|  |  |
| --- | --- |
| **Radiocommunication Study Groups** |  |
|  |  |
|  |  |
| Source: Docs. 5A/TEMP/78, 88, 85, 92, 91R1; *Attachments:* 63R1, 71R1, 72R1, 81R1, 84R1 | **Annex 3 to  Document 5A/221-E** |
| **15 December 2020** |
| **English only** |
| Annex 3 to Working Party 5A Chairman’s Report | |
| consolidation of reports from the working groups of working party 5a | |

Contents

[**1**](#s1) [Working Group 5A-1 – Amateur and amateur-satellite services](#s1)   
(Chairman: Mr. Dale Hughes, Australia)

[**2**](#s2) [Working Group 5A-2 – Systems and standards](#s2)  
(Chairman: Mr. Lang Baozhen, China)

[**3**](#s3) [Working Group 5A-3 – Public protection and disaster relief](#s3)  
(Chairman: Ms. Amy Sanders, USA)

[**4**](#s3) [Working Group 5A-4 – Interference and sharing](#s4)  
(Chairman: Mr. Michael Kraemer, Germany)

[**5**](#s4) [Working Group 5A-5 – New technologies](#s5)  
(Chairman: Mr. Hitoshi Yoshino, Japan)

**Attachments**: 7

[Attachment 1](#att1): Workplan for the revision of Recommendation ITU-R M.2134 – [Receiver / Technical and operational] characteristics and protection criteria for systems in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies.

[Attachment 2](#att2): Work plan for working document towards a preliminary draft new Report ITU-R M.[UCS] – Utility Communication Systems.

[Attachment 3](#att3): Elements for a draft liaison statement to Working Party 5C (copied to Working Party 7C for information) – Elements for a working document towards a preliminary draft new Report ITU-R M.[252-296 GHZ.LMS.FS.COEXIST].

[Attachment 4](#att4): Elements for a draft liaison statement to Task Group 6/1 (copy to Working Parties 5B, 5C, 5D, 6A and 7D for information – WRC-23 agenda item 1.5.

[Attachment 5](#att5): Elements for a draft liaison statement to Working Party 4A –Mobile Service technical and operational characteristics and protection criteria for use in sharing studies under WRC-23 agenda items 1.16 and 1.17.

[Attachment 6](#att6): Work plan for the development of a new Report ITU-R M.[CAV] – Connected Automated Vehicles.

[Attachment 7](#att7): Work plan for the development of a working document towards the revision of Report ITU-R M.2417-0 – Technical and operational characteristics of land mobile service applications in the frequency range 275-450 GHz.

NOTE 1 – Table 1 below shows the documents being carried forward to the next meeting of Working Party 5A.

NOTE 2 – Throughout this Annex reference is made to the temporary documents (5A/TEMP/…) produced by the Working Groups. Since these documents are not kept, please refer to [Annex 19](http://www.itu.int/md/dologin_md.asp?lang=en&id=R19-WP5A-C-0221!N19!MSW-E) of [Doc. 5A/221](http://www.itu.int/md/R19-WP5A-C-0221/en) to find the final disposition of these documents by Working Party 5A.

TABLE 1

List of 41 documents carried forward to the next WP 5A meeting

|  |  |
| --- | --- |
| **Working Group 2: Systems and standards (10 documents)** | |
| **Railways** | *RSTT:* [70](https://www.itu.int/md/R19-WP5A-C-0070/en) (Motorola Solutions); [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 12](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N12!MSW-E.docx) (WP 5A);  [156](https://www.itu.int/md/R19-WP5A-C-0156/en)-Res.240 (3GPP)  *Rep. M.2442:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 13](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N13!MSW-E.docx) (WP 5A)  *Rec. RSTT Frequencies:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 11](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N11!MSW-E.docx) (WP 5A) |
| **Broadband Wireless Access** | *M.1801:* [80](https://www.itu.int/md/R19-WP5A-C-0080/en) (Chairman, WP 5A) |
| **Air to Ground** | *Update of Rep. ITU-R M.2282:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N06!MSW-E) (WP 5A)  *New Report:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N07!MSW-E) (WP 5A) |
| **RLAN characteristics** | *M.1450:* [844](http://www.itu.int/md/R15-WP5A-C-0844/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0844!N17!MSW-E) (WP 5A); [79](https://www.itu.int/md/R19-WP5A-C-0079/en) (Chairman, WP 5A) |

|  |  |
| --- | --- |
| **Working Group 3: PPDR (1 document)** | |
| **Updates of ITU-R Reports** | *M.2377:* [891](http://www.itu.int/md/R15-WP5A-C-0891/en) (WP 5D) |

|  |  |
| --- | --- |
| **Working Group 4: Interference and sharing (30 documents)** | |
| **Sharing studies (general)** | *IMT:* [47](https://www.itu.int/md/R19-WP5A-C-0047/en) (France)  *Range 92-109.5 GHz:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 15](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N15!MSW-E.docx) (WP 5A); [137](https://www.itu.int/md/R19-WP5A-C-0137/en) (WP 7C) |
| **Sharing by zones** | [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 14](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N14!MSW-E) (WP 5A) |
| **RLAN sharing** | *REQ-PAR:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 9](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N09!MSW-E) (WP 5A)  *Aggregate Measurements:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N17!MSW-E) (WP 5A)  *Sharing 5150-5250 MHz:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 10](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N10!MSW-E) (WP 5A)  *Sharing 5750-5250 MHz:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 11](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N11!MSW-E) (WP 5A)  *Sharing 5725-5850 MHz:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N12!MSW-E) (WP 5A) |
| **AI 1.2: IMT** [**Res. 245**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0002PDFE.pdf) | [15](https://www.itu.int/md/R19-WP5A-C-0015/en) (WP 5D); [206](https://www.itu.int/md/R19-WP5A-C-0206/en) (UAE) |
| **AI 1.3: 3.6-3.8 R1** [**Res. 246**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0003PDFE.pdf) | [74](https://www.itu.int/md/R19-WP5A-C-0074/en) (ESOA); [88](https://www.itu.int/md/R19-WP5A-C-0088/en) (WP 5B); [190](https://www.itu.int/md/R19-WP5A-C-0190/en) (China); [192](https://www.itu.int/md/R19-WP5A-C-0192/en) (China);  [203](https://www.itu.int/md/R19-WP5A-C-0203/en), [204](https://www.itu.int/md/R19-WP5A-C-0204/en) (Ericsson, Huawei, Intel, Nokia, Samsung) |
| **AI 1.5: 470-960 R1** [**Res. 235**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0036PDFE.pdf) | [176](https://www.itu.int/md/R19-WP5A-C-0176/en) (UK); [179](https://www.itu.int/md/R19-WP5A-C-0179/en) (BBC); [186](https://www.itu.int/md/R19-WP5A-C-0186/en) (France); [197](https://www.itu.int/md/R19-WP5A-C-0197/en) (Thales SA);  [199](https://www.itu.int/md/R19-WP5A-C-0199/en) (Germany); [200](https://www.itu.int/md/R19-WP5A-C-0200/en) (Germany); [201](https://www.itu.int/md/R19-WP5A-C-0201/en) (Germany);  [202](https://www.itu.int/md/R19-WP5A-C-0202/en) (Motorola Solutions) |
| **AI 1.16: FSS ESIM** [**Res. 173**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0016PDFE.pdf) | [32](https://www.itu.int/md/R19-WP5A-C-0032/en) (WP 4A) |
| **AI 1.17: ISL** [**Res. 773**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0017PDFE.pdf) | [31](https://www.itu.int/md/R19-WP5A-C-0031/en) (WP 4A) |
| **AI 1.18: MSS** [**Res. 248**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0018PDFE.pdf) | [29](https://www.itu.int/md/R19-WP5A-C-0029/en) (WP 4C) |
| **AI 1.19: FSS @17** [**Res. 174**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0019PDFE.pdf) | [30](https://www.itu.int/md/R19-WP5A-C-0030/en) (WP 4A); [214](https://www.itu.int/md/R19-WP5A-C-0214/en) (WP 4A) |

# 1 Working Group 5A-1 – Amateur and amateur-satellite services (Chairman: Mr. Dale Hughes, Australia)

## 1.1 Summary

During the November 2020 virtual meeting of Working Party 5A, Working Group 5A-1 (WG 5A-1) met five times and undertook the following work:

● Reviewed six new input contributions.

● Produced two liaison statements covering aspects of work on WRC-23 agenda item 9.1 b).

● Reviewed the draft work plan for activities covering WRC-23 agenda item 9.1 b).

● Reviewed recent editorial revisions to the information document “[Guide to the use of ITU-R texts relating to the amateur and amateur-satellite services](http://www.itu.int/oth/R0A06000067)” which can be found on the WP 5A webpage.

## 1.2 Documents and details of work

WG 5A-1 was assigned the following input contributions:

|  |  |
| --- | --- |
| Working Group 1: Amateur Services (Chairman: [Dale Hughes](mailto:dalevk1dsh@gmail.com?subject=WP5A-meeting), Australia) | |
| **WRC-23 AI 9.1 b)** [**Res. 774**](https://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000D0023PDFE.pdf) | [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 6](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N06!MSW-E.docx) (WP 5A); [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 7](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N07!MSW-E.docx) (WP 5A); [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 10](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N10!MSW-E.docx) (WP 5A); [113](https://www.itu.int/md/R19-WP5A-C-0113/en) (WP 3M); [152](https://www.itu.int/md/R19-WP5A-C-0152/en) (Switzerland); [185](https://www.itu.int/md/R19-WP5A-C-0185/en) (IARU); [209](https://www.itu.int/md/R19-WP5A-C-0209/en) (WP 4C); [211](https://www.itu.int/md/R19-WP5A-C-0211/en) (WP 4C) |
| **Amateur satellite** | [127](https://www.itu.int/md/R19-WP5A-C-0127/en) (WP 7B) |
| **Amateur services protection** |  |
| **Protection of other services** |  |

Concerning WRC-23 agenda item 9.1b; contributions from [5A/152](https://www.itu.int/md/R19-WP5A-C-0152/en) (Switzerland) and [5A/185](https://www.itu.int/md/R19-WP5A-C-0185/en) (IARU) were incorporated into [5A/TEMP/55(Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0055)) which provides operational characteristic of amateur service stations in the 1240 – 1300 MHz frequency band for coexistence studies; this liaison statement will be sent to WP 4C and WP 3M. The attachment in [5A/TEMP/55(Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0055)) was incorporated with parts of [5A/85 Annex 10](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N10!MSW-E.docx) in [5A/TEMP/57(Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0057)) which will go forward as an annex of the WP 5A Chairman’s Report for work next session on a possible new report. No work was done on the draft CPM text for AI 9.1b and [5A/85 Annex 6](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N06!MSW-E.docx) will be carried forward for revision at future meetings of WP 5A. Input contributions [5A/113](https://www.itu.int/md/R19-WP5A-C-0113/en) (WP 3M), [5A/209](https://www.itu.int/md/R19-WP5A-C-0209/en) (WP 4C) and [5A/211](https://www.itu.int/md/R19-WP5A-C-0211/en)(WP 4C) were noted. A progress report of work towards WRC-23 agenda item 9.1b ([5A/TEMP/58](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0058)) was drafted and will be sent to WP 4C and WP 3M.

Document [5A/127](https://www.itu.int/md/R19-WP5A-C-0127/en) (WP 7B) was copied to WP 5A for information; this document was in response to information from WP 4A about the development of a Small Satellite Handbook which is relevant to the amateur-satellite service; this contribution was noted.

## 1.3 Output documents from WG 5A-1

|  |  |  |
| --- | --- | --- |
| Topic | WP 5A Action | Temp document |
| Liaison statement to WP 4C & WP 3M re AI 9.1b Amateur service characteristics | Approve | [5A/TEMP/55(Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0055)) |
| Liaison statement to WP 4C & WP 3M re AI 9.1b Progress on work | Approve | [5A/TEMP/56](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0056) |
| WRC-23 AI 9.1b draft CPM text (annex 6)  No work done on this topic | Carry forward |  |
| WRC-23 AI 9.1b work plan (annex 7)  Revised | Carry forward updated draft | [5A/TEMP/58](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0058) |
| WRC-23 AI 9.1b elements (annex 10)  Elements of a possible report for work next meeting | Carry forward updated draft | [5A/TEMP/57(Rev.1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R19-WP5A-201109-TD-0057)) |
| WG5A-1 Chairman’s report |  | [5A/TEMP/78](https://www.itu.int/md/R19-WP5A-201109-TD-0078/en) |

## 1.4 Objectives for the next meeting of Working Group 5A-1

● Based on contributions continue work on WRC-23 agenda item 9.1 b).

● Update WG 5A-1 work plan as required.

● Respond to liaison notes from other groups as appropriate.

● Deal with any other work relevant to the amateur and amateur-satellite service that is brought to the meeting.

## 1.5 Conclusion

Despite the unusual working arrangements because of the virtual meeting, the WG 5A-1 the chairman enjoyed working with all the delegates and is grateful for their thoughtful input contributions, diligent work, expert knowledge and goodwill.

# 2 Working Group 5A-2 – Systems and standards (Chairman: Mr. Lang Baozhen, China)

## 2.1 Executive summary

Working Group 5A-2 (WG 5A-2) continued its work on the development of working document towards a preliminary draft new Recommendation ITU-R M.[RSTT\_FRQ] – Spectrum Harmonization for Railway Radiocommunication Systems between Train and Trackside (RSTT).

WG 5A-2 continued its work on the development of working document towards a preliminary draft new study Question ITU-R [RSTT] – Studies related to the further development of RSTT.

WG 5A-2 continued its work on the development of working document towards a preliminary draft revision of Report ITU-R M.2442-0 – Current and future usage of railway radiocommunication systems between train and trackside.

WG 5A-2 continued to develop a working document towards a preliminary draft new Report ITU‑R M. [UCS] – Utility Communication Systems.

## 2.2 Systems and standards

WG 5A-2 met seven times at the twenty-fourth meeting of WP 5A. WG 5A-2 received the 30 documents assigned by the WP 5A Plenary as follows:

|  |  |
| --- | --- |
|  | Document 5A/… |
| **2.2.1 Railways (incl.** [**Res. 240 (WRC-19)**](https://www.itu.int/oth/R0A060000A0/en)**)** | *RSTT:* [70](https://www.itu.int/md/R19-WP5A-C-0070/en) (Motorola Solutions); [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 12](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N12!MSW-E.docx) (WP 5A); [156](https://www.itu.int/md/R19-WP5A-C-0156/en)-Res.240 (3GPP)  *M.2442:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 13](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N13!MSW-E.docx) (WP 5A)  *RSTT Frequencies:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 11](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N11!MSW-E.docx) (WP 5A) |
| **2.2.2 Broadband Wireless Access** | *M.2134:* [35](https://www.itu.int/md/R19-WP5A-C-0035/en) (USA); [181](https://www.itu.int/md/R19-WP5A-C-0181/en)r1 (Russian F.); [193](https://www.itu.int/md/R19-WP5A-C-0193/en) (USA)  *M.1801:* [43](https://www.itu.int/md/R19-WP5A-C-0043/en) (IEEE); [80](https://www.itu.int/md/R19-WP5A-C-0080/en) (Chairman, WP 5A); [153](https://www.itu.int/md/R19-WP5A-C-0153/en) (IEEE); [187](https://www.itu.int/md/R19-WP5A-C-0187/en) (China)  *Broadband for rural and remote areas:* [131](https://www.itu.int/md/R19-WP5A-C-0131/en) (ITU-D SG 1) |
| **2.2.3 Land mobile systems** | *Utilities:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 14](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N14!MSW-E.docx) (WP 5A); [123](https://www.itu.int/md/R19-WP5A-C-0123/en) (ITU-T SG 15); [173](https://www.itu.int/md/R19-WP5A-C-0173/en) (Canada);  [189](https://www.itu.int/md/R19-WP5A-C-0189/en) (China); [194](https://www.itu.int/md/R19-WP5A-C-0194/en) (UTC América Latina); [195](https://www.itu.int/md/R19-WP5A-C-0195/en) (UTC América Latina) |
| **2.2.4 Air to Ground** | *Update of Rep. ITU-R M.2282:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N06!MSW-E) (WP 5A)  *New Report:* [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N07!MSW-E) (WP 5A) |
| **2.2.5 RLAN characteristics** | *M.1450:* [844](http://www.itu.int/md/R15-WP5A-C-0844/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0844!N17!MSW-E) (WP 5A); [44](https://www.itu.int/md/R19-WP5A-C-0044/en) (IEEE); [79](https://www.itu.int/md/R19-WP5A-C-0079/en) (Chairman, WP 5A); [154](https://www.itu.int/md/R19-WP5A-C-0154/en) (IEEE); [187](https://www.itu.int/md/R19-WP5A-C-0187/en) (China) *Support WG 4 with characteristics for sharing & coexistence studies* |
| **2.2.6 ANT, HNT** | [103](https://www.itu.int/md/R19-WP5A-C-0103/en) (ITU-T SG 13); [104](https://www.itu.int/md/R19-WP5A-C-0104/en) (ITU-T SG 13); [121](https://www.itu.int/md/R19-WP5A-C-0121/en) (ITU-T SG 15); [122](https://www.itu.int/md/R19-WP5A-C-0122/en) (ITU‑T SG 15) |

WG 5A-2 set up one sub-working group and 2 draft groups to deal with Railways, M.2134 and Utilities respectively:

– SWG 5A2-1 Railways  
Mr. SHI Jin ([sj@crscd.com.cn](mailto:sj@crscd.com.cn)) (CHN)

– DG 5A2-1 M.2134   
Mr. Michael Mullinix([MMullinix@ctia.org](mailto:MMullinix@ctia.org)) (USA)

– DG 5A2-2 Utilities   
Mr. Brett Kilbourne ([brett.kilbourne@utc.org](mailto:brett.kilbourne@utc.org)) (UTC)

### 2.2.1 Railways (incl. [Resolution 240 (WRC-19)](https://www.itu.int/oth/R0A060000A0/en))

Input documents: RSTT: 70 (Motorola Solutions); 85 Annex 12 (WP 5A); 156-Res.240 (3GPP)

M.2442: 85 Annex 13 (WP 5A)

RSTT Frequencies: 85 Annex 11 (WP 5A)

Output documents: None

Carry forward document: 70 (Motorola Solutions); 85 Annex 12 (WP 5A); 156-Res.240 (3GPP); 85 Annex 13 (WP 5A); 85 Annex 11 (WP 5A).

The SWG5A2-1 Railways had offline e-mail discussion during this WP 5A meeting.

Offline discussion was held on the following issues:

Issue 1: Preliminary Draft Revision of Report ITU-R M.2442-0.

Issue 2: Study question on RSTT.

Issue 3: Recommendation ITU-R M. [RSTT\_FRQ].

During the discussion, delegates from France, Germany, Japan, Russian Federation, U.S. and China expressed their views. The offline group merged the proposed modification from different administrations and did editorial work. Although these drafting documents did not get consensus in the WG 5A-2 meeting, it helps advance the work on Railways. All documents under this issue are carried forward to the next meeting for further consideration.

### 2.2.2 Broadband Wireless **Access**

Input documents: M.2134: 35 (USA); 181r1 (Russian F.); 193 (USA)

M.1801: 43 (IEEE); 80 (Chairman, WP 5A); 153 (IEEE); 187 (China)

Broadband for rural and remote areas: 131 (ITU-D SG 1)

Output document: 5A/TEMP/83 (WD M.2134); 5A/TEMP/84 (Work plan M.2134)

Carry forward documents: [80](https://www.itu.int/md/R19-WP5A-C-0080/en) (Chairman, WP 5A)

Based on input contributions 5A/35, 5A/181 (Rev.1) and 5A/193, a drafting group was established (Chair: Michael Mullinix, USA) to discuss proposals to revise Recommendation ITU-R M.2134 “Receiver characteristics and protection criteria for systems in the mobile service in the frequency range 27.5‑29.5 GHz for use in sharing and compatibility studies.” Noting the request for information to support WRC-23 agenda items 1.16 and 1.17, the meeting developed a working document towards preliminary draft revision of Recommendation ITU-R M.2134 (5A/TEMP /83). Input contributions are invited to further progress the development of the revision of the Recommendation, taking into account the discussions on the possible inclusion of transmitter characteristics, technical and operational aspects of customer premises equipment (CPE) and the reference antenna pattern. In order to facilitate the discussions at future meetings, a work plan was established to organize Working Party 5A’s efforts towards the revision of this Recommendation. Finally, the meeting discussed a proposal to modify the protection criteria (I/N) to include a reference percentage of time where the criteria would be applicable. Given the broader relevance of the protection criteria to the mobile service more generally, it was proposed that additional discussions should take place in Working Party 5A, and potentially Study Group 5, level given the potential impact to mobile service operations under the purview of Working Parties 5A, 5B and 5D. Further input contributions are invited on the topic to facilitate future discussions. The working document towards workplan for the revision work on Recommendation ITU-R M.2134 (5A/TEMP/84) is in [Attachment 1](#att1).

A contribution was received (Document 5A/153) indicating the need to update Recommendation ITU-R M.1801 to include additional radio interface standards for broadband wireless access systems. A contribution was received (Document 5A/187) indicating frequency sharing and/or compatibility criteria shall be studied before any inclusion update of Recommendations ITU-R M.1450 and ITU‑R M.1801.The meeting didn’t reach agreement on this issue.

WG 5A-2 took note of the information provided by ITU-D SG 1 on Broadband for rural and remote areas in Doc. 5A/131 and did not see the need for further action at this point in time.

### 2.2.3 Land mobile systems

Input documents: Utilities: 85 Annex 14 (WP 5A); 123 (ITU-T SG 15); 173 (Canada);

189 (China); 194 (UTC América Latina); 195 (UTC América Latina)

Output documents: TEMP/79 (LS- ITU-R 1A,5C,5D); 80 (LS- ITU-T SG15); 81 (Workplan Utilities) 82 (Report on Utilities)

Carry forward documents: None

Contributions were received from Canada, UTC America Latina and China. These contributions were consolidated into a single document which is 5A/TEMP/82. A draft workplan was developed which is in [Attachment 2](#att2) (5A/TEMP/81R1). A reply liaison was developed to inform ITU‑T SG15 the further progress on the drafting of a preliminary draft new Report ITU-R M.[UCS] which is 5A/TEMP/80. A liaison statement was developed to inform ITU-R WPs 1A, 5C, and 5D the progress on the new Report ITU-R M.[UCS] and welcome their comments which is Document 5A/TEMP/79.

### 2.2.4 Air to Ground

Input documents: Update of Rep. ITU-R M.2282: 1065 Annex 6 (WP 5A)

New Report: 1065 Annex 7 (WP 5A)

Output documents: None

Carry forward document: [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N06!MSW-E) (WP 5A); [1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N07!MSW-E) (WP 5A)

Due to time limitation and no new input contribution received, the meeting decided to carry forward all the related documents to the next meeting for consideration.

### 2.2.5 RLAN characteristics

Input documents: M.1450: 844 Annex 17 (WP 5A); 44 (IEEE); 79 (Chairman, WP 5A); 154 (IEEE); 187 (China)

Output documents: None

Carry forward document: 844 Annex 17 (WP 5A); 79 (Chairman, WP 5A)

A contribution was received (5A/154) indicating the need to update Recommendation ITU-R M.1450 to include additional characteristics of broadband radio local area networks (RLANs). A contribution was received (5A/187) indicating frequency sharing and/or compatibility criteria shall be studied before any inclusion update of Recommendations ITU-R M.1450 and ITU-R M.1801.The meeting didn’t reach agreement on this issue.

### 2.2.6 ANTs, HNTs. etc.

Input documents: 103 (ITU-T SG 13); 104 (ITU-T SG 13); 121 (ITU-T SG 15); 122 (ITU-T SG 15)

Output documents: None.

WG 5A-2 took note of the information provided by ITU-T SG13 and ITU-T SG15 on this topic and did not see the need for further action at this point in time.

### 2.2.7 Review of ITU-R texts

WG 5A-2 reviewed the WP 5A texts Section 1 of [Annex 1](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N01!MSW-E.docx) to Doc. [5A/85](http://www.itu.int/md/R19-WP5A-C-0085) based on the temp document updated by the WP 5A chairman on the share point, and [Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/oth/R0A06000001/en). No additional modification is needed from the Working Group 2 perspective.

### 2.2.8 Objectives for the next meeting

The objectives for the next meeting are to continue the work on WAS Study Questions on the basis of input contributions and, in particular, to continue the work on:

– Development of working document towards a Preliminary Draft New Recommendation ITU-R M.[RSTT\_FRQ] – Spectrum Harmonization for Railway Radiocommunication Systems between Train and Trackside (RSTT)

– Development of working document towards a Preliminary Draft New Study Question ITU-R [RSTT] – Studies related to the further development of RSTT

– Development of working document towards a Preliminary Draft Revision of Report ITU-R M.2442-0 – Current and future usage of railway radiocommunication systems between train and trackside

– Development of working document towards a Preliminary Draft New Report on Broadband Air To Ground Systems – Frequency usage in the land mobile service for broadband direct air-to-ground (A2G) communications links with passenger aircraft

– Development of working document towards a preliminary draft revision of Report ITU-R M.2282-0 – Systems for public mobile communications with aircraft

– Development of working document towards a Preliminary Draft New Report ITU-R M.[UCS] – Utility Communication Systems

– Continue the work on the WAS Study Questions on the basis of input contributions.

## 2.3 **Chairman’s** closing remarks

Finally, the Chairman of WG 5A-2 would like to thank all participants of WG 5A-2 for their contributions and cooperation and particularly thank SWG chair Mr. Shi Jin from China, Draft Group chairmen Mr. Michael Mullinax from U.S. and Mr. Brett Kilbourne from UTC for their good and efficient work. The WG Chairman would also like to express sincere thanks to Mr. Jose Costa for his guidance to advance our work.

**Attachments**:

[Attachment 1](#att1): Workplan for the revision of Recommendation ITU-R M.2134 – [Receiver / Technical and operational] characteristics and protection criteria for systems in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies.

[Attachment 2](#att2): Work plan for working document towards a preliminary draft new Report ITU-R M.[UCS] – Utility Communication Systems.

# 3 Working Group 5A-3 – Public protection and disaster relief (Chairman: Ms Amy Sanders, USA)

## **3**.**1 Executive summary**

Working Group 5A-3 (WG 5A-3) met one time at the November 2020 meeting of Working Party (WP) 5A. WG 5A-3 considered five input contribution and one carried-forward document as assigned by the WP 5A Plenary.

The objectives for this meeting were outlined in Section 3.5 of [Annex 3 of Doc. 5A/85](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N03!MSW-E.docx) as:

– Consider the possible revision of Report ITU-R M.2377, based on input contributions.

– Consider the possible revision of the ITU-R portion of the Compendium of ITU’s Work on Emergency Telecommunications, based on input contributions.

No inputs to this meeting addressed either of the above objectives. The meeting agreed to maintain these objectives for at least the next meeting. The meeting then addressed the unrelated input contributions at this meeting.

No outputs were produced and the meeting agreed to carry forward Doc. [5A/891](http://www.itu.int/md/R15-WP5A-C-0891/en) once again.

## **3.2 Organization of the work**

All input contributions were introduced at the Working Group level. The Disaster Relief Liaison Rapporteur’s Report (Doc. [5A/81](https://www.itu.int/md/R19-WP5A-C-0081/en)) was addressed at the WP 5A Plenary. The WP 5A Chairman also tasked all WGs to consider the relevant portions of the “[Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/oth/R0A06000001/en)” and of Section 1 of [Annex 1 of Doc. 5A/85](https://extranet.itu.int/rsg-meetings/sg5/wp5a/Share/Forms/Column%20view.aspx?RootFolder=%2Frsg-meetings%2Fsg5%2Fwp5a%2FShare%2FDraft%20Plen%20TEMP%20docs&FolderCTID=0x012000FB880722B4622243913B1114C70648D5&View=%7B627C3C95-CC37-49E0-8D8A-33AC93C6F497%7D). WG 5A-3 decided to handle the disposition of all these items at the working group level.

## 3.3 **Execution** of work

The input contributions assigned to WG 5A-3 were addressed as follows:

|  |  |  |
| --- | --- | --- |
| **Topic** | **Document** | **Disposition** |
| **Updates of ITU-R Reports** | *M.2377:* [891](http://www.itu.int/md/R15-WP5A-C-0891/en) (WP 5D) | No inputs were received at this meeting. The meeting agreed to retain the update of Report ITU-R M.2377 as an objective for one more meeting and discontinue it - if no further inputs are received. Doc. 5A/891 is to be carried forward again. |
| **Liaison statements** | [99](https://www.itu.int/md/R19-WP5A-C-0099/en) (ITU-T SG 11) | The meeting reviewed the content and agreed that no reply was needed. The meeting noted the document. |
| [150](https://www.itu.int/md/R19-WP5A-C-0150/en) (WP 5D) | This liaison statement is addressed to ITU-D SG2 and copied to WP 5A. The meeting agreed to note the document. |
| [155](https://www.itu.int/md/R19-WP5A-C-0155/en) (ITU-D SG 2) | This liaison statement appeared to be superseded by Doc. 5A/172. The meeting agreed to note the document. |
| [172](https://www.itu.int/md/R19-WP5A-C-0172/en) (ITU-D SG 2) | The meeting reviewed the content and agreed that no reply was needed. The meeting noted the document |
| [175](https://www.itu.int/md/R19-WP5A-C-0175/en) (WP 5D) | This liaison statement is addressed to ITU-T SG11 and copied to WP 5A. The meeting agreed to note the document. |

## 3.4 Administrative matters

WG 5A-3 followed the WP 5A Chairman’s instructions to consider the relevant portions of the [Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/dms_pub/itu-r/oth/0a/06/R0A060000010001MSWE.docx) and Section 1 of [Annex 1 of Doc. 5A/85](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N01!MSW-E.docx). The meeting identified no further revisions that were needed at this time beyond those already identified by the Chairman of WP 5A in the [document on the Sharepoint](https://extranet.itu.int/rsg-meetings/sg5/wp5a/Share/Draft%20Plen%20TEMP%20docs/R19-WP5A-TEMP-Annex1-d1.docx?d=wf9f809caa24541ce8a4dbb60704d21e8&csf=1). This was communicated to the WP 5A Chairman for incorporation in the Chairman’s Report.

## 3.5 Future work

With regard to work on public protection and disaster relief at the next meeting of Working Party 5A, the objectives for Working Group 5A-3 will be to:

– Consider the possible revision of Report ITU-R M.2377, based on input contributions

– Consider the possible revision of the ITU-R portion of the Compendium of ITU’s Work on Emergency Telecommunications, based on input contributions.

As these have been objectives of the group for over a year with no input contributions, the meeting agreed that - if no inputs are received on the above topics at the next meeting - these would be discontinued as objectives.

## 3.6 Conclusion

Contributions are encouraged to the next meeting of Working Party 5A to advance the work on the possible revision of Report ITU-R M.2377 and the Compendium.

The WG Chairman would like to express sincere thanks all the participants of Working Group 5A-3 for their contributions to the work at this meeting.

# 4 Working Group 5A-4 – Interference and sharing (Chairman: Mr. Michael Kraemer, Germany)

## **4.1 Executive Summary**

Working Group (WG) 5A-4 initiated work on two new working documents towards PDNReports on [252-296 GHZ.LMS.FS.COEXIST] and Resolution **731**, initiated a revision of Recommendation ITU-R M.1824, continued the preparatory work for WRC-23 agenda item 1.3 where WP 5A is the lead group, and held initial discussions on a number of WRC-23 agenda items where WP 5A is a contributing group and developed reply liaison statements as well as text for a Circular Letter accordingly.

## 4.2 Introduction

WG 5A-4 met ten times during the November 2020 meeting of Working Party 5A and considered 102 input and carried-forward documents and developed 18 output documents.

## 4.3 Consideration of input documents

The following issues were considered based on input contributions as assigned to WG 5A-4 by the WP 5A opening plenary based on Document [5A/ADM/7](https://www.itu.int/md/R19-WP5A-ADM-0007/en).

### 4.3.1 Document copied to Working Party 5A for information

Input documents: [5A/91](http://www.itu.int/md/R19-WP5A-C-0091/en) (WP 5C); [5A/92](http://www.itu.int/md/R19-WP5A-C-0092/en) (WP 5C); [5A/94](http://www.itu.int/md/R19-WP5A-C-0094/en) (WP 5C); [5A/95](http://www.itu.int/md/R19-WP5A-C-0095/en) (WP 5C);   
[5A/96](http://www.itu.int/md/R19-WP5A-C-0096/en) (WP 5C); [5A/97](http://www.itu.int/md/R19-WP5A-C-0097/en) (WP 5C); [5A/98](http://www.itu.int/md/R19-WP5A-C-0098/en) (WP 5C); [5A/120](http://www.itu.int/md/R19-WP5A-C-0120/en) (WP 7D); [5A/100](http://www.itu.int/md/R19-WP5A-C-0100/en) (WP 5C);   
[5A/101](http://www.itu.int/md/R19-WP5A-C-0101/en) (WP 5C); [5A/102](http://www.itu.int/md/R19-WP5A-C-0102/en) (WP 5C); [5A/106](http://www.itu.int/md/R19-WP5A-C-0106/en) (WPs 3K & 3M); [5A/107](http://www.itu.int/md/R19-WP5A-C-0107/en) (WP 5B);   
[5A/108](http://www.itu.int/md/R19-WP5A-C-0108/en) (WPs 3K & 3M); [5A/111](http://www.itu.int/md/R19-WP5A-C-0111/en) (WP 3L); [5A/112](http://www.itu.int/md/R19-WP5A-C-0112/en) (WPs 3J, 3K, & 3M); [5A/114](http://www.itu.int/md/R19-WP5A-C-0114/en) (WP 3M); [5A/115](http://www.itu.int/md/R19-WP5A-C-0115/en) (WPs 3K & 3M); [5A/117](http://www.itu.int/md/R19-WP5A-C-0117/en) (WP 3M); [5A/124](http://www.itu.int/md/R19-WP5A-C-0124/en) (WP 7B); [5A/126](http://www.itu.int/md/R19-WP5A-C-0126/en) (WP 7B); [5A/128](http://www.itu.int/md/R19-WP5A-C-0128/en) (WP 7B); [5A/132R1](http://www.itu.int/md/R19-WP5A-C-0132/en) (WP 7C); [5A/135](http://www.itu.int/md/R19-WP5A-C-0135/en) (WP 7C); [5A/139](http://www.itu.int/md/R19-WP5A-C-0139/en) (WP 7C); [5A/140](http://www.itu.int/md/R19-WP5A-C-0140/en) (WP 7C); [5A/141](http://www.itu.int/md/R19-WP5A-C-0141/en) (ICAO); [5A/145](http://www.itu.int/md/R19-WP5A-C-0145/en) (WP 6A); [5A/146](http://www.itu.int/md/R19-WP5A-C-0146/en) (WP 6A); [5A/147](http://www.itu.int/md/R19-WP5A-C-0147/en) (WP 6A); [5A/148](http://www.itu.int/md/R19-WP5A-C-0148/en) (WP 5D); [5A/160](http://www.itu.int/md/R19-WP5A-C-0160/en) (TG 6/1);   
[5A/210](http://www.itu.int/md/R19-WP5A-C-0210/en) (WP 4C).

WG 5A-4 took note of the information provided in these documents and did not see a need for further action at this point in time.

### 4.3.2 Software implementation of Recommendation ITU-R P.368-9

Input document: [5A/110](http://www.itu.int/md/R19-WP5A-C-0110/en) (WP 3L)

WG 5A-4 took note of the information provided by WP 3L and will use the software implementation in future work as appropriate.

### 4.3.3 Preliminary draft IMO position on WRC-23 agenda item 1.3

Input document: [5A/144](http://www.itu.int/md/R19-WP5A-C-0144/en) (IMO)

WG 5A-4 took note of the information provided by the IMO and will take it into account when further progressing the work on WRC-23 agenda item 1.3.

### 4.3.4 3GPP’s activities related to WRC-19 Resolutions

Input document: [5A/156](http://www.itu.int/md/R19-WP5A-C-0156/en) (3GPP)

WG 5A-4 took note of the information provided by 3GPP on this topic and did not see a need for further action at this point in time.

### 4.3.5 Proposed liaison statement to contributing groups for WRC-23 agenda item 1.3

Input document: [5A/87](http://www.itu.int/md/R19-WP5A-C-0087/en) (Guinea)

This input contribution was intended to provide edits to the liaison statement that WP 5A had developed at the previous meeting. Since that LS has already been approved and sent to the contributing groups, it was concluded that 5A/87 is overtaken by events and there no need to further consider it.

### 4.3.6 Range 92-109.5 GHz

Input documents: [5A/119](http://www.itu.int/md/R19-WP5A-C-0119/en) (WP 7D); [5A/137](http://www.itu.int/md/R19-WP5A-C-0137/en) (WP 7C)

WG 5A-4 took note of the information provided by WP 7D and decided to carry forward the LS from WP 7C to be further addressed at the next meeting. In the absence of new input contributions, WG 5A-4 decided to carry forward the current working document ([5A/85](http://www.itu.int/md/R19-WP5A-C-0085/en), Annex 15) to the next WP 5A meeting for further consideration.

### 4.3.7 Sharing by zones

In the absence of new input contributions, WG 5A-4 decided to carry forward the current working document ([5A/976](http://www.itu.int/md/R15-WP5A-C-0976/en), Annex 14) to the next WP 5A meeting for further consideration.

### 4.3.8 RLAN documents from WRC-19 agenda item 1.16

In the absence of new input contributions, WG 5A-4 decided to carry forward the current working documents ([5A/1065](http://www.itu.int/md/R15-WP5A-C-1065/en) Annex 9, Annex 10, Annex 11, Annex 12 and [5A/976](http://www.itu.int/md/R15-WP5A-C-0976/en) Annex 17) to the next WP 5A meeting for further consideration.

### 4.3.9 WRC-23 agenda item 1.3

Input documents: [5A/74](https://www.itu.int/md/R19-WP5A-C-0074/en) (ESOA); [5A/88](https://www.itu.int/md/R19-WP5A-C-0088/en) (WP 5B); [5A/116](https://www.itu.int/md/R19-WP5A-C-0116/en) (WPs 3K & 3M); [5A/118](https://www.itu.int/md/R19-WP5A-C-0118/en) (Chairman, CPM-23); [5A/171](https://www.itu.int/md/R19-WP5A-C-0171/en) (WP 5D); [5A/188](https://www.itu.int/md/R19-WP5A-C-0188/en), [5A/190](https://www.itu.int/md/R19-WP5A-C-0190/en), [5A/192](https://www.itu.int/md/R19-WP5A-C-0192/en) (China); [5A/203](https://www.itu.int/md/R19-WP5A-C-0203/en), [5A/204](https://www.itu.int/md/R19-WP5A-C-0204/en) (Ericsson, Huawei, Intel, Nokia, Samsung); [5A/205](https://www.itu.int/md/R19-WP5A-C-0205/en) (UK); [5A/206](https://www.itu.int/md/R19-WP5A-C-0206/en) (UAE)

Output documents: 5A/TEMP/66 (Draft CPM text); 5A/TEMP/67(Rev.1) (Workplan)

WG 5A-4 established a SWG led by Mr Cesar GUTIÉRREZ to deal with this topic. The SWG discussed all input contributions, updated the draft CPM text and the workplan and decided to carry forward documents 5A/74 (ESOA), 5A/88 (WP 5B) 5A/190, 5A/192 (China), 5A/203 and 5A/204 (Multi-company) to the next WP 5A meeting for further consideration.

During the discussion it was pointed out that the background section of the CPM text should be a short and factual description of the topic and should not contain material of a promotional nature. It was also clarified that the current focus of the work is on gathering the relevant parameters for the work and a liaison statement had already been set to all contributing groups from the previous WP 5A meeting. The information from WP 5D about their parameter and sharing study work was noted in that regard and input contributions to the next WP 5A meeting are encouraged in order to be able to progress on this topic. Any discussion on the actual scope of the studies and whether these may be similar to those under WRC-23 agenda item 1.2 should be deferred to future meetings once the parameters for the studies are available and the work on the studies has started. Informal consultations between the relevant SWG/WG chairs in WP 5A and WP 5D could then take place to facilitate such future discussions as needed.

### 4.3.10 Range 252-296 GHz

Input documents: [5A/164](https://www.itu.int/md/R19-WP5A-C-0164/en) (Japan); [5A/165](https://www.itu.int/md/R19-WP5A-C-0165/en) (Japan); [5A/166](https://www.itu.int/md/R19-WP5A-C-0166/en) (Japan); [5A/167](https://www.itu.int/md/R19-WP5A-C-0167/en) (Japan)

Output documents: 5A/TEMP/62(Rev.1) (Working doc); 5A/TEMP/63(Rev.1) (Elements for an LS to 5C); 5A/TEMP/64(Rev.1) (LS to EOs); 5A/TEMP/65(Rev.1) (LS to 3J, 3K and 3M)

WG 5A-4 established a SWG led by Dr Hiroyo OGAWA to deal with this topic. As agreed at the previous meeting, the SWG initiated work on this topic and created a first version of the working document and developed two liaison statements, as well as some elements for another LS that will be further developed at the next meeting ([Attachment 3](#att3)).

### 4.3.11 Non-ionizing radiation

Input document: 5A/[151](https://www.itu.int/md/R19-WP5A-C-0151/en) (ITU-D SG 2)

WG 5A-4 took note of the information provided by ITU-D SG 2 and did not see a need for further action at this point in time.

### 4.3.12 Revision of Recommendation ITU-R M.1824 (ENG)

Input document: [5A/162](https://www.itu.int/md/R19-WP5A-C-0162/en) (Japan)

Output document: 5A/TEMP/68 (Working doc)

WG 5A-4 agreed to initiate a revision of this Recommendation. It was also suggested during the discussion that the BR should be consulted to see information about the current status of the ENG database that is called for in Resolution **59 (Rev.WRC-19)** and how administrations could submit information for that database and the BR provided some information to the interested delegates offline.

### 4.3.13 Protection of radio services

Input document: 5A/[1078](http://www.itu.int/md/R15-WP5A-C-1078/en) (WP 1A)

Output document: 5A/TEMP/76(Rev.1) (LS to 1A)

WG 5A-4 took note of the information provided by WP 1A and developed a liaison statement to provide the WP 5A views on the protection of radio services in the 6-40 GHz frequency range so that WP 1A can take these into account when responding to CISPR.

### 4.3.14 IMT

Input document: [5A/47](https://www.itu.int/md/R19-WP5A-C-0047/en) (France)

Due to currently ongoing discussion on this matter in other groups, WG 5A-4 decided to carry forward document 5A/47 to the next meeting for further consideration as needed.

### 4.3.15 Technical and operational characteristics for WRC-23 related studies

Input document: 5A/[157](https://www.itu.int/md/R19-WP5A-C-0157/en) (Iran)

WG 5A-4 considered the information provided in Document 5A/157 about the number of stations, the technical characteristics and operational parameters of these stations and they can be found in MIFR database and it was agreed to request the BR to provide the relevant information from the database so that it can be taken into account in sharing and compatibility studies, together with parameter information provided to WP 5A by the membership directly and/or in response to [CACE/955](https://www.itu.int/md/R00-CACE-CIR-0955/en).

### 4.3.16 WRC-23 agenda item 1.2

Input documents: [5A/15](https://www.itu.int/md/R19-WP5A-C-0015/en) (WP 5D); [5A/206](https://www.itu.int/md/R19-WP5A-C-0206/en) (UAE)

WG 5A-4 considered the for a further liaison statement to WP 5D regarding the possible overlap of the studies under WRC-23 agenda items 1.2 and 1.3. Different views were expressed on whether these studies would be similar or not. Since the focus of the work is currently on developing the parameters for the studies and no studies have yet been prepared, it was decided to not send such a liaison statement in the current situation (see also description on WRC-23 agenda item 1.3 above) and to carry forward documents 5A/15 and 5A/206 to the next meeting for further consideration. It was emphasized that WP 5A will need to decide at its next meeting, what parameters to send to WP 5D in response to their request in document 5A/15 and input contributions on this matter are encouraged.

### 4.3.17 WRC-23 agenda item 1.4

Input documents: [5A/14](https://www.itu.int/md/R19-WP5A-C-0014/en) (WP 5D); [5A/149](https://www.itu.int/md/R19-WP5A-C-0149/en) (WP 5D)

Output document: 5A/TEMP/61(Rev.1) (LS to 5D)

WG 5A-4 took note of the information provided by WP 5D and developed a reply liaison statement to provide some initial information as requested by WP 5D.

### 4.3.18 WRC-23 agenda item 1.5

Input documents: [5A/158](https://www.itu.int/md/R19-WP5A-C-0158/en) (TG 6-1); [5A/159](https://www.itu.int/md/R19-WP5A-C-0159/en) (TG 6-1); [5A/161](https://www.itu.int/md/R19-WP5A-C-0161/en) (WP 6A); [5A/170](https://www.itu.int/md/R19-WP5A-C-0170/en) (WP 5D); [5A/176](https://www.itu.int/md/R19-WP5A-C-0176/en) (UK); [5A/179](https://www.itu.int/md/R19-WP5A-C-0179/en) (BBC); [5A/186](https://www.itu.int/md/R19-WP5A-C-0186/en) (France); [5A/197](https://www.itu.int/md/R19-WP5A-C-0197/en) (Thales); [5A/199](https://www.itu.int/md/R19-WP5A-C-0199/en), [5A/200](https://www.itu.int/md/R19-WP5A-C-0200/en), [5A/201](https://www.itu.int/md/R19-WP5A-C-0201/en) (Germany); 5A/202 (Motorola)

Output documents: 5A/TEMP/72(Rev.1) (Elements for an LS to TG6/1); 5A/TEMP/89 (Text for a Circular Letter)

WG 5A-4 took note of the information requested by TG 6/1 in documents 5A/158 and 5A/159 and will need to finalize the reply to these requests at the next meeting.

WG 5A-4 took note of the information provided by WP 5D and WP 6A (documents 5A/170 and 5A/161) and will take this into account when developing the WP 5A input to TG 6/1.

Regarding a reply LS to TG 6/1, it was decided to develop elements for such a reply LS ([Attachment 4](#att4)) and to carry forward the corresponding input contributions (documents 5A/176 and 5A/199).

Information on spectrum use and needs of various applications of the land mobile service under the responsibility of WP 5A as provided in documents 5A/179, 5A/200 and 5A/201 will be considered at the next meeting as one basis to develop the information requested by TG 6/1 and these documents were therefore carried forward to the next meeting.

Regarding the proposals for a questionnaire in documents 5A/186, 5A/197 and 5A/202, diverging views were expressed whether such a questionnaire is needed and would be helpful and it was therefore decided not to issue a questionnaire but instead have a short Circular Letter encouraging input from the membership on this topic to the next WP 5A meeting. A consolidated version of the questions was placed on the [Sharepoint](https://extranet.itu.int/rsg-meetings/sg5/wp5a/Share/Forms/Column%20view.aspx?RootFolder=%2Frsg%2Dmeetings%2Fsg5%2Fwp5a%2FShare%2F5A4%2DInterference%20and%20sharing&FolderCTID=0x012000FB880722B4622243913B1114C70648D5&View=%7B627C3C95%2DCC37%2D49E0%2D8D8A%2D33AC93C6F497%7D) for consideration of delegates that wish to do so, and the three input contributions were carried forward to the next meeting.

Since WP 5A will need to complete its input to TG 6/1 on sharing parameters and spectrum use and need for the various applications of the land mobile service under the responsibility of WP 5A at the next meeting, input contributions are strongly encouraged on this topic so that WP 5A can fulfill its task as a contributing group for WRC-23 agenda item 1.5 and provide all the necessary information in a structured and consolidated matter to assist TG 6/1 in preparing the relevant parts of the CPM text.

### 4.3.19 WRC-23 agenda item 1.8

Input documents: [5A/105](https://www.itu.int/md/R19-WP5A-C-0105/en) (WP 5B); [5A/182](https://www.itu.int/md/R19-WP5A-C-0182/en) (USA)

Output document: 5A/TEMP/73(Rev.1) (LS to 5B)

WG 5A-4 took note of the information provided by WP 5B and developed a reply liaison statement to provide some initial information as requested by WP 5B.

### 4.3.20 Resolution 731 (Rev.WRC-19)

Input documents: [5A/136](https://www.itu.int/md/R19-WP5A-C-0136/en) (WP 7C); [169](https://www.itu.int/md/R19-WP5A-C-0169/en) (Canada)

Output documents: 5A/TEMP/74(Rev.1) (LS to 7C); 5A/TEMP/75 (Working doc)

WG 5A-4 took note of the information provided by WP 7C, agreed to initiate a working document to capture the further work required on this issue and developed a liaison statement to WP 7C to inform them accordingly.

### 4.3.21 WRC-23 agenda item 1.9

Input document: [5A/90](https://www.itu.int/md/R19-WP5A-C-0090/en) (WP 5B)

Output document: 5A/TEMP/69 (LS to 5B)

WG 5A-4 took note of the information provided by WP 5B and developed a reply liaison statement to provide some initial information as requested by WP 5B.

### 4.3.22 WRC-23 agenda item 1.10

Input document: [5A/89](https://www.itu.int/md/R19-WP5A-C-0089/en) (WP 5B)

Output document: 5A/TEMP/70 (LS to 5B)

WG 5A-4 took note of the information provided by WP 5B and developed a reply liaison statement to provide some initial information as requested by WP 5B.

### 4.3.23 WRC-23 agenda item 1.13

Input document: [5A/125](https://www.itu.int/md/R19-WP5A-C-0125/en) (WP 7B)

WG 5A-4 took note of the information provided by WP 7B and did not see the need for further action at this point in time.

### 4.3.24 WRC-23 agenda item 1.14

Input document: [5A/138](https://www.itu.int/md/R19-WP5A-C-0138/en) (WP 7C)

WG 5A-4 took note of the information provided by WP 7C and did not see the need for further action at this point in time.

### 4.3.25 WRC-23 agenda item 1.15

Input document: [5A/216](https://www.itu.int/md/R19-WP5A-C-0216/en) (WP 4A)

WG 5A-4 took note of the information provided by WP 7C and did not see the need for further action at this point in time.

### 4.3.26 WRC-23 agenda items 1.16 and 1.17

Input documents: [5A/31](https://www.itu.int/md/R19-WP5A-C-0031/en); [5A/32](https://www.itu.int/md/R19-WP5A-C-0032/en) (WP 4A); [5A/193](https://www.itu.int/md/R19-WP5A-C-0193/en) (USA); [5A/215](https://www.itu.int/md/R19-WP5A-C-0215/en); [5A/217](https://www.itu.int/md/R19-WP5A-C-0217/en) (WP 4A)

Output document: 5A/TEMP/71 (Elements for an LS to 4A)

WG 5A-4 considered the request from WP 4A for system parameters for their studies as well as the proposal in document 5A/193 for a reply LS and decided to develop some elements for a reply LS including some Editor’s Notes to highlight open issues which will be further discussed at the next meeting ([Attachment 5](#att5)).

### 4.3.27 WRC-23 agenda item 1.18

Input document: [5A/29](https://www.itu.int/md/R19-WP5A-C-0029/en) (WP 4C)

WG 5A-4 considered the request from WP 4C for system parameters for their studies and did not have information available at this time. However, it is important that WP 5A provides this information to WP 4C by the 15 June 2021 deadline as decided by CPM23-1. Therefore, it was decided to carry forward this input to the next meeting and input contributions are encouraged on this topic so that WP 5A will be able to provide the relevant information.

### 4.3.28 WRC-23 agenda item 1.19

Input documents: [5A/30](https://www.itu.int/md/R19-WP5A-C-0030/en); [5A/214](https://www.itu.int/md/R19-WP5A-C-0214/en) (WP 4A)

WG 5A-4 considered the request from WP 4A for system parameters for their studies and did not have information available at this time. However, it is important that WP 5A provides this information to WP 4A by the 15 June 2021 deadline as decided by CPM23-1. Therefore, it was decided to carry forward these inputs to the next meeting and input contributions are encouraged on this topic so that WP 5A will be able to provide the relevant information.

### 4.3.29 WRC-23 agenda item 9.1, topic a)

Input document: [5A/134](https://www.itu.int/md/R19-WP5A-C-0134/en) (WP 7C)

Output document: 5A/TEMP/90 (LS to 7C)

WG 5A-4 took note of the information provided by WP 7C and developed a reply liaison statement to provide some initial information as requested by WP 7C. During the discussion it was suggested to add some text to the LS to clarify some information from Recommendation ITU-R M.1808 regarding the protection criteria for PPDR systems. However, it was agreed to keep the list of Recommendations in the LS without further explanatory text and any further clarification that may be required by WP 7C could be considered at the next meeting.

### 4.3.30 WRC-23 agenda item 9.1, topic d)

Input document: [5A/133](https://www.itu.int/md/R19-WP5A-C-0133/en) (WP 7C)

WG 5A-4 took note of the information provided by WP 7C and did not see the need for further action at this point in time.

## 4.4 Revision of WP 5A texts

WG 5A-4 did not have any comments on Section 1 of Annex 1 to document 5A/85 and the Guide to the use of ITU-R texts relating to the land mobile service at this WP 5A meeting and delegates were encouraged to communicate any comments on Section 1 of Annex 1 to document 5A/85 directly to the WP 5A Chairman.

## 4.5 Documents carried forward to the next meeting

– Range 92-109.5 GHz: 5A/[85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 15](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N15!MSW-E.docx), 5A/[137](https://www.itu.int/md/R19-WP5A-C-0137)

– Sharing by zones: 5A/[976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 14](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N14!MSW-E)

– RLAN sharing: 5A/[1065](http://www.itu.int/md/R15-WP5A-C-1065/en) [Annex 9](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N09!MSW-E), [Annex 10](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N10!MSW-E), [Annex 11](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N11!MSW-E)**,** [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N12!MSW-E)**,** 5A/[976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N17!MSW-E)

– IMT: 5A/[47](https://www.itu.int/md/R19-WP5A-C-0047/en)

– WRC-23 agenda item 1.3: 5A/[74](https://www.itu.int/md/R19-WP5A-C-0074/en), 5A/[88](https://www.itu.int/md/R19-WP5A-C-0088/en), 5A/[190](https://www.itu.int/md/R19-WP5A-C-0190/en), 5A/[192](https://www.itu.int/md/R19-WP5A-C-0192/en), 5A/[203](https://www.itu.int/md/R19-WP5A-C-0203/en), 5A/[204](https://www.itu.int/md/R19-WP5A-C-0204/en)

– WRC-23 agenda item 1.5: 5A/[176](https://www.itu.int/md/R19-WP5A-C-0176/en), 5A/[179](https://www.itu.int/md/R19-WP5A-C-0179/en), 5A/[199](https://www.itu.int/md/R19-WP5A-C-0199/en), 5A/[200](https://www.itu.int/md/R19-WP5A-C-0200/en), 5A/[201](https://www.itu.int/md/R19-WP5A-C-0201/en), 5A/[186](https://www.itu.int/md/R19-WP5A-C-0186/en), 5A/[197](https://www.itu.int/md/R19-WP5A-C-0197/en), 5A/[202](https://www.itu.int/md/R19-WP5A-C-0202/en)

– WRC-23 agenda item 1.18: 5A/[29](https://www.itu.int/md/R19-WP5A-C-0029/en)

– WRC-23 agenda item 1.19: 5A/[30](https://www.itu.int/md/R19-WP5A-C-0030/en), 5A/[214](https://www.itu.int/md/R19-WP5A-C-0214/en)

– WRC-23 agenda items 1.2 and 1.3: 5A/[15](https://www.itu.int/md/R19-WP5A-C-0015/en), 5A/[206](https://www.itu.int/md/R19-WP5A-C-0206/en)

## 4.6 Objectives for the next WP 5A meeting

The objectives for the next meeting related to “Interference and Sharing” are:

– Consider how to proceed with the various working documents that did not receive any inputs lately (RLAN documents from WRC-19 agenda item 1.16, Range 92-109.5 GHz and Sharing by zones)

– Continue work on the various working documents that are currently under development in WG 5A-4.

– Continue work in preparation of WRC-23 agenda item 1.3 as the lead group.

– Consider how to provide information on system parameters and spectrum needs for the various WRC-23 agenda items where WP 5A has received requests from other Working Parties as a contributing group.

## 4.7 Conclusion

The Chairman of WG 5A-4 would like to thank all the WG 5A-4 participants for their active contributions to the work of WG 5A-4 and all the efforts put into the online and offline work to discuss and advance the many topics under the responsibility of WP 5A4 under these exceptional circumstances of the virtual WP 5A meeting. In particular I would like to thank the conveners of these offline discussions, as well as the chairmen of the SWGs, Mr GUTIÉRREZ and Dr OGAWA.

**Attachments**:

[Attachment 3](#att3): Elements for a draft liaison statement to Working Party 5C (copied to Working Party 7C for information) – Elements for a working document towards a preliminary draft new Report ITU-R M.[252-296 GHZ.LMS.FS.COEXIST].

[Attachment 4](#att4): Elements for a draft liaison statement to Task Group 6/1 (copy to Working Parties 5B, 5C, 5D, 6A and 7D for information – WRC-23 agenda item 1.5.

[Attachment 5](#att5): Elements for a draft liaison statement to Working Party 4A –Mobile Service technical and operational characteristics and protection criteria for use in sharing studies under WRC-23 agenda items 1.16 and 1.17.

# 5 Working Group 5A-5 – New technologies (Chairman: Mr. Hitoshi Yoshino, Japan)

Working Group (WG) 5A-5 met five times during the 24th meeting of ITU-R WP 5A from 9 to 20November 2020. The tasks assigned to WG 5A-5 address new technologies.

Seventeen input contributions were attributed to WG 5A-5, which were:

|  |  |
| --- | --- |
| – Intelligent transport system (ITS) (Q. 205-6/5, Q.261/5, Rec.208 (WRC-19)) | *General:* [143](https://www.itu.int/md/R19-WP5A-C-0143/en) (AWG); [156](https://www.itu.int/md/R19-WP5A-C-0156/en)-Rec.208 (3GPP)  *CAV (*[*Question ITU-R 261/5*](https://www.itu.int/pub/R-QUE-SG05.261)*):* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 16](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N16!MSW-E.docx) (WP 5A); [129](https://www.itu.int/md/R19-WP5A-C-0129/en) (3GPP TSG RAN);  [130](https://www.itu.int/md/R19-WP5A-C-0130/en) (ETSI ISG MEC); [142](https://www.itu.int/md/R19-WP5A-C-0142/en) (ETSI ERM TGSRR); [168](https://www.itu.int/md/R19-WP5A-C-0168/en) (Japan); [184](https://www.itu.int/md/R19-WP5A-C-0184/en) (USA); [191](https://www.itu.int/md/R19-WP5A-C-0191/en) (China); [196](https://www.itu.int/md/R19-WP5A-C-0196/en) (5GAA); [208](https://www.itu.int/md/R19-WP5A-C-0208/en) (C2C-CC)  *Handbook:* [Share Folder](https://extranet.itu.int/rsg-meetings/sg5/wp5a/Share/Forms/Column%20view.aspx?RootFolder=%2Frsg%2Dmeetings%2Fsg5%2Fwp5a%2FShare%2FLMH%20review%2FLMH%20vol4%20ITS&FolderCTID=0x012000FB880722B4622243913B1114C70648D5&View=%7B627C3C95%2DCC37%2D49E0%2D8D8A%2D33AC93C6F497%7D) (WP 5A); [163](https://www.itu.int/md/R19-WP5A-C-0163/en) (Japan); [174](https://www.itu.int/md/R19-WP5A-C-0174/en) (Korea); [183](https://www.itu.int/md/R19-WP5A-C-0183/en) (USA) |
| – Above 275 GHz, Q.256-1/5, Res. 731) | *Rep. M.2417:* [85](https://www.itu.int/md/R19-WP5A-C-0085/en) [Annex 17](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N17!MSW-E.docx) (WP 5A); [93](https://www.itu.int/md/R19-WP5A-C-0093/en) (WP 5C); [180](https://www.itu.int/md/R19-WP5A-C-0180/en) (Russian F.) |

WG 5A-5 established a Sub-working Group (SWG) and Drafting Groups (DGs) to facilitate its work during WP 5A e-meeting:

|  |  |
| --- | --- |
| SWG/DG (Chairperson/Editor) | Terms of Reference |
| SWG 5A5-1 ITS  – CAV (Connected Automated Vehicles)  (Mr. Satoshi Oyama, Japan/  Mr. Tom Schaffnit, U.S.A.) | – Develop the working document towards a PDN Report ITU-R M.[CAV] on Connected Automated Vehicles (CAV);  – Review and update workplan for a Report ITU-R M.[CAV] |
| DG 5A5-2 – LMH Vol.4 -ITS  (Mr. Satoshi Oyama, Japan /  Dr. HyunSeo Oh, Korea) | – Develop a working document towards a new edition of the Land Mobile Handbook – Intelligent Transport Systems – Vol. 4 (ITS), 2006;  – Finalize the working document |
| DG 5A5-3  – Liaison statements to ITU-T FG VM  (Mr. Satoshi Oyama, Japan/ -) | – Consider and develop a reply liaison statement to ITU-T FG VM (Focus Group Vehicular Multimedia) |
| DG 5A5-4 – Above 275 GHz  (Hitoshi Yoshino (J), WG5A-5 chair / -) | – Develop working document towards the revision of ITU-R M.2417;  – Develop its work plan |

The SWG and DGs activities were also carried out as a virtual meeting during the 24th meeting of WP 5A.

## 5.1 Executive summary

WG 5A-5 continued to develop a working document towards New Edition of Land Mobile Handbook, Vol.4 – Intelligent Transport Systems. WG 5A-5 complete its work on the development of New Edition of Land Mobile Handbook vol.4 ITS.

WG 5A-5 continued to develop a working document towards a Preliminary Draft New Report ITU‑R M.[CAV] of *Connected Automated Vehicles*.

WG 5A-5 continued to develop a working document towards the revision of Report ITU-R M.2417-0 on Technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz

## 5.2 Intelligent transport system (ITS)

WG5A-5 considered three input contributions on LMH vol.4 -ITS and a proposed text provided by Brazil in ITU-R WP5A sharepoint. The meeting completed the development of a new edition of the LM Handbook vol.4. The meeting agreed to elevate its status from working document to a Draft New Edition of LMH vol.4 (Document 5A/TEMP/59 R3).

WG 5A‑5 considered eight input contributions and updated a working document towards a Preliminary draft new Report ITU-R M.[CAV] - *Connected Automated Vehicles* (Document 5A/TEMP/77 R1). WG5A-5 also reviewed and updated a workplan for the development of a new Report ITU-R M.[CAV] . The workplan is in [Attachment 6](#att6).

WG5A-5 considered a liaison statement from ITU-T FG VM (Focus Group Vehicular Multimedia) (Document 5A/1089 in previous study cycle and 5A/5). WG5A-5 develop a reply liaison statement to ITU-T FG VM, which provides the Group of ITU-T pertinent background information on recent ITS work completed in WP 5A with the list of ITU-R Recommendation and Report on ITS (Document 5A/TEMP/52R1).

## 5.3 Technical and operational characteristics of the land mobile service in the frequency range above 275GHz

WG 5A-5 considered an input contribution and a liaison statement from ITU-R WP 5C. WG 5A-5 updated the working document towards the revision of ITU-R M.2417(Document 5A/TEMP/60R1). WG 5A-5 developed a workplan for the development of a working document towards the revision of ITU-R M.2417-0. The workplan is in [Attachment 7](#att7). In addition to cross reference between the revision of Report ITU-R M.2417 prepared in WG 5A-5 and new Report [LMS.CONDITIONS>275 developed in WG 5A-4, overlap should be avoided.

## 5.4 Review of ITU-R texts

WG 5A-5 reviewed ITU-R texts pertinent to WG 5A-5 in [Annex 1](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0085!N01!MSW-E.docx) to Document [5A/85](http://www.itu.int/md/R19-WP5A-C-0085) and review it with regard to WG5A-5 related ITU-R texts. There was no suggestion to delete or modify them.

WG 5A-5 also reviewed the guide to the use of ITU-R texts relating to Land Mobile Systems. There was no suggested modification to the texts. WG5A-5 invites input contributions to the future meetings.

## 5.5 Future work

WG5A-5 continues to develop a working document towards a PDN Report ITU-R M.[CAV] of Connected Automated Vehicles.

WG 5A-5 continues to develop preliminary draft revision of Report ITU-R M.2417 of Technical and operational characteristics of land-mobile service applications in the frequency range 275‑450 GHz.

Finally, the WG 5A-5 Chairman would like to thank Sub-Working Group Chairperson Mr. Satoshi Oyama, and Editor of the new Edition of LMH vol.4 ITS Dr. HyunSeo Oh for their excellent work for the completion of the New Edition of LMH vol.4 ITS. WG 5A-5 Chairman also would like to thank Mr. Tom Schaffnit for his excellent work as CAV editor, and all participants for their contribution to work of the group.

**Attachments:**

[Attachment 6](#att6): Work plan for the development of a new Report ITU-R M.[CAV] – Connected Automated Vehicles.

[Attachment 7](#att7): Work plan for the development of a working document towards the revision of Report ITU-R M.2417-0 – Technical and operational characteristics of land mobile service applications in the frequency range 275-450 GHz.

Attachment 1 to Annex 3

*Source: Document 5A/TEMP/84(Rev.1)*

WORKPLAN FOR THE REVISION OF RECOMMENDATION ITU-R M.2134

**[Receiver / Technical and operational] characteristics and protection criteria for systems in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies**

*[Editor’s note: This document was not discussed at the November 2020 Working Party 5A meeting. Further contributions are invited on the organization of this work.]*

|  |  |
| --- | --- |
| **Title** | [Receiver / Technical and operational] characteristics and protection criteria for systems in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies |
| **Identifier** | Rec. ITU-R M.2134 |
| **Document Type** | Revision of Recommendation |
| **WP 5A Lead Group** | WG 2 Systems and Standards |
| **Focus for scope and work** | To update Rec. ITU-R M.2134 with additional characteristics of mobile service systems operating in the frequency range 27.5-29.5 GHz for use in WRC-23 studies |
| **Related documents** |  |
| **Milestones** | **24th meeting (November 2020)**  1 Develop working document towards PDN Recommendation, based on input contributions received.  2 Update work plan as needed.  **25th meeting (May 2021)**  1 Develop PDN Recommendation, based on input contributions received.  2 Liaise with WP 4A on the revision of this Recommendation, providing MS characteristics in the context of WRC sharing studies (agenda items 1.16 and 1.17).  3 Update work plan as needed.  **26th meeting (November 2021)**  1 Finalize the draft Revision of this Recommendation and send to SG 5 for approval.  2 Liaise with WP 4A on the revision of this Recommendation, providing MS characteristics in the context of WRC sharing studies (agenda items 1.16 and 1.17). |

Attachment 2 to Annex 3

*Source: Document 5A/TEMP/81(Rev.1)*

WORK PLAN FOR WORKING DOCUMENT TOWARDS A PRELIMINARY DRAFT NEW REPORT ITU-R M.[UCS]

**Utility Communication Systems**

| **Working Party 5A meetings** | **Activity** |
| --- | --- |
| First meeting  November 2020 | • Consider the received contributions;  • Update working document considering suggestions received;  • Discuss and approve draft work plan;  • Request any relevant technical and operational information from contributing groups and members in general;  • Draft and send liaisons to other Working Parties as appropriate. |
| Second meeting  1st half/ 2021 | • Continue review of utilities user requirements, technical and operational characteristics relevant to improve the WD;  • Analysis of liaison statements responses from the concerned Working Parties, respond as appropriate;  • Consider developing new sections and sub‑sections and subsequent elevation of the Working Document to Preliminary new draft Report ITU‑R M.[UCS];  • Transmit updated PDNR ITU-R M.[UCS] as LS to contributing groups as appropriate for review;  • Update work plan (if needed). |
| Third meeting  2nd half/ 2021 | • Continue work on PDNR ITU-R M.[UCS]\*, taking into account feedback from contributing groups and members in general;  • Transmit updated PDNR ITU-R M.[UCS] as LS to contributing groups as appropriate for review;  • Modify the work plan (if needed). |
| Fourth meeting  1st half/ 2022 | • Continue work on PDNR ITU-R M.[UCS]\*, taking into account feedback from contributing groups. Aim to elevate PDNR to DNR at this meeting;  • Transmit [preliminary] draft new Report ITU-R M.[UCS] to contributing groups and members as appropriate for final review;  • Modify the work plan (if needed). |
| Fifth meeting  2nd half/ 2022 | • Complete draft new Report ITU-R M.[UCS], taking into account feedback from contributing groups and send to Study Group 5. |
| \* If agreed to elevate the WD to PDNR. | |

Attachment 3 to Annex 3

*Source: Document 5A/TEMP/63(Rev.1)*

ELEMENTS FOR A draft liaison statement to Working party 5C  
(COPIED TO WORKING PARTY 7C FOR INFORMATION)

Elements for a working document towards a preliminary draft new   
Report ITU-R M.[252-296 GHZ.LMS.FS.COEXIST]

*[Editor’s note: This document was briefly discussed and is not yet agreed at WP 5A meeting #24]*

*[Editor’s note: During the discussion it was asked whether such a report would be needed or could be included in an existing report.]*

At its November 2020 meeting, WP 5A has initiated to develop the elements for a working document towards a preliminary draft new Report ITU-R M.[252-296 GHZ.LMS.FS.COEXIST] on coexistence between land-mobile and fixed service applications operating in the frequency range 252-296 GHz (see also Editor’s Note above).

WP 5A noted that Report ITU-R F.2416 provided technical and operational characteristics in the frequency range 275-325 GHz and 380-445 GHz, and that those characteristics were used for sharing and compatibility studies between LMS/FS applications and passive services in the frequency range 275-450 GHz under WRC-19 agenda item 1.15 conducted by WP 1A.

WP 5A would like to ask whether the technical and operational characteristics can be used for coexistence studies between LMS and FS applications operating in the frequency range 252‑275 GHz or the characteristics different from those in the range 275-296 GHz should be used for coexistence studies. WP 5A would like to further ask on the value -10 dB of *I/N* guided by Recommendation ITU-R F.758-7 could be used for coexistence studies between LMS and FS applications operating in the frequency range 252-296 GHz.

WP 5C are kindly invited to respond to the above question and to provide their comments. WP 5A would like to continue communication with WP 5C on those issues in the frequency band 252‑296 GHz.

|  |  |
| --- | --- |
| **Status**: For action |  |
| **Contact**: TBD | **E-mail:** |

Attachment 4 to Annex 3

*Source: Document 5A/TEMP/72(Rev.1)*

ELEMENTS FOR A DRAFT LIAISON STATEMENT TO TASK GROUP 6/1  
(COPY TO WORKING PARTIES 5B, 5C, 5D, 6A AND 7D FOR INFORMATION)

**WRC-23 agenda item 1.5**

[Editor’s note: This is an outline for a reply LS to TG 6/1 that will contain the relevant information based on input contributions to WP 5A and the text for the annexes will be further developed at the next WP 5A meeting. The text below was not discussed and agreed at the November 2020 meeting of WP 5A and will be reviewed in detail and revised as needed at the next WP 5A meeting.]

[Editor’s note: This outline currently contains placeholders both for sharing parameters as well as the spectrum use and needs info requested by TG 6/1 and it was suggested that it may be better to split this into two separate liaison statements addressing each of these topics separately to facilitate the work of TG 6/1.]

Working Party (WP) 5A as requested by Task Group (TG) 6/1 in Document [5A/159](https://www.itu.int/md/R19-WP5A-C-0159/en) provides hereby the results of the review of services and applications in its remit and the relevant technical characteristics including protection criteria of these services and applications. This information is provided in accordance with *decides* 4 of Annex 9 of Administrative Circular CA/251 and taking into account *resolves to invite ITU-R* 2 and 3 of Resolution **235 (WRC-15)**.

The related information is segmented into responses on *resolves to invite ITU-R* 1 and *resolves to invite ITU-R* 2 and 3*.*

WP 5A provides:

[TBD]

*[Editor’s Note: The structure of the information below will be further developed at the next meeting taking into account* *5A/176, 5A/199 and other inputs received at that meeting, as appropriate]*

WP 5A has also reviewed the relevant ITU-R Reports and Recommendations, included information from Member States according to [CACE/955](https://www.itu.int/md/R00-CACE-CIR-0955/en), and the results of the related work in order to ensure that up-to-date information is provided to TG 6/1.

WP 5A is looking forward to cooperating with TG 6/1 in order to provide timely input in due course, as TG 6/1 conducts its work.

For the information of TG 6/1, WP 5A next meeting will take place in (May 2021)

|  |  |
| --- | --- |
| **Status:** For information and action, as appropriate | |
| **Contact:** | **E-mail:** |

**Annexes:** [TBD]

Attachment 5 to Annex 3

*Source: Document 5A/TEMP/71(Rev.1)*

ELEMENTS FOR A DRAFT LIAISON STATEMENT TO WORKING PARTY 4A

**Mobile Service technical and operational characteristics and protection criteria for use in sharing studies under WRC-23 agenda items 1.16 and 1.17**

[Editor’s note: This is a placeholder with initial elements for a reply LS to WP 4A that contain the relevant information based on input contributions to WP 5A. The text below was not discussed and agreed at the November 2020 meeting of WP 5A and will be reviewed in detail and revised as needed at the next WP 5A meeting, also based on progress in WG 5A-2 related to the revision of Recommendation ITU-R M.2134.]

*[Editor’s note: In addition to Recommendation ITU-R M.2134, further information for the other bands under study for WRC-23 agenda items 1.16 and 1.17 should also be included at the next meeting.]*

Working Party (WP) 4A is the responsible group for WRC-23 agenda items 1.16 and 1.17. WRC-23 agenda items 1.16 will consider the following frequency bands: 17.7-18.6 GHz and 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5‑30 GHz (Earth-to-space), or parts thereof. WRC-23 agenda item 1.17 will consider the following frequency bands: 11.7‑12.7 GHz, 18.1-18.6 GHz, 18.8-20.2 GHz and 27.5-30 GHz, or portions thereof.

Recommendation ITU-R M. 2134 provides receiver characteristics and protection criteria for systems in the Mobile Service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies. In addition, WP 5A would like to inform WP 4A that it is in the process of updating Recommendation ITU-R M.2134 and the following updated characteristics should also be used for sharing studies for WRC-23 agenda items 1.16 and 1.17 (see [[Annex 11](https://www.itu.int/dms_pub/itu-r/md/19/wp5a/c/R19-WP5A-C-0221!N11!MSW-E.docx)] of the Working Party 5A Chair’s Report):

[Editor’s Note: The information below needs to be updated based on the progress in WG 5A-2 on the revision of Recommendation ITU-R M.2134]

TABLE 1

Receiver adjacent channel selectivity (ACS)

|  |  |  |
| --- | --- | --- |
| Receiver adjacent channel selectivity (ACS) (dB) | **Base station** | **Mobile station/CPE** |
| 24 | 23 |

TABLE 2

Receiver characteristics of Base Stations, CPE, and Mobile Stations in the   
frequency range 27.5-29.5 GHz

|  | System A (represents deployments in some countries) | | | System B (represents deployments in some countries) | | System C (represents deployments in some countries) | | System D (represents deployments in some countries) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Characteristics | Base station | CPE | Mobile station | Base station | Mobile station | Base station | Mobile station | Base station | Mobile station |
| Frequency range (GHz) | 27.5-28.35 | | | 27.5-29.5 | | 27.5-29.5 | | 27.5-29.5 | |
| Receiver bandwidth (MHz) | 100 | | | 100 | | 200 | | 200 | |
| Antenna pattern type | Directional | | | Directional | | Directional | | Directional | |
| Antenna polarization | Linear | | | Linear | | Linear | | Linear | |
| Peak antenna gain (dBi) | 29 | 22 | 14 | 29 | 20 | 23 | 17 | 23 | 14 |
| Antenna pattern model | See antenna pattern in § 4.1 below | | | | | | | | |
| Antenna height (m) | 10-20 | 1.5-20 | 1.5 | 10-20 | 1.5 | 6 or 15 | 1.5 | 6-10 | 1.5 |
| Receiver noise figure (dB) | 6.5 | 6.5 | 8.5 | 6 | 6 | 10 | 10 | 10 | 10 |
| Protection criterion (dB) | −6 | | | −6 | | −6 | | −6 | |
| Base station antenna downtilt (degrees) | 0-10 | N/A | N/A | 10 | | 10 | | 10 | |
| Body loss (for handheld UE scenario) | N/A | N/A | 4 dB | N/A | 4 dB | N/A | 4 dB | N/A | 4 dB |
| Feeder loss for BS | 0 | N/A | N/A | 0 | N/A | 3 dB | N/A | 3 dB | N/A |

Sharing studies can assume that the BS antenna beam could vary in a ±60 degrees range in the azimuth plane. Depending on the scenario to be studied\*, in the elevation plane, with respect to the horizontal plane: a range of 0 degrees to −60 degrees for 20 m BS and 0 degrees to −60 degrees for the 10 m BS can be used for System A; a range of −5 to −60 degrees for 20 m BS and −2 degrees to −60 degrees for the 10 m BS for System B; a range of −6 to −60 degrees for 15 m BS and −3 degrees to −60 degrees for the 6 m BS for System C; and a range of −6 to −60 degrees for 10 m BS and −3 degrees to −60 degrees for the 6 m BS for System D.

\* Noting the above figures, protection measures of the mobile service should be derived for all elevation angles and utilize, inter alia, the wavelength, the receiver antenna gain pattern, and the receiver noise figure for Mobile service systems and should apply to all azimuth angles.

TABLE 4

Composite antenna pattern for base stations, CPE, and mobile stations beam forming

|  |  |
| --- | --- |
| Configuration | Multiple columns (*NV* × *NH* elements) |
| Composite array radiation pattern in dB | For beam i:    the super position vector is given by:    the weighting is given by: |
| Antenna array configuration (row × column) | Base station: 16 × 16 (System A and B), 8 × 8 (System C and D)  CPE station: 8 × 8 (System A)  Mobile station: 4 × 2 (System A and D) / 8 × 4 (System B)/ 4 × 4 (System C) |
| Horizontal radiating element spacing *d*/λ | 0.5 |
| Vertical radiating element spacing *d*/λ | 0.5 |

Working Party 5A would also like indicate that it has taken due note of the actions being taken in regard to Administrative Circular [CACE/955](https://www.itu.int/md/R00-CACE-CIR-0955/en) dated 18 September 2020 which encourages administrations to provide their contributions on technical characteristics, operational parameters and protection criteria for services to support the work on relevant WRC-23 agenda items to the contributing Working Parties dealing with these services. WP 5A is confident that any additional information received from the membership relating to this administrative circular, as well as any other available information in the BR databases together with any information in ITU-R Recommendations and Reports, will be taken into account by the responsible or contributing groups by the requested deadline (15 June 2021).

WP 5A will keep WP 4A informed of further development of this revision to Recommendation ITU-R M.2134. WP 5A would like to be kept informed of the studies and development of draft CPM text for WRC-23 agenda items 1.16 and 1.17 as they are developed. WP 5A looks forward to future collaboration with WP 4A on these topics of mutual interest.

|  |  |
| --- | --- |
| **Status:** For action |  |
| **Contact:** [TBD] | **Email:** |

Attachment 6 to Annex 3

*Source: Document 5A/TEMP/91(Rev.1), Attachment 1*

WORK PLAN FOR THE DEVELOPMENT OF A NEW REPORT ITU-R M.[CAV]

**Connected Automated Vehicles**

|  |  |
| --- | --- |
| **Title** | Work plan for the development of a new Report ITU-R M.[CAV] on the Connected Automated Vehicles |
| **Document type** | Report |
| **WP 5A Lead Group** | WG 5 New Technologies |
| **SWG Chairman** | Mr. Satoshi (Sam) Oyama; **E-mail:** [s-oyama@arib.or.jp](mailto:s-oyama@arib.or.jp) |
| **Editor** | Mr. Tom Schaffnit; **E-mail:** [Tom.Schaffnit@dot.gov](mailto:Tom.Schaffnit@dot.gov) |
| **Focus for scope and work** | This report addresses overall objectives and radiocommunication requirements for CAVs, including the consideration of global or regional harmonization of frequency spectrum for CAVs. |
| **Related Documents** | Recommendation 208 (WRC-19), Question ITU-R 261/5, Recommendation ITU-R M.2121,  Report ITU-R M.2444 and M.2445 |
| **Milestones** | **23rd meeting (July 2020) e-meeting**  – Develop and adopt work plan – Liaise as needed with concerned and interested organizations on development of the PDN Report  – Carry forward the framework of working document toward a PDN Report  **24th meeting (November 2020) e-meeting**  – Develop working document toward a PDN Report  – Liaise as needed with concerned and interested organizations on development of the PDN Report  – Update work plan as needed.  **25th meeting (May 2021)**  – Continue developing working document toward a PDN Report  – Liaise as needed with concerned and interested organizations on development of the PDN Report  – Update work plan as needed  **26th meeting (November 2021)**  – Continue developing working document toward a PDN Report  – Liaise as needed with concerned and interested organizations on development of the PDN Report  – Update work plan as needed |
|  | **27th meeting (May 2022)**  – Developing a PDN Report  – Liaise as needed with concerned and interested organizations on development of the PDN Report  – Update work plan as needed  **28th meeting (November 2022)**  – Finalize Report and submit to WP5A for adoption and to SG 5 for approval |

Attachment 7 to Annex 3

*Source: Document 5A/TEMP/91(Rev.1), Attachment 2*

WORK PLAN FOR THE DEVELOPMENT OF A WORKING DOCUMENT TOWARDS THE REVISION OF REPORT ITU-R M.2417-0

**Technical and operational characteristics of land mobile service applications in the frequency range 275-450 GHz**

|  |  |
| --- | --- |
| **Title** | Technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz |
| **Document type** | Report |
| **WP 5A Lead Group** | WG 5 New Technologies |
| **WG Chairman** | Mr. Hitoshi Yoshino; **E-mail:** hitoshi.yoshino@g.softbank.co.jp |
| **Editor** | [t.b.d.] **E-mail:** [xxxxxxx] |
| **Focus for scope and work** | This report addresses Technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz. |
| **Related Documents** | Question ITU-R 256-1/5 |
| **Milestones** | **23rd meeting (July 2020)- e-meeting**  –– – Develop working document toward the revision of ITU-R Report M.2417-0  **24th meeting (November 2020)**  – Develop working document toward the revision of ITU-R Report M.2417-0  – Develop and adopt work plan.  **25th meeting (May 2021)**  – Develop working document toward the revision of ITU-R Report M.2417-0  – Liaise as needed with concerned and interested organizations on development of the PD Revision of Report  – Update work plan as needed  **26th meeting (November 2021)**  – Continue developing working document toward the revision of ITU-R Report M.2417-0  – Liaise as needed with concerned and interested organizations on development of the PD Revision of Report  – Update work plan as needed  **27th meeting (May 2022)**  – Continue developing working document toward the revision of ITU-R Report M.2417-0  – Liaise as needed with concerned and interested organizations on development of the PD Revision of Report  – Update work plan as needed  **28th meeting (November 2022)**  – Finalize Report and submit to WP5A for adoption and to SG 5 for approval |