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| **Radiocommunication Study Groups** |  |
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| Source: Document 5A/TEMP/75  Subject: Question [ITU-R 256/5](http://www.itu.int/pub/R-QUE-SG05.256) | **Annex 14 to**  **Document 5A/221-E** |
| **20 November 2020** |
| **English only** |
| Annex 14 to Working Party 5A Chairman’s Report | |
| WORKING DOCUMENT TOWARDS A PRELIMINARY DRAFT  new Report ITU-R M.[LMS.Conditions>275GHz] | |
| Assessment of mitigation techniques and specific conditions to be applied to the land mobile service applications in the frequency bands 296-306 GHz, 313‑318 GHz and 333-356 GHz, to ensure the protection of earth exploration-satellite service (passive) applications in accordance with RR No. 5.564A | |

([Question ITU-R 256/5](http://www.itu.int/pub/R-QUE-SG05.256))

[Editor’s note : Discussions may take place at a future WP 5A meeting to further consider how WP 5A and WP 7C will collaborate towards the efforts to develop possible mitigation measures and specific conditions on land mobile service to protect passive services in the frequency ranges addressed by this document.]

(…)

# 1 Introduction

The objective of this Report is to help fulfill the decisions of WRC-19 with respect to the use of the frequency range 275-450 GHz for land-mobile service applications to address the relevant aspects of RR No. **5.564A** and study the specific conditions necessary to ensure the protection of Earth exploration-satellite service (passive) applications in the frequency bands 296-306 GHz, 313‑318 GHz and 333-356 GHz, to be determined in accordance with RR No. **5.564A**:

5.564A For the operation of fixed and land mobile service applications in frequency bands in the range 275-450 GHz:

The frequency bands 275-296 GHz, 306-313 GHz, 318-333 GHz and 356-450 GHz are identified for use by administrations for the implementation of land mobile and fixed service applications, where no specific conditions are necessary to protect Earth exploration-satellite service (passive) applications.

The frequency bands 296-306 GHz, 313-318 GHz and 333-356 GHz may only be used by fixed and land mobile service applications when specific conditions to ensure the protection of Earth exploration-satellite service (passive) applications are determined in accordance with Resolution **731 (Rev.WRC-19)**.

In those portions of the frequency range 275-450 GHz where radio astronomy applications are used, specific conditions (e.g. minimum separation distances and/or avoidance angles) may be necessary to ensure protection of radio astronomy sites from land mobile and/or fixed service applications, on a case-by-case basis in accordance with Resolution **731 (Rev.WRC-19)**.

The use of the above-mentioned frequency bands by land mobile and fixed service applications does not preclude use by, and does not establish priority over, any other applications of radio services in the range of 275-450 GHz.      (WRC‑19)

The results of sharing and compatibility studies between LMS and FS applications planning to operate in the frequency range 275-450 GHz and passive services (radio astronomy service and Earth exploration-satellite service (passive)) that have been done pre-WRC-19 in [Report ITU-R SM.2450](https://www.itu.int/pub/R-REP-SM.2450) remain valid; however, these studies conducted prior to WRC-19 did not seek to develop specific conditions (such as power limits, shielding requirements and/or elevation angle restrictions, etc.) that could facilitate sharing with EESS and focused on identifying spectrum for LMS/FS applications, where such restrictions would not be necessary to protect the passive services.

# 2 Related Recommendations and Reports

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| [Recommendation ITU-R M.1653](https://www.itu.int/rec/R-REC-M.1653/en): | Operational and deployment requirements for wireless access systems including radio local area networks in the mobile service to facilitate sharing between these systems and systems in the Earth exploration-satellite service (active) and the space research service (active) in the band 5 470-5 570 MHz within the 5 460-5 725 MHz range |
| [Recommendation ITU-R M.1825](http://www.itu.int/rec/R-REC-M.1825/en): | Guidance on technical parameters and methodologies for sharing studies related to systems in the land mobile service |
| [Recommendation ITU-R P.676](https://www.itu.int/rec/R-REC-P.676/en): | Attenuation by atmospheric gases |
| [Recommendation ITU-R P.838](https://www.itu.int/rec/R-REC-P.838/en): | Specific attenuation model for rain for use in prediction methods |
| [Recommendation ITU-R P.840](https://www.itu.int/rec/R-REC-P.840/en): | Attenuation due to clouds and fog |
| [Recommendation ITU-R P.2109](https://www.itu.int/rec/R-REC-P.2109): | Prediction of building entry loss |
| [Recommendation ITU-R RS.2017](https://www.itu.int/rec/R-REC-RS.2017/en): | Performance and interference criteria for satellite passive remote sensing |
| [Report ITU-R RS.2431](https://www.itu.int/pub/R-REP-RS.2431): | Technical and operational characteristics of EESS (passive) systems in the frequency range 275-450 GHz |
| [Report ITU-R SM.2352](https://www.itu.int/pub/R-REP-SM.2352): | Technology trends of active services in the frequency range 275‑3 000 GHz |
| [Report ITU-R SM.2450](https://www.itu.int/pub/R-REP-SM.2450): | Sharing and compatibility studies between land-mobile, fixed and passive services in the frequency range 275-450 GHz |
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# 3 List of acronyms and abbreviations

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# 4 System characteristics of Earth exploration-satellite service (passive) operating in the frequency range 275-450 GHz, relevant for the mobile service

[Editor’s note: Summarize key elements from [Report ITU-R RS.2431](https://www.itu.int/pub/R-REP-RS.2431)]

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# 5 Overview of land-mobile service applications in the frequency range 275-450 GHz

Report ITU-R M.2417 provides the technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz for sharing and compatibility studies, including:

– Close proximity mobile systems (CPMSs)

– KIOSK downloading mobile systems

– Ticket gate downloading mobile systems

– Inter-chip communication systems

– Intra-device communications

– Wireless links for data centres

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# 6 Mitigation techniques and specific conditions to be applied to the land mobile service applications

*[TBD]*

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