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**APT Wireless Group Work Plan**

Updated at

The 29th Meeting of APT Wireless Group

21 - 29 March 2022

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# 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. Following AWG structure 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.

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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) | Task Group on Satellite Systems  (TG 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) |

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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. |

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**Task Groups of Working Group on Space, Aeronautical and Maritime**

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| **TG Satellite Systems** | * 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 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 OFFICE BEARERS

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| **Position** | **Name** | **Email** |
| AWG Chair | **Mr. Le Van Tuan**  Viet Nam Telecommunication Authority  Viet Nam (Socialist Republic of) | [lvtuan@vnta.gov.vn](mailto:lvtuan@vnta.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](mailto: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) | **Mr. Bharat Bhatia**  ITU-APT Foundation of India  India (Republic of) | [bharat.bhatia@itu-apt.org](mailto:bharat.bhatia@itu-apt.org) |
| 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**  Association of Radio Industries and Businesses  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) |

**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 Revision of APT/AWG/REP-79 APT Report on frequency arrangements for IMT in the band 470 –698 MHz**

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| **Title** | **Revision of APT/AWG/REP-79 APT Report on frequency arrangements for IMT in the band 470 –698 MHz** |
| **Document Type** | Report |
| **Group/Chair** | WG-HAR/Sub-WG SAH/Ms. LYU Boya  WG-IMT/Sub-WG IMT SPEC/Mr. Michael Park |
| **Editor(s)** | Dr. Mansoor Shafi |
| **Scope** | To revise the APT/AWG/REP-79 to develop frequency arrangements in the band 470-703 MHz for those countries in APAC that wish to implement both the APT700 and a 600 MHz frequency arrangements that is optimal for APT countries |
| **Purpose** | To revise the APT/AWG/REP-79 to develop frequency arrangements in the band 470-703 MHz for those countries in APAC that wish to implement both the APT700 and a 600 MHz frequency arrangements that is optimal for APT countries  To support and assist APT Members in using the radio frequency spectrum and deploying radio networks effectively |
| **Related Document** | APT/AWG/REP-79 APT REPORT ON  FREQUENCY ARRANGEMENTS FOR IMT IN THE BAND 470 –698 MHZ  ITU-R Recommendation M. 1036-6 |
| **Related Organization** | ITU-R WP5D  3GPP |
| **Timelines** | **AWG-26 (Sep. 2020 online)**   * Consider input documents * Develop workplan * Develop working document * Prepare and send Liaison Statement to 3GPP   **AWG-27 (2021)**   * Consider input documents * Consider reply from 3GPP * Continue developing working document * Prepare and send a further Liaison Statement to 3GPP if necessary.   **AWG-28 (2021)**   * Consider input documents   **AWG-29 (Mar. 2022)**   * Consider input documents * Consider reply from 3GPP * Prepare and send a further Liaison Statement to 3GPP if necessary. * Continue developing working document   **AWG-30 (Sep. 2022)**   * Consider input documents * Finalise revision of APT/AWG/REP-79 for approval |

**7.1.1.2 Frequency arrangement for terrestrial component of IMT systems in the frequency bands 1920-2010 and 2110-2200 MHz**

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| **Title** | **Frequency arrangement for terrestrial component of IMT systems in the frequency bands 1920-2010 and 2110-2200 MHz** |
| **Document Type** | Recommendation/Report |
| **Group/Chair** | SWG-SA&H/Ms. Lu Boya |
| **Editor(s)** | [Viet Nam] |
| **Scope** | To develop possible frequency arrangements for terrestrial component of IMT systems in the bands 1920-2010 and 2110-2200 MHz for administrations wishing to implement IMT in APT region taking account of regulatory guidelines from Resolution 212 (Rev.WRC-19) and sharing and compatibility with other services/systems. |
| **Purpose** | To support Administrations in the implementation for terrestrial component of IMT systems the frequency bands 1920-2010 and 2110-2200 MHz. |
| **Related Document** | Recommendation ITU-R M.1036-6  Resolution 212 (Rev.WRC-19)  Progress / Outcome of SWG Sharing Studies |
| **Related Organization** | ITU-R  3GPP |
| **Timelines** | **2021**  AWG-28:   * + Initiate the work   + Discuss and develop a draft new Report based on the contributions and meeting discussions.   + Develop draft work plan and timeline   **2022**  AWG-29:   * + Consider input documents   + Continue to develop the working document based on the collected responses.   AWG-30:   * + Finalize the recommendation/report of APT/AWG based on the results of compatibility studies. |

**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-SPEC/Sub-WG Sharing Studies/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 neighboring 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. |

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

**7.1.3.1 Technical Guideline for Spectrum Monitoring During Major Events in Asia Pacific Region**

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| **Title** | **Technical Guideline for Spectrum Monitoring During Major Events in Asia Pacific Region** |
| **Document Type** | Report |
| **Group/Chair** | WG-SPEC/Sub-WG SM/Mr. Zheng Gaozhe |
| **Editor(s)** | -- |
| **Scope** | To provide technical guideline and share the experiences for Spectrum Monitoring During Major Events for APT countries. |
| **Purpose** | - To support and assist APT Countries spectrum monitoring method to avoid/minimize radio frequency interference during major events.  - To share experiences among APT Countries in spectrum monitoring during major events. |
| **Related Document** | Report ITU-R SM.2257-5 (06/2019) Spectrum Management and Spectrum Monitoring During Major Events |
| **Related Organization** | APT  ITU-R |
| **Timelines** | **2021**  **AWG-27**   * + Develop a workplan for the studies   + Discuss and develop a Working Document Towards Draft New Apt Report On Spectrum Management and Spectrum Monitoring During Major Events in Asia Pacific Region based on the contributions and meeting discussions.   **2021**  **AWG-28**   * + Continue to develop the working document based on the contributions and meeting discussions.   + Review the working document based on the contributions and meeting discussions.   **2022**  **AWG-29**   * + Continue to develop the working document based on the contributions and meeting discussions.   + Review the working document based on the contributions and meeting discussions.   **2022**  **AWG-30**   * + 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 |

**7.2 Working Group on 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) | TBD |
| Scope | Study on future spectrum planning for advanced IMT coverage and capacity improvements in 2025~2030 in Asia Pacific Region accounting for the service and technology trends.   * Mobile connectivity targets (examples includes speed, throughput, coverage), fixed broadband connectivity targets and foreseen IMT deployment. * Spectrum planning for advanced IMT 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 and beyond in the Asia Pacific Region. |
| Related Document | AWG-28/INP-59  AWG-28/OUT-05 |
| Related Forums and Organization | None |
| Timelines | **AWG-29**   * Start new work item * Create and develop a work plan and timeline * Create and develop the working document   **AWG-30**   * Consider received contributions * Update the working document and the detailed workplan * Prepare and issue a questionnaire to APT Members * Invite APT Members to respond to the questionnaire by AWG-31   **AWG-31**   * Consider received contributions * Update the working document and finalize it as an APT/AWG Report |

**7.2.1.2 Current status and future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz**

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| --- | --- |
| **Title** | **Current status and future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific countries** |
| **Document Type** | REPORT |
| **Group/Chair** | SWG IMT Spectrum / Dr. Michael Park |
| **Editor(s)** | [Viet Nam] |
| **Scope** | To collect information on the current status and future plan in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific countries |
| **Purpose** | To develop APT report that would provide information on the current status and future plan in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific countries |
| **Related Document** | TBD |
| **Related Organization** | TBD |
| **Timelines** | **2022**  AWG-29   * Initiate the study to develop new questionnaire. * Develop work plan   AWG-30   * Consider the response to questionnaire. * 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 and finalize new APT Report |

**7.2.1.3 Frequency Arrangement for IMT in the Frequency Band 3300-3400 MHz**

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| **Title** | **Frequency Arrangement for IMT in the Frequency Band 3300-3400 MHz** |
| Document Type | Report |
| Group/Chair | SWG IMT Spectrum / Dr. Michael Park |
| Editor(s) | Viet Nam |
| Scope | To develop possible harmonized frequency arrangement for IMT in the frequency band 3 300-3 400MHz in APT region |
| Purpose | To develop APT Report for harmonized frequency arrangement in the band 3 300-3 400MHz for IMT systems  To develop contribution to ITU-R WP5D with respect to frequency arrangement in the band 3 300-3 400MHz for IMT systems, if required |
| Related Document | Recommendation ITU-R M.1036-6  APT/AWG/REP-101 APT Report on frequency arrangement in the band 3 300-3 400MHz |
| Related Organization | TBD |
| Timelines | 2021   * AWG-28 * Initiate the study to develop WD towards a draft new APT Recommendation. * Develop work plan   2022   * AWG-29 * Consider the input contributions * Develop WD towards a draft new APT Report. * Review and update the work plan, if necessary * AWG-30 * Consider the input contributions   + Update and finalize new APT Report |

**7.2.1.4 Frequency Arrangement for IMT in the Frequency Band 4800-4990 MHz**

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| --- | --- |
| **Title** | **Frequency Arrangement for IMT in the Frequency Band 4800-4990 MHz** |
| Document Type | Report |
| Group/Chair | SWG IMT Spectrum / Dr. Michael Park |
| Editor(s) | Viet Nam |
| Scope | To develop possible harmonized frequency arrangement for IMT in the frequency band 4 800 – 4 990 MHz in APT region |
| Purpose | To develop APT Report for harmonized frequency arrangement in the band 4 800 – 4 990 MHz for IMT systems  To develop contribution to ITU-R WP5D with respect to frequency arrangement in the band 4 800 – 4 990 MHz for IMT systems, if required |
| Related Document | Recommendation ITU-R M.1036-6  APT/AWG/REP-103 APT Report on frequency arrangement in the band 4 800 – 4 990 MHz |
| Related Organization | TBD |
| Timelines | 2021   * AWG-28 * Initiate the study to develop WD towards a draft new APT Recommendation. * Develop work plan   2022   * AWG-29 * Consider the input contributions * Develop WD towards a draft new APT Report. * Review and update the work plan, if necessary * AWG-30 * 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 5G implementation in frequency bands above 24.25 GHz**

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| --- | --- |
| **Title** | **Studies on 5G implementation in frequency bands above 24.25 GHz** |
| Document Type | APT/AWG Report |
| Group/Chair | WG-IMT/Sub-WG IMT TECH, Yasuhiro Kato (J) |
| Editor(s) | Diwakar Sharma (Samsung) |
| Scope | To study current or intended implementation of 5G in the frequency bands above 24.25 GHz. The studies include investigations on:   * global trends of 5G implementation * on-going specification developments by 3GPP * ITU-R studies and developments * on-going industry developments * case studies in those countries that have implemented or plan to implement 5G |
| Purpose | To provide APT Members with relevant information on 5G mentioned in the scope. |
| Related Document | APT/AWG/REP-15: Information of Mobile Operator’s Frequencies, Technologies and License Durations in Asia Pacific Countries |
| Related Organization | 3GPP, ITU-R |
| Timelines | **AWG-24 (September,2018)**   * + Consider received contributions,   + Develop a work plan and timeline,   **AWG-25 (July, 2019)**   * Consider received contributions, * Develop a working document and update work plan   **AWG-26 (September, 2020)**   * Consider received contributions, * Update the working document and the detailed workplan   **AWG-27 (March, 2021)**   * Consider received contributions, * Update the working document   **AWG-28 (September, 2021)**   * Consider received contributions, * Update the working document and the detailed workplan   **AWG-29 (March, 2021)**   * Consider received contributions, * Update the working document   **AWG-30**   * Consider received contributions,   + Update the working document and finalize it as an APT/AWG Report. |

**7.2.2.2 Studies on OTA testing methodology**

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| --- | --- |
| **Title** | **Studies on OTA testing methodology** |
| Document Type | APT/AWG Report |
| Group/Chair | WG-IMT/Sub-WG IMT TECH, Mr. Yasuhiro Kato (J) |
| Editor(s) | Lu Gao (Qualcomm) |
| Scope | To survey and study OTA testing methodologies for mmWave 5G UE |
| Purpose | 1. To share status and experience among APT members on mmWave 5G UE OTA test measurement using questionnaire 2. To identify challenges on OTA measurement 3. To collect the information on OTA test methodologies in 3GPP specification   To draft and complete the APT Report on OTA test methodology for 5G user equipment in mmWave within APT countries |
| Related Document | None |
| Related Organization | ITU-R WP 1B, 1C, 3GPP RAN4, RAN 5 |
| Timelines | **AWG-26 (September, 2020)**   * Discussion on initiation of work item   **AWG-27 (March, 2021)**   * Develop the detail workplan * Prepare questionnaires to seek the information of 5G OTA method from APT Members * Invite APT members to provide their initial response to the questionnaire until AWG-28   **AWG-28 (September, 2021)**   * Consider relevant input documents * Review the initial responses from APT members and correspond to input contributions   **AWG-29 (March, 2021)**   * Consider relevant input documents * Draft the working document towards an APT/AWG Report   **AWG-30**   * Consider relevant input documents * Finalize the working document as an APT/AWG Report |

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

|  |  |
| --- | --- |
| **Title** | **Studies on development approaches/challenges and solutions for IMT-2020/5G use case** |
| Document Type | APT/AWG Report |
| Group/Chair | WG-IMT/Sub-WG IMT TECH, Mr. Yasuhiro Kato (J) |
| Editor(s) | TBD |
| Scope | **To study various deployment approaches/challenges and solutions for IMT-2020/5G**   * Global trends on deployment challenges of IMT-2020/5G cases. * Case studies for 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) * Potential solutions for deployment of IMT-2020/5G use cases for APT region.   **To study case studies for IMT-2020/5G use cases (e.g. from operators or national project)**  [Editor’s note: Consensus has not reached in the following bullet and this shall be reviewed and discussed in future meeting.   * Regulatory measures including spectrum aspects] |
| 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 (2022)**   * Consider received contributions, * Develop a working document and update work plan   **AWG-31 (2023)**   * Consider received contributions, * Develop a working document and update work plan   **AWG-32 (2023)**   * Consider received contributions, * Update the working document and finalize it as an APT/AWG Report |

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

**7.2.3.1 Emerging Critical Applications of IMT for Industrial, Societal and Enterprise Users**

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| **Title** | **Emerging Critical Applications of IMT and use cases for Industrial, Societal and Enterprise Users** |
| Document Type | APT/AWG Report |
| Group/Chair | WG IMT/TG PPDR |
| Editor(s) | TBD |
| Scope | Development of a new APT Report on new/emerging critical applications & use cases of IMT-Advanced and IMT-2020 for industrial, societal and enterprise users, in particular in private networks which may be designed for local-area coverage or virtual private networks on a public mobile operator network |
| Purpose | To facilitate study on emerging critical applications and use cases of IMT Advanced and IMT-2020 in the Asia Pacific region |
| Related Document | TBD |
| Related Forums and Organization | ITU-R WP 5D, WP 5A, 3GPP, FCC, CEPT |
| Timelines | **2019 July (AWG-25)**   * Proposal of new AWG report. * Approval of the Work Plan   **2020 September (AWG-26)**   * Drafting of Working Document (WD) * Update the work plan   **2021 March (AWG-27)**   * Review and update the working document * Update the work plan   **2021 Sept (AWG-28)**   * Further update the working document * Send any LS if required * Update the work plan   **2022 MARCH (AWG-29)**   * Further update the working document * Send any LS if required * Update the work plan   **2022 SEPTEMBER (AWG-30 )**   * Finalize working document and approve the Report |

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

**7.2.4.1 Technical and regulatory analysis of the usage of HAPS gateway-links not specified in the Radio Regulations**

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| --- | --- |
| **Title** | **Technical and regulatory analysis of the usage of HAPS gateway-links not specified in the Radio Regulations.** |
| **Document Type** | APT Report |
| **Group/Chair** | TG-HAPS / Mr. LANG BAOZHEN (CHN) |
| **Editor(s)** | Mr. Jingyi HUANG (JPN) |
| **Scope** | To study and summarize technical studies on technical and regulatory analysis of the usage of HAPS gateway-links not specified in Radio Regulations in the following aspects,   * inter-HAPS and HAPS-satellite links * possible alternative altitude for HAPS |
| **Purpose** | To provide information on technical and regulatory analysis of the usage of HAPS gateway-links not specified in Radio Regulations in order to help APT members to understand the HAPS system entirely |
| **Related Document** | 1. 6 440-6 520 MHz, 6 560-6 640 MHz: ITU-R Rec.: F.1764, F.1891, F.2011, P.1409; 2. 27.9-28.2 GHz, 31.0-31.3 GHz: ITU-R Rec.: F.1569, F.1570, F.1607, F.1609, F.1612, SF.1601; 3. 47.2-47.5 GHz, 47.9-48.2 GHz: ITU R Rec.: F.1500, F.1501, F.1608, F.1819, F.1820, SF.1843; 4. Report ITU-R F.2240: Interference analysis modelling for sharing between HAPS gateway links in the fixed service and other systems/services in the range 5 850-7 075 MHz; 5. Report ITU-R F.2437: Sharing and compatibility studies of HAPS systems in the fixed service for the frequency band 6 440-6 520 MHz; 6. Report ITU-R F.2438: Spectrum needs of high altitude platform stations broadband links operating in the fixed service; 7. Report ITU-R F.2439: Deployment and technical characteristics of broadband high altitude platform stations in the fixed service in the frequency bands 6 440-6 520 MHz, 21.4-22.0 GHz, 24.25-27.5 GHz, 27.9-28.2 GHz, 31.0-31.3 GHz, 38.0-39.5 GHz, 47.2-47.5 GHz and 47.9-48.2 GHz used in sharing and compatibility studies; 8. Report ITU-R F.2473: Sharing and compatibility studies of HAPS systems in the fixed service in the 27.9-28.2 GHz and 31.0-31.3 GHz frequency ranges; 9. Report ITU-R F.2475: Sharing and compatibility studies of HAPS in the fixed service in the 38-39.5 GHz frequency range; 10. Report ITU-R F.2476: Sharing and compatibility studies of HAPS systems in the fixed service in the 47.2-47.5 GHz and 47.9-48.2 GHz frequency ranges; 11. Resolution **122 (Rev.WRC-19), 145 (Rev.WRC-19), 150 (WRC-12)**, **167 (WRC-19)**, **168 (WRC-19)** 12. Resolution **247 (WRC-19)** |
| **Related Organization** | ITU-R, APT |
| **Timelines** | **The 28th meeting (virtual meeting) in September 2021**   * Develop and approve the draft workplan for the studies. * Initiate the development of the first draft of a working document towards a draft new APT Report.   **The 29th meeting (virtual meeting) in March 2022**   * Continue to develop the working document based on the contributions and meeting discussions. * Update the workplan if necessary.   **The 30th meeting (Location TBD) in September 2022**   * Further develop to finalize the working document based on the contributions and meeting discussions, approve the draft APT Report as appropriate. |

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

**7.3.1 Task Group on Intelligent Transportation Systems (TG ITS)**

**7.3.1.1 Cellular based V2X for ITS applications in APT countries**

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| --- | --- |
| **Title** | **Cellular based V2X for ITS applications in APT countries** |
| Document Type | Report |
| Group/Chair | TG ITS/ Mr. Satoshi (Sam) Oyama, Japan |
| Editor(s) | Mr. Masakazu Shirota, Japan |
| Scope | Provide up-date information on Cellular based V2X technologies, spectrum, and others in APT member countries. |
| Purpose | Provide APT member countries with practical information on the currently considered Cellular based V2X technologies, spectrum, 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 WP 5A and WP 5D |
| Timelines | **The 24th meeting (Bangkok) in September 2018**   * + create a work plan   + create preliminary contents for the Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 25th meeting (Tangerang, Indonesia) in June/July 2019**   * + create initial working document toward a Preliminary Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 26th meeting (Virtual) in September 2020**   * + carry forward a working document toward Preliminary Draft New Report with input contributions   **The 27th meeting (Virtual) in March 2021**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 28th meeting (Virtual) in September 2021**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 29th meeting (Virtual) in March 2022**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + obtain agreement as a Preliminary Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 30th meeting (T.B.D.) in 2022**   * + finalize and obtain approval on the Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary |

**7.3.1.2 Millimetre wave ITS applications in APT countries**

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| --- | --- |
| **Title** | **Millimetre wave ITS applications in APT countries** |
| Document Type | Report |
| Group/Chair | TG ITS/ Mr. Satoshi (Sam) Oyama, Japan |
| Editor(s) | Dr. Kazuaki Takahashi, Panasonic, Japan |
| Scope | Provide up-date information on the currently considered ITS technologies, spectrum, status of Millimetre wave communication services and sensors in APT member countries. |
| Purpose | Provide APT member countries with practical information on the currently considered millimetre wave ITS technologies, spectrum, 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 | APG, ITU-R WP 5A |
| Timelines | **The 24th meeting (Bangkok) in September 2018**   * + create a work plan   + create preliminary contents of the Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 25th meeting (Tangerang, Indonesia) in June/July 2019**   * + create initial working document toward a Preliminary Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 26th meeting (Virtual) in September 2020**   * + carry forward a working document toward Preliminary Draft New Report with input contributions   **The 27th meeting (Virtual) in March 2021**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 28th meeting (Virtual) in September 2021**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 29th meeting (Virtual) in March 2022**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 30th meeting (T.B.D.) in 2022**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary     **The 31st meeting (T.B.D.) in March 2023**   * + modify the working document toward a Preliminary Draft New Report with input contributions   + obtain agreement as a Preliminary Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary   **The 32nd meeting (T.B.D.) in 2023**   * + finalize and obtain approval on the Draft New Report   + send liaison statement to ITU-R WP 5A and/or related organisations, if necessary |

**7.3.2 Task Group on Wireless Power Transmission (TG WPT)**

**7.3.2.1 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) | Mr. Luong Xuan Truong (Vietnam), 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” |
| Related Forums and Organization | APG, ITU-R SG1, and WP 1A |
| Timelines | **2018 April (AWG-23)**   * Approval of the Work Plan * Initiation of new report for Radio Frequency Beam WPT   **2018 September (AWG-24)**   * Prepare Drafting the New Working Document (WD)   **2019 July (AWG-25)**   * Review and update DNR   **2020 September (AWG-26)**   * Studies on spectrum sharing and impact of WPT to existing radiocommunication services and etc. * Review and update DNR   **2021 March (AWG-27)**   * Studies on spectrum sharing and impact of WPT to existing radiocommunication services and etc.   **2021 September (AWG-28)**   * -Review and update DNR Develop the questionnaire on frequency ranges used for Radio Frequency Beam WPT technologies   **2022 (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.   **2022 (AWG-30)**   * 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.   **2023 (AWG-31)**   * 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.   **2023 (AWG-32)**   * Approval of DNR for an new APT Report on impact of Radio Frequency Beam WPT on radiocommunication services.   **2024 (AWG-33)**   * Approval of DNR for an 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 |

**7.3.2.2 Frequency Ranges for Non-Beam Wireless Power Transmission for Electric Vehicles**

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| --- | --- |
| **Title** | **Frequency Ranges on Non-Beam WPT for Electric Vehicles (WPT-EV)** |
| Document Type | APT Recommendation |
| Group/Chair | WG-TER/TG WPT/Mr. Chan Hyung Chung WG-HAR/SWG SA&H/Ms. LYU Boya |
| Editor(s) | Mr. ISHIDA, Kaz (Japan) |
| Scope | Draft and complete the APT Recommendation on frequency ranges for non-beam WPT-EV |
| Purpose | Study and identify frequency ranges for non-beam WPT-EV in APT countries:   1. To ensure that non-beam WPT-EV applications and equipment minimize the potential for harmful interference to radiocommunication services including the standard frequency and time signal service and the radio astronomy service, so that these remain protected from radio frequency energy emanating from WPT-EV falling into all bands. 2. To facilitate smooth deployment of 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 WPT-EV is deployed. |
| Related Document | 1. Recommendation ITU-R SM.2110-1 “Guidance on frequency ranges for operation of non-beam wireless power transmission for electric vehicles” (In adoption / approval process in summer-autumn 2019; See Doc. [1/217(Rev.1)](https://www.itu.int/md/R15-SG01-C-0217/en)) 2. [APT/AWG/REP-76](https://www.apt.int/AWG-RECS-REPS) APT Report “Frequency Ranges used for Non-Beam WPT for Electric Vehicles” 3. Report ITU-R SM.2451-0 (WPT\_EV\_IMPACT) - Assessment of impact of wireless power transmission for electric vehicle charging (WPT-EV) on radiocommunication services (*Publication work in progress in summer 2019*; See [Doc. 1/214(Rev.1)](https://www.itu.int/md/R15-SG01-C-0214/en)) 4. ITU-R Question [ITU-R 210-3/1](https://www.itu.int/md/R12-WP3M-C-0066/en) 5. [Report ITU-R SM.2303-2](https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-SM.2303-2-2017-PDF-E.pdf) “Wireless power transmission using technologies other than radio frequency beam” 6. [APT/AWG/REC-10](https://www.apt.int/AWG-RECS-REPS) APT recommendation on frequency ranges for Non-Beam WPT for mobile devices |
| Related Forums and Organization | ITU-R SG1, WP 1A, and WP 1B |
| Timelines | WG-TECH reviews on technical aspects first, followed by review on spectrum aspects in WG-SPEC.  **2019**   * AWG-25   + Development of the Work Plan.   + Review the initial draft and share information on the latest study results on the impact from WPT-EV to radiocommunication systems.   **2020**   * AWG-26   + Study ITU-R’s WPT-EV Recommendation approval on frequency ranges (Taking place in the latter half of 2019).   + Study APT-specific requirements on the frequency ranges.   + Update the draft.   **2021**   * AWG-27   + Review the input and the draft. * AWG-28   + Review the impact study results.   **2022**   * AWG-29   + Review the input * AWG-30   + Decide way forward of this work item |

**7.3.2.3 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/Mr. 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 | 2021   * 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.   2021   * 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 organisations’ activities.   2022   * 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.   2023   * AWG-31   + Finalize the impact study report.   + Continue to develop a working document towards a draft APT/AWG recommendation. * AWG-32   + Finalize the APT/AWG recommendation. |

**7.3.2.4 Survey for WPT for moving machines**

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| --- | --- |
| **Title** | **Survey for 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 Report on WPT for moving machines.  To 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 |

**7.3.2.5 Micro-Workplan on WPT Workshops**

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| --- | --- |
| **Title** | **WPT Workshops** |
| Document Type | N/A |
| Group/Chair | WG-TER/TG WPT/ Chan Hyung CHUNG (Korea) |
| Convener(s) | Mr. ISHIDA, Kaz (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 | **2021 September (AWG-28)**   * Approval of the Workplan * Appointment of the convenor * Call for presentations / papers.   **2022 April (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.   **2022 September (AWG-30)**   * 2nd Workshop on the following: * RF Beam WPT technologies * Accepted from open call.   **2022 April (AWG-31)**   * 3rd Workshop on the following: * Non-Beam WPT technologies * Accepted from open call.   **2022 September (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. |

**7.3.3 Task Group on Railway Radiocommunications (TG RR)**

**7.3.3.1** **5G Technology for Railway Radiocommunication Applications in some APT Countries**

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| --- | --- |
| **Title** | **5G Technology for Railway Radiocommunication Applications 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 5G technology and beyond used for different kinds of railway radiocommunication applications 2. To share technical information about 5G system and beyond used for different kinds of railway radiocommunication applications 3. To share field testing studies of 5G system and beyond used for different kinds of railway radiocommunication applications 4. To share experiences of deployment of 5G system and beyond used for different kinds of railway radiocommunication applications |
| **Purpose** | To provide administrations and railway operators in Asia-Pacific region with relevant information on experiences and supplemental studies of new 5G technology and beyond for different kinds of railway radiocommunication applications |
| **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 .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 upgrade to PDNR  **The 32nd meeting of AWG**  🡪 to finalize the Report. |

**7.3.3.2 Satellite Technology for Railway Radiocommunication Applications in some APT Countries**

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| --- | --- |
| **Title** | **Satellite Technology for Railway Radiocommunication Applications 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 satellite technology used for different kinds of railway radiocommunication applications 2. To share technical information about satellite system used for different kinds of railway radiocommunication applications 3. To share field testing studies of satellite system used for different kinds of railway radiocommunication applications 4. To share experiences of deployment of satellite system used for different kinds of railway radiocommunication applications |
| **Purpose** | To provide administrations and railway operators in Asia-Pacific region with relevant information on experiences and supplemental studies of satellite technology for different kinds of railway radiocommunication applications |
| **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 .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 upgrade to PDNR  **The 32nd meeting of AWG**  🡪 to finalize the Report. |

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

**7.4.1 Task Group on Satellite Systems (TG SAT)**

**7.4.1.1 Ka-band satellite systems for use in the Asia Pacific region and considerations for development of national frequency plans**

|  |  |
| --- | --- |
| **Title** | **Ka-band satellite systems for use in the Asia Pacific region and considerations for development of national frequency plans** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-HAR/WG SA&H/Ms. Boya Lyu  WG-SAM/TG Satellite/Ms. Masmurni Abdul Rahman |
| **Editor(s)** | TBD |
| **Scope** | The study includes:   1. Descriptive information on Ka-band (17.7 – 20.2 GHz and 27.5 – 30 GHz) satellite systems in operation and proposed in APT Region, including the services and applications provided (including broadband consumer applications on ground, aircraft and ships using ESIM) and frequency bands covered, and technical and operational characteristics. (**To be discussed by TG Satellite)** 2. Provide information on co-frequency compatibility issues of any envisaged terrestrial systems with respect to the range of satellite services in bands 17.7 – 19.7 GHz and 27.5 – 29.5 GHz. This part of the work to refer to existing and relevant ITU studies where available related to sharing with terrestrial services and to describe the potential for coexistence/compatibility on a national basis in general terms. It is not anticipated that new sharing studies will be needed. (**To be discussed by TG Satellite**) 3. Provide guidance to assist administrations with the development of national frequency plans for the use of the Ka-band frequencies (17.7 – 20.2 GHz and 27.5–30.0 GHz). (**To be discussed by SWG SA&H**) |
| **Purpose** | To provide APT members with relevant information on operations of Ka-band Satellite Systems for Use in the Asia Pacific Region and Considerations for Development of National Frequency Plans |
| **Related Document** | APT Report 70, Resolution 169 (WRC-19), RR No. 5.517A |
| **Related Organisation** | ITU-R |
| **Timelines** | **2021**  AWG-27 (March 2021)   * Develop a work plan   AWG-28 (September 2021)   * Consider received contributions * Develop a working document * Update the work plan (if needed)   **2022**  AWG-29 (TBD)   * Consider received contributions * Update working document * Update the work plan (if needed)   AWG-30 (TBD)   * Consider received contributions * Update working document * Finalise and produce APT/AWG Report |

**7.4.1.2 Multi connectivity of multilayered network access using satellite systems**

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| --- | --- |
| **Title** | **Multi connectivity of multilayered network access using satellite systems** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-SAM/TG Satellite/Ms. Masmurni Abdul Rahman |
| **Editor(s)** | Chairman TG Satellite |
| **Scope** | To develop multi-layered 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  AWG-32: Continue development of report  **2024:**  AWG-33: Finalize report |

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

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| --- | --- |
| **Title** | **Non-GSO Earth Station Terminals in the Ku-band** |
| **Document Type** | APT/AWG Report |
| **Group/Chair** | WG-SAM/TG Satellite/Ms. Masmurni Abdul Rahman |
| **Editor(s)** | [ ] |
| **Scope** | To develop new report for NGSO terminals on Ku-band |
| **Purpose** | To develop APT report that would inform when creating a harmonized regulatory framework for operating Ku-band NGSO Earth station terminals in APT countries. |
| **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 and finalize new APT Report * Consider developing a new APT Recommendation |

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

**7.4.2.1 The use of cellular networks for unmanned aircraft system operations**

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| --- | --- |
| **Title** | **The use of cellular networks for unmanned aircraft system operations** |
| **Document Type** | APT/AWG Report |
| **Group / Chair** | WG-SAM/TG A&M/Dr. YING XU |
| **Editor(s)** | Ms. Takako Kitahara |
| **Scope** | To study and summarize regulatory studies, research and development of related technologies, service and application case examples related to use of cellular networks for unmanned aircraft system (UAS) operations. |
| **Purpose** | To exchange information and references on studies related to use of cellular network for UAS operations in the aim to facilitate cellular drone application in the APT regions and to provide related information to APT members. |
| **Related Document** | ITU-T SG20 work item [Y.IoT-UAS-Reqts] under Question 2/20  3GPP TR 22.829, TR 22.825, TR 23.755, document on Study on supporting Unmanned Aerial Systems Connectivity, Identification, and Tracking |
| **Related Organization** | ITU, 3GPP |
| **Timelines** | AWG-25(2019)   * Agree to the scope and purpose of the study * Develop draft work plan and timeline   AWG-26 (2020) and AWG-27/28/29 (2022)   * Consider the input contribution and draft working document   AWG-30(2022)   * Finalize the Report |

**8. SUMMARY OF WORK PLAN STATUS**

| **No.** | **Work Item** | **Responsible Group** | **Expected**  **Deliverable** | **Completion Target** |
| --- | --- | --- | --- | --- |
| 1 | Revision of APT/AWG/ REP-79 APT Report on frequency arrangements for IMT in the band 470 –698 MHz | WG HAR  (SWG SA&H)[[1]](#footnote-1)  &  WG IMT  (SWG IMT SPEC)[[2]](#footnote-2) | Report | AWG-30 |
| 2 | Frequency arrangement for terrestrial component of IMT systems in the frequency bands 1920-2010 and 2110-2200 MHz | WG HAR  (SWG SA&H)1  &  WG IMT  (SWG IMT SPEC)2 | Report/  Recommendation | AWG-30 |
| 3 | Sharing and compatibility studies for selected frequency bands below 6 GHz | WG HAR  (SWG SS) | Report(s) | AWG-30 |
| 4 | Technical guideline for spectrum monitoring during major events in Asia Pacific region | WG HAR  (SWG SM) | Report | AWG-30 |
| 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-31 |
| 6 | Current status and future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz | WG IMT  (SWG IMT SPEC) | Report | AWG-31 |
| 7 | Frequency arrangement for IMT in the frequency band 3 300 – 3 400 MHz | WG IMT  (SWG IMT SPEC) | Report | AWG-30 |
| 8 | Frequency arrangement for IMT in the frequency band 4 800 – 4 990 MHz | WG IMT  (SWG IMT SPEC) | Report | AWG-30 |
| 9 | Studies on 5G implementation in frequency bands above 24.25 GHz | WG IMT  (SWG IMT TECH) | Report | AWG-30 |
| 10 | Studies on OTA testing methodology | WG IMT  (SWG IMT TECH) | Report | AWG-30 |
| 11 | Studies on development approaches/challenges and solutions for IMT-2020/5G use case | WG IMT  (SWG IMT TECH) | Report | AWG-32 |
| 12 | Emerging critical applications of IMT for industrial, societal and enterprise users | WG IMT  (TG PPDR) | Report | AWG-30 |
| 13 | Technical and regulatory analysis of the usage of HAPS gateway-links not specified in the Radio Regulations | WG IMT  (TG HAPS) | Report | AWG-30 |
| 14 | Cellular based V2X for ITS applications in APT countries | WG TER  (TG ITS) | Report | AWG-30 |
| 15 | Millimetre wave ITS applications in APT countries | WG TER  (TG ITS) | Report | AWG-32 |
| 16 | Radio frequency beam WPT | WG TER  (TG WPT)1  &  WG HAR  (SWG SA&H)2 | Report/  Recommendation | AWG-33 |
| 17 | Frequency ranges on non-beam WPT for Electric Vehicles (WPT-EV) | WG TER  (TG WPT)1  &  WG HAR  (SWG SA&H)2 | Recommendation | AWG-30 |
| 18 | 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)1  &  WG HAR  (SWG SA&H)2 | Report/  Recommendation | AWG-32 |
| 19 | Survey for WPT for moving machines | WG TER  (TG WPT) | Report | AWG-31 |
| 20 | WPT workshops | WG TER  (TG WPT) | N/A | AWG-30  AWG-31  AWG-32 |
| 21 | 5G Technology for Railway Radiocommunication Applications in some APT Countries | WG TER  (TG RR) | Report | AWG-32 |
| 22 | Satellite Technology for Railway Radiocommunication Applications in some APT Countries | WG TER  (TG RR) | Report | AWG-32 |
| 23 | Ka-band and satellite systems for use in the Asia Pacific region and considerations for development of national frequency plans | WG SAM  (TG SAT)1  &  WG HAR  (SWG SA&H)2 | Report | AWG-30 |
| 24 | Multi connectivity of multilayered network access using  satellite systems | WG SAM  (TG SAT) | Report | AWG-33 |
| 25 | Non-GSO Earth Station Terminals in the Ku-band | WG SAM  (TG SAT) | Report | AWG-31 |
| 26 | The use of cellular networks for unmanned aircraft system operations | WG SAM  (TG A&M) | Report | AWG-30 |

1. Leading Group [↑](#footnote-ref-1)
2. Supporting Group [↑](#footnote-ref-2)