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|  | **Radiocommunication Study Groups** | |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** | |  | |
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| Source: Document 5A/TEMP/121(Rev.1) | | **Annex 10 to Document 5A/298-E** | |
| **18 November 2016** | |
| **English only** | |
| Annex 10 to Working Party 5A Chairman’s Report | | | |
| Elements for draft CPM text  for WRC-19 Agenda Item 1.16 | | | |
| Agenda item 1.16 | | | |

(**WP 5A** / **WP 4A**, **WP 4C**, **WP 5B**, **WP 5C**, **WP 7C**,   
(WP 1B), (WP 3J), (WP 3K), (WP 3M), (WP 5D))

*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)****;*

Resolution **239 (WRC‑15)** – *Studies concerning Wireless Access Systems including radio local area networks in the frequency bands between 5 150 MHz and 5 925 MHz*

# 2/1.16/1 Executive summary

*[Text of the executive summary, not more than half a page of text to describe briefly the purpose of the agenda item, summarize the results of the studies carried out and, most importantly, provide a brief description of the method(s) identified that may satisfy the agenda item]*

[Mobile communications including WAS/RLANs contribute positively to the economic and social developments of both developed and developing countries.

Section 2/1.16/2 provides the background for agenda item 1.16.

Section 2/1.16/3 describes:

– the results of ITU-R studies for the technical and operational requirements for RLANs taking into account that previous studies indicated the minimum spectrum requirement for radio local area networks (RLAN) using the 5 GHz frequency range in the year 2018 is estimated to be 880 MHz;

– the sharing and compatibility studies conducted by the ITU-R for various frequency ranges.

– analyses of the results of studies for various frequency ranges;

– a list of frequency bands studied: 5 150-5 250 MHz, 5 150-5 350 MHz, 5 350‑5 470 MHz, 5 725‑5 850 MHz, and 5 850‑5 925 MHz.

Methods to satisfy the agenda item are included in section 2/1.16/4. Also, the regulatory and procedural considerations can be found in section 2/1.16/5.]

# 2/1.16/2 Background

*[Text of the background, not more than half a page of text to provide general information in a concise manner, in order to describe the rationale of the agenda items (or issue(s))]*

[Mobile communications including WAS/RLANs contribute positively to the economic and social developments of both developed and developing countries.]

[Since WRC-03, the demand for mobile broadband applications especially for WAS/RLANs has been growing rapidly. Previous ITU-R studies have indicated the need for increasing the amount of radio spectrum available for WAS/RLANs in the 5-6 GHz band to deliver high speed wireless broadband for consumers. Based on the methodology set out in Recommendation ITU-R M.1651 these studies have indicated that the minimum spectrum requirement for radio local area networks (RLAN) using the 5 GHz frequency range in the year 2018 is estimated to be 880 MHz.]

Resolution **239 (WRC‑15)**, calls for ITU-R to study WAS/RLAN technical characteristics and operational requirements in relation to these spectrum requirements in the 5 GHz frequency range. It calls for ITU-R to performsharing 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 to consider outdoor WAS/RLAN operations in the band  
5 150-5 350 MHz and potentially enabling the WAS/RLAN operations in the other bands, while ensuring the protection of incumbent services including their current and planned use.

# 2/1.16/3 Summary and analysis of the results of ITU-R studies

*[This section should contain a summary of the technical and operational studies performed within ITU-R, including a list of relevant ITU-R Recommendations. Depending on the agenda item, this section could be divided in two parts, one part dealing with the summary of technical and operational studies* *and the other part dealing with the analysis of the results of studies. The results of the ITU-R studies should also be analysed with respect to the possible methods of satisfying the agenda item, and presented in a concise manner.]*

## 2/1.16/3.1 Technical and operational requirements for WAS/RLANs

*[Editor’s note: Similar text in also in the background section. Some rationalization of the text between these 2 sections will have to be done.]*

[The results of previous ITU-R studies indicate that the minimum spectrum requirement for RLAN using the 5 GHz frequency range in the year 2018 is estimated to be 880 MHz. This figure includes 455-580 MHz of spectrum already utilized by non-IMT mobile broadband applications operating in the 5 GHz frequency range resulting in 300-425 MHz of additional spectrum being required. The ranges above are due to some of the frequency bands being identified for RLAN only in some countries.]

Currently, within the 5 GHz range, RLAN devices utilize the following frequency bands: 5 150‑5 250 MHz, 5 250‑5 350 MHz, 5 470-5 725 MHz and 5 725-5 850 MHz (in some countries). Pursuant to Resolution **229 (Rev.WRC-12)**, operation in the 5 150-5 250 MHz frequency band is limited to indoor use while dynamic frequency selection rules apply in the 5 250-5 350 MHz and 5 470‑5 725 MHz frequency bands.

[The studies on technical and operational requirements looked at the TBD.]

## 2/1.16/3.2 Sharing and compatibility studies

### 2/1.16/3.2.1 Frequency range 5 150-5 250 MHz

#### 2/1.16/3.2.2.1 FSS for Non-GSO MSS FEEDER UPLINKS and the mobile service/RLAN

### 2/1.16/3.2.2 Frequency range 5 250-5 350 MHz

#### 2/1.16/3.2.2.1 Earth exploration-satellite service (active) and the mobile service/RLAN

#### 2/1.16/3.2.2.2 Radar systems and the mobile service/RLANs

### 2/1.16/3.2.3 Frequency range 5 350-5 470 MHz

The frequency range 5 350-5 470 MHz, or parts thereof, is allocated to the EESS, RLS, ARNS, SRS and RNS. The details of these allocations can be found in RR Article **5**.

#### 2/1.16/3.2.3.1 Earth exploration-satellite service (active) and the mobile service/RLAN

#### 2/1.16/3.2.3.2 Radar systems and the mobile service/RLANs

### 2/1.16/3.2.12 Frequency range 5 725-5 850 MHz

The frequency range 5 725-5 850 MHz, or parts thereof, is allocated to the FSS, RLS, ARS, ARSS, LMS, FS and MS. Before identifying the band for wireless LAN, compatibility analysis, as appropriate, with respect to services in the adjacent bands should be considered. The details of these allocations and those of the adjacent frequency bands can be found in RR Article **5**.

### 2/1.1/3.2.13 Frequency range 5 850-5 925 MHz

The frequency range 5 850-5 925 MHz, or parts thereof, is allocated to the FS, FSS and MS in all 3 regions. The frequency bands adjacent to this frequency range are allocated to the FS, FSS, MS RLS, ARS, ARSS and LMS.

In this band applications under the mobile service have already been implemented on a national or regional level in these bands throughout the world, therefore any sharing analysis carried out under this agenda should not prejudice any current or future usages into the mobile service on a national or regional basis (i.e. any recommendations developed should be of an advisory and non-binding nature). This band is used for FSS uplink and for wide diverse applications around the globe; the introduction of new applications in the mobile service should take account the protection of the current and planned FSS use.

#### 2/1.1/3.2.13.1 Fixed service and the mobile service/RLANs

#### 2/1.1/3.2.13.2 Fixed-satellite service and mobile service/RLANs

# 2/1.16/4 Methods to satisfy the agenda item

*[This section should contain the brief description of the Method or Methods to satisfy the agenda item as per section 4 of Annex 2 to Resolution ITU-R 2-7.]*

The following methods are considered to satisfy this agenda item and may be applied to the candidate frequency bands. These are:

**Method A** – No change, which may be accompanied by reasons.

**Method B** – [Make an allocation to the mobile service to be used by RLANs under the MS on a primary basis (either by a new allocation or the upgrade of an existing secondary allocation) with a view to facilitate the development of terrestrial mobile broadband applications.

**Method B** – **Table of Frequency Allocations (ToA)** - Make an allocation to RLANs under the MS on a primary basis in the Table of Frequency Allocations.

**Method B** – **Footnote (FN)** - Make an allocation to RLANs under the MS (RLANs) on a primary basis in a footnote.]

**Method C** – [To identify different technical conditions for RLANs to under an existing MS allocation either in a new or existing footnote. This Method can be applied individually if there is already a primary mobile allocation or in conjunction with Method B.

In addition, any condition of use specific to a frequency band by the MS or IMT systems will be described under the specific frequency band under Methods B and/or C.]

**Other considerations** – TBD

The frequency bands considered under this agenda item together with the applicable methods identified to satisfy the agenda item are summarized in the table below:

Methods and options\* that may be applicable to the potential candidate frequency bands, taking into account   
existing frequency allocations contained in Article 5 of the RR

| Number / Bands (MHz) | Applicable Methods and Options\* (shown in *italics*) | | | | |
| --- | --- | --- | --- | --- | --- |
| Method A | Method B-ToA | Method B-FN | Method C | Section |
| 1/5150 -5250 |  |  |  |  | 2/1.16/5.1 |
| 2/5250 -5350 |  |  |  |  | 2/1.16/5.2 |
| 3 / 5 350-5 470 |  |  |  |  | 2/1.16/5.3 |
| 4 / 5 725-5 850 |  |  |  |  | 2/1.16/5.4 |
| 5 / 5 850-5 925 | [A] |  |  |  | 2/1.16/5.5 |

\* Methods can be applied without any options. WRC-19 may decide to apply any of these options or others not already stated in this Report.

## 2/1.16/4.1 For the frequency band 5 150-5 250 MHz

## 2/1.16/4.2 For the frequency band 5 250-5 350 MHz

## 2/1.16/4.3 For the frequency band 5 350-5 470 MHz

## 2/1.16/4.4 For the frequency band 5 725-5 850 MHz

## 2/1.16/4.5 For the frequency band 5 850-5 925 MHz

[Only Method A is applicable.]

[In this band allocations to all three primary services have already been made on a national or regional level in these bands throughout the world, therefore any sharing analysis carried out under this agenda should not prejudice any current or future allocations made to operate mobile services under the primary mobile allocation on a national or regional basis (i.e. any recommendations developed should be of an advisory and non-binding nature).]

# 2/1.16/5 Regulatory and procedural considerations

*[Example(s) of regulatory text relating to the Method(s) to satisfy the agenda item.]*

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