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| APTlogogreen3 | ASIA-PACIFIC TELECOMMUNITY |  | |  |
| **The APT Conference Preparatory Group for WRC-15** | |  | |
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Source: APG15-4/OUT-39

**APT preliminary views on WRC-15 agenda item 10 from APG15-4**

**Agenda Item 10:**

*to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention,*

**APT Preliminary Views:**

**Issues of a general nature**  
In developing new WRC Agenda items, APT Members supports the ‘Principles for establishing agendas for WRCs’ as detailed in Annex 1 to Resolution **804 (Rev.WRC-12)**and encourages the use of the *Template for the submission of proposals for agenda items* (Annex 2 of the Resolution).

APT Members are of the view that the volume of the agenda of a WRC and the workload of the preparatory work needed to be kept at a manageable level and that issues that can be resolved under the standing agenda items of WRCs or through the regular activities of ITU-R should not be converted into separate agenda items of WRCs

*[Editor’s note: This may also increase the issues which might be covered by the standing agenda items. In that regard, APG15-5 needs to consider this issue.]*

**\* Proposal submitted to APG15-4 regardingWRC-19 new agenda item to consider the appropriate regulatory procedures for notifying satellite networks needed to facilitate the deployment and operation of nanosatellites and picosatellites, in accordance with Resolution 757 (WRC-12)**  
TBD  
  
**\* Proposal submitted to APG15-4 regardingWRC-19 new agenda item to consider new regulatory provisions in Article 5, Chapter II of the Radio Regulation to introduce land mobile and fixed services operating in the band above 275 GHz**  
  
TBD  
  
**\* Proposalsubmitted to APG15-4 regardingWRC-19 new agenda item for global harmonization of frequency bands for Intelligent Transport Systems (ITS) applications**  
  
TBD

**\* Proposalssubmitted to APG15-3 and -4 regardingWRC-19 new agenda item for identification of frequency band(s) [frequency range TBD][including possible additional allocations to the mobile services on a primary basis] for the future development of IMT for 2020 and beyond**

APT Members support the establishment of an agenda item for WRC-19 which aims at identifying frequency bands for IMT for 2020 and beyond subject to resolution of various issues related to the subject matter, including the choice of frequency bands, in a satisfactory manner.

**Annex 1**

**Proposal submitted to APG15-4 regarding WRC-19 new agenda item toconsider the appropriate regulatory procedures for notifying satellite networks neededto facilitate the deployment and operation of nanosatellites and picosatellites, in accordance withResolution 757 (WRC-12)**

(See also Summary of Discussion in section 3.2 and APT Preliminary Views in section 4.2)

|  |  |
| --- | --- |
| **Attachment 1 to Annex 1** | |
| **Subject:**TBD | |
| **Origin:** TBD | |
| ***Proposal:***  TBD | |
| ***Background/reason:***  TBD | |
| ***Radiocommunication Services concerned:***  TBD | |
| ***Indication of possible difficulties:***  TBD | |
| ***Previous/ongoing studies on the issue:***  TBD | |
| ***Studies to be carried out by:***  TBD | ***with participation of:***  TBD |
| ***ITU-R Study Groups concerned:***  TBD | |
| ***ITU resource implications, including financial implications (refer to CV 126):***  TBD | |
| ***Common regional proposal:***  Yes/No | ***Multicountry Proposal:***Yes/No  ***Number of countries:*** |
| ***Remarks*** | |

**Attachment 2 to Annex 1**

RESOLUTION

TBD

**Annex 2**

**Proposal submitted to APG15-4 regarding WRC-19 new agenda item to consider new regulatory provisions in Article 5, Chapter II of the Radio Regulation to introduce land mobile and fixed services operating in the band above 275 GHz**

(See also Summary of Discussion in section 3.3 and APT Preliminary Views in section 4.3)

|  |  |
| --- | --- |
| **Attachment 1 to Annex 2** | |
| **Subject:**To consider new regulatory provisions inArticle 5, Chapter II of the Radio Regulations to introduce land mobile and fixed services operating in the bands above 275 GHz. | |
| **Origin:** Japan | |
| ***Proposal:***  To consider new regulatory provisions in Article 5, Chapter II of the Radio Regulations to introduce land mobile and fixed services operating in the band above 275 GHz, taking into account the frequency bands for passive services identified by RR no. **5.565** and the results of ITU-R studies of sharing and compatibility between passive and active services as well as spectrum requirements for those services, in accordance with Resolution **[ABOVE 275 GHZ] (WRC-15)**  Attachment 2 to Annex 2: Proposed Draft New Resolution **[ABOVE 275 GHZ[(WRC-15)** | |
| ***Background/reason:***  The frequency range above 275 GHz may be used for experimentation with, and development of, various activeand passive services according to RR No. **5.565**. However, RR No. **5.565** was reviewed in accordance with Resolution **950 (Rev. WRC-07)**, and the specificfrequency bands were identified for measurements by passive services, such as the radio astronomy service, the Earth explorationsatellite service (passive), and the space research service (passive). In the specific identification of the frequencies in the range of 275-1 000 GHz, the passive services donot preclude use ofthis range by active services  The active devices which can operate above 275 GHz were extensively studied and developed by many R & D organizations. The propagation characteristics of the frequencies above 275 GHz have been also studied by ITU-R and the applications of short-range ultra-high-speed (100-Gbps) data communication systems have been discussed within IEEE 802.15 Working Group. The Task Group IEEE 802.1.5.3d has been recently established to createWPAN (Wireless Personal Area Network) standards using the frequencies above 275 GHz within a few years. Several ultra-high-speed transmission applications such as wireless links for data centers, near field communication for toll gate downloading, and fronthaul/backhaul for mobile systems are expected to be operated in the band above 275 GHz. To protect passive services identified in RR No. **5.565**, it is urgently requested to review RR No. 5.565 and to consider new provisions, as required, to introduce land mobile and fixed services operating in the band above 275 GHz.  ITU-R WP1A has developed and adopted a new Question ITU-R 237/1, “Technical and operational characteristics of the active services operating in the range 275-1 000 GHz”, to study the technical and operational characteristics of active services in the frequency range 275-1 000 GHz. According to the new Question, ITU-R WP1A is now developing a preliminary draft Report ITU-R SM.[THZ\_TREND], “Technology trends on active services in the band above 275 GHz” to provide technical information for preparation of sharing and compatibility studies between active and passive services, as well as among active services.  In order to avoid possible frequency interferences to the identified passive services from the newly developed land mobile and fixed services above 275 GHz, the relevant ITU-R Working Parties should study the technical and operational characteristics required for the active services, and conductsharing and compatibility studies between the passive and active services, as well as among active services. | |
| ***Radiocommunication Services concerned:***  MS, FS, RAS, EESS (Space-to-Earth), SRS (Space-to-Earth) | |
| ***Indication of possible difficulties:***  Identification of technical requirements for the terrestrial services and sharing and compatibility studies with RAS, EESS(Space-to-Earth), and SRS (Space-to-Earth) | |
| ***Previous/ongoing studies on the issue:***  Question ITU-R 237/1 | |
| ***Studies to be carried out by:***  ITU-R SG1 (e.g. WP 1A) | ***with participation of:***  Administrations,terrestrial and passive services organizations |
| ***ITU-R Study Groups concerned:***  SG5, SG7 | |
| ***ITU resource implications, including financial implications (refer to CV 126):***  ITU-R SG1 WP 1A may have biannual meetings. | |
| ***Common regional proposal:***  Yes | ***Multicountry Proposal:*** No  ***Number of countries:*** |
| ***Remarks*** | |

**Attachment 2 to Annex 2**

**ADD**

**Working Document towards a Draft New Resolution[above275 GHZ] (WRC-15)**

**New regulatory provisions for land mobile and fixed services operating in the band above 275 GHz**

The World Radiocommunication Conference (Geneva, 2015)

*considering*

1. that a number of bands in the frequency range275-1000 GHzareidentified for use by administrations for passive services, such as the radio astronomy service, Earth exploration satellite service (passive), and space research service (passive);
2. that the use of the range of 275-1 000 GHz by passive services does not preclude use ofthis range by active services;
3. that administrations wishing to makefrequencies in the 275-1000 GHz range available for active service applications are urged to takeall practicable steps to protect these passive services from harmful interferenceuntil the date whenthe Table of Frequency Allocation is established in the above-mentioned 275-1000 GHz frequency;
4. that the active devices which can operate at the room temperature in the band above 275 GHz becomes feasible due to a the significant efforts of many R & D organizations;
5. that the propagation characteristics of frequencies above 275 GHz have been also studied by ITU-R Study Group 3;
6. that the suitable frequency ranges for ultra-high-speed (100-Gbps) data communication systems ofWireless Personal Area Network (WPAN)have beenspecified by the IEEE 802 .15 Working Group;
7. that several ultra-high-speed data communication systems have beenidentified by IEEE 802 .15 Working Group;
8. that many organizations have demonstrated ultra-high-speed data communication systems over 100 Gbps operating in the band above 275 GHz;
9. that the initial study on technical and operational characteristics of active services operating in the range 275-1 000 GHz has been carried out by ITU-R WP1A;
10. that coexistence of passive services identified RR No. **5.565**with newly introduced active services is to beensured;

*noting*

1. that Question ITU-R 228-1/3“Propagation data required for the planning of radiocommunicationsystems operating above 275 GHz”addresses studies on propagation models best describingthe relationship between atmospheric parameters and electromagnetic wave characteristics on terrestrial linksoperating at frequencies above 275 GHz;
2. that Question ITU-R 264/4 “Technical and operational characteristics of networks of the fixed-satellite service operating above 275 GHz”addresses studies on the technical and operational characteristics of Earth-to-space, space-to-Earth, and space-to-space links at frequencies above 275 GHz;
3. that Question ITU-R 235-1/7“Technical and operational characteristics of applicationsof science services operating above 275 GHz”addresses guides studies on the technical and operational characteristics of systems operating at frequencies above 275 GHz within the science service;
4. that Question ITU-R 237/1“Technical and operational characteristics of the active services operating in the range 275-1 000 GHz”addresses studies on the technical and operational characteristics of active services in the frequency range 275-1 000 GHz;
5. that Report ITU-R RA.2189“Sharing between the radio astronomyservice and active services (Airborne system, non-GSO system) in the frequencyrange 275-3 000 GHz” provides that sharing between radio astronomy and active services in the range 275-3 000 GHz;

*recognizing*

1. thatthe technical and operational characteristics of land mobile and fixed services operating in the band above 275 GHz have not been specified and further studies need to be required;
2. that the propagation models of land mobile and fixed services operating in the band above 275 GHz have not been specified and further studies need to be required;
3. thatthe sharing and compatibility studies between passive services and land mobile and fixed services operating in the band above 275 GHz have not been studied;

*resolves to invite WRC-19*

to consider new regulatory provisions in Article 5, Chapter II of the Radio Regulation to introduce land mobile and fixed services operating in the band above 275 GHz, taking into account the results of ITU-R studies;

*invites ITU-R*

1. to identify potential characteristics of systems in the land mobile and fixed services operating in the bands above 275 GHz;
2. to study spectrum requirement, taking into account technical and operational characteristics of those active services operating in the band above 275 GHz;
3. to conduct sharing and compatibility studies between passive and land mobile and fixed services, as well as among active services, operating in the band above 275 GHz;
4. to study potential candidate frequency bands for use for the land mobile and fixed services, taking into account the results of the studies under *invite ITU-R 1*, and the protection of passive services identified in RR No.**5.565**.

*encourage administrations*

to submit contributions during the study period on their assessment of the impact on the identifiedservices, based on the studies carried out under this Resolution.

*invites administrations*

to participate in the studies by submitting contributions to ITU-R.

**Annex 3**

**Proposal submitted to APG15-4 regarding WRC-19 new agenda item for global harmonization of frequency bands for Intelligent Transport Systems (ITS) applications**

(See also Summary of Discussion in section 3.4 and APT Preliminary Views in section 4.4)

|  |  |
| --- | --- |
| **Attachment 1 to Annex 3** | |
| **Subject:**  **Global harmonization of frequency bands for ITS applications in the land mobile service** | |
| **Origin:** Japan | |
| ***Proposal:***  *To consider global harmonization of frequency bands in use or planned for use for ITS radiocommunications, taking into account the results of ITU‑R studies, in accordance with Resolution****XXX (WRC-15)***.  Attachment 2 to Annex 3: Proposed Draft New Resolution XXX | |
| ***Background/reason:***  The proposal presented in this document aims to consider harmonizedspectrumwhich are currently in use or planned to be used for Intelligent Transport Systems (ITS) applications throughout the world.  Since 1995, research and development activities have been conducted in info-communication systems as core technologies of ITS. ITS, including ETC (Electronic Toll Collection) and millimeter-wave radars,have been globally deployed. Vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communicationscalled *“co-operative ITS”* have been developingtoachieve safe drive support systems.  Due to the widespread use of ITS technologies and the increasing need for safe driving through use of ITS technologies, a need to globally harmonize the spectrum for ITS applications is rapidly increasing, particularly since:  -Automotive vehicles travel across national borders for transportation of goods, business,  sightseeing, etc.  - ITS communication equipment is no longer post-installed to vehicles but is pre-installed in  the manufacturing lines and shipped to each country forimmediate operation.  However, the spectrum ranges currently used for ITS applications are not necessarily harmonized, as follows:  The status of ITS spectrum usage in Japan, U.S.A. and Europe:  Note: Usage data was provided by ITS-TEA (formallythe Organization for Road System   Enhancement (ORSE)) in Japan.  - 700 MHz band (755.5-764.5 MHz): This band has been allocated for V2V and V2I for ITS  safe support systems in Japan. It is expected to be put into practical use in the course of the  year.  - 915 MHz band (902-928 MHz): This band has been used for ETC in U.S.A and Canada with   more than 40 million on board units (OBU).  -5.8 GHz band (5,770-5,850 MHz): In Japan, more than 45 million OBU have been installed in   vehicles. Introduction of ETC 2.0, which included existing ITS spot service, has been   announced recently. In Europe, over 14 million OBU for ETC have been installed in vehicles.  -5.9GHz band (5,850-5,925 MHz): In Europe and the U.S.A., standardization of V2V and V2I  in this band has almost been completed and is ready for deployment.  International standardization activities for ITS info-communication systems have been conducted by ITU-R and ISO at the global level, by ETSI, CEN, ARIB and others at regional level, and by IEEE, SAE and other organizations in the private sector. In ITU-R, Japan has been strongly contributing to ITS technologystandardization activities. As a result, several recommendations and reports have been published, as follows:  - Recommendation ITU-R M.1890, “Intelligent Transport Systems – Guidelines and Objectives”,2011.  - Recommendation ITU-R M.1453-2, “Intelligent Transport Systems – Dedicated Short Range  Communications at 5.8GHz”, 2005.  - Recommendation ITU-R M.1452-1, “Millimetre wave radiocommunication systems for ITS  applications”, 2009.  - Report ITU-R M.2228, “Advanced Intelligent Transport Systems (ITS)  Radiocommunications”, 2012.  - - Recommendation ITU-R M.[V2X], “Radio interface standards of vehicle-to-vehicle and  vehicle-to-infrastructure communications for intelligent transport systems applications”, to be  published in 2015  - Report ITU-R M.[ITS USAGE] “Intelligent transport systems usage Report in ITU Member  States”, to be published in 2016  As above, ITS applications have been widely deployed worldwide. As core technologies, ITSbecame important in resolving road traffic problems such as congestion and accidents. However, ITS industries do not always recognize thenecessity of a harmonized spectrum in the global deployment ofITS applications, since ITS industries are combinations of electronics, communications, civil engineering, automotive and other related industries.  In the U.S.A. and Europe, the study of sharing ITS spectrum to be used for V2V and V2I, with Radio Local Area Network (RLAN) in the 5 GHz band, has begun. From the perspective of efficient use of the spectrum, the frequency bands which have been allocated for ITS applications for many years, are being actively studied with a view to sharingwith other radiocommunication services.  In considering spectrum compatibility, the following conditions should be considered, with sufficient technical safeguards to protect harmful interference:  - ITS applications are becoming an essential part of social infrastructure in the world.  - ‘*Co-operative ITS’* will be expected in safe driving support in the near future.  Related ITS applications, especially in communication applications, are easily affected by interference, and therefore the possibility and the effect of interference should also be considered.  Global harmonization of the spectrum for ITS applications will become increasingly important in order to improve safety driving and convenience.  In case of considering spectrum usage plans by administrations or regions in the future, the spectrum for ITS communications should clearly be identified in the Radio Regulations (RR) with a view to global harmonization, for the purpose of recognition on the importance of international frequency usage related to ITS applications. | |
| ***Radiocommunication Services concerned:***  Mobile Service,Radiolocation service, Concerned impacted services | |
| ***Indication of possible difficulties:***  Spectrum sharing with the other mobile services such as cellular phones and RLAN. | |
| ***Previous/ongoing studies on the issue:***  ITU-R Recommendation M.1452-1, M.1453-2, M.1890, M.[V2X],  ITU-R Report M.2228, M.[ITS USAGE] | |
| ***Studies to be carried out by:***  ITU-R SG5 WP 5A | ***with participation of:***  Administrations, manufacturers, vendors |
| ***ITU-R Study Groups concerned:***  SG1, SG4, SG5 | |
| ***ITU resource implications, including financial implications (refer to CV 126):***  ITU-R SG5 WP 5A usually has biannual meetings which last 10days each. | |
| ***Common regional proposal:***  Yes | ***Multicountry Proposal:***No  ***Number of countries:*** |
| ***Remarks*** | |

**Attachment 2 to Annex 3**

**Working Document towards a Preliminary Draft New Resolution XXX (WRC-15)**

**Global harmonization of frequencies for ITS radiocommunications**

*(Note: Depending on whether this matter is to be addressed by RA or WRC, this Resolution may need to be modified accordingly.)*

*[Editor’s note: The text for the possible Resolution to guide this prospective agenda item is based on a contribution received by APG15-4.]*

The World Radiocommunication Conference (Geneva, 2015)

*considering*

1. that Intelligent Transport Systems (ITS) utilize a combination of technologies such as computers, telecommunications, positioning, and automation to improve safety management, efficiency, usability and environmental sustainability of terrestrial transportation systems;
2. that ITS technologies are already integrated in a vehicle system to provide new ITS communication applications and to secure safe driving;
3. that there is a need for frequency harmonization for ITS to reduce traffic accidents and protect the environment;
4. that there is a need to integrate various technologies including radiocommunications into

land transportation systems;

1. that many new land transportation systems use intelligence in land vehicles coupled withadvanced vehicle, advanced traffic management, advanced traveler information, advanced publictransportation, and advanced fleet management systems to improve traffic management;
2. that ITS are being planned and implemented in various Regions by various administrations;
3. that a wide variety of applications and services are defined;
4. that international standards would facilitate worldwide application of ITS and provide for

economies of scale in bringing ITS equipment and services to the public;

1. that international compatibility of ITS may be dependent on harmonized radio spectrum

allocations;

1. the ISO is standardizing ITS (non-radio aspects) in ISO/TC204 including applications

for “cooperative systems” which require vehicle-to-vehicle and vehicle-to-infrastructure

radiocommunications;

1. that next generation vehicular radiocommunication technologies and ITS broadcast systems

are emerging;

1. [that the frequency band 755.5-764.5 MHz is allocated for vehicle-to vehicle (V2V) and vehicle-to infrastructure (V2I) radiocommunications for ITS safe support systems by an administration in Region 3 which are expected to be put into practical use within the year 2015];
2. [that the frequency band 902-928 MHz is used for electronic toll collection(ETC)by administrations in Region 2];
3. [that the frequency band 5770-5850 MHzisused for ETC and vehicle safety support by administrations in Regions 1 and 3];
4. [that the frequency band 5850-5925 MHz isallocated for V2V and V2I by administrations in Regions 1 and 2];
5. that harmonized spectrum allocation for ITS applications is desirable;

*recognizing*

that Resolution **654 (WRC-12)**, in *invites ITU-R iii)*, calls for the conduct of technical, operational and regulatory studies, as a matter of urgency, including *“spectrum requirements, operational characteristics and evaluation of ITS safety-related applications that would benefit from global or regional harmonization”;*

*noting*

1. that the guidelines for radio interface requirements of ITS are described in Recommendation ITU-R M.1890;
2. that outlines of technologies and characteristics for Dedicated Short Range Communications at 5.8GHzare described in Recommendation ITU-R M.1453-2;
3. that studies and feasibility tests on advanced ITS radiocommunications have been actively conductedtowards the realization of traffic safety and a reduction of environmental impactis described in Report ITU-R M.2228;

*resolvesto invite WRC-19*

1. [to consider global harmonization and identification of frequency bands for ITS

radiocommunications, in the land mobile service,taking into account the results of ITU‑R studies, ]

*[Editor’s note: Some of the bands used by ITS are not allocated to the land mobile service on a global basis. The implications of this need to be considered in preparations for APG15-5.]*

*invites ITU-R*

1. to conduct, as a matter of urgency and in time for consideration by WRC-19, the appropriate technical, operational, and regulatory studies relating to the global harmonization of spectrum for ITS applications;
2. to carry out sharing studies on the impact to the other services currently allocated in the bands identified in *invites ITU-R* 1.
3. to reporton the results of studies on the stability of ITS applications and associated frequency ranges that would benefit from harmonized spectrum;

*invites administrations*

to contribute actively to the ITU-R studies on this issue.

**Annex 4**

**Proposals submitted to APG15-3 and -4 regarding WRC-19 new agenda item for identification of frequency band(s)[frequency range TBD][including possible additional allocations to the mobile services on a primary basis] for the future development of IMT for 2020 and beyond**

(See also Summary of Discussion in section 3.5 and APT Preliminary Views in section 4.5)

**Attachment1 to Annex 4**

**ANNEX 2 TO RESOLUTION 804 (WRC-07)**

|  |  |
| --- | --- |
| **Subject: Proposal for WRC-19 Agenda Item** | |
| **Origin: Republic of Korea, Japan, China, Australia** | |
| ***Proposal:***  *To consider identification of frequency bands for IMT [frequency range TBD][including possible additional allocations to the mobile service on a primary basis]in accordance with Resolution YYY (WRC-15);*  *[Editor’s note: The frequency range or specific frequency bands to be included in the agenda item and also if IMT for 2020 and beyond identification is to be done in bands currently allocated to MS or if new MS allocations are to be considered needs to be further reviewed in the APG15-5 meeting taking into account the progress of studies in ITU-R and in APT countries.]* | |
| ***Background/reason:***  Today’s world is powered by information: the opportunities created by Information and Communication Technology (ICT) development have been one of the main impacting factors on how society evolved in recent decades.  In 2020 and beyond wireless communication applications will expand into new market segments such as smart grid, e-health, intelligent transport systems (ITS), traffic control and safety. These new market segments and the need for further enhanced mobile broadband applications, are expected to bring higher requirements (e.g., very high data rates, large number of connections, ultra-low latency and high reliability)compared to those addressed in today’s IMT application areas[, taking also into account the need to avoid a digital divide in the era of future IMT for 2020 and beyond].  In order to address these higher requirements, future IMT technologies should have the capability to be operated in wider bandwidths while providing higher spectral/areal efficiency. Considering hardware implementation complexity in modern smart mobile devices and to maximize data delivery efficiency, it would be desirable to use contiguous wide bandwidth, for instance at least [500 MHz], to address these requirements. In principle, the possibilityof securingcontiguous wide bandwidth in high frequency ranges is more promising compared to that in low frequency ranges.  With these motivations, ITU-R Working Party 5D is conducting studies on “framework and overall objectives of the future development of IMT for 2020 and beyond” and “technical feasibility of IMT in the bands above 6 GHz”. In addition, research is taking place at the global/regional/national levels for future mobile communications, emphasizing the possible use of higher frequency bands. It isexpected that the bands above 6 GHz can be utilized for future IMT technologies.  [Considering the above background, it is believed that higher frequency bands will be critical and essential for future IMT development with very high capacity, and it is therefore proposedto consider identification of IMT in the higher frequency bands above 6 GHz, including possible additional allocations to the mobile service on a primary basis.]  *[Editor’s note: This last paragraph would need to be reviewed in the light of the decisions on frequency bands and additional allocations or not.]* | |
| ***Radiocommunication Services concerned:***  Mobile Service, TBD (depending on existing services in frequency ranges selected) | |
| ***Indication of possible difficulties:***  TBD (noting potential impact on existing services) | |
| ***Previous/ongoing studies on the issue:***  Some studies have already been initiated and are now ongoing in the ITU-R WP 5D. This includes preparation of, amongst others:  Report ITU-R M.2320,  Draft New Recommendation ITU-R M.[IMT.VISION] (expected finishedby June 2015),  Draft New Report ITU-R M.[IMT.ABOVE 6 GHz] (expected finishedby June 2015),  Draft New Report ITU-R M.[IMT.BEYOND2020.TRAFFIC] (expected finishedby June 2015), | |
| ***Studies to be carried out by:***  [TBD]  *[Editor’s note: To be decided at APG15-5]* | ***with participation of:***  Administrations and Sector members of the ITU-R |
| ***ITU-R Study Groups concerned:***  SG5, SG3and other Study Groups, depending on what frequency band or ranges that are selected. | |
| ***ITU resource implications, including financial implications (refer to CV 126):***  [TBD]  *[Editor’s note: To be decided at APG15-5]* | |
| ***Common regional proposal:***  Yes/No | ***Multicountry Proposal:***Yes/No  ***Number of countries:*** |
| ***Remarks*** | |

**Attachment2 to Annex 4**

Working document towards   
a preliminary draft new RESOLUTION YYY ([RA/WRC]‑15)

*(Note: Should this Resolution be intended to be submitted to RA-15, relevant parts of the Resolution need to be modified accordingly. APT Members are encouraged to contribute on both versions of this Resolution.)*

**Studies on identification of frequency band(s) [frequency range TBD][including possible additional allocations to the mobile services on a primary basis] for the future development of IMT for 2020 and beyond**

*[Editor’s note: The text for this prospective Resolution to guide an agenda item on IMT is in essence a merger of contributions received at APG15-4. The frequency range or specific frequency bands to be studied needs to be further reviewed in the APG15-5 meeting taking into account the progress of studies in ITU-R and in APT countries.]*

The World Radiocommunication Conference (Geneva, 2015),

*considering*

*a)* that International Mobile Telecommunications (IMT) systems have been the main method of delivering wide area mobile broadband applications and have contributed to global economic and social developmentby providing a wide range of multimedia applications, mobile cloud computing, and other mobile applications;

*b)* that in all countries where IMT systems are deployed there is a continuing significant growth in the number of users of IMT systems and in the quantity and rate of data carried, the latter being driven to a large extent by audiovisual content;

*c)* that continuous growth of data traffic demands for mobile communication market for 2020 and beyond would be expected to achieve improved user experience and numerous device connections, especially in dense area;

*d)* thatIMT systems for 2020 and beyond are envisaged to expand and support diverse usage scenarios that will extend beyond the current IMT systems;

*e)* that the diverse usage scenarios will produce more data traffic demands for the IMT for 2020 and beyond systems,

*f)* that the IMT for 2020 and beyond systems will result in a diversity of requirements, such as Gbps level experienced communication, very high data rate communications, large numbers of device connections, ultra-low latency and high reliability communications, etc.;

*g)* that ITU-R developed a work plan, timeline, process and required deliverables in order to transform the above framework and overall objectives into the reality of IMT systems, which will be deployed by the 2020-time frame in some countries;

*h*) that development and deployment of IMTfor 2020 and beyond systems, while addressing the requirements in *considering f)*will require contiguous wide bandwidths;

*i)* thatITU-R conducted studies on “Technical feasibility of IMT in the bands above 6 GHz”;

*j)* that adequate and timely availability of spectrum and supporting regulatory provisions is essential to support future growth of IMT;

*k)* that harmonized worldwide bands and harmonized frequency arrangements for IMT are highly desirable in order to achieve global roaming and the benefits of economies of scale;

*l)* the need to protect existing services when considering frequency bands for possible additional allocations to any service;

*m)* the on-going studies in ITU-R on the propagation characteristics in higher frequency bands when used by IMT systems;

*n)* the appropriate choices of frequency bands to provide coverage, capacity and performance are necessary and are important to the cost effective implementation of future IMT systems taking into account the radio wave propagation characteristics and implementation complexity and cost factors;

*noting*

*a)* that Question ITU‑R 229/5 seeks to address the further development of IMT;

*b)* that IMT encompasses both IMT-2000, IMT-Advanced, and IMT for 2020 and beyond collectively, as described in Resolution ITU‑R 56-2;

*[Editor’s note: Revision of Resolution ITU-R 56-1will be submitted for approval at RA-15.]*

*c)* that Resolution ITU‑R [IMT.PRINCIPLES] addresses the principles for the process of development of IMT for 2020 and beyond ,

*[Editor’s note: Draft New Resolution ITU-R [IMT.PRINCIPLE] will be submitted for approval at RA-15.]*

*d)* that Recommendation ITU-R M.[IMT.VISION] addresses the framework and objectives of the future development of IMT for 2020 and beyond;

*e)* that Report ITU-R M.2320 addresses future technology trends of terrestrial IMT systems;

*recognizing*

*a)* that there is a fairly long lead time between the identification of frequency bands by world radiocommunication conferences and the deployment of systems in those bands, and timely availability of spectrum is therefore important to support the future development of IMT;

*b)* that the possibility of securing contiguous wide bandwidth in the high frequency ranges (e.g., above 6 GHz) is more promising compared to that in the low frequency ranges;

*c)* the usage of relevant parts of the spectrum by other radiocommunication services, many of which involve significant investment in infrastructure or represent significant societal benefit, and the evolving needs of these services,

*resolves to invite ITU‑R*

1 to study spectrum requirements associated with the capabilities required for development of IMT for 2020 and beyond taking into account:

– evolving needs, such as very high data rates, to satisfy user demand for IMT;

– scenarios with high data traffic demands , such as in dense urban areasand/or peak data consuming time;

– technical and operational characteristics of IMT systems[in the high frequency range], including the evolution of IMT through advances in technology and spectrally-efficient techniques, and their deployment;

– the time-frame in which spectrum would be needed;

2 to study potential candidate frequency bands for IMT [ frequency range TBD][including possible additional allocations to the mobile service on a primary basis], taking into account the results of the studies under *resolves to invite ITU‑R* 1, the need for protection of existing services in case of additional allocations to mobile services, and the need for harmonization;

*further resolves*

1 that the studies referred to in *resolves to invite ITU‑R* 2 include sharing and compatibility studies with services already having allocations in the potential candidate bands and in adjacent bands, as appropriate, taking into account the current and planned use of these bands by the existing services, as well as the applicable studies already performed in ITU‑R;

2 to invite WRC‑19 to consider the results of the above studies and take appropriate actions,

*encourages administrations*

to participate in the studies by submitting contributions to ITU‑R.

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