessary, to frequencies below 100 kHz. At the same time special attentions should be given to spurious and out of band emissions, including harmonics, from such WPT systems to prevent them from causing harmful interference to the Low Frequency and Medium Frequency amateur bands. Because of the likely high density of WPT(EV) installations and the close co-siting of WPT(EV) and radio receivers used in the domestic environment, modelling shows that the current spurious emission limits in [ITU-R SM.329-12](#) fall well short of what is needed to protect radio services operating under Article 5 of the Radio Regulations.

IARU regards cooperation between ITU and Standards organizations 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.

In the working document towards draft CPM [text](#) for this issue, the following view was developed:

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 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/IoT applications, and thus no changes are needed in the Radio Regulations (RR).

11.1 IARU preliminary view on agenda item 9, issue 9.1.8

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