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**APT Wireless Group Work Plan**

Updated at

The 31st Meeting of APT Wireless Group

22 - 26 May 2023

**Contents**

|  |  |  |
| --- | --- | --- |
| **Sl** | **Topic** | **Page** |
| 1 | AWG Structure | 3 |
| 2 | Terms of Reference of the AWG Working Groups | 4 |
| 3 | Terms of Reference of AFIS Ad-Hoc Group | 5 |
| 4 | Terms of Reference of the Sub-Working Groups and Task Groups | 6 |
| 5 | Focus of AWG Works for the period of 2021-2023 | 11 |
| 6 | List of the Office Bearers | 12 |
| 7 | Micro Work Plan | 14 |
| 8 | Summary of Work Plan Status | 43 |

# 1. AWG STRUCTURE:

AWG consists of Plenary and four Working Groups (WGs). The Sub-Working Groups (SWGs) and Task Groups (TGs) are formed under the WGs. The revised structure of AWG was approved at AWG-28 (held virtually from 6 to 14 September 2021) and effective from AWG-29 (held virtually from 21 to 29 March 2022). Later, at AWG-30 (held in Bangkok, Thailand from 5 to 9 September 2022), SWG SAT has been elevated from TG SAT and new TG WAS/RLAN has been formed.

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| **Working Group on Harmonization**  **(WG-HAR)** | **Working Group on IMT**  **(WG-IMT)** | **Working Group on**  **Terrestrial**  **(WG-TER)** | **Working Group on**  **Space, Aeronautical and Maritime**  **(WG-SAM)** |
| Sub-Working Group on Spectrum Arrangement and Harmonization  (SWG-SA&H) | Sub-Working Group on  IMT Spectrum  (SWG-IMT SPEC) | Task Group on Fixed Wireless and Ground-Based Radar Systems  (TG-FWS/GBRS) | Sub-Working Group on Satellite Systems  (SWG-SAT) |
| Sub-Working Group on Sharing Studies  (SWG-SS) | Sub-Working Group on  IMT Technologies  (SWG-IMT TECH) | Task Group on Intelligent Transportation Systems  (TG-ITS) | Task Group on Aeronautical and Maritime  (TG-A&M) |
| Sub-Working Group on Spectrum Monitoring  (SWG-SM) | Task Group on Public Protection and  Disaster Relief  (TG-PPDR) | Task Group on Wireless Power Transmission  (TG-WPT) |  |
|  | Task Group on High Altitude Platform Station  (TG-HAPS) | Task Group on Railway Radiocommunications  (TG-RR) |
|  |  | Task Group on Wireless Access Systems including Radio Local Access Networks  (TG-WAS/RLAN) |  |

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| **AFIS Ad-Hoc Group** |

# 2. TERMS OF REFERENCE OF THE AWG WORKING GROUPS

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| **WG-HAR** | * To develop AWG output documents on spectrum harmonization and spectrum arrangements for services/applications in the region. * To develop AWG output documents, which are specified in the AWG Document Approval Procedure, for the following objectives:  1. To develop optimum sharing methodologies, conduct coexistence and compatibility studies between two or more radiocommunication services and systems to ensure compatibility. 2. To study the impact of interference to radiocommunication services from other sources. 3. To coordinate efforts to eliminate harmful interference between concerned countries, as appropriate. 4. To share information on spectrum monitoring and analysis methods with spectrum monitoring systems.  * To review and revise, as appropriate, any existing texts under the purview of the group, which may have been included in APT Recommendations and Reports already developed in AWG. |
| **WG-IMT** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for IMT. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum usage and emerging wireless technologies for IMT. 2. To encourage industry research and development for IMT. 3. To perform studies on technical and operational matters for IMT. 4. To conduct the studies on services and applications.  * To conduct technical consultation by developing APT deliverables for IMT based upon the requests of APT Members to meet the needs of the developing countries. * To review and revise, as appropriate, any existing texts under the purview of the group for IMT, which may have been included in APT Recommendations and Reports already developed in AWG. |
| **WG-TER** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for Terrestrial services/applications; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum usage and emerging wireless technologies for Terrestrial services/applications; 2. To encourage industry research and development for Terrestrial services/applications; 3. To perform studies on technical and operational matters for Terrestrial services/applications. 4. To conduct the studies on services and applications  * To conduct technical consultation by developing APT deliverables for Terrestrial services/applications based upon the requests of APT Members to meet the needs of the developing countries; * To review and revise, as appropriate, any existing texts under the purview of the group for Terrestrial services/applications, which may have been included in APT Recommendations or Reports already developed in AWG.. |
| **WG-SAM** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for Space, Aeronautical. and Maritime systems and/or services. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum usage and emerging wireless technologies for Space, Aeronautical, and Maritime systems. 2. To encourage industry research and development for Space, Aeronautical, and Maritime systems. 3. To perform studies on technical and operational matters for Space, Aeronautical, and Maritime systems. 4. To conduct the studies on services and applications.  * To conduct technical consultation by developing APT deliverables for Space, Aeronautical, and Maritime systems based upon the requests of APT Members to meet the needs of the developing countries. * To review and revise, as appropriate, any existing texts under the purview of the group for Space, Aeronautical, and Maritime services and systems, which may have been included in APT Recommendations or Reports already developed in AWG. |

# 3. TERMS OF REFERENCE OF AFIS AD-HOC GROUP

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| **AFIS**  **Ad-Hoc**  **Group** | * To discuss on the efficient measure to maintain and update AFIS regularly with assistance of APT Secretariat. * To develop recommendations for AWG Plenary in order to facilitate AFIS. * To identify the necessity of improving AFIS and suggest feasible methods. * To work with APT Secretariat in order to gather the information from the Members to update AFIS between AWG meetings and report the progress to AWG Plenary. |

**4. TERMS OF REFERENCE OF THE SUB-WORKING GROUPS AND TASK GROUPS**

**Sub-Working Groups of Working Group on Harmonization**

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| **SWG-SA&H** | * To develop and recommend harmonized approaches for the introduction of new technologies, services and applications in spectrum becoming available for new applications, including preferred frequency band and associated technical characteristic. * To develop AWG output documents on spectrum harmonization including spectrum arrangements for services/applications in the region. * To review and revise, as appropriate, any existing texts on spectrum or spectrum arrangement which may have been included in APT Recommendations or Reports already developed in AWG. |
| **SWG-SS** | * To develop AWG output documents, which are specified in the AWG Document Approval Procedure, for the following objectives:  1. To develop optimum sharing methodologies, conduct coexistence and compatibility studies between two or more radiocommunication services and systems to ensure compatibility. 2. To study the impact of interference to radiocommunication services from other sources. 3. To coordinate efforts to eliminate harmful interference between concerned countries, as appropriate.  * To review and revise, as appropriate, any existing texts on sharing and compatibility matters which may be included in APT Recommendations or Reports already developed in AWG. |
| **SWG-SM** | * To develop AWG output documents, which are specified in the AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum monitoring and analysis methods with spectrum monitoring systems and to set up programs such as frequency occupancy measurement. 2. To share members’ case studies on harmful interference and its elimination. 3. To promote the introduction and implementation of new technologies and applications which could be used in spectrum monitoring activities in the Asia-Pacific region. 4. To exchange views and develop the methods for cooperation on preventing interference between neighboring countries.  * To share information and good practices on the planning, operational, management and maintenance method of monitoring stations and other facilities and to develop related AWG documents. * To review and revise, as appropriate, any existing texts on spectrum monitoring which may have been included in APT Recommendations or Reports already developed in AWG. |

**Sub-Working Groups and Task Groups of Working Group on IMT**

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| **SWG-IMT**  **SPEC** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for IMT. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum usage for IMT. 2. To encourage industry research and development for IMT.  * To review and revise, as appropriate, any existing texts on spectrum aspects for IMT, which may have been included in APT Recommendations or Reports already developed in AWG. |
| **SWG-IMT**  **TECH** | * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on emerging wireless technologies for IMT. 2. To encourage industry research and development for IMT. 3. To perform studies of technical and operational matters for IMT.  * To review and revise, as appropriate, any existing texts on technology aspects for IMT, which may have been included in APT Recommendations or Reports already developed in AWG. |
| **TG-PPDR** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for PPDR. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on current status of spectrum usage and deployment scenarios in Asia-Pacific region and emerging technologies for PPDR. 2. To perform studies of technical and operational matters for PPDR.  * To review and revise, as appropriate, any existing texts for PPDR, which may have been included in APT Recommendations or Reports already developed in AWG. |
| **TG-HAPS** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for HAPS. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on current status of spectrum usage and national regulatory experiences in Asia-Pacific region and emerging technologies for HAPS. 2. To study the operational scenarios and deployment of HAPS in Asia-Pacific region. 3. To study market and user requirements of HAPS.  * To review and revise, as appropriate, any existing texts for HAPS systems, which may be included in APT Recommendations or Reports already developed in AWG. |

**Task Groups of Working Group on Terrestrial**

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| **TG-FWS/GBRS** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for fixed wireless and ground-based radar systems; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum planning/usage, licensing conditions, usages/applications and emerging technologies for fixed wireless and ground-based radar systems; 2. To encourage industry research and development for fixed wireless and ground-based radar systems; 3. To perform studies of technical and operational matters for fixed wireless and ground-based radar systems.  * To review and revise, as appropriate, any existing texts for fixed wireless and ground-based radar systems, which may be included in APT Recommendations or Reports already developed in AWG. |
| **TG-ITS** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for ITS; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on current status of regulation, frequency use, introduction and development of ITS radio system; 2. To collect information relevant to possible regional harmonization of ITS radiocommunications spectrum, taking into account the trends and studies towards spectrum harmonization, applications and standards developments; 3. To study useful ITS applications and standardization in the Asia-Pacific region.  * To review and revise, as appropriate, any existing texts for ITS, which may be included in APT Recommendations or Reports already developed in AWG. |
| **TG-WPT** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for WPT; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on spectrum usage and emerging technologies for WPT; 2. To encourage industry research and development for WPT; 3. To perform studies of technical and operational matters for WPT.  * To review and revise, as appropriate, any existing texts for WPT, which may be included in APT Recommendations or Reports already developed in AWG. |
| **TG-RR** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for railway radiocommunications; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on current status of spectrum usage and national regulatory experiences in Asia-Pacific region and emerging technologies for railway radiocommunications; 2. To collect information on various potential services and applications, and success factors to deliver services and applications for railway radiocommunication systems; 3. To perform studies of technical and operational matters for railway radiocommunications; 4. To study the system description, architecture, functionality and service requirements of railway radiocommunication systems; 5. To study the operational scenarios and deployment of railway radiocommunication systems.  * To review and revise, as appropriate, any existing texts for railway radiocommunications, which may be included in APT Recommendations or Reports already developed in AWG. |
| **TG-WAS/RLAN** | * To develop AWG output documents on spectrum utilization and/or channel arrangements for WAS/RLAN; * To develop various AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. to share information on status of spectrum usage, technical conditions, and national regulatory experiences in Asia-Pacific region for current and emerging WAS/RLAN technologies; 2. to perform studies of technical and operational scenarios (including system description, deployment, service requirements, and regulatory provisions etc.) of current and emerging WAS/RLAN technologies; 3. to share information on spectrum sharing between WAS/RLAN technologies.  * To review and revise, as appropriate, any existing texts on WAS/RLAN, which may be included in APT Recommendations or Reports already developed in AWG. |

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**Sub-Working Group and Task Group of Working Group on Space,**

**Aeronautical and Maritime**

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| **SWG-SAT** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for satellite systems. * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To assist the requirements of the APT membership in putting into practice satellite systems in a national context. 2. To share information on satellite applications in the Asia Pacific Region, such as satellite communication systems, satellite devices, key components, interfaces, interconnection and intercommunication, licensing, Ka-band applications and deployment, satellite broadband applications, new applications of mobile satellite and disaster relief applications. 3. To study review future wireless communication technologies for satellite and related systems.  * To review and revise, as appropriate, any existing texts for Space services and systems, which may have been included in APT Recommendations or Reports already developed in AWG. |
| **TG-A&M** | * To develop AWG output documents on spectrum including spectrum utilization and/or channel arrangements for aeronautical and maritime systems; * To develop AWG output documents, which are specified in AWG Document Approval Procedure, for the following objectives:  1. To share information on licensing issues and spectrum matters in Asia-Pacific region and emerging technologies for aeronautical and maritime systems; 2. To perform studies of technical and operational matters for aeronautical and maritime systems; 3. To study and review future wireless communication technologies for aeronautical and maritime systems.  * To review and revise, as appropriate, any existing texts for Aeronautical and Maritime services and systems, which may have been included in APT Recommendations or Reports already developed in AWG. |

**5. FOCUS OF AWG WORKS FOR THE PERIOD OF 2021-2023**

Focus of AWG Works will respond to advances in wireless technology or spectrum management, to changes in radio usage or operation and to the interests of majority of APT members. AWG will focus on addressing these issues through specific work items (with associated micro-work plan) assigned to SWGs/TGs.

Focus of AWG Works should meet these various aspects:

1. **Policies and regulatory aspects for wireless telecommunication technologies**

The development of AWG studies or activities on the utilization of new and emerging technologies has perspective on policies and regulatory aspects as well as the deployment in bringing the cost-effective telecommunications on less developed areas to help the APT member countries distributing evenly the development of their national networks.

1. **Technical and operational aspects for emerging technologies**

AWG has concern on studies related to technical matters for emerging technologies such as spectrum arrangement and harmonization as well as its operational and implementation including, but not limited to, HAPS, HTS, and 5G.

1. **Migration method from current existing wireless telecommunication networks to the future networks**

AWG focuses on the assistance and support to APT members to be able to implement new technologies seamlessly in order to achieve excellent connectivity.

1. **Expansion of digital access with strong, resilient, and inclusive infrastructure of telecommunications in APT countries**

AWG focuses on the digital evenly distributed to expand access for the people to the digital services by strengthening activities on (i) the digital connectivity and (ii) resilient and inclusive infrastructure of telecommunications in APT member countries, to decrease the digital gap in developing countries.

1. **Strengthening technology development, cooperation and assistance on the technology standard aspect among APT members**

AWG focuses on more collaborations in development, cooperation, and assistance on the 5G and 6G technologies, involving developed and developing member countries, to enhance the digital innovation and creativity, and also technology standards activities among APT members.

1. **Building institutional capacity via partnerships and collaboration with other international organizations and related stakeholders**

AWG focuses on the prioritization of building institutional capacity in facilitating partnerships and collaboration with other international organizations, including industries and academic institutions to leverage the opportunities, benefits, and address the challenge resulting from increased wireless connectivity among the experts on the APT member countries.

# 6. LIST OF THE OFFICE BEARERS

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| **Position** | **Name** | **Email** |
| AWG Chair | **Dr. Le Van Tuan**  Authority of Radio Frequency Management  Viet Nam (Socialist Republic of) | lvtuan@rfd.gov.vn |
| AWG Vice- Chairs | **Dr. Dae Jung Kim**  Telecommunications Technology Association  Korea (Republic of) | [kdj@tta.or.kr](mailto:kdj@tta.or.kr) |
| **Dr. Eng. Khoirul Anwar**  Telkom University  Indonesia (Republic of) | [anwarkhoirul@telkomuniversity.ac.id](mailto:anwarkhoirul@telkomuniversity.ac.id) |

**Working Group on Harmonization (WG-HAR)**

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| **Position** | **Name** | **Email** |
| Chair, Working Group on Harmonization (WG-HAR) | **Mr. John Lewis**  Added Value Applications  New Zealand | john.lewis@bluewin.ch |
| Chair, Sub-Working Group on Spectrum Arrangement and Harmonization  (SWG-SA&H) | **Ms. Lyu Boya**  Huawei Technologies Co. Ltd.  China (People's Republic of) | [lvboya@huawei.com](mailto:lvboya@huawei.com) |
| Co-Chair, Sub-Working Group on Sharing Studies (SWG-SS) | **Mr. Alex Orange**  Omnispace  Australia | aorange@omnispace.com |
| Co-Chair, Sub-Working Group on Sharing Studies (SWG-SS) | **Mr. Yiran Jin**  Samsung Electronics  Korea (Republic of) | [yiran.jin@samsung.com](mailto:yiran.jin@samsung.com) |
| Chair, Sub-Working Group on Spectrum Monitoring (SWG-SM) | **Mr. Zheng Gaozhe**  State Radio Monitoring Center  China (People's Republic of) | [zhenggaozhe@srrc.org.cn](mailto:zhenggaozhe@srrc.org.cn) |

**Working Group on IMT (WG-IMT)**

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| **Position** | **Name** | **Email** |
| Chair, Working Group on IMT (WG-IMT) | **Mr. Wang Hu**  Huawei Technologies Co. Ltd.  China (People's Republic of) | [wanghu.wanghu@huawei.com](mailto:wanghu.wanghu@huawei.com) |
| Chair, Sub Working Group on IMT Spectrum  (SWG-IMT-SPEC) | **Dr. Michael Seongill Park**  Qualcomm  Korea (Republic of) | [spark@qti.qualcomm.com](mailto:spark@qti.qualcomm.com) |
| Chair, Sub Working Group on IMT Technologies  (SWG-IMT-TECH) | **Mr. Yasuhiro Kato**  Association of Radio Industries and Businesses  Japan | [y-kato@arib.or.jp](mailto:y-kato@arib.or.jp) |
| Chair, Task Group on Public Protection and Disaster Relief (TG-PPDR) | **Ms. Hyounhee Koo**  SyncTechno Inc.  Korea (Republic of) | koo@synctechno.com |
| Chair, Task Group on High Altitude Platform Station (TG-HAPS) | **Dr. Lang Baozhen**  China Academy of Information and Communications Technology  China (People's Republic of) | [langbaozhen@caict.ac.cn](mailto:langbaozhen@caict.ac.cn) |

**Working Group on Terrestrial (WG-TER)**

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| **Position** | **Name** | **Email** |
| Chair, Working Group on Terrestrial (WG-TER) | **Mr. Takahiko Yamazaki**  Mitsubishi Electric Corporation  Japan | [Yamazaki.Takahiko@ak.MitsubishiElectric.co.jp](mailto:Yamazaki.Takahiko@ak.MitsubishiElectric.co.jp) |
| Chair, Task Group on Fixed Wireless and Ground-Based Radar Systems  (TG-FWS/GBRS) | **Dr. Tetsuya Kawanishi**  National Institute of Information and Communications Technology  Japan | [kawanishi@nict.go.jp](mailto:kawanishi@nict.go.jp) |
| Chair, Task Group on Intelligent Transportation Systems (TG-ITS) | **Mr. Satoshi Oyama**  National Institute of Information and Communications Technology  Japan | [oyamaits@gmail.com](mailto:oyamaits@gmail.com) |
| Chair, Task Group on Wireless Power Transmission (TG-WPT) | **Dr. Chan Hyung Chung**  Radio Promotion Association  Korea (Republic of) | [backbum@rapa.or.kr](mailto:backbum@rapa.or.kr) |
| Chair, Task Group on Railway Radiocommunications  (TG-RR) | **Mr. Liu Bin**  State Radio Monitoring Center  China (People's Republic of) | [liubin@srrc.org.cn](mailto:liubin@srrc.org.cn) |
| Chair, Task Group on Wireless Access Systems including Radio Local Access Networks  (TG-WAS/RLAN) | **Mr. Bharat Bhatia**  ITU-APT Foundation of India  India (Republic of) | [bharat.bhatia@itu-apt.org](mailto:bharat.bhatia@itu-apt.org) |

**Working Group on Space, Aeronautical and Maritime (WG-SAM)**

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| **Position** | **Name** | **Email** |
| Chair, Working Group on Space, Aeronautical and Maritime (WG-SAM) | **Mr. Bui Ha Long**  Authority of Radio Frequency Management  Viet Nam (Socialist Republic of) | [longbh@rfd.gov.vn](mailto:longbh@rfd.gov.vn) |
| Chair, Task Group on Satellite Systems (TG-SAT) | **Ms. Masmurni Binti Abdul Rahman**  Measat Satellite Systems Sdn Bhd  Malaysia | [masmurni@measat.com](mailto:masmurni@measat.com) |
| Chair, Task Group on Aeronautical and Maritime (TG-A&M) | **Dr. Xu Ying**  State Radio Monitoring Center  China (People's Republic of) | [xuying@srrc.org.cn](mailto:xuying@srrc.org.cn) |

**AFIS Ad-Hoc Group**

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| **Position** | **Name** | **Email** |
| Chair, AFIS Ad-Hoc Group | **Dr. Jaewoo Lim**  National Radio Research Agency  Korea (Republic of) | [jwlim@korea.kr](mailto:jwlim@korea.kr) |

# 7. MICRO WORK PLAN

**7.1 Working Group on Harmonization (WG-HAR)**

**7.1.1 Sub-Working Group on Spectrum Arrangements and Harmonization (SWG-SA&H)**

**7.1.1.1 PMSE frequency usage in the 470-806 MHz band in Asia Pacific region**

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| **Title** | **PMSE frequency usage in the 470-806 MHz band in Asia Pacific region** |
| **Document Type** | APT Report |
| **Group/Chair** | SWG-SA&H / Ms. Lyu Boya |
| **Editor(s)** | Mr. Bui Ha Long (Viet Nam) |
| **Scope** | to collect information of regulation and frequency usage of PMSE equipment in the bands 470-806 MHz in Asia Pacific region. |
| **Purpose** | to develop APT Report on regulation status and frequency usage of PMSE equipment in the band 470-806 MHz in Asia Pacific region for APT Members’ information. |
| **Related Document** | TBD |
| **Related Organization** | ITU-R WP6A  ITU-R WP5A  ETSI |
| **Timelines** | **2022**  AWG-30   * Initiate the study and Develop work plan * To develop and circulate the questionnaire.   **2023**  AWG-31   * Consider the response to questionnaire * To develop WD towards a draft new APT Report * Review and update the work plan, if necessary   **2024**  AWG-32   * Consider the response to questionnaire * Consider the input contributions * Update and finalize new APT Report |

**7.1.2 Sub-Working Group on Sharing Studies (SWG-SS)**

**7.1.2.1** **Sharing and compatibility studies for selected frequency bands below 6 GHz**

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| **Title** | **Sharing and Compatibility Studies for Selected Frequency Bands Below 6 GHz** |
| **Document Type** | APT Report(s) |
| **Group/Chair** | WG-HAR/SWG-SS/Mr. Alex Orange |
| **Editor(s)** | TBD |
| **Scope** | To conduct sharing and compatibility studies to facilitate IMT implementation and not related to WRC-19 for the interested APT members:   * 470-698 MHz * 1427-1452 MHz * IMT in 1492-1518 MHz and MSS in 1518-1525 MHz * 4 400 – 4 500 MHz * 4 800 – 4 990 MHz * And to undertake further sharing and compatibility studies if requested by APG.   Note: frequency ranges above are an initial list. This list could be updated in future AWG meetings.  **Note: the study between IMT in 1492-1518 MHz and MSS in 1518-1525 MHz was paused at AWG-28**. |
| **Purpose** | * To conduct sharing and compatibility studies between IMT and other services within the APT region on the listed and neighbouring frequency bands. * To develop APT Report in accordance with relevant study results. |
| **Related Document** |  |
| **Related Organization** | ITU-R |
| **Timelines** | **2016**  **AWG-19 (2016 Feb.)**   * Identify the frequency bands requiring the sharing study in AWG. * Develop work plan and timeline for the joint task group. * Adopt the work plan and frequency bands requiring sharing studies. * Provide additional questionnaires to TG IMT on the survey. * Inform the initiation of this study to APG 19-1.   **AWG-20 (2016-Sep.)**   * Update the work plan * Consider input contributions. * Develop a working document towards a draft new Report in relation to listed frequency bands.   **2017**  **AWG-21(2017 -Apr.)**   * Consider and review the input contributions. * Further develop a working document towards a draft new Report in relation to a frequency band.   **AWG-22 (2017-Sep.)**   * Discuss the input contributions. * Develop the working document towards a draft new Report. * Submit study results to APG and relevant ITU-R groups as appropriate.   **2018**  **AWG-23 (2018-1Q)**   * Discuss the input contributions. * Further develop the working document towards a draft new Report. * Submit study results to APG and relevant ITU-R groups as appropriate.   **AWG-24 (2018-3Q)**   * Discuss the input contributions. * Further develop the working document towards a draft new Report.   **2019**  **AWG-25 (2019-2Q)**   * Discuss the input contributions. * Further develop the working document towards a draft new Report.   **2020**  **AWG-26 (2020)**   * Discuss the input contributions. * Further develop the working document towards a draft new Report.   **2021**  **AWG-27 (2021)**   * Discuss the input contributions. * Further develop the working document towards a draft new Report.   **AWG-28 (2021)\***   * Discuss the input contributions. * Further develop the working document towards a draft new Report. * **AWG-29 (2022)** * Discuss the input contributions.   **AWG-30 (2022)**  Discuss the input contributions.  **AWG-31 (2023)**  Discuss the input contributions.  **AWG-32 (2024)**  Discuss the input contributions |

**7.1.3 Sub-Working Group on Spectrum Monitoring (SWG-SM)**

**7.1.3.1 Recent case studies on typical radio interference, their causes and solutions**

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| **Title** | **Recent Case Studies on Typical Radio Interference, Their Causes and Solutions** |
| **Document Type** | APT Report |
| **Group/Chair** | WG-HAR/SWG-SM/Mr. Zheng Gaozhe |
| **Editor(s)** | Ms. Yumi Ueda |
| **Scope** | Compilation of case studies from APT members on typical radio interference and their causes/solutions |
| **Purpose** | - To collection of case studies of radio interference incidents in the Asia-Pacific Region  - To serve as a useful reference for the spectrum monitoring organizations in the Asia-Pacific Region |
| **Related Document** | - |
| **Related Organization** | APT  ITU-R |
| **Timelines** | **2023**  **AWG-31**   * + Develop a workplan for the studies   + Discuss and develop a Working Document Towards Draft Revision on “Case Studies on Typical Radio Interference, Their Causes and Solutions”.   **2024**  **AWG-32**   * + Continue to develop the working document based on the contributions and meeting discussions.   + Review the working document based on the contributions and meeting discussions.   **AWG-33**   * + Continue to develop the working document based on the contributions and meeting discussions.   + Review the working document based on the contributions and meeting discussions.   **2025**  **AWG-34**   * + Continue to develop the working document based on the contributions and meeting discussions.   + Finalize the working document based on the contributions and meeting discussions.   Note: this timeline will be reviewed at every AWG meeting |

**7.1.3.2 Technical guideline for monitoring and locating RBS devices**

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| **Title** | **Technical guideline for monitoring and locating RBS devices** |
| **Document Type** | APT Report |
| **Group/Chair** | Working Group Harmonization, Sub-Working Group on Spectrum Monitoring / Mr. Zheng Gaozhe |
| **Editor(s)** | Mr. Vu Son Tung (Viet Nam) |
| **Scope** | The report will cover of:  - Characteristics of Rogue Base Station (RBS) ;  - Technical guideline for monitoring and locating RBS devices;  - Case studies of APT administrations on monitoring, locating and regulations of RBS devices. |
| **Purpose** | To provide APT Members with relevant information about characteristics and technical guidelines on monitoring and locating RBS devices. |
| **Related Document** |  |
| **Related Organization** | ITU-R WP 1C |
| **Timelines** | **2023**  AWG-31   * Initiate the study * Develop the work plan   **2024**  AWG-32   * Consider the input documents. * Develop WD towards a new draft APT Report. * Review and update the work plan, if necessary   AWG-33   * Consider the input contributions * Update and finalize new APT Report |

**7.2 Working Group on IMT (WG-IMT)**

**7.2.1 Sub-Working Group on IMT Spectrum (SWG-IMT SPEC)**

**7.2.1.1 Future spectrum planning for advanced IMT coverage and capacity improvements in 2025~2030 in Asia-Pacific region**

|  |  |
| --- | --- |
| **Title** | **Future spectrum planning for advanced IMT coverage and capacity improvements in 2025-2030 in Asia-Pacific Region** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-IMT/Sub-WG IMT Spectrum, Dr. Michael Seongill Park |
| **Editor(s)** | Yishen Chan (GSMA (Hong Kong)) |
| **Scope** | Study on the current utilization of the available identified IMT spectrum.  Study on current and future spectrum planning for IMT-Advanced and IMT-2020 coverage and capacity improvements in 2025~2030 in Asia Pacific Region taking into account the service and technology trends.   * Mobile connectivity targets (examples includes speed, throughput, coverage), and foreseen IMT deployment. * Spectrum planning for IMT-advanced and IMT-2020 coverage and capacity improvements. * To share the industry’s finding on IMT spectrum planning with Asia-pacific countries. |
| **Purpose** | To provide APT Members information on future IMT spectrum planning needed for the continued development and success of 5G in the Asia Pacific Region taking into account the current utilization of the available identified IMT spectrum. |
| **Related Document** | AWG-28/INP-59  AWG-28/OUT-05 |
| **Related Forums and Organization** | None |
| **Timelines** | **AWG-29**   * Propose a new work item * Create and develop a work plan and timeline * Create and develop the preliminary draft working document * Create and develop a preliminary draft questionnaire   **AWG-30**   * Consider received contributions * Update the detailed workplan * Prepare and issue a questionnaire to APT Members should there be any consensus on the proposed questionnaire * Invite APT Members to respond to the questionnaire by AWG-XX should there be any agreements on the proposed questionnaire   **AWG-31**   * Consider the responses to the questionnaire * Consider received contributions * Update the working document based on the contributions received at AWG-31   **AWG-32**   * Consider the responses to the questionnaire * Consider received contributions * Update the working document based on the contributions received at AWG-32 and review whether it is possible to finalize it as an APT/AWG Report |

**7.2.1.3 Methodology and pricing of IMT spectrum in Asia Pacific countries**

|  |  |
| --- | --- |
| **Title** | **Methodology and pricing of IMT spectrum in Asia Pacific countries** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | SWG IMT Spectrum / Dr. Michael Park |
| **Editor(s)** | Mr. Hoang Le Trung (Viet Nam) |
| **Scope** | to collect information on spectrum pricing among APT countries |
| **Purpose** | to develop APT Report for APT Members’ information reference that could assist and support APT Members in using the radio frequency spectrum effectively |
| **Related Document** | Draft new ITU-R Report on Assessment of Spectrum efficiency and economic value ([Annex 3 of document 1B/80](https://www.itu.int/dms_ties/itu-r/md/19/wp1b/c/R19-WP1B-C-0080!N03!MSW-E.docx)). |
| **Related Organization** | ITU-R WP 1B |
| **Timelines** | **2022**  AWG-30   * Initiate the study to develop new questionnaire. * Develop work plan   **2023**  AWG-31   * Consider the response to questionnaire. * Develop to develop WD towards a draft new APT Report. * Review and update the work plan, if necessary   **2024**  AWG-32   * Consider the input contributions * Update and finalize new APT Report |

**7.2.2 Sub-Working Group on IMT Technologies (SWG-IMT-TECH)**

**7.2.2.1 Studies on development approaches/challenges and solutions for IMT-2020/5G use case**

|  |  |
| --- | --- |
| **Title** | **Studies on deployment approaches and solutions for IMT-2020/5G use case** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-IMT/SWG-IMT-TECH, Mr. Yasuhiro Kato (J) |
| **Editor(s)** | TBD |
| **Scope** | **To study various deployment approaches and solutions for IMT-2020/5G**   * Global trends on deployment challenges of IMT-2020/5G cases. * Technical and operational solutions on deployment of IMT-2020/5G (for example, site sharing, RAN sharing, multi-RAT, dual carrier, non-stand alone, carrier aggregation, integrated backhaul, multi-layer solutions deployment to support various IMT-2020/5G use cases) * Regulatory [(non- spectrum aspects)] and policy measures to facilitate IMT-2020/5G deployments * Case studies and information on the 5G commercial and trial services in APT countries |
| **Purpose** | To provide APT Members with relevant information on solution of deployment and use cases for IMT-2020/5G. |
| **Related Document** |  |
| **Related Organization** | 3GPP, ITU-R |
| **Timelines** | **AWG-29 (March, 2022)**   * New study report proposal for approval.   **AWG-30 (September, 2022)**   * No input contribution   **AWG-31 (May, 2023)**   * Consider received contributions, * Develop a working document and update work plan   **AWG-32 (TBD, 2024)**   * Consider received contributions, * Update the working document and update work plan   **AWG-33 (TBD, 2024)**   * Consider received contributions, * Update the working document and update work plan   **AWG-34 (TBD, 2025)**   * Consider received contributions, * Update the working document and finalize it as an APT/AWG Report |

**7.2.2.2 Survey on current status of voluntary testing and certification requirements of mobile devices in mobile network operators**

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| --- | --- |
| **Title** | **Survey on current status of voluntary testing and certification requirements of mobile devices in Mobile Network Operators** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-IMT/SWG-IMT-TECH, Mr. Yasuhiro Kato (Japan) |
| **Editor(s)** | Mr. Dujeong Choi (Republic of Korea) |
| **Scope** | This survey is to collect the information on voluntary testing and certification requirements of mobile devices in MNOs  The questionnaire covers;   * Current requirements for accepting the mobile device in their networks * Whether or not of the awareness on globally-known voluntary certification programs * Willingness to participate for further study in APT about the existing voluntary certification system |
| **Purpose** | * Provide APT Members with survey result on current status of voluntary testing and certification requirements of MNOs in member countries * Based on survey result, find and suggest the direction what tasks can be pursued within AWG community for improving the device competency to standard and for ensuring the interoperability within the mobile networks |
| **Related Document** | None |
| **Related Organization** | None |
| **Timelines** | **AWG-30 (September, 2022)**   * + Initiate the new work item   + Create and develop a work plan   + Prepare and circulate the questionnaire   **AWG-31 (May, 2023)**   * + Review the response status to questionnaire   + Develop the draft report   **AWG-32 (TBD, 2024)**   * + Review the response status to questionnaire   + Review the survey result and continue to develop the draft report   **AWG-33 (TBD, 2024)**   * + Finalize the report   + Discussion on new work item for further study |

**7.2.2.3 Studies on technical and regulatory aspects of RAN/spectrum sharing in IMT among Mobile Network Operators in Asia Pacific region**

|  |  |
| --- | --- |
| **Title** | **Studies on technical and regulatory aspects of RAN/spectrum sharing in IMT among MNOs in Asia Pacific region** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-IMT/SWG-IMT-TECH, Mr. Yasuhiro Kato (Japan) |
| **Editor(s)** | Ms. Nguyen Thu Ha (Viet Nam) |
| **Scope** | To develop APT Report on technical and regulatory aspects of RAN/spectrum sharing in IMT among Mobile Network Operators in Asia Pacific region   * Technical: MORAN, MOCN/Spectrum sharing and Shared Access License, roaming, Virtual Network Operators * Regulations:   + C***ompetition*** [ex:giving CAP for the spectrum that MONs are allocated,…]  + ***Spectrum fee/charge*** (license fees, annual fee, trading/leasing fee) and non-technical license conditions.  + ***Technical conditions***: [ex: out-of-block emission limits and synchronization,…] |
| **Purpose** | To share information on technical and regulatory aspects of RAN/Spectrum sharing in IMT among Mobile Network Operators in Asia Pacific region |
| **Related Document** | [TBD] |
| **Related Organization** | ITU-R WP 5D |
| **Timelines** | **2023**  AWG-31   * Initiate the new work item * Develop work plan * Develop initial WD   **2024**  AWG-32   * Consider the input document. * Update WD towards a draft new APT Report. * Review and update the work plan, if necessary   AWG-33   * Consider the input contributions * Update and finalize new APT Report |

**7.2.3 Task Group on Public Protection and Disaster Relief (TG-PPDR)**

**7.2.3.1 Revision of APT Report on implementation of Public Safety LTE (PS-LTE) mobile broadband capability in Asia Pacific region**

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| --- | --- |
| **Title** | **Implementation of Public Safety LTE (PS-LTE) networks (Revision of APT Report-93)** |
| **Document Type** | Revision of APT/AWG Report |
| **Group/Chair** | WG-IMT / TG-PPDR, Ms. Hyounhee KOO |
| **Editor(s)/DG** | Mr. Yunhee Lee (Republic of Korea) |
| **Scope** | To revise and update APT-AWG Report 93, which summarizes present status of international standardization of PS-LTE technologies by 3GPP, relevant implementation activities in some countries in the world including the Asia-Pacific Region and technical subjects that are important for implementation of PS-LTE networks:   * to update the status and examples of PS-LTE experiences of the 3 APT countries that are currently included in Report 93, based on input contributions * to invite other APT countries to provide more examples of PS-LTE experiences |
| **Purpose** | To share the relevant information from some countries with the APT Members wishing to consider implementation of PS-LTE technologies in their countries. |
| **Related Document** | None |
| **Related Forums and Organization** | 3GPP, ITU-R WP 5D, WP 5A |
| **Timelines** | **2022**  AWG-30 (September)   * Consider relevant input documents * Develop a detailed work plan   **2023**  AWG-31 (May)   * Consider relevant input documents * Consider to develop a working document, if necessary * Review and update the detailed work plan, if necessary   **2024**  AWG-32 (Date-TBD)   * Consider relevant input documents * Review and update the working document and the detailed work plan, if necessary   AWG-33 (Date-TBD)   * Consider relevant input documents * Review and update the working document and the detailed work plan, if necessary * Finalize the Report and send for approval |

**7.2.4 Task Group on High Altitude Platform Station (TG-HAPS)**

**7.2.4.1 HAPS industry and ecosystem for broadband connectivity**

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| --- | --- |
| **Title** | **HAPS Industry and Ecosystem for Broadband Connectivity** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | TG- HAPS / Mr. LANG BAOZHEN (CHN) |
| **Editors** | Ms. ANNA CHRISTINA SITUMORANG (INS), Dr. MENG XI (China Telecom) |
| **Scope** | to capture information and to develop APT report document on the status of HAPS industry and its ecosystem for broadband connectivity |
| **Purpose** | to update the status of HAPS industry and its ecosystem as the reference for APT countries to further enhance their national broadband connectivity initiative strategy |
| **Related Document** | 1. APT/AWG/Rep-116: The current status and future plan of regulations and usage of HAPS in the fixed service in APT countries. 2. APT/AWG/REP-92: Technical and Operational Analysis for Using High Altitude Platform Station as IMT Base Stations (HIBS) in the Frequency Bands below 2.7 GHz identified for IMT. 3. 3GPP TR 36.763: Study on Narrow-Band Internet of Things (NB-IoT) / enhanced Machine Type Communication (eMTC) support for Non-Terrestrial Networks (NTN) 4. 3GPP TR 38.821: Solutions for NR to support Non-Terrestrial Networks (NTN) 5. 3GPP TR 38.863: Non-terrestrial networks (NTN) related RF and co-existence aspects 6. Report ITU-R F.2438: Spectrum needs of high altitude platform stations (HAPS) broadband links operating in the fixed service 7. Related industry and scientific journals. |
| **Related Organization** | HAPS Alliance, ITU-R SG5 (WP5C and WP5D), 3GPP, GSMA |
| **Timelines** | **The 30th meeting (Bangkok, Thailand) in September 2022**   * Presentation on the proposed draft APT report and the work plan. * Initiate the development of the draft APT Report frame/skeleton. * Development of the work plan. * Encouraging APT members to support and participate in the development of the draft APT Report.   **The 31st meeting (Ha Noi, Viet Nam) in MAY 2023**   * Further discussing and developing the draft APT Report frame/skeleton. * Collecting and compiling input and information for developing the draft APT Report. * Continue development of the draft APT Report. * Encouraging APT members to support and participate in the development of the draft APT Report.   **The 32nd meeting (location TBD) in date TBD**   * Collecting and compiling input and information for developing the draft APT Report. * Continue development of the draft APT Report. * Encouraging APT members to support and participate in the development of the draft APT Report.   **The 33rd meeting (location TBD) in date TBD**   * Finalize and approve the APT Report. * Identifying future activity, if any. |

**7.3 Working Group on Terrestrial (WG-TER)**

**7.3.1 Task Group on Fixed Wireless and Ground-Based Radar Systems (TG-FWS/GBRS)**

**7.3.1.1 Terahertz fixed wireless systems operating in the frequency above 450 GHz**

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| **Title** | **APT Report on terahertz (THz) fixed wireless systems operating in the frequency above 450 GHz** |
| **Document Type** | APT Report |
| **Group/Chair** | TG on FWS/GBRS |
| **Editor(s)** | Dr. Hiroyo Ogawa |
| **Scope** | To study THz fixed wireless systems operating in the frequency above 450 GHz |
| **Purpose** | To promote the incorporation of fixed wireless systems in a wide range of application fields in Asia-Pacific region. |
| **Related Document** | Report ITU-R F.2416, APT/AWG/REP-66(Rev.1), APT/AWG/REP-118 |
| **Related Forums** | **ITU-R Working Party 3M, 3J & 5C** |
| **Timelines** | **The 30th meeting of AWG**  Develop a work plan.  Discuss on a framework of a working document.  **The 31st meeting of AWG**  Consider the input contributions.  Continue drafting the working document.  Liaise with other organizations, if necessary.  Review and update the work plan as appropriate.  **The 32nd meeting of AWG**  Consider input contributions.  Continue drafting the working document.  Liaise with other organizations, if necessary.  Review and update the work plan as appropriate.  **The 33rd meeting of AWG**  Finalize a draft. |

**7.3.1.2 Revision of APT Report on FWS link performance under severe weather conditions**

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| **Title** | **Revision of APT Report on “FWS link performance under severe weather conditions (APT/AWG/REP-81 Rev.1)”** |
| **Document Type** | APT Report |
| **Group/Chair** | TG on FWS/GBRS |
| **Editor(s)** | Ukrit Mankong, Zu-Kai Weng |
| **Scope** | To study on link performance of fixed wireless systems, especially on millimeter-wave bands, under severe weather conditions  Based on the above studies, to develop reports and/or recommendations as appropriate. |
| **Purpose** | To promote the incorporation of fixed wireless systems in a wide range of application fields in Asia-Pacific region. |
| **Related Document** | The APT report APT/AWG/REP-54  Draft APT Recommendation on model(s) for FWS link performance degradation due to wind AWG-29/OUT-25 |
| **Related Forums** | **ITU-R Working Party 3M, 3J & 5C, ETSI ISG mWT** |
| **Timelines** | **The 30th meeting of AWG**  Develop a work plan.  **The 31st meeting of AWG**  Collect information according to contributions from APT Members.  **The 32nd meeting of AWG**  Develop the draft.  **The 33rd meeting of AWG**  Finalize the revision. |

**7.3.1.3 Revision of APT Report on point-to point radiocommunication systems operating in the frequency range 252-296 GHz**

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| --- | --- |
| **Title** | **Revision of APT Report on point-to point radiocommunication systems operating in the frequency range 252-296 GHz (APT/AWG/REP-118)** |
| **Document Type** | APT Report |
| **Group/Chair** | TG on FWS/GBRS |
| **Editor(s)** | Dr. Hiroyo Ogawa |
| **Scope** | To provide advancements of technologies for use of point-to-point radiocommunication systems in the frequency range 252-296 GHz |
| **Purpose** | To provide technical characteristics of a single-chip transceiver and include characteristics of power amplifiers fabricated by SiGe BiCMOS process. |
| **Related Document** | Report ITU-R F.2416, Report ITU-R M.2417, Report ITU-R SM.2352, Report ITU-R SM.2450, Recommendation ITU-R F.669, APT/AWG/REP-66 |
| **Related Forums** | **ITU-R Working Party 3M, 3J & 5C** |
| **Timelines** | **The 31st meeting of AWG**  Develop a work plan.  Discuss on a framework of a working document.  **The 32nd meeting of AWG**  Finalize the revision. |

**7.3.1.4 X-band dual-polarized solid-state rainfall radar necessary for use in optimal dam and river management systems**

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| **Title** | **APT Report on** **dual-polarized solid-state rainfall radar** **operating in the frequency band 9-10 GHz (X-band) necessary for use in optimal dam and river management systems** |
| **Document Type** | APT Report |
| **Group/Chair** | TG-FWS/GBRS |
| **Editor(s)** | Mr. Seiji Iida |
| **Scope** | To study the X-band rainfall radar used for the optimum dam and river management system. |
| **Purpose** | Historically, rainfall data used in dam and river management was generally collected from fixed points observed by telemetry systems.  In recent years, it has become possible to observe rainfall over a wide area by using a rainfall radar, which is suitable for rainfall environments such as squalls that are characteristic of Southeast Asia.  Therefore, we propose the optimum dam and river management system using the X-band rainfall radar. |
| **Related Document** | TBD |
| **Related Forums** | TBD |
| **Timelines** | **The 31st meeting of AWG**  🡪 Develop a work plan.  **The 32nd meeting of AWG**  🡪 Collect information according to contributions from APT Members.  **The 33rd meeting of AWG**  🡪 Develop a draft.  **The 34th meeting of AWG**  🡪 Finalize the draft. |

**7.3.2 Task Group on Intelligent Transportation Systems (TG-ITS)**

**7.3.2.1 Millimeter wave radar/sensor technologies for ITS in APT countries**

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| --- | --- |
| **Title** | **Millimeter wave radar/sensor technologies for ITS in Asia-Pacific region countries [MMW-RADAR/SENSOR]** |
| **Document Type** | Report |
| **Group/Chair** | ITS TG/ Mr. Satoshi (Sam) Oyama, Japan |
| **Editor(s)** | Dr. Kazuaki Takahashi, Japan |
| **Scope** | Provide survey report on the currently used radio technologies and deployment status of millimeter wave bands radars and sensors for in-vehicle, outside-vehicle and infrastructure in Asia-Pacific region countries. |
| **Purpose** | Provide Asia-Pacific Region countries with practical information on the currently used millimeter wave radar/sensor technologies, frequency bands, status of commercialization service and others with the purpose of reaching harmonization to the greatest extent. |
| **Related Document** | Usage of ITS in APT countries (Document# APT/AWG/REP-18 ([Rev. 2])) |
| **Related Forums** | ITU-R SG5 WP 5A, WP 5B |
| **Timelines** | **The 31st meeting (Ha Noi, Viet Nam) in May 2023**  🡪 develop a workplan  **The 32nd meeting (T.B.D) in [April] 2024**  🡪 develop an initial draft of the new Report  🡪 input liaison to ITU-R SG5 WP 5A, if necessary  **The 33rd meeting (T.B.D.) in [September] 2024**  🡪 modify the draft with input contributions  🡪 input liaison to ITU-R SG5 WP 5A, if necessary  **The 34th meeting (T.B.D.) in [April] 2025**  🡪 finalize and get approval on the draft Report  🡪 input liaison to ITU-R SG5 WP 5A, if necessary |

**7.3.2.2 Usage of cooperative Vehicle-Infrastructure ITS systems**

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| --- | --- |
| **Title** | **Usage of Cooperative Vehicle-Infrastructure ITS Systems [V2I-ITS]** |
| **Document Type** | Report |
| **Group/Chair** | ITS TG/ Mr. Satoshi (Sam) Oyama, Japan |
| **Editor(s)** | [T.B.D.] |
| **Scope** | Provide use case survey report on the currently used radio technologies and deployment status of Cooperative Vehicle-Infrastructure ITS Systems for addressing several social challenges in Asia-Pacific region countries. |
| **Purpose** | Provide Asia-Pacific countries with practical information on the currently used Cooperative Vehicle-Infrastructure ITS Systems, the status of their deployment and others. |
| **Related Document** |  |
| **Related Forums** | ITU-R SG5 WP 5A |
| **Timelines** | **The 31st meeting (Ha Noi, Viet Nam) in May 2023**  - create a workplan  **The 32nd meeting (T.B.D) in [April] 2024**  - create initial draft of the Report  - input liaison to ITU-R SG5 WP 5A, if necessary  **The 33rd meeting (T.B.D.) in [September] 2024**  - modify the draft with input contributions  - input liaison to ITU-R SG5 WP 5A, if necessary  **The 34th meeting (T.B.D.) in [April] 2025**  - finalize and get approval on the Report  - input liaison to ITU-R SG5 WP 5A, if necessary |

**7.3.3 Task Group on Wireless Power Transmission (TG-WPT)**

**7.3.3.1 Radio frequency beam WPT**

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| --- | --- |
| **Title** | **Radio Frequency Beam WPT** |
| **Document Type** | APT/AWG Report, APT Recommendation |
| **Group/Chair** | WG-TER /TG WPT/ Chan Hyung CHUNG (Korea)  WG-HAR/SWG SA&H/Ms. LYU Boya (China) |
| **Editor(s)** | Dr. Hiroki SHOKI (Japan), Dr. Won Ho Jang (Korea) |
| **Scope** | To draft and complete the APT Report and Recommendation on frequency ranges used for Radio Frequency Beam WPT technologies.  To study possible frequency ranges described in the APT Report on WPT and the latest WPT studies in ITU-R.  To identify recommended frequency ranges described in the APT Recommendation. |
| **Purpose** | Study frequency ranges and service applications used for Radio Frequency Beam WPT technologies, and reach an agreement on the frequency range(s);   1. To ensure that Radio Frequency Beam WPT applications and equipment minimize the potential risk causing harmful interference to radiocommunication services, 2. To facilitate smooth deployment of Radio Frequency Beam WPT systems without spectrum concerns, 3. To maximize users’ benefit of WPT given by global or regional spectrum harmonization, 4. To address APT administrations to take appropriate regulatory measures on spectrum that should be taken into consideration when Radio Frequency Beam WPT is deployed. |
| **Related Document** | 1. APT Survey Report on WPT 2. APT Report on WPT 3. ITU-R Question ITU-R 210-3/1 4. Report ITU-R SM.2303-3 “Wireless power transmission using technologies other than radio frequency beam” 5. Recommendation ITU-R SM.2110-1 “Guidance for the use of frequency ranges for operation of non-beam wireless power transmission for electric vehicles” 6. Report ITU-R SM.2392-1 “Applications of wireless power transmission via radio frequency beam” 7. Report ITU-R SM.2449-0 “Technical characteristics and impact analyses of non-beam inductive wireless power transmission for mobile and portable device” 8. Report ITU-R SM.2451-0 “Assessment of impact of wireless power transmission for electric vehicle charging on radiocommunication services 9. Recommendation ITU-R SM.2129-0 “Guidance on frequency ranges for operation of non-beam wireless power transmission systems for mobile and portable devices”   [10] Draft new Recommendation ITU-R SM.[WPT.BEAM.FRQ]  “*Guidance on frequency ranges for operation of wireless power transmission via radio frequency beam for mobile/portable devices and sensor networks “*(see [Doc. 1/108(Rev.2)](https://www.itu.int/md/R19-SG01-C-0108/en)  [11] [Report ITU-R SM.2503](https://www.itu.int/pub/R-REP-SM.2503) “ Evaluation of radiated electromagnetic disturbances of household appliances and their interferences over an IoT network in the 915 MHz frequency band” (see also [Doc. 1/74(Rev.1)](https://www.itu.int/md/R19-SG01-C-0074/en))  [12] [Report ITU-R SM.2505](https://www.itu.int/pub/R-REP-SM.2505) “ Impact studies and human hazard issues for wireless power transmission via radio frequency beam “(see also [Doc. 1/107(Rev.1)](https://www.itu.int/md/R19-SG01-C-0107/en)) |
| **Related Forums and Organization** | APG, ITU-R SG1, and WP 1A |
| **Timelines** | **(AWG-23)**   * Approval of the Work Plan * Initiation of new report for Radio Frequency Beam WPT   **(AWG-24)**   * Prepare Drafting the New Working Document (WD)   **(AWG-25)**   * Review and update DNR   **(AWG-26)**   * Studies on spectrum sharing and impact of WPT to existing radiocommunication services and etc. * Review and update DNR   **(AWG-27)**   * Studies on spectrum sharing and impact of WPT to existing radiocommunication services and etc.   **(AWG-28)**   * -Review and update DNR Develop the questionnaire on frequency ranges used for Radio Frequency Beam WPT technologies   **(AWG-29)**   * Review and update DNR * Collect responses to the questionnaire and summarize regulatory status in APT member countries. * Develop a working document towards a draft new APT/AWG Survey Report on frequency ranges used for Radio Frequency Beam WPT technologies.   **(AWG-30)**   * Review and update DNR * Approval of DNR for an AWG output for Report * Approval of a draft new APT/AWG Survey Report on frequency ranges used for Radio Frequency Beam WPT technologies. * Decision to develop APT Recommendation on frequency ranges used for Radio Frequency Beam WPT technologies * Start to collect and verify impact studies from APT countries * Develop a working document towards a draft new APT Report on impact of Radio Frequency Beam WPT on radiocommunication services.   **(AWG-31)**   * Approval of DNR for an AWG output for Report * Develop a working document towards a draft new APT Recommendation on frequency ranges used for Radio Frequency Beam WPT technologies. * Collecting and verifying impact studies from APT countries * Review and revise a working document towards a draft new APT Report on impact of Radio Frequency Beam WPT on radiocommunication services. * Decision to develop APT Recommendation on frequency ranges used for Radio Frequency Beam WPT technologies.   **(AWG-32)**   * Approval of DNR for an new APT Report on impact of Radio Frequency Beam WPT on radiocommunication services. * Decision to develop APT Recommendation on frequency ranges used for Radio Frequency Beam WPT technologies |
| **Note** | 1. WD to a draft new Report on RF beam should be reviewed and discussed before making a decision on the escalation of the Report to Recommendation. 2. The questionnaire on RF beam WPT should be circulated to APT members to gain more and complete information from APT countries regarding frequency bands option, readiness and impact studies after the finalization of the draft new Report and if it is agreed by the meeting to escalate the Report to Recommendation |

**7.3.3.2 Study of 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz frequency ranges for mobile** **and portable non-beam WPT devices**

|  |  |
| --- | --- |
| **Title** | **Study of 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz frequency ranges for mobile and portable non-beam WPT devices** |
| **Document Type** | APT/AWG Report and recommendation |
| **Group/Chair** | WG-TER/TG WPT/Dr. Chan Hyung Chung  WG-HAR/SWG SA&H/Ms. Lyu Boya |
| **Editor(s)** | Mr. Song Qiaojian (Apple South Asia) |
| **Scope** | Prepare impact study report and recommendation for portable non-beam WPT operating in 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz frequency ranges for mobile and portable devices |
| **Purpose** | Study and identify frequency ranges for non-beam WPT technologies for mobile and portable devices:   1. To not cause harmful interference to incumbent radio communication services; 2. To facilitate smooth deployment of WPT systems without spectrum concern; 3. To maximize user benefits of WPT given by global or regional spectrum harmonization; 4. To address APT administrations to take appropriate regulatory measures on spectrum that should be taken into consideration when WPT is deployed. |
| **Related Document** | 1. APT Report on WPT (APT/AWG/REP-62(Rev.1)) 2. APT Report on Impact Study ([APT/AWG/REP-91](https://www.apt.int/sites/default/files/2019/07/APT-AWG-REP-91_-_Impact_Study_for_Non-Beam_WPT.docx)) 3. Report ITU-R SM.2303 “Wireless power transmission using technologies other than radio frequency beam” 4. Report ITU-R [SM.2449](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-SM.2449-2019-PDF-E.pdf) “Technical characteristics and impact analyses of non-beam inductive wireless power transmission for mobile and portable devices on radiocommunication services” 5. APT recommendation on WPT ([APT/AWG/REC-10 (Rev.1)](https://www.apt.int/sites/default/files/2021/01/APT-AWG-REC-10Rev.1_Frequency_Ranges_for_Non-Beam_WPT_for_Mobile_and_Portable_Devices.docx)) 6. ECC Report 333 |
| **Related Forums and Organization** | ITU-R SG 1/WP 1A |
| **Timelines** | * AWG-27   + Initiate the task in AWG.   + Introduce the work plan to WG-SPEC / Sub-WG SA&H   + Develop the questionnaire on 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz bands for non-beam mobile and portable WPT. * AWG-28   + Collect the responses to the questionnaire and summarize the regulatory status in APT member countries.   + Develop a working document towards a draft [new] APT/AWG Report on the impact studies for the 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz frequency ranges.   + Review the ITU-R and other organizations’ activities. * AWG-29   + Collect the responses to the questionnaire and summarize the regulatory status in APT member countries.   + Complete the survey report and output it in AWG-29. * AWG-30   + Develop a working document towards a draft [new] APT/AWG Report on the impact study for the 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz range based on the input contributions.   + Develop a working document towards a draft APT/AWG recommendation. * AWG-31   + Continue to develop the impact study report.   + Continue to develop a working document towards a draft APT/AWG recommendation. * AWG-32   + Finalize the impact study report.   + Finalize the APT/AWG recommendation. |

**7.3.3.3 WPT for moving machines**

|  |  |
| --- | --- |
| **Title** | **WPT for moving machines** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG -TER /TG WPT/ Chan Hyung CHUNG, (Korea) |
| **Editor(s)** | Mr. YongJu Park (Republic of Korea) |
| **Scope** | To draft and complete the APT survey and technical report on WPT for moving machines. collect transmit power and specific technology of WPT for moving machines.  To collect information on frequency bands to use, technical regulations, if any and related matters of WPT for moving machines.  Moving machines within the scope of this survey are   * + A mechanically, electrically, or electronically operated device for performing a task which provides various services in human life   + Possible applications can include, but are not limited to, housework, life support, light transport, cleaning, entertainment and etc.   + Moving machines can include, but are not limited to, Automated Guided Vehicle (AGV), service robot, transport supporting robot (e-bike, wheel chair and etc.), drone and etc.   And moving machines within the scope of this survey does not address   * + Portable devices which are objects that must be moved by a person (Smart devices, Wearable devices, Tablets, Laptop, Camera and etc.)   + Electric Vehicles (EVs) that uses electric motors for transport (EVs include road and rail vehicles, water vessels, electric aircraft and etc.) |
| **Purpose** | Study and identify frequency ranges and service applications used for WPT for moving machines in APT countries:  1. To facilitate smooth deployment of WPT for moving machine systems;  2. To maximize users’ benefit of WPT for moving machines;  3. To share useful information and technologies with APT countries; |
| **Related Document** | 1. APT Survey Report on WPT 2. APT Report on WPT 3. ITU-R Question ITU-R 210-3/1 “Wireless power transmission” 4. Report ITU-R SM.2303-2“Wireless power transmission using technologies other than radio frequency beam” 5. Report ITU-R SM.2392-0 “Applications of wireless power transmission via radio frequency beam” 6. Recommendation ITU-R SM.2110-1 “Guidance on frequency ranges for operation of non-beam wireless power transmission for electric vehicles” 7. Recommendation ITU-R SM.2129-0 “Guidance on frequency ranges for operation of non-beam wireless power transmission systems for mobile and portable devices” |
| **Related Forums and Organization** | APG, ITU-R SG1, WP 1A and IEC |
| **Timelines** | **AWG-27**   * Approval of the work item and its work plan on WPT for moving machines   **AWG-28**   * Prepare Survey Questionnaire and Circulation to APT member countries   **AWG-29**   * Collect answers and prepare Drafting the New Survey Report on WPT for moving machines   **AWG-30**   * Collect answers on WPT for moving machines * Review and update Drafting the New Survey Report   **AWG-31**   * Approval of PDNR for an AWG output for New Survey Report * Analyze the need of further work for technical report focused on WPT for moving machines * Approval of new proposal on technical report of WPT for moving machines   **AWG-32**   * Review and update DNR   **AWG-33**   * Review and update DNR   **AWG-34**   * Approval of DNR for technical report of WPT for moving machines * Decision to develop APT technical report of WPT for moving machines |

**7.3.3.4 WPT Workshops**

|  |  |
| --- | --- |
| **Title** | **WPT Workshops** |
| **Document Type** | N/A |
| **Group/Chair** | WG-TER/TG WPT/ Chan Hyung CHUNG (Korea) |
| **Convener(s)** | Dr. Satoshi.Tsukamoto(Japan) |
| **Scope** | WPT topics on (and not limited to)   1. Applications and services, 2. WPT technology tutorial, 3. Research and Development, 4. Study and assessment on radiation protection, EMC, RF exposure to a human body, power efficiency, etc., 5. Suitable frequency ranges for harmonization, 6. Standardization and regulatory development status. |
| **Purpose** | 1. To share the cutting edge of knowledge and latest information on WPT 2. To provide study materials for WPT implementation in APT 3. To exchange thoughts and discuss practical challenges on WPT in APT |
| **Related Document** | N/A |
| **Related Forums and Organization** | SWG-SA&H as invited to attend from spectrum harmonization aspects. |
| **Timelines** | **(AWG-28)**   * Approval of the Workplan * Appointment of the convenor * Call for presentations / papers.   **(AWG-29)**   * 1st Workshop on the following: * Status of standardizations and regulations in APT region/country, ITU-R, CISPR, ISO/IEC, and WPT related organizations/forums * Accepted from open call.   **(AWG-30)**   * 2nd Workshop on the following: * RF Beam WPT technologies * Accepted from open call.   **(AWG-31)**   * 3rd Workshop on the following: * Non-Beam WPT technologies * Accepted from open call.   **(AWG-32)**   * 4th Workshop on the following: * New technologies, applications, and services * Accepted from open call. |
| **Notes** | 1. TG-WPT hosts and advertises the Workshops. 2. The convenor, who is appointed as an agreement at TG-WPT, is responsible on guidance of the workshops, accepting presentations, arrangement of agenda items, securing workshop resources (venue, date, and time) via consulting with the TG-Chair, and communication with the concerned persons / groups. 3. Speakers, target audience, participants will be TG-WPT participants, and WPT-related delegates attending AWG. 4. Treatment of documents to be presented in the workshop: Presentation materials must be prepared as “Information document” of the AWG meeting. If it contains proposal(s), the presenter must consult the convenor in advance. 5. Output documents: The presentation materials may be edited and summarized in a form of Report if agreed in TG-WPT. |

**7.3.4 Task Group on Railway Radiocommunications (TG-RR)**

**7.3.4.1 Railway radiocommunication applications using 5G technology and beyond in some APT Countries**

|  |  |
| --- | --- |
| **Title** | **APT Report on “Railway Radiocommunication Applications using 5G technology and beyond in some APT Countries”** |
| **Document Type** | APT Report |
| **Group/Chair** | TG on Railway/ Mr. Liu Bin |
| **Editor(s)** | Mr. Ding Baiyi |
| **Scope** | 1. To study the operational scenarios of railway radiocommunication applications using 5G technology and beyond. 2. To share technical information about railway radiocommunication applications using 5G system and beyond. 3. To share field testing studies of railway radiocommunication applications using 5G system and beyond. 4. To share experiences of deployment of railway radiocommunication applications using 5G system and beyond. |
| **Purpose** | To provide administrations and railway operators with relevant information on experiences and supplemental studies of railway radiocommunication applications using 5G technology and beyond in some APT countries. |
| **Related Document** | The APT report [APT/AWG/REP-78](https://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-78_APT_Report_RSTT_System_Description.docx), [APT/AWG/REP-94](https://www.apt.int/sites/default/files/2019/07/APT-AWG-REP-94_-_TG_RR.docx),  Report [ITU-R M.2418-0](https://extranet.itu.int/brdocsearch/_layouts/15/WopiFrame.aspx?sourcedoc=%7B84809995-A8DD-4192-8D69-F2A1DDDC0B0C%7D&file=R-REP-M.2418-2017-MSW-E.docx&action=default), [ITU-R M.2442](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2442-2019-MSW-E.docx)-0, |
| **Related Forums** | **ITU-R WP5A** |
| **Timelines** | **The 28th meeting of AWG**  🡪 to develop a work plan.  **The 29th meeting of AWG**  🡪 to collect information according to contributions from APT Members.  **The 30th meeting of AWG**  🡪 to collect information according to contributions from APT Members  **The 31st meeting of AWG**  🡪 to form a working document  **The 32nd meeting of AWG**  🡪 to improve the working document and to finalize it, if possible. |

Note: APT members are encouraged to contribute to this work item actively. However, by the AWG-32, if there is no contribution on this work item, the AWG will decide whether to terminate this work item accordingly.

**7.3.4.2 Railway radiocommunication applications using satellite technology in some APT countries**

|  |  |
| --- | --- |
| **Title** | **APT Report on “Railway Radiocommunication Applications using Satellite Technology in some APT Countries”** |
| **Document Type** | APT Report |
| **Group/Chair** | TG on Railway/ Mr. Liu Bin |
| **Editor(s)** | Mr. Ding Baiyi and Mr. Kazuki NAKAMURA |
| **Scope** | 1. To study the operational scenarios of railway radiocommunication applications using satellite technology 2. To share technical information about railway radiocommunication applications using satellite technology 3. To share field testing studies of railway radiocommunication applications using satellite technology 4. To share experiences of deployment of railway radiocommunication applications using satellite technology |
| **Purpose** | To provide administrations and railway operators with relevant information on experiences and supplemental studies of railway radiocommunication applications using satellite technology. |
| **Related Document** | The APT report [APT/AWG/REP-78](https://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-78_APT_Report_RSTT_System_Description.docx), [APT/AWG/REP-94](https://www.apt.int/sites/default/files/2019/07/APT-AWG-REP-94_-_TG_RR.docx),  Report [ITU-R M.2418-0](https://extranet.itu.int/brdocsearch/_layouts/15/WopiFrame.aspx?sourcedoc=%7B84809995-A8DD-4192-8D69-F2A1DDDC0B0C%7D&file=R-REP-M.2418-2017-MSW-E.docx&action=default), [ITU-R M.2442](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-M.2442-2019-MSW-E.docx)-0, |
| **Related Forums** | **ITU-R WP5A** |
| **Timelines** | **The 30th meeting of AWG**  🡪 to collect information according to contributions from APT Members, and to establish a working document  **The 31st meeting of AWG**  🡪 to improve the working document  **The 32nd meeting of AWG**  🡪 to improve the working document  **The 33rd meeting of AWG**  🡪 to finalize the Report, if possible |

**7.3.5 Task Group on Wireless Access Systems including Radio Local Access Networks (TG WAS/RLAN)**

**7.3.5.1** **Radio Local Area Networks (RLAN)**

|  |  |
| --- | --- |
| **Title** | **New APT Report on** **Radio Local Area Networks (RLAN)** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-TER /TG WAS/RLAN/Mr. Bharat Bhatia |
| **Editor(s)** | Dr. Punit Rathod |
| **Scope** | This Report provides an overview of technology developments and implementation aspects of Radio Local Area Networks (RLAN). It reviews previous reports such as on 5 GHz, new developments on the 6 GHz band  The report will cover an overview of:   * Global trends in Radio Local Area Networks (RLAN) technologies * On-going industry developments and technical improvements in Radio Local Area Networks (RLAN) * Use cases and experiences of implementation of Radio Local Area Networks (RLAN) * Information on RLAN rules adopted by APT and non-APT administrations |
| **Purpose** | To provide APT Members with relevant information and guidance on Radio Local Area Networks (RLAN) technologies as mentioned in the scope. |
| **Related Document[[1]](#footnote-1)** | * APT- AWG Recommendation 6 * APT -AWG Reports 7, 31, 35 and 104 |
| **Related Organization** | IEEE, 3GPP, ITU-R WP5A, [Wi-Fi Alliance, Winnforum,] |
| **Timelines** | **2022**  AWG-30 (September 22)   * + Consider received contribution,   + Develop a work plan   + Develop and issue a questionnaire to APT Members   **2023**  AWG-31 (TBD)   * + Consider received contributions,   + Develop a working document and update work plan   **2024**  AWG-32 ( TBD)   * + Consider received contributions,   + Update the working document   AWG-33 ( TBD)   * + Consider received contributions   + Update the working document and finalize it as an APT/AWG Report |

**7.3.6 Drafting Group on Ultra-Wide Band (DG-UWB)**

**7.3.6.1 Revision of APT Report on Ultra-Wide Band (UWB)**

|  |  |
| --- | --- |
| **Title** | **Revision of APT Report on "Ultra Wide Band(UWB)”** |
| **Document Type** | APT Report |
| **Group/Chair** | WG-TER Chair Mr. Takahiko Yamazaki, Japan |
| **Editor(s)** | Juyeon Song, Jack Lee (Samsung)  Song Qiaojian (Apple) |
| **Scope** | 1. To revise APT Report on UWB |
| **Purpose** | To provide administrations and industries in Asia-Pacific region with up-to- date information of UWB technology, application and regulation  To collect the latest regulation of UWB in Asia-Pacific countries |
| **Related Document** | [APT/AWG/REP-01 (Rev.2)](https://www.apt.int/sites/default/files/Upload-files/AWG/AWG-26%20Circulars/APT-AWG-REP-01Rev.2_-_APT_Report_on_Ultra-Wide_Band.doc) |
| **Related Forums** | ITU-R WP1A, FiRa Consortium, UWB Alliance, ETSI |
| **Timelines** | **2022 September (AWG-30)**   * Approve workplan to revise the APT Report on UWB and set up a responsible group * Develop working document towards the revision of APT/AWG Report on UWB based on input contributions * Call for contributions to Administrations to update UWB regulation * Send LS reply to ETSI TC ERM   **2023 May (AWG-31)**   * Develop working document towards a revision of APT/AWG Report on UWB based on input contributions * Review the working document towards the revision of the APT Report on UWB. * Send LS reply to ETSI TC ERM   **2024 March (AWG-32)**   * Develop working document towards a revision of APT/AWG Report on UWB based on input contributions * Finalize the revision of the APT Report on UWB. |

**7.4 Working Group on Working Group on Space, Aeronautical and Maritime (WG-SAM)**

**7.4.1 Sub-Working Group on Satellite Systems (SWG-SAT)**

**7.4.1.1 Multilayered network access using satellite systems**

|  |  |
| --- | --- |
| **Title** | **[MULTILAYERED NETWORK ACCESS USING SATELLITE SYSTEMS]** |
| **Document Type** | Report |
| **Group/Chair** | WG Space, Aeronautical and Maritime/SWG-Satellite Systems (SWG-SAT) |
| **Editor(s)** | Chair, SWG-SAT |
| **Scope** | To develop multilayered network by satellite communication systems and other communication systems interconnected for the integration of satellite systems into next generation access technologies in the Asia Pacific region. |
| **Purpose** | To provide APT members with information related to multilayered network using satellites within Asia Pacific countries, and to discuss on the technologies and  applications. |
| **Related Document** | NONE |
| **Related Forums** | ITU WP 4B |
| **Timelines** | **2022:**  AWG-29  Initial revision of Terms of Reference and workplan  AWG-30  Consider input contributions and develop the report  **2023:**  AWG-31  Continue development of report  **2024:**  AWG-32  Continue development of report  AWG-33 Finalize report |

**7.4.1.2 Non-GSO Earth Station Terminals in the Ku-band**

|  |  |
| --- | --- |
| **Title** | **APT Report on Non-GSO Earth Station Terminals in the Ku-band** |
| **Document Type** | Report |
| **Group/Chair** | SWG-SAT |
| **Editor(s)** | Chair, SWG-SAT |
| **Scope** | To develop new report for NGSO terminals on Ku-band |
| **Purpose** | To develop APT report that would inform the system and operational characteristics of the non-GSO FSS Earth stations on vessel and aircraft operating in the frequency bands 10.7-12.75 GHz (space-to-Earth) and 14-14.5 GHz (Earth-to-space). |
| **Related Document** | APT/AWG/REP-110 APT Report on VMES for GSO FSS networks in the Ku-band  ECC Report 271 Compatibility and sharing studies related to NGSO  satellite systems operating in the FSS bands 10.7-12.75  GHz (space-to-Earth) and 14-14.5 GHz (Earth-to-space)  ECC Decision 18(05) |
| **Related Organization** | TBD |
| **Timelines** | **2022**   * AWG-29 * Initiate the study to develop WD towards a draft new APT Report. * Develop work plan * AWG-30 * Consider the input contributions * Develop to develop WD towards a draft new APT Report. * Review and update the work plan, if necessary   **2023**   * AWG-31 * Consider the input contributions * Update WD towards a draft new APT Report   **2024**   * AWG-32 * Consider the input contributions * Update and finalize new APT Report |

**7.4.1.3 Technology and regulatory developments for the delivery of 5G/IMT-2020**

**applications in the mobile satellite service**

|  |  |
| --- | --- |
| **Title** | **Technology and regulatory developments for the delivery of 5G/IMT-2020 applications in the Mobile Satellite Service** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | Working Group on Space, Aeronautical and Maritime (WG SAM), Sub-Working Group Satellite (SWG-SAT) |
| **Editor(s)** | Chair, SWG-SAT |
| **Scope** | To collect information on IMT-2020/5G services in the Mobile Satellite Service |
| **Purpose** | To inform the APT membership on the present state of technology and regulation of IMT-2020/5G in the Mobile Satellite Service |
| **Related Document** | TBD |
| **Related Organization** | ITU-R, 3GPP |
| **Timelines** | **AWG-30 (September, 2022)**   * Develop work plan and timeline, * Consider the structure of APT/AWG Report * Initiate a working document for a draft APT/AWG Report.   **AWG-31 (2023)**   * Consider input contributions, * Update a working document for a draft APT/AWG Report * Review the workplan   **AWG-32 (2024)**   * Consider input contributions, * Update the working document for a draft APT/AWG Report * Review the workplan   **AWG-33 (2024)**   * Consider input contributions, * Update the working document and finalize it as an APT/AWG Report |

**7.4.2 Task Group on Aeronautical and Maritime (TG-A&M)**

**7.4.2.1 Study for** **air-to-ground communication system based on IMT technologies in the APT Region**

|  |  |
| --- | --- |
| **Title** | **Air-to-ground communication system based on IMT technologies in the APT Region** |
| **Document Type** | APT Report |
| **Group/Chair** | TG A&M |
| **Editor(s)** | Ms. Dong ZHAO/ Mr. Xi MENG (CHN) |
| **Scope** | To study and collect current and potential planned Air-to-ground (ATG) applications based on IMT technology. The studies include investigations on:   * global trends of ATG based IMT technologies * on-going standardization progress in standards developing organizations * examples or experiences of industry developments |
| **Purpose** | To provide APT Members with relevant information on ATG based IMT technologies. |
| **Related Document** | 1. APT/AWG/Rep-95: APT Report on Broadband Wireless Air-To-Ground Communications Links with Passenger Aircraft 2. Report ITU-R M.2282: Systems for public mobile communications with aircraft. 3. 3GPP TR 38.876: Study on Air-to-ground network for NR (Release 18) |
| **Related Organization** | ITU-R SG5 (WP5A and WP5D), 3GPP, GSMA |
| **Timelines** | **AWG-31 (Ha Noi, Viet Nam) in May 2023**   1. Consider the draft new APT Report 2. Develop a detailed workplan 3. Draft a questionnaire   **AWG-32 ([When & where, TBD])**   1. Prepare a draft Report framework 2. Develop the questionnaire 3. Consider the received contributions 4. Discussion of the draft Report   **AWG-33 ([When & where, TBD])**   1. Consider the received contributions 2. Consider responses to the Questionnaire 3. Finalize the Report   *Note: The finalization date is of indicative nature as it will depend on the progress of work and the extent of any possible contributions. This workplan may therefore be adjusted at each meeting.* |

**8. SUMMARY OF WORK PLAN STATUS**

| **No.** | **Work Item** | **Responsible Group** | **Expected**  **Deliverable** | **Completion Target** |
| --- | --- | --- | --- | --- |
| 1 | PMSE frequency usage in the 470-806 MHz band in Asia Pacific region | WG-HAR  (SWG-SA&H) | Report | AWG-32 |
| 2 | Sharing and compatibility studies for selected frequency bands below 6 GHz | WG-HAR  (SWG-SS) | Report(s) | AWG-32 |
| 3 | Recent case studies on typical radio interference, their causes and solutions | WG-HAR  (SWG-SM) | Report | AWG-34 |
| 4 | Technical guideline for monitoring and locating RBS devices | WG-HAR  (SWG-SM) | Report | AWG-33 |
| 5 | Future spectrum planning for advanced IMT coverage and capacity improvements in 2025~2030 in Asia-Pacific region | WG-IMT  (SWG-IMT SPEC) | Report | AWG-32 |
| 6 | Methodology and pricing of IMT spectrum in Asia Pacific countries | WG-IMT  (SWG-IMT SPEC) | Report | AWG-32 |
| 7 | Studies on development approaches/challenges and solutions for IMT-2020/5G use case | WG-IMT  (SWG-IMT TECH) | Report | AWG-34 |
| 8 | Survey on current status of voluntary testing and certification requirements of mobile devices in mobile network operators | WG-IMT  (SWG-IMT TECH) | Report | AWG-33 |
| 9 | Studies on technical and regulatory aspects of RAN/spectrum sharing in IMT among Mobile Network Operators in Asia Pacific region | WG-IMT  (SWG-IMT TECH) | Report | AWG-33 |
| 10 | Revision of APT Report on implementation of Public Safety LTE (PS-LTE) mobile broadband capability in Asia Pacific region | WG-IMT  (TG-PPDR) | Report | AWG-33 |
| 11 | HAPS industry and ecosystem for broadband connectivity | WG-IMT  (TG-HAPS) | Report | AWG-33 |
| 12 | Terahertz fixed wireless systems operating in the frequency above 450 GHz | WG-TER  (TG-FWS/GBRS) | Report | AWG-33 |
| 13 | Revision of APT Report on FWS link performance under severe weather | WG-TER  (TG-FWS/GBRS) | Report | AWG-33 |
| 14 | Revision of APT Report on point-to point radiocommunication systems operating in the frequency range 252-296 GHz | WG-TER  (TG-FWS/GBRS) | Report | AWG-32 |
| 15 | X-band dual-polarized solid-state rainfall radar necessary for use in optimal dam and river management systems | WG-TER  (TG-FWS/GBRS) | Report | AWG-34 |
| 16 | Millimeter wave radar/sensor technologies for ITS in APT countries | WG-TER  (TG-ITS) | Report | AWG-34 |
| 17 | Usage of cooperative Vehicle-Infrastructure ITS systems | WG-TER  (TG-ITS) | Report | AWG-34 |
| 18 | Radio frequency beam WPT | WG-TER  (TG-WPT)[[2]](#footnote-2) | Report/  Recommendation | AWG-32 |
| 19 | Study of 300 – 400 kHz, 1610 – 1950 kHz and 1950 – 2150 kHz frequency ranges for mobile and portable non-beam WPT devices | WG-TER  (TG-WPT)[[3]](#footnote-3) | Report/  Recommendation | AWG-32 |
| 20 | WPT for moving machines | WG-TER  (TG-WPT) | Report | AWG-34 |
| 21 | WPT workshops | WG-TER  (TG-WPT) | N/A | AWG-32 |
| 22 | Railway radiocommunication applications using 5G technology and beyond in some APT countries | WG-TER  (TG-RR) | Report | AWG-32 |
| 23 | Railway radiocommunication applications using satellite technology in some APT countries | WG-TER  (TG-RR)[[4]](#footnote-4) | Report | AWG-33 |
| 24 | Radio Local Area Networks (RLAN) | WG-TER  (TG-WAS/RLAN) | Report | AWG-33 |
| 25 | Revision of APT Report on Ultra-Wide Band (UWB) | WG-TER  (DG-UWB) | Report | AWG-32 |
| 26 | Multilayered network access  using satellite systems | WG-SAM  (SWG-SAT) | Report | AWG-33 |
| 27 | Non-GSO Earth Station Terminals in the Ku-band | WG-SAM  (SWG-SAT) | Report | AWG-32 |
| 28 | Technology and regulatory developments for the delivery of 5G/IMT-2020 applications in the mobile satellite service | WG-SAM  (SWG-SAT) | Report | AWG-33 |
| 29 | Study for air-to-ground communication system based on IMT technologies in the APT Region | WG-SAM  (TG-A&M) | Report | AWG-33 |

1. Also see for reference ECC Decision ( 20 ) 01 On the harmonised use of the frequency band 5945-6425 MHz for Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) and <https://docs.fcc.gov/public/attachments/FCC-20-51A1.pdf> [↑](#footnote-ref-1)
2. WG-HAR (SWG-SA&H) will be Supporting Group [↑](#footnote-ref-2)
3. WG-HAR (SWG-SA&H) will be Supporting Group [↑](#footnote-ref-3)
4. WG-SAM (SWG-SAT) will be Supporting Group [↑](#footnote-ref-4)