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| **Radiocommunication Study Groups** |  |
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| Source: Documents 5A/TEMP/155, 195R1, 198, 199, 203, 204 | **Annex 3 to Document 5A/469-E** |
| **15 June 2017** |
| **English only** |
| Annex 3 to Working Party 5A Chairman’s Report |
| consolidation of reports from the working groupsof 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**: 8

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 33](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0469!N33!MSW-E) of [Doc. 5A/469](http://www.itu.int/md/R15-WP5A-C-0469/en) to find the final disposition of these documents by Working Party 5A.

List of input contributions (5A/…) carried forward to the next WP 5A meeting:

WG 5A-1: [Annex 16](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0114!N16!MSW-E) to [Doc. 5A/114](http://www.itu.int/md/R15-WP5A-C-0114)

WG 5A-2: [304](http://www.itu.int/md/R15-WP5A-C-0304) (ETSI TC ERM)

WG 5A-4: [Annex 28](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N28!MSW-E) to [Doc. 5A/298](http://www.itu.int/md/R15-WP5A-C-0298), [252](http://www.itu.int/md/R15-WP5A-C-0252) (Japan); [380](http://www.itu.int/md/R15-WP5A-C-0380) (USA)

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

## 1.1 Summary

During the May 2017 meeting of Working Party 5A, Working Group 5A-1 met 15 times and undertook the following work:

• Continued work on the sharing and compatibility studies required for WRC-19 agenda item 1.1. Significant progress was made and agreement reached on key parameters to be used for sharing studies, background information and the general structure of the report.

• Generated four liaison statements to other groups.

• Updated the WP 5A Webpage information document “[Guide to the use of ITU-R texts relating to the amateur and amateur-satellite services](http://www.itu.int/oth/R0A06000067)”

• Reviewed the work plan of WG 5A-1 to reflect the current status of work.

See Table 1 for an itemized list of output documents.

## 1.2 Details of work undertaken by WG 5A-1 during the May 2017 meeting of WP 5A

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

|  |
| --- |
| **Working Group 1: Amateur Services (Chairman:** **Dale Hughes****, Australia)** |
| **AI 1.1 (**[**Res. 658**](http://www.itu.int/dms_pub/itu-r/oth/0c/0a/R0C0A00000C0001PDFE.pdf)**)** | [289](http://www.itu.int/md/R15-WP5A-C-0289) (WP 5C); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 4](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N04!MSW-E), [Annex 5](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N05!MSW-E) & [Annex 14](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N14!MSW-E) (WP 5A); [394](http://www.itu.int/md/R15-WP5A-C-0394) (WMO); [412](http://www.itu.int/md/R15-WP5A-C-0412) (IARU); [413](http://www.itu.int/md/R15-WP5A-C-0413) (IARU); [414](http://www.itu.int/md/R15-WP5A-C-0414) (IARU); [417](http://www.itu.int/md/R15-WP5A-C-0417) (France); [440](http://www.itu.int/md/R15-WP5A-C-0440) (Switzerland, France, Hungary, Netherlands, Norway) |
| **Amateur texts** | [Annex 16](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0114!N16!MSW-E) to [Doc. 5A/114](http://www.itu.int/md/R15-WP5A-C-0114) (WP 5A); |
| **Amateur services protection** | *Sharing:* [353](http://www.itu.int/md/R15-WP5A-C-0353) (WP 7C); [456](http://www.itu.int/md/R15-WP5A-C-0456) (WP 4A); [463](http://www.itu.int/md/R15-WP5A-C-0463) (WP 4A) *RF noise:* [311](http://www.itu.int/md/R15-WP5A-C-0311) (WP 1A)*Fast access to subscriber terminals (G.fast):* [310](http://www.itu.int/md/R15-WP5A-C-0310) (WP 1A);[325](http://www.itu.int/md/R15-WP5A-C-0325) (ITU-T SG 15)*Wireless power transmission:* [314](http://www.itu.int/md/R15-WP5A-C-0314) (WP 1A); [315](http://www.itu.int/md/R15-WP5A-C-0315) (WP 1A) |

Concerning WRC-19 agenda item 1.1, the document covering spectrum needs of the amateur service and sharing studies with incumbent services in the 50–54 MHz frequency band was carried forward to this meeting in Document [5A/298/Annex 14](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0298%21N14%21MSW-E.docx). Revisions to this document incorporated elements of Documents [5A/394](http://www.itu.int/md/R15-WP5A-C-0394) (WMO), [5A/412](http://www.itu.int/md/R15-WP5A-C-0412) (IARU); [5A/413](http://www.itu.int/md/R15-WP5A-C-0413) (IARU); [5A/414](http://www.itu.int/md/R15-WP5A-C-0414) (IARU); [5A/417](http://www.itu.int/md/R15-WP5A-C-0417) (France) and [5A/440](http://www.itu.int/md/R15-WP5A-C-0440) (Switzerland, France, Hungary, Netherlands, Norway). The document was extensively discussed during WG 5A-1 meetings and the consensus text developed by the meeting will go forward as Document 5A/TEMP/189 for further work at the November 2017 WP 5A meeting.

Liaison statements [5A/310](http://www.itu.int/md/R15-WP5A-C-0310) (WP 1A); [5A/311](http://www.itu.int/md/R15-WP5A-C-0311) (WP 1A); [5A/315](http://www.itu.int/md/R15-WP5A-C-0315) (WP 1A); [5A/325](http://www.itu.int/md/R15-WP5A-C-0325) (ITU-T SG 15) and [5A/353](http://www.itu.int/md/R15-WP5A-C-0353) (WP 7C) were noted and WG 5A-1 thanks the relevant groups for their communications.

Relevant to the amateur-satellite service, liaison statements [5A/456](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5A-C-0456) (WP 4A) and [5A/463](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5A-C-0463) (WP 4A) generated some discussions within WG 5A-1 and two reply liaison statements 5A/TEMP/175 and 5A/TEMP/157 were drafted to address the issues raised in the input liaison statements. Relevant to WPT, liaison statement [5A/314](http://www.itu.int/md/R15-WP5A-C-0314) (WP 1A) was also responded to in a liaison statement 5A/TEMP/186. A liaison statement, 5A/TEMP/201, was also sent to WP 5C in response to liaison statement [5A/289](http://www.itu.int/md/R15-WP5A-C-0289).

WG 5A-1 updated the WP 5A webpage information document “[Guide to the use of ITU-R texts relating to the amateur and amateur-satellite services](http://www.itu.int/oth/R0A06000067)”. The revisions reflect changes to the source documents. The revised guide text is found in 5A/TEMP/188.

The work plan for WRC-19 agenda item 1.1 ([5A/298 Annex 5](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0298%21N05%21MSW-E.docx)) was updated and became document 5A/TEMP/187. Work on the agenda item is progressing more-or-less in accordance with the work plan.

Documents [5A/298 Annex 4](https://www.itu.int/dms_pub/itu-r/md/15/wp5a/c/R15-WP5A-C-0298%21N04%21MSW-E.docx) (draft CPM text) and [5A/114 Annex 16](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0114!N16!MSW-E) (WDPDNR amateur WJST) will be carried forward as no contributions were received to develop them further.

Table 1

Output documents from WG 5A-1

|  |  |  |
| --- | --- | --- |
| Topic | WP 5A Action | Temp document |
| 50 MHz Spectrum needs and sharing study | Carry forward | 5A/TEMP/189 |
| Liaison statement to WP 4A re satellite issues #1 | Approve | 5A/TEMP/175-r2 |
| Liaison statement to WP 4A re satellite issues #2 | Approve | 5A/TEMP/157 |
| Liaison statement to WP 1A re WPT | Approve | 5A/TEMP/186-r1 |
| Liaison statement to WP 5C re progress on AI 1.1 | Approve | 5A/TEMP/201 |
| WP 5A Guide to text update | Approve | 5A/TEMP/188-r1 |
| WRC-19 AI 1.1 work plan | Carry forward | 5A/TEMP/187 |
| WG5A-1 Chairmans report | Carry forward | 5A/TEMP/195-r1 |

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

• Continue work on WRC-19 agenda item 1.1 spectrum needs, sharing and compatibility studies.

• Continue work on developing CPM text for WRC-19 agenda item 1.1.

• Respond to liaison notes from other groups as appropriate.

• Continue to review and, update as necessary, ITU-R Recommendations, Reports and Handbooks relevant to the amateur and amateur-satellite services.

• Any other work relevant to the Amateur and Amateur-satellite service that is brought to the meeting.

1.4 Conclusion

The WG 5A-1 chair enjoyed working with all the delegates and is grateful for their thoughtful input contributions, diligent work, expert knowledge and goodwill.

 Dale HUGHES
 Chairman WG 5A-1, Amateur and Amateur Satellite Services
 **Email:** dalevk1dsh@gmail.com

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

## 2.1 Executive summary

Work continued on WRC-19 agenda item (AI) 1.11, initiated a working document towards a PDN Recommendation ITU-R M.[RSTT] on harmonization of frequencies and related frequency arrangements, for railway radiocommunication systems between train and trackside; further developed the working document toward a PDN Report ITU-R M. [RSTT.USAGE] on current and future usage of railway radiocommunication systems between train and trackside (RSTT) and the PDN Report ITU-R M.[RSTT.DESCRIPTION] on description of Railway Radiocommunication Systems between Train and Trackside (RSTT).

Work continued on the development of working document towards a preliminary draft new Report ITU-R M.[CDLMR] on conventional digital land mobile radios.

Work continued on the development of working document towards a preliminary draft revision of Recommendation ITU-R M.2003 “Multiple Gigabit Wireless Systems in frequencies around 60 GHz” and its companion Report ITU-R M.2227.

Worked continued on the development of working document towards a 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 with earth stations in motion operating in geostationary FSS networks and with applications under the fixed service.

## 2.2 Systems and standards

Working Group 5A-2 met five times at the eighteenth meeting of WP 5A in Geneva. Working Group 5A-2 received the 52 documents assigned by the WP 5A Plenary as follows:

|  |  |
| --- | --- |
|  | Document 5A/… |
| 2.2.1 AI 1.11 (Railways Res. 236) | [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N06!MSW-E), [Annex 7](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N07!MSW-E), & [Annex 16](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N16!MSW-E) (WP 5A); [323R1](http://www.itu.int/md/R15-WP5A-C-0323) (BR); [340](http://www.itu.int/md/R15-WP5A-C-0340) (WP 3K); [354](http://www.itu.int/md/R15-WP5A-C-0354) (WP 7C); [358R1](http://www.itu.int/md/R15-WP5A-C-0358) (CG-5A-1); [364](http://www.itu.int/md/R15-WP5A-C-0364) (APT); [376](http://www.itu.int/md/R15-WP5A-C-0376) (UIC); [383](http://www.itu.int/md/R15-WP5A-C-0383) (Japan); [384](http://www.itu.int/md/R15-WP5A-C-0384) (Japan); [385](http://www.itu.int/md/R15-WP5A-C-0385) (Japan); [386](http://www.itu.int/md/R15-WP5A-C-0386) (Japan); [396](http://www.itu.int/md/R15-WP5A-C-0396) (Russian Federation); [405](http://www.itu.int/md/R15-WP5A-C-0405) (Australia); [406](http://www.itu.int/md/R15-WP5A-C-0406) (Canada); [415](http://www.itu.int/md/R15-WP5A-C-0415) (Viet Nam); [424](http://www.itu.int/md/R15-WP5A-C-0424) (Telstra); [425](http://www.itu.int/md/R15-WP5A-C-0425) (France); [429](http://www.itu.int/md/R15-WP5A-C-0429) (Korea); [430](http://www.itu.int/md/R15-WP5A-C-0430) (China); [432](http://www.itu.int/md/R15-WP5A-C-0432) (China); [437](http://www.itu.int/md/R15-WP5A-C-0437) (Motorola Solutions); [439](http://www.itu.int/md/R15-WP5A-C-0439) (China); [441](http://www.itu.int/md/R15-WP5A-C-0441) (Germany, France, Switzerland, UK, Sweden, Hungary); [448](http://www.itu.int/md/R15-WP5A-C-0448) (CEPT CPG PTD) |
| 2.2.2 Broadband Wireless Access | [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 20](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N20!MSW-E) (WP 5A); [306](http://www.itu.int/md/R15-WP5A-C-0306) (WP 5C); [333](http://www.itu.int/md/R15-WP5A-C-0333) (WP 5D); [360](http://www.itu.int/md/R15-WP5A-C-0360) (3GPP TSG RAN); Broadband definition: [324](http://www.itu.int/md/R15-WP5A-C-0324) (CCV & SCV); [328](http://www.itu.int/md/R15-WP5A-C-0328) (WP 5D);Infrastructure sharing: [316](http://www.itu.int/md/R15-WP5A-C-0316) (WP 1B); [330](http://www.itu.int/md/R15-WP5A-C-0330) (WP 5D); [368](http://www.itu.int/md/R15-WP5A-C-0368) (WP 4C); [458](http://www.itu.int/md/R15-WP5A-C-0458) (WP 4A)Global platform: [326](http://www.itu.int/md/R15-WP5A-C-0326) (WP 5D); [343](http://www.itu.int/md/R15-WP5A-C-0343) (WP 6B)M.[MS-RXCHAR-28]: [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 19](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N19!MSW-E); [427](http://www.itu.int/md/R15-WP5A-C-0427) (Korea) |
| 2.2.3 Land mobile systems | [304](http://www.itu.int/md/R15-WP5A-C-0304) (ETSI TC ERM); DPLMR: [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 15](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N15!MSW-E) (WP 5A); [403](http://www.itu.int/md/R15-WP5A-C-0403) (Mexico); [416](http://www.itu.int/md/R15-WP5A-C-0416) (Viet Nam) |
| 2.2.4 MGWS | [250](http://www.itu.int/md/R15-WP5A-C-0250/en) (Japan); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N17!MSW-E) & [Annex 18](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N18!MSW-E) (WP 5A); [374](http://www.itu.int/md/R15-WP5A-C-0374) (IEEE); [387](http://www.itu.int/md/R15-WP5A-C-0387) (Japan); [388](http://www.itu.int/md/R15-WP5A-C-0388) (Japan) |
| 2.2.5 Update of Rep. ITU-R M.2282 | [408](http://www.itu.int/md/R15-WP5A-C-0408) (Canada) |

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

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

– DG5A2-1 DPLMR Mr. David Tejeda

– DG5A2-2 M.[MS-RXCHAR-28] Ms. Jayne Stancavage

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

Sub-Working Group (SWG 5A-2-1 A.I. 1.11 Railway) chaired by Mr. Bin LIU (CHN) was established to deal with the preparation issues for WRC-19 AI 1.11. During the meeting, five Drafting Groups were set up. Several offline drafting activities were also organized. SWG 5A-2-1 met twelve times and considered all contribution documents and carried out eight temporary documents to WG 5A-2 for consideration. Main progresses of this SWG are: proposed to upgrade the report on the description of RSTT to the PDNR; a new ITU-R report on the usage of RSTT and a new ITU-R recommendation were on going developing; the draft CPM text for WRC-19 agenda item 1.11 was further improved; Work Plan of this SWG was revised accordingly; 3 reply Liaison Statements to WP 3K, WP 7C and AWG were drafted. Detailed information is as follows.

a) Establishment of the Drafting Group

*– DG1-Data issue* chaired by Dr. YING XU (CHN), to summarize and check the parameters of RSTT within tables of the main body of working document towards a PDN Report ITU-R M.[RSTT. USAGE].

*– DG2-LS to WP 7C* chaired by Dr. HIROYO OGAWA (J), to draft the reply Liaison statement to WP 7C on the 90 GHz band RSTT.

*– DG3-New Rec* chaired by Mr. JOSÉ COSTA (CAN) to draft the working document towards a PDN Recommendation ITU-R M.[RSTT].

*– DG4-New Report 1* chaired by Dr. JIN SHI (CHN), to draft the working document towards a PDN Report ITU-R M.[RSTT.DESCRIPTION].

*– DG5-New Report 2* chaired by Mr. BIN LIU (CHN), to draft the working document towards a PDN Report ITU-R M.[RSTT.USAGE].

b) Working document towards PDN Reports on RSTT

This SWG developed two working documents towards preliminary draft new Report (PDNR) based on the original PDNR ITU-R M.[RAIL.RSTT] (Annex 16 to Document [5A/298](http://www.itu.int/md/R15-WP5A-C-0298/en)).

One is a working document towards a PDNR ITU-R M.[RAIL.DESCRIPTION], which addresses the architecture, applications, technologies and operational scenarios of RSTT. It was also agreed to bring this report to WG 5A-2, for upgrading to a PDNR.

The other is a working document towards a PDNR ITU-R M.[RAIL.USAGE], which addresses the technical and operational characteristics, and the spectrum usage of current and planned RSTT as well as the studies on spectrum needs of RSTT. Detailed information on RSTT in some administrations is also provided in the Annexes.

– Contribution Document: [298](http://www.itu.int/md/R15-WP5A-C-0298/en) Annex [16](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N16!MSW-E) (WP 5A); [323R2](http://www.itu.int/md/R15-WP5A-C-0323) (BR); [358R1](http://www.itu.int/md/R15-WP5A-C-0358) (CG-5A-1); [376](http://www.itu.int/md/R15-WP5A-C-0376) (UIC); [383](http://www.itu.int/md/R15-WP5A-C-0383)(J);[384](http://www.itu.int/md/R15-WP5A-C-0384)(J);[396](http://www.itu.int/md/R15-WP5A-C-0396)(RUS);[405](http://www.itu.int/md/R15-WP5A-C-0405) (AUS); [415](http://www.itu.int/md/R15-WP5A-C-0415) (VTN); [424](http://www.itu.int/md/R15-WP5A-C-0424) (Telstra);[425](http://www.itu.int/md/R15-WP5A-C-0425) (F); [432](http://www.itu.int/md/R15-WP5A-C-0432)(CHN); [437](http://www.itu.int/md/R15-WP5A-C-0437) (Motorola Solutions);[429](http://www.itu.int/md/R15-WP5A-C-0429)(KOR); [439](http://www.itu.int/md/R15-WP5A-C-0439) (CHN); [441](http://www.itu.int/md/R15-WP5A-C-0441) (D,F,SUI,G,S,HNG)

– Output Document: 5A/TEMP/190 R1, 5A/TEMP/191 R1

c) Working document towards a PDN Recommendation on RSTT

A working document towards preliminary draft new Recommendation ITU-R M.[RSTT] was developed, which is to provide guidance on possible harmonization of frequency arrangements for existing and future RSTT on global or regional basis.

– Contribution Document: [406](http://www.itu.int/md/R15-WP5A-C-0406) (CAN); [448](http://www.itu.int/md/R15-WP5A-C-0448) (CEPT CPG PTD)

– Output Document: 5A/TEMP/185

d) Draft CPM Text for WRC-19 agenda item 1.11

A working document towards draft CPM text for WRC-19 agenda item 1.11 was developed. Two methods were proposed to satisfy this agenda item. One is NOC and the other is propose a new Resolution **XYZ (WRC-19)** and consequently suppress the Resolution **236 (WRC-15)**. Both methods were requested to put into square brackets for discussion in the next WP 5A meeting.

– Contribution Document: [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 6](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N06!MSW-E) (WP 5A); [430 (CHN)](https://www.itu.int/dms_ties/itu-r/md/15/wp5a/c/R15-WP5A-C-0430%21%21MSW-E.docx); [386 (Japan)](https://www.itu.int/dms_ties/itu-r/md/15/wp5a/c/R15-WP5A-C-0386%21%21MSW-E.docx)

– Output Document: 5A/TEMP/144 R1

e) Reply Liaison statement to WP 3K

Liaison Statement from WP 3K was received, entitled *90-GHz band propagation and delay spread models for railway radiocommunication system between train and trackside (RSTT)*. A reply Liaison Statement was developed, for introducing the progress on studies of RSTT and for highlighting five general operating scenarios of RSTT.

– Contribution Document: [340(3K)](https://www.itu.int/dms_ties/itu-r/md/15/wp5a/c/R15-WP5A-C-0340%21%21MSW-E.docx)

– Output Document: 5A/TEMP/143 R2

f) Reply Liaison Statement to WP 7C

The Liaison Statement from WP 7C was received, entitled *Potential OOB Interference from RSTT into EESS (active) in the 94.0-94.1 GHz Frequency Band (WRC-19 agenda item 1.11)*. This SWG developed a reply Liaison Statement, for introducing the progress on studies of RSTT.

– Contribution Document: [354](http://www.itu.int/md/R15-WP5A-C-0354)(7C)

– Output Document: 5A/TEMP/138 R1

Note: WG 5A-2 decided not to send this Reply Liaison Statement to WP 7C on May 30th 2017.

g) Reply Liaison Statement to AWG

The Liaison Statement from WP 7C was received, entitled *Progress on relevant studies on Railway Radiocommunication Systems between Train and Trackside (RSTT) in AWG*. This SWG developed a reply Liaison Statement, for introducing the progress on studies of RSTT.

– Contribution Document: [364](https://www.itu.int/dms_ties/itu-r/md/15/wp5a/c/R15-WP5A-C-0364%21%21MSW-E.docx) (AWG)

– Output Document: 5A/TEMP/183 R1

h) Work plan for preparation for WRC-19 agenda item 1.11

This SWG revised its work plan for preparation for WRC-19 agenda item 1.11.

It was planned to, in Nov. 2017:

– Complete PDN Report ITU-R M.[RAIL.DESCRIPTION].and send it to SG 5 for approval.

– Further update Working document towards a preliminary draft new Report ITU-R M.[RAIL.USAGE] and hopefully upgrade it into PDN Report.

– Further update Working document toward a PDN Recommendation ITU-R M.[RSTT]

– Achieve preliminary study result on global or regional harmonized frequency bands for RSTT.

– Further update the draft CPM text on A.I. 1.11.

– Review and revise the work plan.

– Draft relevant liaison statement(s).

It was also planned to, in March 2018:

– Complete the PDN Report ITU-R M.[RAIL.USAGE] and send it to SG 5 for approval

– Complete the study on global or regional harmonized frequency bands for RSTT.

– Further update the Working document toward a PDN Recommendation ITU-R M.[RSTT] and hopefully upgrade it into PDN Recommendation

– Complete the work on draft CPM text on A.I. 1.11 and send it to the chapter rapporteur.

– Review and revise the work plan.

– Draft relevant liaison statement(s).

– Contribution Document: [298](https://www.itu.int/dms_ties/itu-r/md/15/wp5a/c/R15-WP5A-C-0298%21%21MSW-E.docx) Annex [7 (WP 5A)](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0289!N07!MSW-E)

– Output Document: [5A/TEMP/184](https://www.itu.int/dms_inf/itu-r/md/15/wp5a/td/170522/R15-WP5A-170522-TD-0184%21%21MSW-E.docx)

i) Other issues

One contribution from Japan (5A/385) was received, entitled Proposal of a new working document towards a preliminary draft new Report ITU-R M.[90-GHZ.RSTT.COEXIST] – Coexistence between railway radiocommunication system between train and trackside operating in the frequency band 92-94 GHz, 94.1-100 GHz and 102-109.5 GHz, and active and passive services.

During the discussion, some administrations were of the view that the coexistence study between RSTT and other relevant systems is not in the purview of SWG 5A2-1. But one administration was of the view that study mentioned above is related to agenda item 1.11, and therefore this working document should be discussed within SWG 5A2-1. This SWG decided to report this issue to the WG 5A-2, for seeking solutions by the management team of WP 5A.

– Contribution Document: [385](http://www.itu.int/md/R15-WP5A-C-0385)(J)

– Output Document: [None.](https://www.itu.int/dms_inf/itu-r/md/15/wp5a/td/170522/R15-WP5A-170522-TD-0184%21%21MSW-E.docx)

Note: WG 5A-2 decided that this contribution document be carried to WG 5A-4 for consideration.

### 2.2.2 Broadband Wireless Access

Input documents: [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 19](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N19!MSW-E) & [Annex 20](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N20!MSW-E) (WP 5A); [306](http://www.itu.int/md/R15-WP5A-C-0306) (WP 5C); [333](http://www.itu.int/md/R15-WP5A-C-0333) (WP 5D); [360](http://www.itu.int/md/R15-WP5A-C-0360) (3GPP TSG RAN); [324](http://www.itu.int/md/R15-WP5A-C-0324) (CCV & SCV); [328](http://www.itu.int/md/R15-WP5A-C-0328) (WP 5D); [316](http://www.itu.int/md/R15-WP5A-C-0316) (WP 1B); [330](http://www.itu.int/md/R15-WP5A-C-0330) (WP 5D); [368](http://www.itu.int/md/R15-WP5A-C-0368) (WP 4C); [458](http://www.itu.int/md/R15-WP5A-C-0458) (WP 4A); [326](http://www.itu.int/md/R15-WP5A-C-0326) (WP 5D); [343](http://www.itu.int/md/R15-WP5A-C-0343) (WP 6B); [427](http://www.itu.int/md/R15-WP5A-C-0427) (Korea).

Output document: TEMP/146 (CCV); 192 (LS to 1B on regulatory tools); 160 (M.[MS.RXCHAR-28]).

[306](http://www.itu.int/md/R15-WP5A-C-0306) from WP 5C is a liaison statement on draft new Report ITU-R F.[FS.IMT/BB]. WG 5A-2 took note of the information provided by WP 5C and did not see the need for further action.

[333](http://www.itu.int/md/R15-WP5A-C-0333) from WP 5D is a liaison statement on “Energy efficiency Metrics and measurement methodology for 5G solutions”. WG 5A-2 took note of the information provided by WP 5D to ITU‑T Study Group 5 and did not see the need for further action.

[360](http://www.itu.int/md/R15-WP5A-C-0360) from 3GPP TSG RAN is the answer to liaison statement from 4B on the integration of satellite solutions into IMT-2020 networks. WG 5A-2 took note of the information provided by 3GPP TST RAN to WP 4B and did not see the need for further action.

[316](http://www.itu.int/md/R15-WP5A-C-0316) (WP 1B), [330](http://www.itu.int/md/R15-WP5A-C-0330) (WP 5D), [368](http://www.itu.int/md/R15-WP5A-C-0368) (WP 4C) and [458](http://www.itu.int/md/R15-WP5A-C-0458) (WP 4A) are liaisons on regulatory tools. WG 5A-2 took note of the information provided by WP 1B, WP 5D, WP 4C and WP 4A on this issue and developed a reply liaison statement back to WP 1B.

[324](http://www.itu.int/md/R15-WP5A-C-0324) (CCV & SCV) and [328](http://www.itu.int/md/R15-WP5A-C-0328) (WP 5D) are liaisons on definition of Broadband. WG 5A-2 took note of the information provided by CCV & SCV and WP 5D on this issue and did not see the need for further action.

[298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 20](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N20!MSW-E) is the working document towards a draft liaison statement to the Coordination Committee for Vocabulary (CCV) on preliminary definitions for consideration for inclusion in the online integrated database of ITU Terms and Definitions, which was approved by WG 5A-2 to be sent to CCV.

[326](http://www.itu.int/md/R15-WP5A-C-0326) (WP 5D) and [343](http://www.itu.int/md/R15-WP5A-C-0343) (WP 6B) are liaisons on global platform for the broadcasting service. WG 5A-2 took note of the information provided by WP 5D and WP 6B.

M.[MS-RXCHAR-28] chaired by Dr. Jayne Stancavage further developed the working document towards a 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 with earth stations in motion operating in geostationary FSS networks and with applications under the fixed service based on the input contribution [427](http://www.itu.int/md/R15-WP5A-C-0427) from Korea.

### 2.2.3 Land mobile systems

Input documents: [304](http://www.itu.int/md/R15-WP5A-C-0304) (ETSI TC ERM); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 15](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N15!MSW-E) (WP 5A); [403](http://www.itu.int/md/R15-WP5A-C-0403) (Mexico); [416](http://www.itu.int/md/R15-WP5A-C-0416) (Viet Nam).

Output document: TEMP/153(WD on CDLMR), 155(Work plan on CDLMR).

[304](http://www.itu.int/md/R15-WP5A-C-0304) is a liaison from ETSI TC ERM on revision of Report ITU-R M.2014 “Digital land mobile systems for dispatch traffic”. WG 5A-2 decided to carry forward this document to the next WP 5A for further consideration.

DG DPLMR chaired by Mr. David Tejeda considered the other input contributions under the issue. DG DPLMR clarified the scope of new Report ITU-R M.[CDLMR] to exclude trunking system and further developed the texts of the report based on the input contributions. The work plan of the report was modified accordingly (Attachment 1). WG 5A-2 encourages external organizations to contribute material for the development of this new Report.

### 2.2.4 MGWS

Input documents: [250](http://www.itu.int/md/R15-WP5A-C-0250/en) (Japan); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 17](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N17!MSW-E) & [Annex 18](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N18!MSW-E) (WP 5A); [374](http://www.itu.int/md/R15-WP5A-C-0374) (IEEE); [387](http://www.itu.int/md/R15-WP5A-C-0387) (Japan);
[388](http://www.itu.int/md/R15-WP5A-C-0388) (Japan).

Output document: TEMP/151 (WD on M.2003); 152 (WD on M.2227); 147 (LS to EO).

Working documents towards the preliminary draft revision of Recommendation ITU-R M.2003 and its companion Report ITU-R M.2227 were further developed based on the input contributions and elevated to PDR due to its maturity. A liaison statement was developed to invite external organizations to input information related to the revision work on Recommendation ITU-R M.2003 and Report ITU-R M.2227.

### 2.2.5 Update of Rep. ITU-R M.2282

Input documents: [408](http://www.itu.int/md/R15-WP5A-C-0408) (Canada).

Canada proposed to update the Report [ITU-R M.2282-0](http://www.itu.int/pub/R-REP-M.2282) “Systems for public mobile communications with aircraft” due to some technologies that are outdated and/or are falling into disuse.

WG 5A-2 invites members to assess whether some parts of the Report should be updated, particularly as it refers to the technologies and standards used in certain countries.

### 2.2.6 Review of ITU-R texts

Working Group 5A-2 reviewed the WP 5A texts Section 1 of Annex 1 in Doc. [5A/298](http://www.itu.int/md/R15-WP5A-C-0298), and [Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/oth/R0A06000001/en) based on [Doc. 5A/410](http://www.itu.int/md/R15-WP5A-C-0410/en). Only one tiny update was proposed for Section 1 of Annex 1 in Doc. [5A/298](http://www.itu.int/md/R15-WP5A-C-0298).

### 2.2.7 Objectives for the next meeting

The objectives for the next meeting are to continue the work on WRC-19 AI 1.11 and WAS Study Questions on the basis of input contributions and, in particular, to continue the work on:

– Studies of WRC-19 A.I. 1.11

– Development of a preliminary draft new Recommendation ITU-R M.[CDLMR]

– Development of a preliminary draft revision Recommendation ITU-R M.2003-1

– Development of a preliminary draft revision of Report ITU-R M.2227-1

– Development of a preliminary draft new Recommendation ITU-R M.[MS-RXCHAR-28]

### 2.2.8 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, DG Chairs Mr. David Tejeda, Ms. Jayne Stancavage, Dr. Shi Jin, Dr. Xu Ying, Dr. HIROYO OGAWA and Dr. Jose Costa for their good and efficient work. The WG Chairman would also like to express particular thanks to Mr. Ogawa for consolidating the material of ITU-R M.2003 and ITU-R M.2227 and Dr. Jose Costa for drafting the LS.

 Mr. Lang Baozhen
 Chairman, WG 2

**Attachments:**

[Attachment 1](#att1): Workplan for a preliminary draft new Report ITU-R M.[CDLMR].

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

## 3.1 Executive summary

Working Group 3 met on three occasions and considered eight input contributions to this meeting, two carried forward documents, and two Annexes to the previous Working Party 5A Chairman’s Report. The input documents were related to the objectives for this meeting as reflected in section 3 of [Annex 3 of 5A/298](http://www.itu.int/md/R15-WP5A-C-0298%21N03%21MSW-E):

1) further develop the working document toward a preliminary draft revision of Recommendation ITU-R M.2015-1;

2) consider a possible liaison statement to affected regional groups to determine the frequency arrangements for Regions 2 and 3 that comprise the substance of Recommendation ITU-R M.1826 have been properly incorporated into the revision of Recommendation ITU-R M.2015-1 and seeking their views on the possible consequential suppression of Recommendation ITU-R M.1826;

3) further develop the working document toward a preliminary draft new Report ITU-R M.[PPDR SPECTRUM], “Spectrum calculations and requirements for Public Protection and Disaster Relief (PPDR)”;

4) consider the planned consequential revision of Report ITU-R M.2377 as reflected in the workplan and the proposal to undertake broader revision of the document as reflected in [5A/233](http://www.itu.int/md/R15-WP5A-C-0233); and

5) consider consequential revisions to other ITU-R documents under the purview of WG 3, based on [5A/80](http://www.itu.int/md/R15-WP5A-C-0080).

The work of the group produced three liaison statements for transmittal and three preliminary draft documents to be included in the Chairman’s Report, as well as retaining unchanged one attachment to the previous Working Group report, which is now [Attachment 2](#att2) to this Working Group report.

## 3.2 Organization of the work

On an exceptional basis, the work of the Drafting Group on the revision of Recommendation
ITU-R M.2015 was initiated prior to the first session of the Working Group. All input contributions related to the revision of Recommendation ITU-R M.2015 were introduced at the Drafting Group level. All other input contributions were introduced at the Working Group level. The Disaster Relief Rapporteur’s Report (Doc. [5A/411](http://www.itu.int/md/R15-WP5A-C-0411/en)) was presented at the WP 5A Plenary and noted in Working Group 3. The Chairman also tasked all WGs to consider the relevant portions of the “Guide to the use of ITU-R texts related to the land mobile service” and of Section 1 of [Annex 1 in 5A/114](http://www.itu.int/md/R12-WP5A-C-0114/en). These items were addressed at the Working Group level.

WG 3 created two drafting groups: one drafting group to further develop the working document toward a preliminary draft revision of Recommendation ITU-R M.2015-1, led by Mr. Stuart Shepard of Australia, and a second drafting group to further develop the working document toward a preliminary draft new Report ITU-R M.[PPDR SPECTRUM], “Spectrum calculations and requirements for Public Protection and Disaster Relief (PPDR)”, led by Mr. David Kershaw of New Zealand.

In addition, the Working Group agreed to address the following topics at the WG level:

– Update of Report ITU-R M.2377, “Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR)”, based on [5A/233](http://www.itu.int/md/R15-WP5A-C-0223) and [423](http://www.itu.int/md/R15-WP5A-C-0423) (Telstra);

– Consider consequential revisions to other ITU-R documents under the purview of WG 3, based on [5A/80](http://www.itu.int/md/R15-WP5A-C-0080);

– Revision of WP 5A texts (Section 1 of Annex 1 in [5A/114](http://www.itu.int/md/R12-WP5A-C-0114) and [Guide to the use of ITU-R texts relating to the land mobile service](http://www.itu.int/oth/R0A06000001/en)).

## 3.3 Execution of objectives

**Objectives 1 and 2: Further develop the working document toward a preliminary draft revision of Recommendation ITU-R M.2015-1 and consider a possible liaison statement to affected regional groups**

The Drafting group on M.2015 was established at the Opening Plenary under the leadership of Mr. Stuart Shepard (Australia) to address the further development of the working document toward a preliminary draft revision of Recommendation ITU-R M.2015-1.

Five input contributions were received at this meeting related to the revision of Recommendation ITU-R M.2015-1 contained in Annex 21 of the Chairman’s Report of the previous meeting. One contribution was carried forward from a previous meeting on this topic. The relevant documents are detailed in the table below:

|  |  |
| --- | --- |
| **Update Rec. ITU-R M.2015** | [Res. 646 (Rev.WRC-15)](http://www.itu.int/oth/R0A0600001A/en); [80](http://www.itu.int/md/R15-WP5A-C-0080) (Australia); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 21](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N21!MSW-E) (WP 5A); [365](http://www.itu.int/md/R15-WP5A-C-0365) (APT); [373](http://www.itu.int/md/R15-WP5A-C-0373) (USA); [390](http://www.itu.int/md/R15-WP5A-C-0390) (Japan); [426](http://www.itu.int/md/R15-WP5A-C-0426) (Korea); [434](http://www.itu.int/md/R15-WP5A-C-0434) (China)  |

As noted above, each of the input contributions was introduced and discussed in the Drafting Group. The Drafting Group met three times and engaged in detailed discussions of the proposals in the contributions, as a result, the working document toward a preliminary draft revision of Recommendation ITU-R M.2015-1 was further developed. The contributions were allocated to the appropriate Annexes, Sections and Sub-sections based on the conceptual guidance document for the structure of the Annexes (Attachment 2 to the WG Chairman’s Report from the May 2016 meeting, Annex 3 to Doc. 5A/114).

The DG further implemented the proposed uniform structure for presenting the frequency arrangements within the annexes of Recommendation ITU-R M.2015, which had been attached to the previous WG 3 Report as Attachment 3 in Annex 3 to Doc. 5A/298).

Administrations and regional bodies that have submitted, or will submit, arrangements for consideration for inclusion in the Recommendation are encouraged to use this proposed structure. In order to encourage such submissions, the Working Group developed a separate liaison statement to all regional groups.

Given the relatively mature state of the document, the Drafting Group proposed the elevation of the document to preliminary draft revision status.

In the process of updating the working document, it was noted that some of the frequency arrangements being considered for inclusion in the revision of Recommendation ITU-R M.2015-1 were either duplicative or updates of arrangements in Recommendation ITU-R M.1826. The Working Group developed a liaison statement to the relevant regional bodies to alert them to this duplication and seek their guidance on possible suppression of Recommendation ITU-R M.1826.

As a result of the work in the Drafting Group on M.2015, four documents were created:

1) 5A/TEMP/150Rev.1 Liaison statement to APT Wireless Group

2) 5A/TEMP/154Rev.1 Preliminary draft revision of Recommendation ITU-R M.2015-1) to be attached as an Annex to the WP 5A Chairman’s Report

3) 5A/TEMP/162Rev.1 Liaison statement to CITEL PCC.II and APT Wireless Group on the revision of Recommendation ITU-R M.2015-1 and the possible suppression of Recommendation ITU-R M.1826

4) 5A/TEMP/194 Liaison statement to regional groups on the revision of Recommendation ITU-R M.2015

**Objective 3 and 4: Further develop the working document toward a preliminary draft new Report ITU-R M.[PPDR SPECTRUM], “Spectrum calculations and requirements for Public Protection and Disaster Relief (PPDR)” and consider the planned consequential revision of Report ITU-R M.2377**

Drafting Group on PPDR Spectrum met on one occasion. The DG was assigned two input contributions as well as the relevant Annex from the Chairman’s Report. The documents considered by the meeting, as well as their sources, are shown in the table below:

|  |  |
| --- | --- |
| **PPDR Spectrum** | [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 22](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N22!MSW-E) (WP 5A); [332](http://www.itu.int/md/R15-WP5A-C-0332) (WP 5D); [438](http://www.itu.int/md/R15-WP5A-C-0438) (Motorola Solutions) |

The DG took into consideration the proposals in the two input contributions in further refining the text in the working document. Given the relatively mature state of the document, and in line with the workplan attached to the previous WG Report, the Drafting Group proposed the elevation of the document to preliminary draft revision status.

At the Working Group level, the meeting considered the consequential revisions of Recommendation ITU-R M.2377-0, as much of the material in the new draft Report was extracted from Annexes 6 and 7 of M.2377-0. The Working Group developed a working document reflecting the deletion of Annexes 6 and 7 of M.2377-0 and subsequently elevated it to preliminary draft revision status to keep it in line with the development of the new Report.

The following documents were produced:

1) 5A/TEMP/139Rev.2 Preliminary draft new Report ITU-R M.[PPDR SPECTRUM], “Spectrum calculations and requirements for Public Protection and Disaster Relief (PPDR)”) to be attached as an Annex to the WP 5A Chairman’s Report

2) 5A/TEMP/161R1 Preliminary draft revision of Report ITU-R M.2377-0 to be attached as an Annex to the WP 5A Chairman’s Report.

The workplan for the development of M.[PPDR Spectrum] and the consequential revision of M.2377-0 was not discussed in the Drafting Group or Working Group and is, consequentially, attached to this Working Group Report unchanged.

**Objective 5: Consider consequential revisions to other ITU-R documents under the purview of WG 3, based on** [**5A/80**](http://www.itu.int/md/R15-WP5A-C-0080)

Working Group 3 considered the topic of the consequential revision of other ITU-R documents under its purview, as was raised in 5A/80, a contribution to a previous meeting. Considering its current work on the revision of Recommendation ITU-R M.2015, the development of the new Report on PPDR spectrum, and the possible consequential changes to both Report ITU-R M.2377 and Recommendation ITU-R M.1826, WG 3 determined that it was premature to undertake any further consequential changes until decisions on those documents were reached. WG 3 agreed to carry forward 5A/80 for discussion at the next meeting and, if no further contributions are received on this topic, to suspend carrying forward the document.

## 3.4 Other matters

### 3.4.1 Revision of Report ITU-R M.2377, “Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR)”

WG 3 considered input contributions [5A/233](https://www.itu.int/md/R15-WP5A-C-0233/en) and [423](https://www.itu.int/md/R15-WP5A-C-0423/en) (Telstra) which proposed restructuring of Report ITU‑R M.2377, “Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR)”. The WG noted that there was earlier agreement that, when the new Report on PPDR spectrum was completed, there would be a consequential revision of M.2377 to reflect the removal of Annexes 6 and 7, as was shown in the Workplan that was Attachment 4 to the WG 3 Report from the previous meeting. It was agreed that the restructuring proposed in 5A/233 and 423 would go beyond that earlier agreement. Therefore, the WG held informal discussions to explore the ideas presented in 5A/423 and to suggest a sequential approach to the possible restructuring.

### 3.4.2 Administrative issues

WG 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/oth/R0A06000001/en) and of Section 1 of Annex 1 in [5A/298](http://www.itu.int/md/R15-WP5A-C-0298%21N01%21MSW-E). No comments or suggestions were received from the meeting participants; so, the WG Chair provided no updates to the WP 5A Chairman.

### 3.4.3 Future work

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

– Finalize the preliminary draft new Report ITU-R M.[PPDR Spectrum]

– Finalize the consequential revision of Report ITU-R M.2377-0

– Finalize the revision of Recommendation ITU-R M.2015-1

– Consider possible suppression of Recommendation ITU-R M.1826

– Carry forward 5A/80 and suspend if there are no relevant inputs to the next meeting.

## 3.4 Conclusion

As noted above, contributions are particularly encouraged to the next meeting of Working Party 5A that would provide frequency arrangements for incorporation in the current draft revision of Recommendation ITU-R M.2015-1 using the proposed uniform structure provided in [Attachment 3 of Annex 3 of 5A/298](http://www.itu.int/md/R15-WP5A-C-0298%21N03%21MSW-E).

The WG Chairman would like to express sincere thanks to Mr. Shepard and Mr. Kershaw for their able leadership of the drafting groups and to all the participants of Working Group 3 for their contributions to the work at this meeting.

**Attachments:**

[Attachment 2](#att2): Workplan for preliminary draft new Report ITU-R M.[PPDR SPECTRUM] and consequential revision of Report ITU-R M.2377

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

## 4.0 Executive Summary

WG 5A-4 continued to develop the various working documents on WRC-19 agenda item 1.16 and related draft CPM text and liaison statements. WG 5A-4 furthermore developed liaison statements to other Working Parties regarding a number of WRC-19 agenda items. WG 5A-4 also continued its work on WRC-19 agenda item 9.1, Issue 9.1.5.

## 4.1 Introduction

Working Group 5A-4 met five times during the May 2017 meeting of Working Party 5A and considered 68 input and carried-forward contributions and developed 15 output documents.

## 4.2 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/10.

### 4.2.1 WRC-19 agenda item 1.9, issue 1.9.2

Input document: [5A/402](https://www.itu.int/md/R15-WP5A-C-0402/en) (Russian Federation)

WG 5A-4 held an initial discussion on the protection of systems in the mobile service from VDES and the proposals to revise the WP 5B working document and Recommendation ITU-R M.2092 as outlined in Document 5A/402. Taking into account that the work under this issue is carried out in WP 5B and that WP 5A should focus on contribution views from a land-mobile perspective, it was agreed to have joint discussions between the interested parties and experts from both Working Parties in a Drafting Group.

This Drafting group (DG PFD VDE-SAT Mask) was established to discuss the PFD mask proposed for the VDES satellite component (VDE-SAT) under consideration for WRC-19 agenda item 1.9, issue 1.9.2 WRC-19 to ensure protection of the mobile service in the frequency bands 156.0125-157.4375 MHz and 160.6125-162.0375 MHz. DG PFD VDE-SAT Mask met twice.

The discussion was started based on Document 5A/402 about the applicability of the existing PFD mask from Recommendation ITU-R M.2092-0 for protection of land mobile service systems in the VHF band as well as assumptions, technical parameters and protection criteria to provide assessment calculations. Some administrations proposed to take Recommendation ITU-R M.1808 as a basis for such an assessment (as it was done during preparation for WRC-15 agenda item 1.16 and in Recommendation M.2092-0). Some administrations indicated a position to use other ITU-R Recommendations or Reports to protect terrestrial services by applying coordination triggers as protection criteria or more relaxed masks to enable the introduction of the VDE-SAT system. In particular, it was proposed to use Report ITU-R M.2172-1. The example of Appendix 5, annex 1 was taken, since coordination thresholds are proposed in the RR between MSS and terrestrial systems in the 137-138 MHz band.

It was noted that a coordination process between two or many countries may allow relaxing the PFD limits for the satellite system taking into account certain frequency assignments, location and parameters of terrestrial stations compared with limits based on an I/N criteria of -6 dB. But the Russian and Chinese administrations raised strong concerns that a new allocation to the satellite service should guarantee the protection of the mobile service in general, i.e. for typical systems.

Parties did not reach a compromise on the approach (criteria) that should be used for the assessment calculations to ensure protection of mobile service. It was concluded that interested administrations should provide additional contributions to the next WP 5A meeting to elaborate requirements/limits for the proposed new satellite service to ensure the protection of the mobile service and liaise with WP 5B regarding the studies on WRC-19 agenda item 1.9, issue 1.9.2.

### 4.2.2 Sharing studies (general)

Input documents: 5A/[312](https://www.itu.int/md/R15-WP5A-C-0312/en) (WP 1A); 5A/[346](https://www.itu.int/md/R15-WP5A-C-0346/en) (WP 7D); 5A/[322](https://www.itu.int/md/R15-WP5A-C-0322/en) (WP 5B); 5A/[307](https://www.itu.int/md/R15-WP5A-C-0307/en) (SG 3); 5A[/349](https://www.itu.int/md/R15-WP5A-C-0349/en) (WP 7B); 5A/[294](https://www.itu.int/md/R15-WP5A-C-0294/en) (WP 5C); 5A/[308](https://www.itu.int/md/R15-WP5A-C-0308en) (WP 5C); [5A/348](https://www.itu.int/md/R15-WP5A-C-0348/en) (WP 7B); 5A/[136](https://www.itu.int/md/R15-WP5A-C-0136/en) (WP 1A); 5A[/296](https://www.itu.int/md/R15-WP5A-C-0296/en) (WP 5C); 5A/[339](https://www.itu.int/md/R15-WP5A-C-0339/en) (WP 6A)

WG 5A-4 took note of the information provided by a number of working parties on Sharing Methods, Sharing Characteristics, Propagation, Antennas and Wireless Power Transmission and did not see a need for futher action at this point in time.

### 4.2.3 Sharing schemes in the land mobile service

Input documents: 5A/[286](https://www.itu.int/md/R15-WP5A-C-0286/en) (WP 5C); 5A/[309](https://www.itu.int/md/R15-WP5A-C-0309/en) (WP 5B)

WG 5A-4 noted that WP 5B did not have any specific comments or additions to the current working document towards a preliminary draft new report ITU-R M.[GEO.SHARE] “Sharing schemes in the land mobile service on the basis of geographical use”. Furthermore, in response to the suggestion from WP 5C to add more practical implementation examples/scenarios in this report, input contributions are invited to the next meeting of WP 5A to provide material in that regard. Since no contributions proposing updates to the working document were received at this meeting, the working document remains unchanged as contained in the Chairman’s Report from the previous WP 5A meeting (Annex 28 to Document 5A/298).

### 4.2.4 Revision of Recommendation ITU-R SM.1448

Input document: 5A/[300](https://www.itu.int/md/R15-WP5A-C-0300/en) (WP 5B)

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

### 4.2.5 Working document ITU-R S.[INTERF.AREA]

Input document: 5A/[459](https://www.itu.int/md/R15-WP5A-C-0495/en) (WP 4A)

WG 5A-4 took note of the fact that WP 4A has decided to discontinue the work on this document.

### 4.2.6 Non-ionizing radiation

Input documents: 5A/[191](https://www.itu.int/md/R15-WP5A-C-0191/en) (ITU-D SG 2); 5A/[287](https://www.itu.int/md/R15-WP5A-C-0287/en) (WP 5C); 5A/[299](https://www.itu.int/md/R15-WP5A-C-0299/en) (WP 5B)

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

### 4.2.7 WRC-19 agenda item 1.3

Input documents: 5A/[329](https://www.itu.int/md/R15-WP5A-C-0329/en) (WP 5D); 5A/[351](https://www.itu.int/md/R15-WP5A-C-0351/en) (WP 7B)

Output document: 5A/TEMP/159 (LS to WP 7B)

WG 5A-4 took note of the comments from WP 5D to WP 7B and, in reply to the questions raised by WP 7B developed a reply liaison statement to provide additional clarification and information as requested by WP 7B.

### 4.2.8 WRC-19 agenda item 1.5

Input documents: 5A/[288](https://www.itu.int/md/R15-WP5A-C-0288/en) (WP 5C); 5A/[457](https://www.itu.int/md/R15-WP5A-C-0497/en) (WP 4A)

Output document: 5A/TEMP/176 (LS to WP 4A)

WG 5A-4 took note of the comments from WP 5C and, in reply to the questions raised by WP 4A developed a reply liaison statement to provide additional clarification and information as requested by WP 4A. This was based on the progress made in WG 5A-2 in updating their working document towards a preliminary draft new Recommendation ITU-R M.[MS-RXCHAR-28] “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”

### 4.2.9 WRC-19 agenda item 1.7

Input document: 5A/[356](https://www.itu.int/md/R15-WP5A-C-0356/en) (WP 7B)

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

### 4.2.10 WRC-19 agenda item 1.13

Input documents: 5A/[322](https://www.itu.int/md/R15-WP5A-C-0322/en) (WP 5B); 5A/[331](https://www.itu.int/md/R15-WP5A-C-0331/en) (WP 5D); 5A/[336](https://www.itu.int/md/R15-WP5A-C-0336/en) (WPs 3J, 3K, & 3M); 5A/[344](https://www.itu.int/md/R15-WP5A-C-0344/en) (Chairman, WP 6A); 5A/[352](https://www.itu.int/md/R15-WP5A-C-0352/en) (WP 7B); 5A/[357](https://www.itu.int/md/R15-WP5A-C-0357/en) (Chairmen, SG 3 and WPs 3J, 3K & 3M)

WG 5A-4 took note of the information provided by the various working parties to Task Group 5/1 and did not see a need for further action at this point in time.

### 4.2.11 WRC-19 agenda item 1.14

Input documents: 5A/[292](https://www.itu.int/md/R15-WP5A-C-0292/en) (WP 5C); 5A/[347](https://www.itu.int/md/R15-WP5A-C-0347/en) (WP 7B)

WG 5A-4 took note of ongoing liaison activity between WP 5C and WP 7B on this topic and did not see a need for further action at this point in time.

### 4.2.12 WRC-19 agenda item 9.1, issue 9.1.3

Input document: 5A/[461](https://www.itu.int/md/R15-WP5A-C-0461/en) (WP 4A)

Output document: 5A/TEMP/163 (LS to WP 4A)

WG 5A-4 developed a reply liaison statement to WP 4A to provide additional information and clarification on this topic as requested by WP 4A.

### 4.2.13 WRC-19 agenda item 9.1, Issue 9.1.6

Input document: 5A/[338](https://www.itu.int/md/R15-WP5A-C-0338/en) (WP 6A)

WG 5A-4 took note of the information provided by WPs 6A and did not see the need for futher action at this point in time.

### 4.2.14 WRC-19 agenda item 9.1, Issue 9.1.9

Input documents: 5A/[291](https://www.itu.int/md/R15-WP5A-C-0291/en) (WP 5C); 5A/[460](https://www.itu.int/md/R15-WP5A-C-0460/en) (WP 4A)

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

### 4.2.15 WRC-19 agenda item 9.1, Issue 9.1.5

Input documents: 5A/[379R1](https://www.itu.int/md/R15-WP5A-C-0379/en) (USA); 5A/[400](https://www.itu.int/md/R15-WP5A-C-0400/en) (Russian Federation); 5A/401 (Russian Federation); 5A/418 (France)

Output document: 5A/TEMP/158 (draft CPM text)

Based on the input contributions received, WG 5A-4 further developed the draft CPM text for WRC-19 agenda item 9.1, issue 9.1.5 using the version from the previous WP 5A meeting (Annex 12 to Document 5A/298) as a starting point.

### 4.2.16 WRC-19 agenda item 1.16

Input documents: 5A/[247](https://www.itu.int/md/R15-WP5A-C-0247/en) (UK); 5A/[252](https://www.itu.int/md/R15-WP5A-C-0252/en) (Japan); 5A/[290](https://www.itu.int/md/R15-WP5A-C-0290/en) (WP 5C); 5A/[295](https://www.itu.int/md/R15-WP5A-C-0295/en) (WP 5B); 5A/[337](https://www.itu.int/md/R15-WP5A-C-0337/en) (3K & 3M); 5A/[378](https://www.itu.int/md/R15-WP5A-C-0378/en) (USA); 5A/[380](https://www.itu.int/md/R15-WP5A-C-0380/en) (USA); 5A/[381](https://www.itu.int/md/R15-WP5A-C-0381/en) (USA); 5A/[391](https://www.itu.int/md/R15-WP5A-C-0391/en) (Japan); 5A[/393](https://www.itu.int/md/R15-WP5A-C-0393/en) (Japan); 5A/[395R1](https://www.itu.int/md/R15-WP5A-C-0395/en) (Globalstar); 5A/[397](https://www.itu.int/md/R15-WP5A-C-0397/en) (Russian Federation); 5A/[398](https://www.itu.int/md/R15-WP5A-C-0398/en) (Russian Federation); 5A/[399](https://www.itu.int/md/R15-WP5A-C-0399/en) (Russian Federation); 5A/[404](https://www.itu.int/md/R15-WP5A-C-0404/en) (Australia); 5A/[409](https://www.itu.int/md/R15-WP5A-C-0409/en) (Canada); 5A/419 (France); 5A/420 (France); 5A/421 (IARU); 5A/431 (China); 5A/[435](https://www.itu.int/md/R15-WP5A-C-0435/en) (France, Switzerland); 5A/[436](https://www.itu.int/md/R15-WP5A-C-0436/en) (France, Germany, Norway, Switzerland); 5A/[442](https://www.itu.int/md/R15-WP5A-C-0442/en) (Luxemburg); 5A/[443](https://www.itu.int/md/R15-WP5A-C-0443/en) (Luxemburg); 5A/[449](https://www.itu.int/md/R15-WP5A-C-0449/en) (Yahsat); [5A/450](https://www.itu.int/md/R15-WP5A-C-0450/en) (Yahsat); 5A/462 (WP 4A)

Output documents: 5A/TEMP/166 (LS to WP 3K & WP 3M); 5A/TEMP/167 (LS to WP 4A); 5A/TEMP/172 (workplan); 5A/TEMP/168 (working doc RLAN measurements); 5A/TEMP/171 (working doc RLAN sharing); 5A/TEMP/170 (working doc RLAN req. & par.); 5A/TEMP/169 (working doc RLAN mitigation); 5A/TEMP/164 (compilation of technical information); 5A/TEMP/165 (draft CPM text); 5A/TEMP/200 (LS to WP 5B)

WG 5A-4 continued the work under WRC-19 agenda item 1.16 in a dedicated sub-working group chaired by Hector MARIN (MEX). The SWG met 8 times and formed two Drafting Groups chaired by Otsuki SHINYA (J) and Jicheng FANG (CHN) to progress the work on the working documents on RLAN sharing and RLAN requirements & parameters which met 4 times each.

Based on the above input contributions, the draft CPM text, the working documents and the workplan as contained in the Chairman’s Report from the previous meeting were updated. Due to lack of time and the number of input contributions, it was not possible to review every proposed edit in detail and Editor’s Notes have been inserted into the documents to clearly indicate the status of the discussion for each item. It was also decided to carry forward document 5A/252 to the next WP 5A meeting for further consideration. Furthermore, liaison statements to WPs 3K and WP 3M, as well as WP 4A and WP 5B were developed to seek advice from these groups.

### 4.2.17 90 GHz RSTT coexistence

Input document: 5A/[385](https://www.itu.int/md/R15-WP5A-C-0385/en) (Japan)

Output document: 5A/TEMP/193 (working document)

WG 5A-4 initiated a new working document towards a preliminary draft new Report ITU-R M.[90-GHz.RSTT.COEXIST] on “Coexistence between railway radiocommunication system between train and trackside operating in the frequency bands 92-94 GHz, 94.1-100 GHz and 102‑109.5 GHz, and active and passive services” based on work that had previously been carried out in WG 5A-2.

Since WG 5A-2 concluded at this WP 5A meeting, that the coexistence part of this work should not be continued under the WRC-19 agenda item 1.11 activities but rather carried over to WG 5A-4 as general sharing and coexistence work, WG 5A-4 created the initial version of the working document based on the material from WG 5A-2 and will discuss further at the next WP 5A meeting on how to best handle this work going forward.

## 4.3 Revision of WP 5A texts

WG 5A-4 reviewed Section 1 of Annex 1 to Document 5A/298 and the Guide to the use of ITU-R texts relating to the land mobile service and did not see the need for any changes or updates.

## 4.4 Objectives for the next WP 5A meeting

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

– Continue to the work under WRC-19 agenda item 1.16 and the related work on the RLAN mitigation techniques and sharing studies.

– Continue to the work on the draft CPM text for WRC-19 agenda item 9.1, Issue 9.1.5.

– Create a working document for the revision of Report ITU-R M.2116.

– Continue work on the working document on sharing schemes in the land mobile service.

– Consider how to best handle the work on 90 GHz RSTT coexistence.

## 4.5 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 Hector Marin for continuing in his role as SWG Chair for WRC-19 agenda item 1.16.

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

Working Group 5A-5 (WG 5A-5) met nine times during the 18th meeting of ITU-R WP 5A from 22nd May to 1st June, 2017. Around 90 delegates from Australia, Germany, Canada, China, France, Ghana, Italy, Japan, Korea, Luxemburg, The Netherlands, Russian Federation, Singapore, Sweden, South Africa, Thailand, United Arab Emirates, United Kingdom, USA, Ericsson, Intel, Microsoft, Qualcomm and Robert Bosch participated in the meetings. The tasks assigned to WG 5A-5 address new technologies.

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

|  |  |
| --- | --- |
| – AI 1.12 (ITS, Res. 237) | Documents 5A/[298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 8](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N08!MSW-E) & [Annex 9](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N09!MSW-E) (WP 5A); [382](http://www.itu.int/md/R15-WP5A-C-0382) (Thailand); [433](http://www.itu.int/md/R15-WP5A-C-0433) (China); [444](http://www.itu.int/md/R15-WP5A-C-0444) (Luxemburg); [455](http://www.itu.int/md/R15-WP5A-C-0455) (WP 4A) |
| – Intelligent transport system (ITS) (Q. 205-5/5) | ITS Usage: Documents 5A/[298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 30](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N30!MSW-E) (WP 5A); [362](http://www.itu.int/md/R15-WP5A-C-0362) (APT); [370](http://www.itu.int/md/R15-WP5A-C-0370) (USA);[392](http://www.itu.int/md/R15-WP5A-C-0392) (Japan, Singapore); [422](http://www.itu.int/md/R15-WP5A-C-0422) (Telstra); [446](http://www.itu.int/md/R15-WP5A-C-0446) (Germany)ITS: Documents 5A/[371](http://www.itu.int/md/R15-WP5A-C-0371) (USA); [372](http://www.itu.int/md/R15-WP5A-C-0372) (USA); [407](http://www.itu.int/md/R15-WP5A-C-0407) (Canada); [447](http://www.itu.int/md/R15-WP5A-C-0447) (CEPT CPG PTD)V2X: Documents 5A/[303](http://www.itu.int/md/R15-WP5A-C-0303) (3GPP PCG); [359](http://www.itu.int/md/R15-WP5A-C-0359) (3GPP TSG RAN); [369](http://www.itu.int/md/R15-WP5A-C-0369) (Singapore)76-81 GHz: Document 5A/[319](http://www.itu.int/md/R15-WP5A-C-0319) (WP 5B)Handbook: Document 5A/[428](http://www.itu.int/md/R15-WP5A-C-0428) (Korea)  |
| – AI 1.15 (Above 275 GHz, Res. 767) | Documents 5A/[285](http://www.itu.int/md/R15-WP5A-C-0285) (WP 5C); [298](http://www.itu.int/md/R15-WP5A-C-0298/en) [Annex 29](http://www.itu.int/md/dologin_md.asp?lang=en&id=R15-WP5A-C-0298!N29!MSW-E) (WP 5A); [313](http://www.itu.int/md/R15-WP5A-C-0313) (WP 1A); [320](http://www.itu.int/md/R15-WP5A-C-0320) (3GPP); [335](http://www.itu.int/md/R15-WP5A-C-0335) (WPs 3J, 3K, 3M); [345](http://www.itu.int/md/R15-WP5A-C-0345) (WP 7D); [355](http://www.itu.int/md/R15-WP5A-C-0355) (WP 7C); [375](http://www.itu.int/md/R15-WP5A-C-0375) (IEEE); [389](http://www.itu.int/md/R15-WP5A-C-0389) (Japan) |
| – /9.1.8 (MTC, Res. 958) | Documents 5A/[305](http://www.itu.int/md/R15-WP5A-C-0305) (ETSI TC ERM); [321](http://www.itu.int/md/R15-WP5A-C-0321) (3GPP); [350](http://www.itu.int/md/R15-WP5A-C-0350) (ITU-T JCA-IoT & SC & C); [361](http://www.itu.int/md/R15-WP5A-C-0361) (3GPP TSG RAN); [363](http://www.itu.int/md/R15-WP5A-C-0363) (APT); [445](http://www.itu.int/md/R15-WP5A-C-0445) (Germany) |
| – CRS/ Dynamic Access –Technology | Documents 5A/[301](http://www.itu.int/md/R15-WP5A-C-0301) (ITU-D SG 1); [317](http://www.itu.int/md/R15-WP5A-C-0317) (WP 1B); [318](http://www.itu.int/md/R15-WP5A-C-0318) (WP 1B); [327](http://www.itu.int/md/R15-WP5A-C-0327) (WP 5D); [367](http://www.itu.int/md/R15-WP5A-C-0367/en) (RAG); [453](http://www.itu.int/md/R15-WP5A-C-0453/en) (TDAG); [454](http://www.itu.int/md/R15-WP5A-C-0454/en) (ITU-D SG 1, ITU-R/ITU-T JG on WTDC Res.9) |

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

|  |  |
| --- | --- |
| SWG/DG (Chairperson) | Terms of Reference |
| SWG 5A-5-1 – ITS: Intelligent Transport System(Mr. Satoshi Oyama, Japan) | – Develop a draft CPM Text outline for WRC-19 AI 1.12– Update work plan for WRC-19 A.I. 1.12– Develop a working document toward a draft new Report ITU-R M.[ITS USAGE] on Intelligent transport systems usage report in ITU-R member countries.– Initiate work on a working document towards preliminary draft new Recommendation on ITU-R M.[ITS\_FRQ]– Initiate work on a Revision of Recommendation on ITU-R M.1890– Initiate work on a working document towards the Preliminary Draft Revision of Recommendation ITU-R M.2084-0– Develop an outline for preliminary draft revision of Land Mobile Handbook – vol.4 (ITS), 2006 |
| DG 5A-5-1-1 – WRC-19 Agenda Item 1.12(Mr. Tom Schaffnit, USA) | – Continue working on draft CPM Text– Initiate work on a working document towards preliminary draft new Recommendation on ITU-R M.[ITS\_FRQ] |
| DG 5A-5-1-1 – ITS Usage(Ms. Bettina Erdem, Germany) | – Develop a working document towards a preliminary draft new Report ITU-R M.[ITS USAGE] |
| DG 5A-5-1-3 – M.2084(Mr. Andy Phang, Singapore) | – Initiate work of the Preliminary Draft Revision of Recommendation ITU-R M.2084-0;– Liaise with external organization requesting for updated information on technical standards characteristics |
| DG 5A-5-1-4 – LMH-ITS(Mr. HyunSeo Oh, Korea) | – Develop an outline for preliminary draft revision of Land Mobile Handbook – vol.4 (ITS), 2006 |

The other issues were directly considered by the meetings of WG 5A5.

SWG 5A-5-1 ITS and DG 5A-5-1-1on WRC-19 agenda item 1.12, DG 5A-5-1-2 on ITS Usage, DG 5A-5-1-3 on M.2084 and DG 5A-5-1-4 on LMH ITS met twelve times during the 18th meeting of WP 5A.

## 5.1 Executive summary

WG 5A-5 continued its work on the development of a preliminary draft new Report ITU-R M.[300GHz\_MS\_CHAR] on technical and operational characteristics of the land mobile service in the frequency range 275-450 GHz.

WG 5A-5 initiate its work on the development of the working document towards preliminary draft new Report ITU-R M.[IoT/M2M\_USAGE] on technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT)

WG 5A-5 continued its work on WRC-19 agenda item 1.12 (ITS, Resolution **237 (WRC-15)**), and working on a draft CPM Text and updated work plan for this agenda item.

WG 5A-5 initiated to develop a working document toward a preliminary draft new Recommendation ITU-R M.[ITS FRQ] of harmonization of frequency arrangements for Intelligent Transport Systems in the mobile service.

WG 5A-5 initiated to develop a working document toward a preliminary draft revision of Recommendation ITU-R M.1890 of operational radiocommunication objectives and requirements for advanced intelligent transport systems.

WG 5A-5 continued to develop a working document toward a preliminary draft new Report ITU-R M.[ITS USAGE] of intelligent transport systems usage report in ITU-R member states.

WG 5A-5 initiated to develop a 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 initiated to develop an outline toward a revision outline of Land Mobile Handbook, Vol.4 – Intelligent Transport Systems.

## 5.2 Intelligent transport system (ITS)

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

1 Preliminary draft CPM text for WRC-19 A.I. 1.12 (Document 5A/TEMP/177).

2 Draft work plan for WRC-19 A.I. 1.12 (Document 5A/TEMP/178R1)

3 A working document toward a preliminary draft new Recommendation ITU-R M.[ITS FRQ] of harmonization of frequency arrangements for Intelligent Transport Systems in the mobile service (Document 5A/TEMP/179);

4 A working document toward a Preliminary Draft Revision of Recommendation ITU-R M.1890 of operational radiocommunication objectives and requirements for advanced intelligent transport systems (Document 5A/TEMP/181);

5 A working document toward a preliminary draft new Report M.[ITS USAGE] of Intelligent Transport Systems Usage Report in ITU Member States (Document 5A/TEMP/180);

6 A 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/140R2));

7 Outline toward a revision of Land Mobile Handbook vol.4 - Intelligent Transport Systems (Document 5A/TEMP/182R1); and

8 Liaison Statement to external organizations: Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications (Document 5A/TEMP/141R1).

WG 5A-5 considered these input contributions and recognized that it is needed to develop some texts from information contained in these contributions in order to include these useful information in Report ITU-R M.[ITS USAGE] and a draft CPM text on WRC-19 agenda item 1.12.

WG 5A-5 considered an input contribution (Document [5A/447](http://www.itu.int/md/R15-WP5A-C-0228/en)) and agreed to develop a working document towards a preliminary draft new recommendation ITU-R M.[ITS FRQ] related to WRC‑19 agenda item 1.12 (Document 5A/TEMP/179). During the meeting, it was pointed out that the current working document was developed base on the contribution (Document [5A/447](http://www.itu.int/md/R15-WP5A-C-0228/en)) which was developed within CEPT and therefore contains only information based on frequency ranges in CEPT. WG 5A-5 invites contributions to the next WP 5A meeting from other countries or regions in order to further develop the working document

WG 5A-5 also considered an input contribution (Document [5A/407](https://www.itu.int/md/R15-WP5A-C-0407/en)) and agreed to create a revision of Recommendation ITU-R M.1890 of operational radiocommunication objectives and requirements for advanced intelligent transport systems (Document 5A/TEMP/181), instead of proposed new Recommendation ITU-R M.[ITS.OBJ-REQ]. WG 5A-5 also developed its workplan for revision of Recommendation ITU-R M.1890-0 on operational radiocommunication objectives and requirements for advanced intelligent transport systems ([Attachment 3](#att3)).

WG 5A-5 considered eleven contributions and further developed working document towards a preliminary draft new Report ITU-R M.[ITS USAGE] (Document 5A/TEMP/180R1). WG 5A-5 also revised work plan for the Report ITU-R M.[ITS USAGE] ([Attachment 4](#att4)). WG 5A-5 agreed to develop a 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/140R2). WG 5A-5 created its workplan for preliminary draft Revision of Recommendation ITU-R M.2084-0 ([Attachment 5](#att5)).

Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications 5A-5 also developed a liaison statement to external organizations (EO) of ITU (Document 5A/TEMP/141R1).

Regarding the revision of the handbook volume 4 "Intelligent Transport Systems" of the Land Mobile Handbook (LMH), an input contribution (Document 5A/428) provided draft contents to this meeting. SWG 5A5-1 (ITS) developed a document on an outline toward a revision of Land Mobile Handbook, Vol. 4 – Intelligent Transport Systems (Document 5A/TEMP/182R1). WG 5A-5 created its workplan for Revision of Land Mobile Handbook – Vol. 4 Intelligent Transport Systems ([Attachment 6](#att6)).

Regarding revision of Recommendation [ITU-R M.2057](http://www.itu.int/rec/R-REC-M.2057/en) ‘systems characteristics of automotive radars operating in the frequency band 76-81 GHz for intelligent transport systems applications’, it was noted that Robert Bosch reported the result of considerations on contribution (Document 5B/264) and WP 5B developed a Liaison Statement to WP 5A (Document 5B/TEMP/113) with attachment of preliminary draft revision of Recommendation ITU-R M.2057-0 (Document 5B/TEMP/108), which was accepted by WP 5B.

## 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 continued its work on technical and operational characteristics of the land mobile service in the frequency range 275-450 GHz. Based on input contributions (Documents 5A/375 and 389), WG 5A-5 updated the working document towards a preliminary draft new Report ITU-R M.[300GHz\_MS\_CHAR] on technical and operational characteristics of the land mobile service in the frequency range 275-450 GHz. WG 5A‑5 agreed that the working document be upgraded to Preliminary Draft New Report so that it can be finalized at the next WP 5A meeting in November 2017 (Document 5A/TEMP/156R1).

WG 5A-5 also considered liaison statements (Documents 5A/[313](http://www.itu.int/md/R15-WP5A-C-0313) and [355](http://www.itu.int/md/R15-WP5A-C-0355)) and developed a liaison statement back to WPs 1A and 7C to provide information on technical and operational characteristics, as well as spectrum needs of LMS applications operating in the frequency band 275-450 GHz so that WP 1A can fully address the issues pertinent to WRC-19 agenda item 1.15 (Document 5A/TEMP/149R1). A workplan for the development of the Report was also developed ([Attachment 7](#att7)).

WG 5A-5 further considered other liaison statements (Documents 5A/[285](http://www.itu.int/md/R15-WP5A-C-0285) (WP 5C), [320](http://www.itu.int/md/R15-WP5A-C-0320) (3GPP), [335](http://www.itu.int/md/R15-WP5A-C-0335) (WPs 3J, 3K and 3M), and [345](http://www.itu.int/md/R15-WP5A-C-0345) (WP 7D)) and decided not to send reply liaison statements for the liaison statements. These liaison statements were finally noted.

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

WG 5A-5 initiated its work on the development of the working document towards a preliminary draft new Report ITU-R M.[IoT/M2M\_USAGE] on technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT) (Document 5A/TEMP/142R2). WG 5A-5 also developed its workplan for the development of Report ITU-R M.[IoT/M2M\_USAGE] ([Attachment 8](#att8)).

WG 5A-5 also developed a liaison statement to WPs 1B and 5D on the Report ITU-R M.[IoT/M2M\_USAGE] (Document 5A/TEMP/173R1). The liaison statement also provided the target completion date of the Report.

WG 5A-5 received a liaison statement from ETSI TC ERM on technical and operational characteristics of digital land mobile related to WIA (Wireless Industry Applications) (Document [5A/305](http://www.itu.int/md/R15-WP5A-C-0305)). The material in the liaison statement was considered together with an input contribution from Germany (Document [5A/445](http://www.itu.int/md/R15-WP5A-C-0445)) for the development of the Report ITU-R M.[IoT/M2M\_USAGE]. WG 5A-5 received liaison statements from 3GPP (Documents [5A/321](http://www.itu.int/md/R15-WP5A-C-0321) and [5A/361](http://www.itu.int/md/R15-WP5A-C-0361)), APT (Document [5A/363](http://www.itu.int/md/R15-WP5A-C-0363)) and ITU-T JCA-IoT & SC C (Document [5A/350](http://www.itu.int/md/R15-WP5A-C-0350)). WG 5A-5 noted these liaison statements.

## 5.5 Cognitive Radio System (CRS) and Dynamic Spectrum Access (DSA)

WG 5A-5 received liaison statements from ITU-D SG1 (Document [5A/301](http://www.itu.int/md/R15-WP5A-C-0301)), WP 1B (Document [5A/317](http://www.itu.int/md/R15-WP5A-C-0317)), RAG (Document [5A/367](http://www.itu.int/md/R15-WP5A-C-0367)), TDAG (Document [5A/453](http://www.itu.int/md/R15-WP5A-C-0453)), as well as, ITU-D SG1 and ITU‑R/ITU-T Joint Group on WTDC Resolution 9 (Document [5A/454](http://www.itu.int/md/R15-WP5A-C-0454)) on WTDC Resolution 9 Report. WG 5A-5 noted these liaison statements.

WG 5A-5 received a liaison statement from WP 1B seeking WP 5A’s comment on WP 1B’s working document towards a preliminary draft new Report ITU-R SM.[CRS SPECTRUM MANAGEMENT CHALLENGES]. WG 5A-5 reviewed the WP 1B’s working document and developed a reply liaison statement conveying a comment on the document (Document 5A/TEMP/174R1). WG 5A-5 received and noted a liaison statement from WP 5D having been sent as a copy for information.

## 5.6 Review of ITU-R texts

WG 5A-5 reviewed ITU-R texts pertinent to WG 5A-5 in Annex 1 to Doc. [5A/298](http://www.itu.int/md/R15-WP5A-C-0298/en) (WP 5A).

There were no views on suppression or revision about 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 the Guide to the use of ITU-R texts related to the land mobile service. There was no comment on the Guide.

## 5.7 Future work

WG 5A-5 continues its work on the development of the preliminary draft new Report ITU-R M.[300GHz\_MS\_CHAR] on technical and operational characteristics of the land mobile service in the frequency range 275-450 GHz with a view to sending it to SG 5 for approval.

WG 5A-5 continues its work on the development of the working document towards preliminary draft new Report ITU-R M.[IoT/M2M\_USAGE] on technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT).

WG 5A-5 continues to develop the working document toward a preliminary draft new Recommendation ITU-R M.[ITS FRQ].

WG 5A-5 continues to develop the working document toward a Preliminary Draft Revision of Recommendation ITU-R M.1890

WG 5A-5 continues to develop the working document towards a preliminary draft new Report ITU‑R M.[ITS USAGE].

WG 5A-5 continues to develop the working document toward a Preliminary Draft Revision of Recommendation ITU-R M.2084-0

WG 5A-5 continues to develop the update of the handbook volume 4 "Intelligent Transport Systems" of the Land Mobile Handbook (LMH).

Finally WG 5A-5 Chairman would like to thank Sub-Working Group Chairperson Mr Satoshi Oyama, and Drafting Group Chairpersons Mr Tom Schaffnit, Ms Bettina Erdem, Mr Andy Phang and Mr HyunSeo Oh for their excellent chairmanship and all participants for their contribution to work of the group.

 Hitoshi Yoshino,
 Chairman, WG 5A-5

**Attachments:**

[Attachment 3](#att3): Work plan for preliminary draft revision of Recommendation ITU-R M.2084-0 “Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications”

[Attachment 4](#att4): Draft work plan for revision of the land mobile handbook – vol.4 intelligent transport systems.

[Attachment 5](#att5): Work plan for preliminary draft revision of Recommendation ITU-R M.2084-0 “Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications”

[Attachment 6](#att6): Draft work plan for revision of the land mobile handbook – vol.4 intelligent transport systems.

[Attachment 7](#att7): Work plan for the development of the preliminary draft new Report ITU-R M.[300GHZ\_MS\_CHAR] on technical and operational characteristics of the land mobile service applications operating in the frequency range 275-450 GHz.

[Attachment 8](#att8): Work plan for the development of the preliminary draft new Report ITU-R M.[IOT/M2M\_usage] on technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT).

Attachment 1 to Annex 3

Workplan for a preliminary draft new Report ITU-R M.[CDLMR]

(Source: Document 5A/TEMP/155)

|  |  |
| --- | --- |
| **Title** | Workplan for a preliminary draft new Report “Conventional Digital Land Mobile Radios” |
| **Identifier** | CDLMR |
| **WP 5A Lead Group** | Working Group 2: Systems and standards |
| **DG Chair** | Mr. David Tejeda, Mexico **E-mail:** david.tejeda@ift.org.mx  |
| **Focus for scope and work** | This Report deals with the technical and operational characteristics of conventional digital land mobile radio systems that provide capabilities required for specific user groups/applications, such as governmental, mining, health, hospitality, transportations, disaster relief , industrial, manufacturing, construction, etc.Issues relating to PPDR are covered in Report ITU-R M.2009, Report ITU-R M.2377 and Recommendation ITU-R M.2015Issues relating to PLMR for dispatch applications are covered in Report ITU-R M.2014. |
| **Related documents** | Question ITU-R 37-6/5Report ITU-R M.2014[Others] |
| **Milestones** | **16th Meeting of WP 5A (May, 2016)**1. Discuss and develop details of scope of work and work plan2. Outline the structure of working document3. Develop liaison statements as appropriate **17th Meeting of WP 5A (November, 2016)**1. Consider the received input contributions2. Continue to develop the working document 3. Review the work plan if needed5. If necessary, develop liaison statements as appropriate**18th Meeting of WP 5A (May, 2017)**1. Consider the received input contributions2. Review and discuss received contributions 3. Continue to develop a working document4. Review the work plan if needed5. Consider the need for a questionnaire and approve if agreed5. If necessary, develop liaison statements as appropriate**19th Meeting of WP 5A (November, 2017)**1. Consider the received input contributions2. Review and discuss received contributions3. Stabilize the contents of working document4. Promote the working document to a PDNR **20th Meeting of WP 5A (May, 2018)**1. Consider the received input contributions2. Finalize the Report and submit to SG 5 for approval |

Attachment 2 to Annex 3

Workplan for the preliminary draft new Report ITU-R M.[PPDR SPECTRUM] and consequential revision of Report ITU-R M.2377

(Source: Attachment 4 to Annex 3 of Document 5A/298)

1) 16th meeting of WP 5A May 2016

a) initiate development of a working document towards a preliminary draft new (PDN) Report ITU-R M.[PPDR SPECTRUM];

b) develop a workplan;

c) liaise the workplan to relevant groups and external organizations, as appropriate.

2) 17th meeting of WP 5A November 2016

a) further develop working document towards a PDN Report ITU-R M.[PPDR SPECTRUM];

b) liaise with relevant groups and external organization, as appropriate.

3) 18th meeting of WP 5A May 2017

a) further develop and elevate to PDN Report ITU-R M.[PPDR SPECTRUM] for WP 5A agreement;

b) initiate consequential changes to Report ITU-R M.2377;

c) liaise with relevant groups, as appropriate.

4) 19th meeting of WP 5A November 2017

a) finalize draft revision of Report ITU-R M.2377 and submit for SG 5 approval;

b) submit draft Report ITU-R M.[PPDR SPECTRUM] for SG 5 approval;

c) liaise with relevant groups, as appropriate.

ATTACHMENT 3 TO ANnEX 3

Revision of Recommendation ITU-R M.1890-0 on operational radiocommunication objectives and requirements for advanced intelligent transport systems

|  |  |
| --- | --- |
| **Title** | Revision of Recommendation ITU-R M.1890-0 on Operational radiocommunication objectives and requirements for advanced intelligent transport systems  |
| **Document type** | Recommendation |
| **WP 5A Lead Group** | WG 5 New Technologies  |
| **SWG Chairman** | Satoshi (Sam) Oyama (J) |
| **Editor** | Satoshi (Sam) Oyama (J) |
| **Focus for scope and work** | The Recommendation is being updated to include operational radiocommunication objectives and requirements for advanced intelligent transport systems (ITS). Amendments to the title and structure of the Recommendation have been made as well to align with the mandatory format for new and revised Recommendations as per [Resolution ITU-R 1-7](http://www.itu.int/pub/R-RES-R.1). |
| **Related Documents** |  |
| **Milestones** | **18th meeting (May 2017)**– Develop and adopt work plan– Carry forward the working document toward a Revision of Recommendation ITU-R M.1890-0 **19th meeting (November 2017)**– Continue developing working document toward a Revision of Recommendation ITU-R M.1890-0– Liaise as needed with concerned and interested organizations on development of the Revision of Recommendation ITU-R M.1890-0– Update work plan as needed **20th meeting (March 2018)**– Development of the Revision of Recommendation ITU-R M.1890-0 – Finalize Revision of Recommendation and submit to SG 5 meeting for approval  |

Attachment 4 TO ANnEX 3

Work plan for the development of a new Report ITU-R M.[ITS USAGE] on the usage of intelligent transport systems in ITU-R member states

Source: Doc. 5A/736 - Attachment 2 to Annex 3 (July, 2015)

|  |  |
| --- | --- |
| **Title** | Workplan for the development of a new Report ITU-R M.[ITS USAGE] on the usage of intelligent transport systems in ITU-R member states |
| **Document type** | Report |
| **WP 5A Lead Group** | WG 5 New Technologies  |
| **SWG Chairman** | Satoshi (Sam) Oyama (J) |
| **Editor** | Ms. Bettina Erdem (D) |
| **Focus for scope and work** | This Report addresses the usages of ITS radiocommunication applications, such as vehicle to infrastructure, vehicle to vehicle, vehicle to pedestrian communications for road safety applications and vehicular radars for collision avoidance in ITU Member States. |
| **Related Documents** |  |
| **Milestones** | **13th meeting (May 2014)**– Develop and adopt work plan– Carry forward the framework of working document toward a PDN Report **14th meeting (November 2014)**– 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.**15th meeting (July 2015)**– 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**16th meeting (May 2016)**– 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**17th meeting (November 2016)**– 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**18th meeting (May 2017)**– 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 **19th meeting (November 2017)**– 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 **20th meeting (March 2018)**– Development of the DN Report – Finalize Report and submit to SG 5 meeting for approval (Relevant parts thereof maybe referenced in the CPM text) |

Attachment 5 TO ANnEX 3

Work plan for Preliminary draft Revision of Recommendation ITU-R M.2084-0

**Radio interface standards of vehicle-to-vehicle and vehicle-to-infrastructure communications for Intelligent Transport System applications**

| Working Party 5A/Meeting | Work plan |
| --- | --- |
| 18th meetingMay 2017 | WP 5A, based on input contributions, develop and adopt a work plan, including:– update of the Preliminary Draft Revision of Recommendation ITU-R M.2084-0;– liaise with external organization requesting for updated information on technical standards characteristics  |
| 19th meeting[November 2017] | WP 5A, based on input contributions, – finalise updating work on Draft Revision of Recommendation ITU-R M.2084-0 based on updated technical standards characteristics information received; – submit to SG 5 meeting for adoption |

Attachment 6 TO ANnEX 3

**Draft work plan for revision of Land Mobile Handbook –
Vol.4 Intelligent Transport Systems**

| Working Party 5A/Meeting | Work plan |
| --- | --- |
| 18th meetingMay 2017 | – propose the outline for preliminary draft revision of Land Mobile Handbook – vol.4 (ITS), 2006  |
| 19th meeting[November 2017] | – develop the introduction and ITS service part for preliminary draft revision of ITS Handbook – develop the template for annex part for revision of ITS Handbook for circulation to ITU members  |
| 20th meeting[March 2018] | – develop ITS system, radio communication and frequency assignment, standardization part for preliminary draft revision of ITS Handbook– develop an annex part for revision of ITS Handbook based on ITU members contributions  |
| 21st meeting[November 2018] | – develop overall contents of the revision of ITS Handbook – develop and annex part of revision of ITS Handbook based on ITU members contribution  |
| 21th meeting[May 2019] | – complete the preliminary draft revision of ITS Handbook |

Attachment 7 TO ANnEX 3

Work plan for the development of the preliminary draft new Report ITU-R M.[300GHZ\_MS\_CHAR] on technical and operational characteristics of the land mobile service applications operating in the frequency range 275-450 GHz

|  |  |
| --- | --- |
| **Title** | Technical and operational characteristics of the land mobile service applications operating in the frequency range 275-450 GHz |
| **Identifier** | Report ITU-R M.[300GHZ\_MS\_CHAR] |
| **Document type** | Report |
| **WP 5A5 Lead Group** | WG 5A5 New Technology |
| **WG 5A5 Chair** | Hitoshi Yoshino; **E-mail:** hitoshi.yoshino@g.softbank.co.jp  |
| **Editor** | TBD |
| **Focus for scope and work** | This Report will provide the land mobile service applications and their technical and operational characteristics operating in the frequency range 275-450 GHz for sharing and compatibility studies between land mobile service applications and passive services, as well as among active services in the frequency range 275-450 GHz. |
| **Related documents** | TBD |
| **Milestones** | **Meeting No. 18 (22 May – 1 June 2017, Geneva, Switzerland)**1 Develop working document towards preliminary draft new Report ITU-R M.[300GHZ\_MS\_CHAR], and elevate a PDNReport2 Review and revise the work plan as appropriate3 Liaise as appropriate to WP 1A and WP 7C**Meeting No. 19 ([06-16] November 2017, Geneva, Switzerland)**1 Finalise PDN Report ITU-R M.[300GHZ\_MS\_CHAR] and send it to SG 5 for approval2 Liaise as appropriate to WP 1A |

Attachment 8 TO ANnEX 3

Work plan for the development of the preliminary draft new Report ITU-R M.[IOT/M2M\_usage] on technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT)

|  |  |
| --- | --- |
| **Title** | Technical and operational aspects of Internet of Things and Machine-to-Machine applications by systems in the Mobile Service (excluding IMT) |
| **Identifier** | Report ITU-R M.[IOT/M2M\_usage] |
| **Document type** | Report |
| **WP 5A5 Lead Group** | WG 5A5 New Technology |
| **WG 5A5 Chair** | Hitoshi Yoshino; **E-mail:** hitoshi.yoshino@g.softbank.co.jp  |
| **Editor** | TBD |
| **Focus for scope and work** | This report will provide information on the technical and operational aspects of Machine Type Communications (MTC) including Internet of Things (IoT)/Machine to Machine (M2M) applications by systems in the Mobile Service (excluding IMT). This report will also provide information on the existing and planned/future usage of Mobile Service frequency bands by IoT/M2M applications. |
| **Related documents** | TBD |
| **Milestones** | **Meeting No. 18 (22 May – 1 June 2017, Geneva, Switzerland)**1 Initiate development of working document towards preliminary draft new Report ITU-R M.[ IOT/M2M\_usage]2 Review and revise the work plan as appropriate3 Liaise as appropriate to WP 5D and WP 1B**Meeting No. 19 (06-16 November 2017, Geneva, Switzerland)**1 Develop and stabilise working document towards PDN Report ITU-R M.[ IOT/M2M\_usage] 2 Upgrade to PDN Report ITU-R M.[IOT/M2M\_usage]3 Review and revise the work plan as appropriate4 Liaise as appropriate to WP 1B5 Liaise to WP 5D with stable information so that WP 5D can update the CPM text on agenda item 9.1, issue 9.1.8.**Meeting No. 20 ([May 2018], [TBD])**1 Finalise PDN Report ITU-R M.[IOT/M2M\_usage]2 Upgrade to DN Report ITU-R M.[IOT/M2M\_usage] 3 Liaise as appropriate to WP 1B4 Liaise to WP 5D with final information so that WP5D can update the CPM text on agenda item 9.1, issue 9.1.8. |