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|  | **Radiocommunication Study Groups** | |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** | |  | |
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| Annex 26 to Working Party 5A Chairman’s Report | | | |
| WORKING DOCUMENT TOWARDS A PRELIMINARY DRAFT NEW  REPORT ITU-R M.[RLAN SHARING] | | | |
| Sharing and compatibility studies of WAS/RLAN in the 5 GHz frequency range | | | |

*[****Editor’s note****: This document is intended as a placeholder for the various sharing studies in response to WRC-19 agenda item 1.16. As such, the structure of the document should be seen as a guidance for input contributions to the next meeting of WP 5A but it may evolve depending on input contributions, and the document could possibly be split appropriately.]*

# 1 Introduction

This Report includes the sharing and compatibilities studies of WAS/RLAN in the 5 GHz frequency range.

It is intended to represent the response to *invites ITU-R* *c)*, *d)*, *e)* and *f)* of Resolution **239 (WRC‑15)** under WRC-19 agenda item 1.16.

# 2 Scope of the sharing and compatibility of WAS/RLAN with other services in the 5 GHz range.

The World Radiocommunications Conference 2015 decided on the draft agenda for the upcoming World Radiocommunications Conference scheduled for 2019. Among other items, WRC-19 agenda item 1.16 addresses the need of studies on regulatory actions and additional spectrum allocations to be mobile service, including radio local area networks (WAS/RLAN). Indeed, WRC-19 agenda item 1.16 reads:

*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****COM6/22 (WRC‑15).***

The related Resolution **COM6/22 (WRC‑15)** to the WRC-19 agenda item 1.16 deals with studies concerning Wireless Access Systems including radio local area networks in the frequency bands between 5 150 MHz and 5 925 MHz. The Resolution invites ITU-R to conduct and complete the following in time for WRC‑19:

a) to study WAS/RLAN technical characteristics and operational requirements in the 5 GHz frequency range;

b) 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;

c) to performsharing and compatibility studies between WAS/RLAN applications and incumbent services in the frequency band 5 150-5 350 MHz with the possibility of enabling outdoor WAS/RLAN operations including possible associated conditions;

d) to conduct further sharing and compatibility studies between WAS/RLAN applications and incumbent services addressing:

i) whether any additional mitigation techniques in the frequency band 5 350‑5 470 MHz beyond those analysed in the studies referred to in recognizing a) would provide coexistence between WAS/RLAN systems and EESS (active) and SRS (active) systems;

ii) whether any mitigation techniques in the frequency band 5 350-5 470 MHz would provide compatibility between WAS/RLAN systems and radio determination systems;

iii) whether the results of studies under points i) and ii) would enable an allocation of the frequency band 5 350-5 470 MHz to the mobile service with a view to accommodating WAS/RLAN use;

e) to also conduct detailed sharing and compatibility studies, including mitigation techniques, between WAS/RLAN and incumbent services in the frequency band 5 725‑5 850 MHz with a view to enabling a mobile service allocation to accommodate WAS/RLAN use;

f) to also conduct detailed sharing and compatibility studies, including mitigation techniques, between WAS/RLAN and incumbent services in the frequency band 5 850‑5 925 MHz with a view to accommodating WAS/RLAN use under the existing primary mobile service allocation while not imposing any additional constraints on the existing services,

# 3 Overall view of allocations in the 5 GHz range

| **Allocation to services** | | | | | **Expected studies** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Region 1** | **Region 2** | | **Region 3** | |
| **5** **150-5** **250** FIXED-SATELLITE (Earth-to-space) 5.447A  MOBILE except aeronautical mobile 5.446A 5.446B  AERONAUTICAL RADIONAVIGATION  5.446 5.446C 5.447 5.447B 5.447C | | | | | Coexistence between WAS/RLAN outdoor operations and FSS (feederlinks for non-GSO) and Aeronautical Radionavigation | |
| **5** **250-5** **255** EARTH EXPLORATION-SATELLITE (active)  MOBILE except aeronautical mobile 5.446A 5.447F  RADIOLOCATION  SPACE RESEARCH 5.447D  5.447E 5.448 5.448A | | | | | Coexistence between WAS/RLAN outdoor operations and EESS (active), Radiolocation and SRS (active) | |
| **5 255-5** **350** EARTH EXPLORATION-SATELLITE (active)  MOBILE except aeronautical mobile 5.446A 5.447F  RADIOLOCATION  SPACE RESEARCH (active)  5.447E 5.448 5.448A | | | | |
| **5** **350-5** **460** EARTH EXPLORATION-SATELLITE (active) 5.448B  RADIOLOCATION 5.448D  AERONAUTICAL RADIONAVIGATION 5.449  SPACE RESEARCH (active) 5.448C | | | | | Further sharing and compatibility studies between WAS/RLAN applications and incumbent services addressing whether additional mitigation techniques would provide coexistence between WAS/RLAN systems and EESS (active), radio determination and SRS (active) systems (see *invites ITU-R d)* of Res. 239) |
| **5** **460-5** **470** EARTH EXPLORATION-SATELLITE (active)  RADIOLOCATION 5.448D  RADIONAVIGATION 5.449  SPACE RESEARCH (active)  5.448B | | | | |
| **5** **725-5** **830**  FIXED-SATELLITE (Earth-to-space)  RADIOLOCATION  Amateur | | **5** **725-5** **830**  RADIOLOCATION  Amateur | | | Coexistence between WAS/RLAN and FSS and Radiolocation |
| 5.150 5.451 5.453 5.455 5.456 | | 5.150 5.453 5.455 | | |
| **5** **830-5** **850**  FIXED-SATELLITE (Earth-to-space)  RADIOLOCATION  Amateur  Amateur-satellite (space-to-Earth) | | **5** **830-5** **850**  RADIOLOCATION  Amateur  Amateur-satellite (space-to-Earth) | | |
| 5.150 5.451 5.453 5.455 5.456 | | 5.150 5.453 5.455 | | |
| **5** **850-5** **925**  FIXED  FIXED-SATELLITE (Earth-to-space)  MOBILE | | **5** **850-5** **925**  FIXED  FIXED-SATELLITE (Earth-to-space)  MOBILE  Amateur  Radiolocation | | **5** **850-5** **925**  FIXED  FIXED-SATELLITE  (Earth-to-space)  MOBILE  Radiolocation | Coexistence between WAS/RLAN under the current MS allocation and FS and FSS. |
| 5.150 | | 5.150 | | 5.150 |

# 4 Assumptions on technical and operational elements for the sharing and compatibility of WAS/RLAN with other services

## 4.1 Technical and operational characteristics of the WAS/RLAN operating in the 5 GHz ranges

*[****Editor’s note****: Include relevant parameters and/or refer to any other documents]*

## 4.2 Technical and operational characteristics of FSS links used for MSS feeder links in the 5 150-5 250 MHz

## 4.3 Technical and operational characteristics of the Aeronautical Radionavigation service operating in the 5 150-5 250 MHz and 5 350-5 460 MHz

## 4.4 Technical and operational characteristics of the Earth Exploration Satellite service operating in the frequency ranges 5 250-5 570 MHz

## 4.6 Technical and operational characteristics of the Radionavigation service operating in the 5 460-5 470 MHz

## 4.7 Technical and operational characteristics of the Radiolocation service operating in the 5 250-5 470/5 725-5 850 MHz

## 4.8 Technical and operational characteristics of the Fixed service operating in the 5 850-5 925 MHz

## 4.9 Technical and operational characteristics of the Fixed Satellite service operating in the 5 725-5 850 MHz (for Region 1) and 5 850‑5 925 MHz

# 5 Sharing studies per frequency range and per service

## 5.1 Sharing and compatibility of MSS feeder links versus WAS/RLAN in the 5 150‑5 250 MHz

## 5.2 Sharing and compatibility of Aeronautical radionavigation versus WAS/RLAN in the 5 150-5 250 MHz and 5 350-5 460 MHz

## 5.3 Sharing and compatibility of Earth exploration satellite versus WAS/RLAN in the band 5 250-5 570 MHz

## 5.4 Sharing and compatibility of Radiolocation versus WAS/RLAN in the 5 250‑5 470/5 725-5 850 MHz

## 5.5 Sharing and compatibility of Radionavigation versus WAS/RLAN in the 5 460‑5 470 MHz

## 5.6 Sharing and compatibility of Fixed Service versus WAS/RLAN in the 5 850‑5 925 MHz

## 5.7 Sharing and compatibility of Fixed Satellite Service versus WAS/RLAN in the 5 725-5 850 MHz (for Region 1) and 5 850‑5 925 MHz

## 5.8 Consideration of the cross bands sharing and compatibility issues

## 6 Conclusions of sharing and compatibility studies per frequency range and per service

## 6.1 General considerations

## 6.2 Sharing and compatibility results in the band 5 150-5 350 MHz

## 6.5 Sharing and compatibility results in the band 5 350-5 470 MHz

## 6.6 Sharing and compatibility results in the band 5 725-5 850 MHz

## 6.7 Sharing and compatibility results in the band 5 850-5 925 MHz

## 6.8 Cross bands sharing and compatibility issues

*[****Editor’s note****: The following input contributions contain elements relevant to the further development of this working document and are therefore carried forward to the next meeting of WP 5A. These documents will be considered in detail at the next meeting of WP 5A and relevant parts will then be inserted into this working document as appropriate:*

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