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| --- | --- |
| **Radiocommunication Study Groups** |  |
|  |  |
|  |  |
| Source: Docs. 5A/TEMP/416, 420, 421, 422, 425 | **Annex 3 to  Document 5A/1065-E** |
| **14 May 2019** |
| **English only** |
| Annex 3 to Working Party 5A Chairman’s Report | |
| consolidation of reports from the working groups of working party 5a | |
|  | |

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[**1**](#s1) [Working Group 5A-1 – Amateur and amateur-satellite services](#s1)   
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[**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)  
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[**5**](#s4) [Working Group 5A-5 – New technologies](#s5)  
(Chairman: Mr. Hitoshi Yoshino, Japan)

**Attachments**: 2

[Attachment 1](#att1): Workplan for the development of revision of Land Mobile Handbook – Vol. 4 Intelligent Transport Systems.

[Attachment 2](#att2): Workplan for the development of a revision of Report ITU-R M.2417 – Technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz.

NOTE – 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 14](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-1065!N14!MSW-E) of [Doc. 5A/1065](http://www.itu.int/md/R15-WP5A-C-1065/en) to find the final disposition of these documents by Working Party 5A.

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

WG 5A-2: [Annex 17](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0844!N17!MSW-E.docx) to [Doc. 5A/844](https://www.itu.int/md/R15-WP5A-C-0844/en), [Annex 12](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-1065!N12!MSW-E.docx) to [Doc. 5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en); [Doc. 5A/1000](http://www.itu.int/md/R15-WP5A-C-1000/en) (Ukraine)

WG 5A-3: [Doc. 5A/891](http://www.itu.int/md/R15-WP5A-C-0891/en) (WP 5D)

WG 5A-4: [Annex 14](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N14!MSW-E.docx) and [Annex 17](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N17!MSW-E.docx) to [Doc. 5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en)

WG 5A-5: [Doc. 5A/1001](http://www.itu.int/md/R15-WP5A-C-1001/en) (Telstra)

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

1.1 Summary

During the May 2019 meeting of Working Party (WP) 5A, Working Group (WG) 5A-1 met 12 times and completed its work.

– Work on the sharing and compatibility studies required for WRC-19 agenda item 1.1 (preliminary draft new Report ITU-R M.[AMATEUR\_50\_MHz]) was completed and was submitted to WP 5A for approval.

– Generated one liaison statement to another group.

– Reviewed and revised the “Guide to the use of ITU-R texts relating to the amateur and amateur-satellite services”.

WG 5A-1 was assigned the documents shown in Table 1 and output documents from WG 5A-1 are shown in Table 2.

Table 1

Documents assigned to WG 5A-1 for May 2019 WP5A meeting

|  |  |
| --- | --- |
| **Working Group 1: Amateur Services (Chairman:** [**Dale Hughes**](mailto:dalevk1dsh@gmail.com?subject=WP5A-meeting)**, Australia)** | |
| **AI 1.1 (**[**Res. 658**](http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0001PDFE.pdf)**)** | *M.[AMATEUR\_50\_MHZ]:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 5](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N05!MSW-E) (WP 5A); [987](http://www.itu.int/md/R15-WP5A-C-0987/en) (Ukraine); [994](http://www.itu.int/md/R15-WP5A-C-0994/en) (WP 6A);  [1002](http://www.itu.int/md/R15-WP5A-C-1002/en) (Switzerland); [1013](http://www.itu.int/md/R15-WP5A-C-1013/en) (Russian F.); [1032](http://www.itu.int/md/R15-WP5A-C-1032/en) (France); [1052](http://www.itu.int/md/R15-WP5A-C-1052/en) (IARU) |
| **Amateur satellite** |  |
| **Amateur services protection** | *Wireless power transmission:* [991](http://www.itu.int/md/R15-WP5A-C-0991/en) (WP 6A); [993](http://www.itu.int/md/R15-WP5A-C-0993/en) (WP 6A) |
| **Protection of other services** |  |

1.2 Details of the work

Concerning WRC-19 agenda item 1.1, contributions [987](http://www.itu.int/md/R15-WP5A-C-0987/en) (Ukraine); [994](http://www.itu.int/md/R15-WP5A-C-0994/en) (WP 6A); [1002](http://www.itu.int/md/R15-WP5A-C-1002/en) (Switzerland); [1013](http://www.itu.int/md/R15-WP5A-C-1013/en) (Russian F.); [1032](http://www.itu.int/md/R15-WP5A-C-1032/en) (France); [1052](http://www.itu.int/md/R15-WP5A-C-1052/en) (IARU) were incorporated into the text carried forward from November 2018 ([976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 5](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N05!MSW-E)). The resulting report consists of a body of 10 sections and 15 individual annexes. The body of the report provides a summary of the study methods, results and conclusions and the 15 annexes are the detailed work of each study or information document which were submitted during the previous meetings. The final report was the result of approximately 63 individual meetings and 60 input contributions.

Liaison statement [993](http://www.itu.int/md/R15-WP5A-C-0993/en) (WP 6A) was noted and a reply liaison statement was drafted in response to [991](http://www.itu.int/md/R15-WP5A-C-0991/en) (WP 6A). These documents are covering topics as part of work on non-beam WPT applications.

The WP 5A webpage document ‘[Guide to the use of ITU-R texts relating to the amateur and amateur-satellite services](https://www.itu.int/dms_pub/itu-r/oth/0a/06/R0A060000670001MSWE.docx)’ was reviewed by the working group and a number of updates were made to the document.

Table 2

Output documents from WG 5A-1 for May 2019 WP 5A meeting

|  |  |  |
| --- | --- | --- |
| Topic | WP 5A Action | Temp document |
| Liaison statement to WPs 1A, 1B & 6A re WPT study | Approve | 5A/TEMP/400R1 |
| 50 MHz Spectrum needs and sharing PDNR | Approve | 5A/TEMP/398R1 |
| Revised ‘Guide to texts’ | Approve | 5A/TEMP/399 |
| WG 5A-1 Chairman's Report | For WP 5A Report | 5A/TEMP/416 |

1.3 Conclusion

Work on the report required for WRC-19 agenda item 1.1 was completed satisfactorily. Work on other topics of relevance to the amateur service was also undertaken and completed in an efficient and timely manner. The WG 5A-1 chairman enjoyed working with all the delegates and is grateful for their thoughtful input contributions, diligent work, expert knowledge and goodwill (though he is glad the work is complete).

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

**2.1 Executive summary**

Work was continued on WRC-19 agenda item (AI) 1.11, further developed the working document towards a PDN Recommendation ITU-R M.[RSTT.FRQ] on harmonization of frequencies and related frequency arrangements for railway radiocommunication systems between train and trackside.

Work was completed on the development of preliminary draft new Report ITU-R M.[CDLMR] on conventional digital land mobile radios.

Work was completed on the development of preliminary draft new Recommendation ITU-R M.[MS‑RXCHAR-28] on Receiver characteristics and protection criteria for systems (excluding IMT) in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies.

Work was completed on the development of preliminary draft revision Recommendation ITU-R M.1746 on Harmonized frequency channel plans for the protection of property using data communication.

Work was initiated on the 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.

Work was initiated on the development of working document towards a preliminary draft revision of Report ITU-R M.2282-0 - Systems for public mobile communications with aircraft.

Work was initiated on the development of working document towards a preliminary draft new Report on utility communication systems.

Two liaison statements were drafted to other groups.

**2.2 Systems and standards**

Working Group 5A-2 met four times at the twenty-second meeting of WP 5A in Geneva. Working Group 5A-2 received the 36 documents assigned by the WP 5A Plenary as follows:

|  |  |
| --- | --- |
|  | **Document 5A/…** |
| 2.2.1 AI 1.11 (Railways Res. 236) | *RSTT:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N12!MSW-E) (WP 5A); [1056](http://www.itu.int/md/R15-WP5A-C-1056/en) (WP 6A)  *M.2442:* [1000](http://www.itu.int/md/R15-WP5A-C-1000/en) (Ukraine)  *RSTT Frequencies:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 8](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N08!MSW-E) (WP 5A); [981](http://www.itu.int/md/R15-WP5A-C-0981/en) (APT); [982](http://www.itu.int/md/R15-WP5A-C-0982/en) (CITEL); [988](http://www.itu.int/md/R15-WP5A-C-0988/en) (ECC/CEPT); [990](http://www.itu.int/md/R15-WP5A-C-0990/en) (RCC); [992](http://www.itu.int/md/R15-WP5A-C-0992/en) (Germany); [999](http://www.itu.int/md/R15-WP5A-C-0999/en) (ATU); [1011](http://www.itu.int/md/R15-WP5A-C-1011/en) (Russian F.); [1039](http://www.itu.int/md/R15-WP5A-C-1039/en) (Japan); [1041](http://www.itu.int/md/R15-WP5A-C-1041/en) (China)  *Information:* [1015](http://www.itu.int/md/R15-WP5A-C-1015/en) (Canada) |
| 2.2.2 Broadband Wireless Access | *M.[MS-RXCHAR-28]:* [733](http://www.itu.int/md/R15-WP5A-C-0733) (USA); [934](http://www.itu.int/md/R15-WP5A-C-0934) (Korea); [963](http://www.itu.int/md/R15-WP5A-C-0963) (UK); [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N06!MSW-E) (WP 5A); [1010](http://www.itu.int/md/R15-WP5A-C-1010/en) (USA); [1025](http://www.itu.int/md/R15-WP5A-C-1025/en) (Korea); [1046](http://www.itu.int/md/R15-WP5A-C-1046/en) (China); [1054](http://www.itu.int/md/R15-WP5A-C-1054/en) (India)  *Satellite in NGAT:* [871](http://www.itu.int/md/R15-WP5A-C-0871/en) (WP 4B); [986](http://www.itu.int/md/R15-WP5A-C-0986/en) (WP 5D) |
| 2.2.3 Land mobile systems | *M.[CDLMR]:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N07!MSW-E) (WP 5A); [1017](http://www.itu.int/md/R15-WP5A-C-1017/en) (Motorola Solutions)  *Utilities:* [861](http://www.itu.int/md/R15-WP5A-C-0861/en) (WP 1A); [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 9](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N09!MSW-E) (WP 5A); [985](http://www.itu.int/md/R15-WP5A-C-0985/en) (WP 5D); [1014](http://www.itu.int/md/R15-WP5A-C-1014/en) (UTC América Latina)  *Hearing aids:*  *M.478:*  *Applications of IMT:*  *M.1746:* [844](http://www.itu.int/md/R15-WP5A-C-0844/en) [Annex 20](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0844!N20!MSW-E) (WP 5A) |
| 2.2.4 Air to Ground | *Update of Rep. ITU-R M.2282:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 10](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N10!MSW-E) (WP 5A)  *New Report:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 11](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N11!MSW-E) (WP 5A); [1048](http://www.itu.int/md/R15-WP5A-C-1048/en) (China) |
| 2.2.5 RLAN characteristics | *Vocabulary:* [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)  *Support WG 4 on RLANs* |
| 2.2.6 ANTs, HNTs. etc. | [978](http://www.itu.int/md/R15-WP5A-C-0978/en) (ITU-T SG 9) |

Working Group 5A-2 set up one sub-working group and four drafting groups to deal with WRC-19 AI 1.11 Railway, CDLMR, Utilities, M.[MS-RXCHAR-28] and A2G respectively:

– SWG 5A2-1 AI 1.11 Railway Mr. Bin Liu

– DG5A2-1 CDLMR Mr. Daniel Hamadeh

– DG5A2-2 Utilities Mr. Brett Kilbourne

– DG5A2-3 M.[MS-RXCHAR-28] Mr.  Dante Ibarra

– DG5A2-4 A2G Mr. Kim Kolb

**2.2.1 WRC-19 agenda item 1.11 (Railways Res. 236)**

The SWG 5A2-1 Railway was established chaired by Mr. Liu Bin (CHN). This SWG met 2 times and considered all contributions and produced 2 TEMP documents. The working document towards a preliminary draft new Recommendation ITU-R M.[RSTT\_FRQ] was improved. In this SWG, 2 Drafting Groups were established. One is dealing with RSTT FRQ Recommendation; chaired by Mr. HAMADEH Daniel (Motorola Solutions). Another is dealing with the reply liaison statement to WP 6A; chaired by Mr. Suppapol (Pete) Jaroonvanichkul (THA). The meeting discussed the following issues.

**a) Study on Recommendation ITU-R M. [RSTT\_FRQ]**

Contributions:[976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 8](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N08!MSW-E) (WP 5A), [981](http://www.itu.int/md/R15-WP5A-C-0981/en) (APT), [982](http://www.itu.int/md/R15-WP5A-C-0982/en) (CITEL), [988](http://www.itu.int/md/R15-WP5A-C-0988/en) (ECC/CEPT), [990](http://www.itu.int/md/R15-WP5A-C-0990/en) (RCC), [992](http://www.itu.int/md/R15-WP5A-C-0992/en) (Germany), [999](http://www.itu.int/md/R15-WP5A-C-0999/en) (ATU), [1011](http://www.itu.int/md/R15-WP5A-C-1011/en) (Russian F.), [1039](http://www.itu.int/md/R15-WP5A-C-1039/en) (Japan), [1041](http://www.itu.int/md/R15-WP5A-C-1041/en) (China)

Output: 5A/TEMP/418R1

The SWG 5A2-1 and its DG RSTT\_FRQ considered all 10 contributions and discussed the working document towards a preliminary draft new Recommendation ITU-R M. [RSTT\_FRQ] in depth. The Working document had been improved. For the *recommends* part as well as the Annex 1, two options were provided. Some frequency bands had been regarded harmonized for RSTT in Region1 and considerations on possible harmonized frequency ranges within Regional groups’ liaison statements were extracted and considered, while also added into the Table 2 of Annex 1. For Annex 2, a preamble was added. Regarding whether not to upgrade this working document to the PNDR, there is no agreement in the SWG level; therefore, this issue was to be considered by the meeting of Working Group 2.

**b) Reply liaison statement**

Contributions: [1056](http://www.itu.int/md/R15-WP5A-C-1056/en) (WP 6A)

Output: 5A/TEMP/417R1

During the meeting, the coming liaison statement from Working Party 6A was considered, and a reply liaison statement was developed.

**c) Other issues**

Contributions: [1000](http://www.itu.int/md/R15-WP5A-C-1000/en) (Ukraine), [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N12!MSW-E) (WP 5A),[1015](http://www.itu.int/md/R15-WP5A-C-1015/en) (Canada)

Output: None.

Carry forward documents: [1000](http://www.itu.int/md/R15-WP5A-C-1000/en) (Ukraine), [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N12!MSW-E) (WP 5A)

The meeting considered the 5A/[1000](http://www.itu.int/md/R15-WP5A-C-1000/en) from Ukraine, which proposed to amend the Report ITU-R M.2442 and decided to carry forward it to the next meeting. The meeting also decided to carry forward document [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 12](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N12!MSW-E) (WP 5A) to the next meeting, for further consideration. Contribution Document 5A/[1015](http://www.itu.int/md/R15-WP5A-C-1015/en) (Canada) is the White Paper from railway association of Canada, submitted for information of WP 5A. The meeting considered and noted it.

**2.2.2 Broadband Wireless Access**

Input documents:   
*M.[MS-RXCHAR-28]:* [733](http://www.itu.int/md/R15-WP5A-C-0733) (USA); [934](http://www.itu.int/md/R15-WP5A-C-0934) (Korea); [963](http://www.itu.int/md/R15-WP5A-C-0963) (UK); [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N06!MSW-E) (WP 5A); [1010](http://www.itu.int/md/R15-WP5A-C-1010/en) (USA); [1025](http://www.itu.int/md/R15-WP5A-C-1025/en) (Korea); [1046](http://www.itu.int/md/R15-WP5A-C-1046/en) (China); [1054](http://www.itu.int/md/R15-WP5A-C-1054/en) (India)   
*Satellite in NGAT:* [871](http://www.itu.int/md/R15-WP5A-C-0871/en) (WP 4B); [986](http://www.itu.int/md/R15-WP5A-C-0986/en) (WP 5D)

Output document: 5A/TEMP/410 R1 (Rec. M.[MS-RXCHAR-28])

Carry forward documents: None

[871](http://www.itu.int/md/R15-WP5A-C-0871/en) from WP 4B is a liaison statement on the preliminary draft new Report ITU-R M.[NGAT\_SAT] on key elements for integration of satellite systems into Next Generation Access Technologies. This Report focuses on how satellites are capable of supporting the various usage scenarios and provides envisaged use cases and key elements which require careful consideration to enable integration of satellite solutions into Next Generation Access Technologies. WP 4B invites WPs 5A and 5D to review the preliminary draft new Report ITU-R M.[NGAT\_SAT] (see Annex 5 to Doc. [4B/145](https://www.itu.int/md/R15-WP4B-C-0145/en)) and provide comments, as appropriate. [986](http://www.itu.int/md/R15-WP5A-C-0986/en) from WP 5D is a reply liaison statement to WP4B on the preliminary draft new Report ITU-R M.[NGAT\_SAT]. WG 5A-2 took note of the information provided by ITU-R WP 4B and WP 5D on this topic and did not see the need for further action at this point in time.

The Drafting Group on M. [MS-RXCHAR-28] chaired by Mr. Dante Ibarra was established to progress the work on “Receiver characteristics and protection criteria for systems (excluding IMT) in the mobile service in the frequency range 27.5-29.5 GHz for use in sharing and compatibility studies with earth stations in motion operating in geostationary FSS networks and with applications under the fixed service” based on the input contributions. The meeting reached agreement on elevating the document to DNR and subsequently submission to Study Group 5 for approval.

**2.2.3 Land mobile systems**

Input documents: *M.[CDLMR]:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N07!MSW-E) (WP 5A); [1017](http://www.itu.int/md/R15-WP5A-C-1017/en) (Motorola Solutions);

*Utilities:* [861](http://www.itu.int/md/R15-WP5A-C-0861/en) (WP 1A); [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 9](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N09!MSW-E) (WP 5A); [985](http://www.itu.int/md/R15-WP5A-C-0985/en) (WP 5D); [1014](http://www.itu.int/md/R15-WP5A-C-1014/en) (UTC América Latina)

M.478:

*M.1746:* [844](http://www.itu.int/md/R15-WP5A-C-0844/en) [Annex 20](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0844!N20!MSW-E) (WP 5A)

Output documents: TEMP/405 (LS-1A); 408 (Report on Utilities); 392R1 (Report on CDLMR); 393R1 (Revision on Rec. ITU-R M.1746)

Carry forward documents: None

The Drafting Group on CDLMR was established under the leadership of Mr. Daniel Hamadeh (Motorola solution) to address the further development of the working document towards a preliminary draft new Report ITU-R M. [CDLMR] “Conventional digital land mobile radio systems” based on the input contributions. The meeting agreed to elevate the document to DNR and subsequently submit to SG 5 for approval.

The Drafting Group on Utilities was established under the leadership of Mr. Brett Kilbourne to progress the work on Utilities.

The working document towards a possible preliminary draft new report on utility communication systems was further developed based on input contributions and carried forward to the next meeting for consideration. In addition, the drafting group developed a liaison statement to WP 1A, which was copied to ITU-T Study Group 15 and ITU-R Working Parties 5B, 5C, 5D, 6A, 7A, 7B, 7C and 7D. The liaison statement informed these groups about progress that had been made on the working document.

With regard of revision of Recommendation ITU-R M.478-5 Technical characteristics of equipment and principles governing the allocation of frequency channels between 25 and 3 000 MHz for the FM land mobile service, a liaison statement was sent and invite external organizations to input updates and new materials on the revision work at previous WP 5A meeting. No contribution was received at this meeting, the work will be continued at next WP 5A meeting.

With regard to Recommendation ITU-R M.1746 revision, a liaison statement to external organizations was developed to request information on technical and operational characteristics at WP 5A November meeting. Since no contribution was received at this meeting, the meeting agreed to submit the current version to WP 5A plenary and subsequently to SG 5 for approval.

**2.2.4 Air to Ground**

Input documents: *Update of Rep. ITU-R M.2282:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 10](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N10!MSW-E) (WP 5A);   
*New Report:* [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 11](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N11!MSW-E) (WP 5A); [1048](http://www.itu.int/md/R15-WP5A-C-1048/en) (China)

Output documents: 5A/TEMP/406 (New report on ATG frequency usage), 407 (Revision on Report ITU-R M.2282)

Carry forward document: None

The Drafting Group on Broadband A2G was established under the leadership of Mr. Kim Kolb to address the Direct-Air-to-Ground Communications (DA2GC) links with passenger aircraft based on the input contributions. At the previous WP 5A meeting, a document was contributed that described the proposal for harmonized arrangement of air-to-ground systems. An effort was made to take the system description portions of this document and update the existing Report ITU-R M.2282 “Systems for public mobile communications with aircraft”, and a new report would be started to describe frequency usage for mobile communications with aircraft. These documents were attached to the WP 5A Chairman’s Report as Annexes 10 (Systems Report) and 11 (Frequency Usage). One contribution received at this meeting of WP 5A to present views and clarifications to frequency usage, and no other input documents were received to modify these documents, but it was agreed to edit two documents to ensure they remained on the topic of system and frequency usage. An offline group edited the frequency usage report. The group met 3 times and edited the documents, clarifying text and inserting editor’s notes in order for future contributions to include new text to further advance the documents. Meanwhile it is understood that outcomes of WRC-19 may provide clarity and aid any future development of this work.

**2.2.5 RLAN characteristics**

Input documents: [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)

Output documents: None

Carry forward document: [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)

Vocabularies for RLAN on DFS and TCP are used in Recommendation ITU-R M.1450. WP 5A sent the update of these two terminologies to CCV for the next update of Recommendation ITU-R M.1450.

**2.2.6 ANTs, HNTs, etc.**

Input documents: [978](http://www.itu.int/md/R15-WP5A-C-0978/en) (ITU-T SG 9).

Output documents: None.

WG 5A-2 took note of the information provided by ITU-T SG 9 on this topic and did not see the need for further action at this point in time.

**2.2.7 Res. 59**

Germany provided info on their intention to actively work further on the review of ITU-R Resolution 59, which is currently under the purview of WP 5C. Germany provided also the view that the inclusion updates to Res. 59 ‎regarding PMSE would require the support of WP 5A. Germany is aware that this isn't the decision of WP 5A, although WP 5A agreed to this assumption.

The meeting noted that Germany will approach SG 5 to clarify the work distribution regarding the review of Res. 59.

**2.2.8 Review of ITU-R texts**

Working Group 5A-2 reviewed the WP 5A texts Section 1 of [Annex 1](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N01!MSW-E.docx) to [Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976), and [Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/oth/R0A06000001/en). No updates were proposed for Section 1 of [Annex 1](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N01!MSW-E.docx) to [Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976).

Working Group 5A-2 reviewed the Questions under the responsibility of WG5A-2 based on [Annex 4](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N04!MSW-E.docx) to [Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976), no more updates were proposed.

**2.3 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:

– Studies related to RSTT.

– 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 on utility communication systems.

– Development of a preliminary draft revision of Recommendation ITU-R M.478.

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

**2.4 Chairman’s closing remarks**

Finally, Chairman of Working Group 5A-2 would like to thank all participants of WG 5A-2 for their contributions and cooperation and particularly thank SWG chair Mr. Liu Bin from China, DG Chairs Mr. Daniel Hamadeh from Motorola Solution, Mr. Brett Kilbourne from UTC, Mr.  Dante Ibarra from US, Mr. Kim Kolb from Boeing and Mr. Suppapol (Pete) Jaroonvanichkul from Thailand for their good and efficient work. The WG Chairman would also like to express particular thanks to Mr. Michael Kraemer for his work on offline discussion.

# 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 on two occasions at the May 2019 meeting of Working Party (WP) 5A. WG 5A-3 considered one input contribution, one carried-forward document, and one annex to the WP 5A Chairman’s Report, as well as the Disaster Relief Liaison Rapporteur Report from the WP 5A Plenary. The input and the carried-forward document related to the first of the two objectives for this meeting as outlined in section 3.6 of [Annex 3 of 5A/976](http://www.itu.int/md/R15-WP5A-C-0976!N03!MSW-E), which were to:

– Finalize the preliminary draft revision of Recommendation ITU-R M.1826, based on input contributions.

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

The WG finalized the preliminary draft revision of Recommendation ITU-R M.1826 to go the WP and to Study Group 5 and also produced one liaison statement to ITU-T TSAG, which was not approved in the WP Plenary. In addition, the WG Chair compiled comments and possible edits to Question 37, under which the work of WG 5A-3 is conducted.

# 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/1055](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5A-C-1055)) was presented 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/dms_pub/itu-r/oth/0a/06/R0A060000010001MSWE.docx)” and of section 1 in [Annex 1 of Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976!N01!MSW-E). WG 5A-3 decided to handle the disposition of all these items at the working group level.

# 3.3 Execution of objectives

Objective 1: Finalize the revision of Recommendation ITU-R M.1826

WG 5A-3 received one input contributions addressing the preliminary draft revision of Recommendation ITU-R M.1826, Harmonized frequency channel plan for broadband public protection and disaster relief operations at 4 940-4 990 MHz in Regions 2 and 3. The documents considered by the WG on this topic are shown below:

|  |
| --- |
| **Revision of Recommendation ITU-R M.1826***:* [976 Annex 13](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N13!MSW-E) (WP 5A); [1003](http://www.itu.int/md/R15-WP5A-C-1003/en) (Australia) |

During the course of the meeting, the WG addressed the proposed revisions in the input contribution and reviewed the document as a whole. The WG proposed that WP 5A elevate the document to draft revision status and send it to Study Group 5 for approval.

As a result of the work in the WG, the following output document was created:

– Document [5A/TEMP/386](https://www.itu.int/md/R15-WP5A-180521-TD-0284) – Preliminary draft revision of Recommendation ITU-R M.1826

Objective 2: Possible revision of Report ITU-R M.2377

WG 5A-3 received no input contributions addressing the possible revision of Report ITU-R M.2377, Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR).

Therefore, the meeting agreed to carry forward the previous input contribution ([5A/891](http://www.itu.int/md/R15-WP5A-C-0891/en)).

# 3.4 Liaison statements

## 3.4.1 Inter-Sector Coordination (assigned by Plenary)

When the Disaster Relief Rapporteur Report ([5A/1055](http://www.itu.int/md/R15-WP5A-C-1055/en)) was introduced at Plenary, it was noted that it referenced the work of several ITU-T Questions that were not included in the liaison statement from TSAG on Inter-Sector Coordination ([5A/979](http://www.itu.int/md/R15-WP5A-C-0979/en)). The Plenary tasked WG 5A-3 with considering a possible reply liaison to the TSAG. The documents considered by the WG are shown below:

|  |
| --- |
| **Inter-Sector Coordination***:* [5A/979](http://www.itu.int/md/R15-WP5A-C-0979/en) (TSAG); [1055](http://www.itu.int/md/R15-WP5A-C-1055/en) (D.R.L.R.) |

The WG considered the issue and identified one ITU-T Question that was not included in the matrix attached to the TSAG liaison. The WG developed a reply liaison statement (5A/TEMP/391R2). At the Plenary it was decided that the issue could be addressed informally by the secretariat. Therefore the draft liaison statement was abandoned.

# 3.5 Administrative issues

WG 5A-3 discussed the possible review and revision of Question 37, under which the work of the WG is conducted. The WG Chair collected comments and proposed revisions from participants in a document posted to the SharePoint. The WG decided not to discuss the proposals, and the topic was set aside.

It was brought to the attention of WG 5A-3 that the [Compendium on ITU's Work on Emergency Telecommunications](https://www.itu.int/net/ITU-R/terrestrial/res647/docs/Compendium.pdf) was published in 2007 and is significantly out of date. The WG inquired as to whether there was a mechanism to update the document, which was the joint work of ITU-D, ITU‑T, and ITU-R. The secretariat informed the WG that there were no plans in the other sectors to update the document. WP 5A could update the relevant portion for posting on the WP 5A website, and this could be cross-referenced on the compendium site. WG 5A-3 took note of this advice and will consider this activity in the future.

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 of section 1 in [Annex 1 of Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976!N01!MSW-E). The Chairman of the WG identified a number of updates required in Annex 1 based on the actions taken by Study Group 5 in November 2018. Those were communicated to the WP 5A Chairman for incorporation in the Chairman’s Report.

# 3.6 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.

# 3.7 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 to 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

WG 5A-4 further progressed the working documents related to RLAN sharing, parameters and measurements resulting from the work on WRC-19 agenda item 1.16. WG 5A-4 also continued work on the development of a PDNReport ITU-R M.[100GHZ.RSTT.COEXIST], completed the revision of Recommendation ITU-R M.1808 and developed reply liaison statements to Working Parties 4A and 7B related to their work in response to WRC-19 agenda item 1.5 and 1.3.

# 4.2 Introduction

Working Group 5A-4 met five times during the April/May 2019 meeting of Working Party 5A and considered 27 input and carried-forward contributions and developed 9 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/30](https://www.itu.int/md/R15-WP5A-ADM-0030/en).

## 4.3.1 Non-ionizing radiation

Input document: [5A/996](https://www.itu.int/md/R15-WP5A-C-0996/en) (ITU-D SG2)

WG 5A-4 took note of the information provided by ITU-D SG2 and did not see a need for futher action at this point in time.

## 4.3.2 Revision of Recommendation ITU-R M.1808

Input document: [5A/1053](https://www.itu.int/md/R15-WP5A-C-1053/en) (India)

Output documents: 5A/TEMP/387(Rev.2) (PDRR ITU-R M.1808); 5A/TEMP/404(Rev.1) (LS to WP 7B)

Based on work at the previous WP 5A meeting, WG 5A-4 completed work on the revision of Recommendation ITU-R M.1808 and agreed to suggest to the WP 5A Plenary that the revision should be submitted to Study Group 5. Based on Document 5A/1053, WG 5A-4 then discussed a possible liaison statement to WP 7B.

Views were expressed that WP 7B had used an I/N of -6 dB in Report ITU-R SA.2429 and that this is not in line with Recommendation ITU-R M.1808 which states that “*for applications with greater protection requirements, such as public protection and disaster relief (PPDR), an I/N of −10 dB may be used to determine the impact of interference*” and the studies in Report ITU-R SA.2429 are therefore incomplete.

Other views were expressed that the studies in Report ITU-R SA.2429 are complete and in line with Recommendation ITU-R M.1808 since that recommendation states that an I/N of -10 dB may be used, which means this is a possible option but not a requirement.

No agreement could be reached on this issue and therefore a short liaison statement to WP 7B was developed to inform them that the work on the revision of Recommendation M.1808 was complete and that this revision should be used in future sharing studies, whilst not impacting the current version of Report ITU-R SA.2429 nor the CPM Report to WRC-19.

## 4.3.3 Frequency range 92-109.5 GHz

Input document: [5A/1040](https://www.itu.int/md/R15-WP5A-C-1054/en) (Japan)

Output documents: 5A/TEMP/402(Rev.1) (LS to WP 7C); 5A/TEMP/403 (Working doc.)

WG 5A-4 continued work on the PDN Report ITU-R M.[100GHz.RSTT.COEXIST] in a Drafting Group chaired by Dr. Hiroyo Ogawa (Japan). The DG met once and also held an offline session and updated the working document. Work on this PDN Report will continue at the 23rd meeting of WP 5A. Furthermore, a liaison statement to WP 7C was developed to continue the communication with WP 7C regarding this topic.

## 4.3.4 Sharing by zones

WG 5A-4 did not receive any input contributions to the preliminary draft new Report ITU-R M.[GEO.SHARE] (see Document [5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en) Annex 17) at this meeting and considered whether it could be elevated to a Draft New Report. Since some concerns were expressed about some of the content of the current document, and also some suggestions were made to add further material to complement the report, it was decided to carry the version from the 21st meeting forward to the 23rd meeting for further work.

Input contributions on this document are encouraged in order to enable WP 5A to address any possible concerns and to complete the report. Furthermore, a possible liaison statement to the relevant Working Parties of Study Groups 1 and 4 will be considered at the next meeting.

## 4.3.5 WRC-19 agenda item 1.5

Input documents: [5A/1010](https://www.itu.int/md/R15-WP5A-C-1010/en) (USA); [5A/1047](https://www.itu.int/md/R15-WP5A-C-1047/en) (China)

Output document: 5A/TEMP/419(Rev.1) (LS to WP 4A)

WG 5A-4 developed a liaison statement to WP 4A to inform them about the completion of the work on Recommendation ITU-R M.[RX CHAR 28] and provide some further information to WP 4A related to their work in response to WRC-19 agenda item 1.5.

## 4.3.6 WRC-19 agenda item 1.7

WG 5A-4 had developed some draft text for a possible liaison statement to WP 5B on this issue at the 21st meeting of WP 5A (see Document [5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en) Annex 3 Attachment 6) and decided at this meeting of WP 5A that there is need to further consider this issue based on the progress of the discussion in WP 5B.

## 4.3.7 WRC-19 agenda item 9.1, issue 9.1.6

Input document: [5A/977](https://www.itu.int/md/R15-WP5A-C-0977/en) (WP 1B)

WG 5A-4 took note of the information provided by WP 1B and did not see a need for further action at this point in time.

## 4.3.8 WRC-19 agenda item 9.1, issue 9.1.9

Input document: [5A/875](https://www.itu.int/md/R15-WP5A-C-0875/en) (WP 4A)

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

## 4.3.9 WRC-19 agenda item 1.16

Input documents: [923](https://www.itu.int/md/R15-WP5A-C-0923/en) (Globalstar); [1004 (](https://www.itu.int/md/R15-WP5A-C-1004/en)Australia); [1007](https://www.itu.int/md/R15-WP5A-C-1007/en) (USA); [1012](https://www.itu.int/md/R15-WP5A-C-1012/en) (Russia); [1016](https://www.itu.int/md/R15-WP5A-C-1016/en) (Canada); [1018](https://www.itu.int/md/R15-WP5A-C-1018/en) (Globalstar); [1019](https://www.itu.int/md/R15-WP5A-C-1019/en) (Globalstar); [1020](https://www.itu.int/md/R15-WP5A-C-1020/en) (Globalstar); [1026](https://www.itu.int/md/R15-WP5A-C-1026/en) (France); [1027](https://www.itu.int/md/R15-WP5A-C-1027/en) (France); [1028](https://www.itu.int/md/R15-WP5A-C-1028/en) (France); [1029](https://www.itu.int/md/R15-WP5A-C-1029/en) (France); [1030](https://www.itu.int/md/R15-WP5A-C-1030/en) (France); [1031](https://www.itu.int/md/R15-WP5A-C-1031/en) (France); [1035](https://www.itu.int/md/R15-WP5A-C-1035/en) (Japan); [1036](https://www.itu.int/md/R15-WP5A-C-1036/en) (Japan); [1042](https://www.itu.int/md/R15-WP5A-C-1042/en) (China); [1043](https://www.itu.int/md/R15-WP5A-C-1043/en) (China); [1044](https://www.itu.int/md/R15-WP5A-C-1044/en) (China)

Output documents: 5A/TEMP/412(Rev.1) (PDNReport RLAN REQ-PAR)  
 5A/TEMP/413(Rev.1) (PDNReport RLAN sharing 5 350-5 470 MHz)  
 5A/TEMP/414(Rev.1) (PDNReport RLAN sharing 5 150-5 250 MHz)  
 5A/TEMP/415(Rev.1) (PDNReport RLAN sharing 5 725-5 850 MHz)

WG 5A-4 continued the work under WRC-19 agenda item 1.16 in a dediated sub-working group chaired by Mr. Hector Marin (MEX). The SWG met 6 times to progress the work and established a Drafting Group on the RLAN sharing documents chaired by Mr. Jicheng Fang (CHN) which met 8 times.

Based on the above input contributions, the sharing study documents for the 5 150-5 250 MHz frequency band, the 5 350-5 470 MHz frequency band and the 5 725-5 850 MHz frequency band were updated to include the various text proposals received at this meeting and it was agreed to suggest to the WP 5A Plenary to elevate these documents to Preliminary Draft New Reports. Considering a number of editorial issues like extensive references to 5A input documents throughout the reports, as well as disagreement regarding various parts of the studies contained in the reports, it was clear that WG 5A-4 could not agree to elevate these documents to Draft New Reports at this point in time and further work would be required before these documents could be submitted to Study Group 5 for consideration.

The working document on RLAN REQ-PAR was also updated based on input contributions received and it was agreed to suggest to the WP 5A Plenary to elevate this document to a preliminary draft new Report. Similar to the sharing reports, there are some outstanding issues that led to the conclusion in WG 5A-4 that this document could not be agreed for elevation to draft new Report at this point in time.

For the RLAN MEASUREMENTS document it was decided to retain this document in its current form as a preliminary draft new Report based on the output from the previous WP 5A meeting (see Document [5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en) Annex 14). As some sections still required additional information, WG 5A‑4 agreed that this document could not be elevated to draft new Report 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 and Annex 4 to Document [5A/976](https://www.itu.int/md/R15-WP5A-C-0976/en) and the Guide to the use of ITU-R texts relating to the land mobile service at this WP 5A meeting and this will be considered again at the next WP 5A meeting.

# 4.5 Objectives for the next WP 5A meeting

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

– Continue work on the PDN Report on sharing schemes in the land mobile service.

– Continue work on the working document on 100 GHz.RSTT.COEXISTENCE.

– Continue discussion on the issue of time percentages associated with propagation models and protection criteria for sharing and compatibility studies.

# 4.6 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 offline drafting activities to advance the various working documents. In particular I would like to thank Mr. Hector Marin for continuing in his role as SWG Chair for WRC-19 agenda item 1.16, as well as Mr. Jicheng Fang for chairing the Drafting Group on the RLAN sharing reports and Dr. Hiroyo Ogawa for chairing the Drafting Group on 100 GHz.RSTT.COEXISTENCE.

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

Working Group (WG) 5A-5 met six times during the 22nd meeting of ITU-R WP 5A from 29th April to 9th May, 2019. Around 70 delegates from Australia, Germany, Canada, China, France, Iran, Israel, Japan, Korea, Kenya, Mauritania, Mexico, The Netherlands, Nigeria, Russian Federation, Senegal, Singapore, Sweden, Switzerland, South Africa, Thailand, Turkey, United Kingdom, USA, Apple, Microsoft, MulteFire Association, Qualcomm and Robert Bosch participated in the meetings. The tasks assigned to WG 5A-5 address new technologies.

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

|  |  |
| --- | --- |
| **Topic** | **Contributions** |
| – Intelligent transport system (ITS) (Q. 205-5/5) | ITS General: [983](http://www.itu.int/md/R15-WP5A-C-0983/en) (ITU-T SG 17); [995](http://www.itu.int/md/R15-WP5A-C-0995/en) (CITS); [997](http://www.itu.int/md/R15-WP5A-C-0997/en) (ITU-T SG 16); [998](http://www.itu.int/md/R15-WP5A-C-0998/en) (ITU-T FG-VM)  Study Question:[1023](http://www.itu.int/md/R15-WP5A-C-1023/en) (Korea); [1037](http://www.itu.int/md/R15-WP5A-C-1037/en) (Japan); [1051](http://www.itu.int/md/R15-WP5A-C-1051/en) (China)  M.2084: [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 22](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N22!MSW-E) (WP 5A); [1005](http://www.itu.int/md/R15-WP5A-C-1005/en) (3GPP TSG RAN); [1009](http://www.itu.int/md/R15-WP5A-C-1009/en) (USA); [1021](http://www.itu.int/md/R15-WP5A-C-1021/en) (China, Korea); [1022](http://www.itu.int/md/R15-WP5A-C-1022/en) (Korea); [1034](http://www.itu.int/md/R15-WP5A-C-1034/en) (Huawei, Intel, Nokia, Ericsson); [1050](http://www.itu.int/md/R15-WP5A-C-1050/en) (China)  Sharing:[1001](http://www.itu.int/md/R15-WP5A-C-1001/en) (Telstra)  Handbook:[1008](http://www.itu.int/md/R15-WP5A-C-1008/en) (USA); [1024](http://www.itu.int/md/R15-WP5A-C-1024/en) (Korea); [1038](http://www.itu.int/md/R15-WP5A-C-1038/en) (Japan); [1049](http://www.itu.int/md/R15-WP5A-C-1049/en) (China) |
| – AI 1.15 (Above 275 GHz, Res. 767) | M.2417: [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 24](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N24!MSW-E) (WP 5A); [1006](http://www.itu.int/md/R15-WP5A-C-1006/en) (USA) |
| – /9.1.8 (MTC, Res. 958) | [976](http://www.itu.int/md/R15-WP5A-C-0976/en) [Annex 23](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0976!N23!MSW-E) (WP 5A); [1033](http://www.itu.int/md/R15-WP5A-C-1033/en) (Huawei, Intel, Nokia, Qualcomm, Sony, Ericsson); [1045](http://www.itu.int/md/R15-WP5A-C-1045/en) (China) |
| – Liaison statement from ITU‑T SG20 JCA-IoT and SC&C | [980](http://www.itu.int/md/R15-WP5A-C-0980/en) (JCA-IoT and SC&C) |

WG 5A-5 established a Sub-working Group (SWG) and Drafting Groups (DG) to facilitate its work:

| SWG/DG (Chairperson) | Terms of Reference |
| --- | --- |
| SWG 5A-5-1  – ITS: Intelligent Transport System  (Mr. Satoshi Oyama, Japan) | – Develop draft revision of Recommendation ITU-R M.2084-0 on Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications;  – Develop a reply liaison statement to ITU-T C-ITS;  – Develop a working document towards revision of Land Mobile Handbook – Intelligent Transport Systems – Vol. 4 (ITS), 2006. |
| DG ITS-3 – M.2084  (Mr. Andy Phang, Singapore) | – Develop draft revision of Recommendation ITU-R M.2084-0 on Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications; |
| DG ITS-4 – LMH-ITS  (Dr. HyunSeo Oh, Korea) | – Develop a working document towards revision of Land Mobile Handbook – Intelligent Transport Systems – Vol. 4 (ITS), 2006, 2006  – Update workplan for the Land Mobile Handbook – ITS |
| DG 5A-5-2 – M.[NON\_IMT.MTC\_USAGE]  (Dr. Jean-Philippe Kermoal, Germany) | – Develop preliminary draft new Report ITU-R M.[NON\_IMT.MTC\_USAGE] on the use of land mobile systems for machine-type communications; |

The other issues were directly considered by the meetings of WG 5A-5.

SWG 5A-5-1 ITS and its DGs ITS-1 and ITS-2 met eight times as a whole, during the 22nd meeting of WP 5A. DG 5A-5-2 on M.[NON\_IMT.MTC\_USAGE] met two times during the meeting.

# 5.1 Executive summary

WG 5A-5 completed its work on the development of preliminary draft revision of Recommendation ITU-R M.2084-0 of radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications.

WG 5A-5 continued to develop a working document towards revision of Land Mobile Handbook, Vol.4 – Intelligent Transport Systems.

WG 5A-5 completed its work on the development of preliminary draft new Report ITU-R M.[NON\_IMT.MTC\_USAGE] on the use of land mobile systems for machine-type communications.

WG 5A-5 continued to develop a working document towards the development of preliminary draft 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)

WG 5A-5 considered nineteen input contributions and developed four output documents:

1 Preliminary draft revision of Recommendation [ITU-R M.2084-0](https://www.itu.int/rec/R-REC-M.2084/en) – *Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications* (Document 5A/TEMP/390R3);

2 Preliminary draft new Question ITU-R [CAV]/5 – *Radiocommunication requirements for Connected Automated Vehicles (CAV)* (Document 5A/TEMP/401R1);

3 Preliminary draft revision of Question [ITU-R 205-5/5](https://www.itu.int/pub/R-QUE-SG05.205) – *Intelligent Transport Systems* (Document 5A/TEMP/409R1);

4 Draft reply liaison statement to ITU-T collaboration on ITS Communication Standards (CITS) - ITS communication standards online database (Document 5A/TEMP/394); and

5 A working document toward revision of Land Mobile Handbook vol.4 - Intelligent Transport Systems.

WG 5A‑5 considered seven input contributions and developed “preliminary draft revision of Recommendation ITU-R M.2084-0 of radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications” (Document 5A/TEMP/390R3).

WG 5A‑5 considered three input contributions on ITU-R Questions and developed “Preliminary draft new Question ITU-R [CAV]/5 – *Radiocommunication requirements for Connected Automated Vehicles (CAV)*” (Document 5A/TEMP/401R1) and “Preliminary draft revision of Question ITU-R 205-5/5 – *Intelligent Transport Systems*” (Document 5A/TEMP/409R1).

WG 5A‑5 considered a document on sharing entitled “Technical observation on the co-existence between fixed satellite service uplinks and intelligent transport system receivers” (Document [5A/1001](https://www.itu.int/md/R15-WP5A-C-1001/en)). WG 5A‑5 agreed to carry forwarded this document to the next study period.

WG 5A‑5 considered the three liaison statements 1) from ITU-T on “Liaison statement on definitions of Radiocommunication abbreviations related to Intelligent Transport Systems”(Document [5A/983](https://www.itu.int/md/R15-WP5A-C-0983/en)), 2) from ITU-T Study Group 16 on “Liaison statement on definition of “V2X” “ (Document [5A/997](https://www.itu.int/md/R15-WP5A-C-0997/en)) and 3) from ITU-T Focus Group on Vehicular Multimedia IFG‑MV on “on Liaison statement to request inputs on the vehicular multimedia – Technical Report and to invite participation from relevant stakeholders” (Document [5A/988](https://www.itu.int/md/R15-WP5A-C-0988/en)). WG 5A-5 noted these liaison statements.

WG 5A‑5 considered a liaison statement from ITU-T Collaboration on ITS Communications Standards (C-ITS) on “Liaison statement on ITS communication standards online database” (Document [5A/995](https://www.itu.int/md/R15-WP5A-C-0995/en)) and developed a reply liaison statement (Document 5A/TEMP/394).

Regarding the revision of the handbook volume 4 "Intelligent Transport Systems" of the Land Mobile Handbook (LMH), WG 5A-5 considered four input contributions, and further developed a working document toward revision of Land Mobile Handbook, Vol. 4 – Intelligent Transport Systems. WG 5A-5 agreed to extend the completion date of this Handbook to [November] 2020. The updated workplan is in Attachment 1 to Annex 3.

# 5.3 Technical and operational characteristics of the land mobile service in the frequency range 275-450 GHz (WRC-19 agenda item 1.15)

WG 5A-5 considered a contribution and continued to develop the preliminary draft revision of ITU‑R M.2417-0. WG 5A-5 also agreed to continue its work on the working document towards preliminary draft revision of Report [ITU-R M.2417-0](https://www.itu.int/pub/R-REP-M.2417) (Document 5A/TEMP/395R1). The meeting also discussed a possible liaison statement to WP 1A, but decided not to send the liaison statement since work on WRC-19 agenda item 1.15 has already completed with Report ITU-R M.2417-0. WG 5A-5 also developed a liaison statement to WPs 3J, 3K and 3M to seek for comments on propagation issues on estimation of building attenuation and blocking loss (Document 5A/TEMP/396R1). WG 5A-5 also updated the workplan for the revision of Report ITU-R M.2417-0 (Attachment 2 to Annex 3).

# 5.4 WRC-19 agenda item 9.1, issue 9.1.8 (MTC, Res. 958)

WG 5A-5 considered two contributions. WG 5A-5 completed its work on the development of a preliminary draft new Report ITU-R M.[NON\_IMT.MTC\_USAGE] on the use of land mobile systems for machine-type communications (Document 5A/TEMP/389R2).

# 5.5 Liaison statement from ITU-T SG20 on JCA-IoT and SC&C

WG 5A-5 received a liaison statement from ITU-T Study Group (SG) 20 on ITU-T Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C) and its request to update the IoT and SC&C standards roadmap and the list of contact points. WG 5A-5 developed a reply liaison statement which provides 1) updated contact point from WP 5A and 2) information on WP 5A’s draft new Report ITU-R M.[NON\_IMT.MTC\_USAGE] on the use of land mobile system for machine-type communications (Document 5A/TEMP/397R1).

# 5.6 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/15/wp5a/c/R15-WP5A-C-0976!N01!MSW-E.docx) to [Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976). There were no views on suppression or revision with regard to the existing ITU-R Recommendations, Reports and Handbooks relating to WG 5A-5. The meeting agreed to retain all the ITU-R Recommendations, Reports and Handbooks relating to WG 5A-5.

WG 5A-5 also reviewed ITU-R Questions related to WG 5A-5, together with [Annex 4](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0976!N04!MSW-E.docx) to [Doc. 5A/976](http://www.itu.int/md/R15-WP5A-C-0976). WG 5A-5 revised Questions related to WG 5A-5. WG 5A-5 had no further update on the Questions, except for Question [ITU-R 205-5/5](https://www.itu.int/pub/R-QUE-SG05.205) (which were updated as Document 5A/TEMP/409R1, see section 5.2 of this Report).

# 5.7 Future work

WG 5A-5 continues to develop a working document towards revision of Land Mobile Handbook, Vol. 4 – *Intelligent Transport Systems*.

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 Drafting Group Chairpersons Mr. Andy Phang, Mr. HyunSeo Oh and Mr. Jean-Philippe Kermoal for their excellent chairmanship and all participants for their contribution to work of the group.

**Attachments:**

[Attachment 1](#att1): Workplan for the development of revision of Land Mobile Handbook – Vol. 4 Intelligent Transport Systems

[Attachment 2](#att2): Workplan for the development of a revision of Report ITU-R M.2417 – Technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz.

Attachment 1 to Annex 3

Workplan for the development of revision of Land Mobile Handbook – Vol. 4 Intelligent Transport Systems

| Title | Land Mobile Handbook – Vol. 4 Intelligent Transport Systems |
| --- | --- |
| Identifier | Land Mobile Handbook – Vol. 4 |
| Document type | Handbook |
| WP 5A Lead Group | WG 5 New Technologies |
| SWG Chairman | Satoshi (Sam) Oyama (J); E-mail: [s-oyama@arib.or.jp](mailto:s-oyama@arib.or.jp) |
| Editor | Mr HyunSeo Oh (KOR); E-mail: [hsoh5@etri.re.kr](mailto:hsoh5@etri.re.kr) |
| Focus for scope and work | The Handbook covers land mobile applications including, vehicular communications, in-building communication, out-of-building communication, as well as others such as intelligent transport systems (ITS) applications. Systems covered encompass cellular-based systems, messaging systems, dispatch systems, fixed wireless access, as well as ITS. |
| Related Documents |  |
| **Milestones** | **Meeting No. 18 (22 May–1 June 2017, Geneva, Switzerland)**  1. propose the outline for preliminary draft revision of Land Mobile Handbook – Vol. 4 (ITS), 2006 |
| **Meeting No. 19 (6-16 November 2017, Geneva, Switzerland)**  1. develop the introduction and ITS service part for preliminary draft revision of ITS Handbook  2. develop the template for annex part for revision of ITS Handbook for circulation to ITU Members |
| **Meeting No. 20 (May 2018, Geneva, Switzerland)**  1. develop ITS system, radio communication and frequency assignment, standardization part for preliminary draft revision of ITS Handbook  2. develop an annex part for revision of ITS Handbook based on ITU Members contributions |
| **Meeting No. 21 (November 2018, Geneva, Switzerland)**  1. develop overall contents of the revision of ITS Handbook  2. develop and annex part of revision of ITS Handbook based on ITU Members contribution |
| **Meeting No. 22 (April/May 2019, Geneva, Switzerland)**  1. update the working document toward a preliminary draft revision of ITS Handbook |
| **Meeting No. 23 ([May 2020], [T.B.D.])**  1. update the preliminary draft revision of ITS Handbook |
|  | **Meeting No. 24 ([Nov 2020], [T.B.D.])**  1. complete the draft revision of ITS Handbook |

Attachment 2 to Annex 3

Workplan for the development of a revision of Report ITU-R M.2417

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 |
| **Identifier** | Report ITU-R M.2417 |
| **Document type** | Report |
| **WP 5A Lead Group** | WG 5 New Technologies |
| **SWG Chairman** |  |
| **Editor** | TBD |
| **Focus for scope and work** | This Report provides the technical and operational characteristics of land-mobile service applications in the frequency range 275-450 GHz for sharing and compatibility studies |
| **Related Documents** | Report ITU-R F.2416  Report ITU-R SM.[275-450GHz\_SHARING] |
| **Milestones** | **21st meeting (November 2018)**   1. Consider input contributions 2. Develop a working document toward a PDN Report 3. Develop work plan   **22nd meeting (May 2019)**   1. Consider input contributions 2. Develop the working document toward a PDN Report 3. Liaise to other relevant Working Parties, if necessary 4. Carry work over to the next study cycle |

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