|  |  |
| --- | --- |
|  |  Doc. PTA(19)105 ANNEX IV-24 |
| CPG19 PTA-7 |  |
| Prague, Czech Republic, 17-21 June 2019 |  |
|  |  |
| Date issued:  | 21 June 2019 |
| Source:  | PTA Minutes |
| Subject:  | Draft CEPT Brief on WRC-19 Agenda Item 10 |
|  |
| Summary:  |
|  |
| Proposal: |
|  |

DRAFT CEPT BRIEF ON AGENDA ITEM 10

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.

# ISSUE

This Agenda Item is a standing item on the agenda of every World Radiocommunication Conference (WRC) and its purpose is to recommend items to the Council for inclusion in the agenda of the next WRC, as well as possible agenda items for future WRCs.

# Preliminary CEPT position

CEPT supports the inclusion of the preliminary Agenda items 2.1, 2.2, 2.3 and 2.5, as contained in Resolution 810 (WRC-15) and the corresponding Resolutions for the Agenda of WRC-23. CEPT is not supporting the preliminary Agenda item 2.4 and supports the suppression of Resolution 161 (WRC-15).

CEPT supports the following new agenda items for WRC-23:

* consideration of a new allocation to the AMS(R)S in all or part of the band 112-137 MHz
* review of studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for the possible introduction of new non-safety aeronautical mobile applications
* consideration of the removal of the limitation regarding aeronautical mobile in the IMT bands within the frequency range 694-960 MHz for new non-safety applications
* review of radio regulatory provisions related to aeronautical terrestrial services, including Appendix 27, but excluding Article 5
* consideration of any change of Radio Regulation based on studies to identify any required technical and operational measures for stations on board sub-orbital vehicles
* to study and develop technical, operational and regulatory measures to facilitate the use of the bands 17.7-18.6 (space-to-Earth), 18.8-20.2 GHz (space-to-Earth), 27.5-30.0 GHz (Earth-to-space) by non-GSO FSS ESIM
* to review the technical and regulatory conditions pertaining to the 18.6-18.8 GHz to address possible new Fixed-Satellite Service usage and the protection of EESS (passive)
* considerations regarding the compatibility of satellite-to-satellite links with other FSS operations and other services in the bands 27.5‑30 GHz (Earth-to-space) and 17.7-20.2 GHz (space-to-Earth)
* consideration of protection of GSO satellite networks operating in 7/8 and 20/30 GHz from emissions of non-GSO satellite systems operating in the same bands and identical directions
* consideration of revising Resolution 155 (WRC-15) and RR No. 5.484B
* harmonizing globally the use of the frequency band 12.75-13.25 GHz by earth stations on aircraft communicating with geostationary space stations in the fixed-satellite service (Earth-to-space);
* consideration of a new EESS (Earth-to-space) allocation in the band 22.55-23.15 GHz
* determining, reassessing and carrying out appropriate regulatory actions for determining additional allocations to the mobile-satellite service between 1.5 GHz and 6 GHz
* consideration of, based on the results of ITU‑R studies:

the introduction of pfd and EIRP limits in Article 21 for the bands 71 -76 GHz and 81 – 86 GHz;

the conditions for the use of the 71–76 GHz and 81–86 GHz bands by stations in the satellite services to ensure compatibility with passive services

* consideration of the additional spectrum allocations to the radiolocation service on a co-primary basis in the frequency band 231.5 – 275 GHz and identification of frequency bands in the range 275 - 700 GHz for millimetre and sub-millimetre wave imaging systems and review and consideration of possible adjustments of the existing or possible new primary frequency allocations to EESS (passive) in the range 231.5 – 252 GHz.

Detailed information on these proposals is available in the ECP for Agenda Item 10.

.

CEPT is of the view that agenda item 9.1, shall not include issues that are intended to be addressed through modifications to the Radio Regulations, including issues related to frequency allocation for radiocommunication services and/or changing the conditions of their use. In order to implement the above proposals, CEPT proposes to modify Resolution 804 (Rev. WRC-12).

# Background

The preliminary agenda for the next World Radiocommunication Conference (WRC-23) is contained in the Resolution 810 (WRC-15), and in particular in resolves 2, issues 2.1 - 2.5 (see below) proposes new Agenda items. Further agenda items for WRC-23 will be mainly developed within the Regional Organisations and be proposed by the ITU member administrations for the consideration and decision of WRC-19.

The principles which give guidance to the development of the WRC agenda items are included in Annex 1 of Resolution 804 (Rev. WRC-12). These include the reference to the preparatory work in the regional groups that efforts should be made to:

* encourage regional and interregional coordination on the subjects to be considered in the preparatory process for the WRC, in accordance with Resolution 72 (Rev.WRC-07) and Resolution 80 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, with a view to addressing potentially difficult issues well before a WRC;
* include, to the extent possible, agenda items that are prepared within regional groups, taking into account the equal right of individual administrations to submit proposals for agenda items.

The preliminary (new) agenda items for WRC-23 as contained in Resolution 810 (WRC-15):

2.1 to consider possible spectrum needs and regulatory actions to support Global Maritime Distress and Safety System (GMDSS) modernization and the implementation of e-navigation, in accordance with Resolution 361 (WRC-15);

2.2 to conduct, and complete in time for WRC-23, studies for a possible new allocation to the Earth exploration-satellite (active) service for space-borne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, in accordance with Resolution 656 (WRC-15);

2.3 in accordance with Resolution 657 (WRC-15), to review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors, with a view to providing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services;

2.4 study of spectrum needs and possible new allocations to the fixed-satellite service in the frequency band 37.5-39.5 GHz (Earth-to-space), in accordance with Resolution 161 (WRC-15);

2.5 to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution 235 (WRC-15).

## Preliminary agenda items (RES810)

### GMDSS

The issue of GMDSS modernization was included in the provisional agenda of WRC-19 at WRC‑12 (Item 2.1 of Resolution 808 (WRC-12) “Provisional agenda for the World Radiocommunication Conference 2018)”. At WRC-15, when considering the issues of modernization of GMDSS and e‑navigation implementation the International Maritime Organization noted that issues related to the introduction of e-navigation will not be finalized by 2019. Therefore, it was proposed to consider the issues of GMDSS modernization in two stages. In the first stage, at WRC-19 (within WRC-19 agenda item 1.8) it was decided to determine the regulatory provisions to support GMDSS modernization and select additional satellite systems for use in the GMDSS and at the second stage, at WRC-23, to continue studying the modernization of GMDSS, including aspects of introducing e-navigation.

Resolution 361 (WRC-15) “Consideration of regulatory provisions for modernization of the Global Maritime Distress and Safety System and related to the implementation of e-navigation” invites ITU‑R to conduct studies, taking into consideration the activities of IMO, in order to determine spectrum needs and regulatory actions to support GMDSS modernization and the implementation of e‑navigation, and at WRC-23 consider possible regulatory actions, including spectrum allocations, for supporting e‑navigation.

At WRC-19, within agenda item 1.8 (Issue A) it is planned to take some measures in relation to the NAVDAT MF and HF systems and to continue consideration of this issue in the future. It should be noted, that this requires finalization by IMO of all related studies on modernization of GMDSS, in particular, a revision of SOLAS Chapters III and IV. This revision is preliminarily planned to be finalized by June 2022 (prior to WRC23) and to enter into force in 2024.

Agenda item 1.8 (Issue B) WRC-19 considers inclusion of new satellite provider to GMDSS and administrations may plan to continue to conduct technical and regulatory studies based on additional proposals related to a new agenda item for WRC-23.

It is expected that Resolution 361 (WRC-15) will be updated at the WRC-19 to taking into account the outcomes of Agenda item 1.8 WRC-19 and to specify actions required with respect to the GMDSS modernization and e-navigation implementation, as well as related frequency bands.

CEPT supports this agenda item.

### Space borne radar sounders 45 MHz

Resolution 656 (WRC-15) was adopted to explore a possible allocation to the Earth exploration-satellite service (active) for spaceborne radar sounders operating in the range of frequencies around 45 MHz. The Resolution invites ITU-R to conduct studies on spectrum needs and sharing studies between the Earth exploration satellite (active) service and the radiolocation, fixed, mobile, broadcasting and space research services in the 40-50 MHz frequency range in order to support an allocation for the EESS (active) service for this operation.

The mission scientific objectives of a spaceborne radar sounder operating in the 40-50 MHz frequency band are: 1) to understand the global thickness, inner structure, and the thermal stability of the Earth’s ice sheets and 2) to understand the occurrence, distribution and dynamics of the earth fossil aquifers in desertic environments.

Preliminary studies, provided in Report ITU-R RS.[VHF\_SOUNDER], were performed to assess sharing and compatibility with existing services allocated to, and adjacent to, the 40-50 MHz band, which include fixed, mobile, space research, broadcasting and radiolocation services. The sounding radar’s operating parameters and geographical limitations, coupled with the preliminary study results, show that further studies need to be conducted to determine if the sounding radar can operate to collect important subsurface data without causing harmful interference to incumbent services.

CEPT supports this agenda item.

### Space weather sensors

Space weather refers to the physical processes occurring in the space environment. It is influenced by the solar wind and the interplanetary magnetic field (IMF) carried by the solar wind plasma. The solar wind and solar disturbances interact with the Earth's magnetic field and outer atmosphere in complex ways, causing strongly variable energetic particles and electric currents in the Earth’s magnetosphere, ionosphere and surface.

The effects of Space Weather can impact a number of activities, services and global infrastructure (for communication, transport, energy supplies, etc.) at the Earth’s surface, airborne, or in space. Resolution 657 (WRC-15) calls for the ITU-R to document the technical and operational characteristics of space weather sensors, and determine their appropriate radio service designations, in time for WRC-19 so that the Conference may decide on the matter of recommending to Council that this matter be included in the agenda for WRC-23.

To address the requirements established in Resolution 657 (WRC-15), the ITU-R has developed Report ITU‑R RS.[Space\_Weather\_Sensors] on “Technical and operational characteristics of RF‑based space weather sensors”. This ITU-R Report documents the information called for by Resolution 657 (WRC-15) to support studies to be performed under a possible agenda item on space weather at WRC-23. This Report also includes an assessment of potentially applicable radio services to the space weather sensor applications.

CEPT is proposing to revise Resolution 657 (WRC-15) in order to enhance the visibility and protection of the space weather sensors when studying the requirements to determine the technical and operational characteristics.

With the enhancements of Resolution 657, CEPT supports this agenda item.

### Fixed satellite service 37.5 - 39.5 GHz

Resolution 161 (WRC-15) resolves to invite ITU-R to conduct, and complete in time for WRC-23:

* studies considering additional spectrum needs for development of the fixed-satellite service, taking into account the frequency bands currently allocated to FSS, the technical conditions of their use and the possibility of optimizing the use of these frequency bands with a view to increasing spectrum efficiency;
* sharing and compatibility studies with existing services, on primary and secondary basis, including in adjacent bands as appropriate, to determine the suitability of new primary allocations to the FSS in the frequency band 37.5-39.5 GHz (Earth-to-space, limited to FSS feeder links only) for both GSO and non-GSO orbit use;
* studies towards possible revision of Resolution 750 (Rev.WRC-15) so that systems operating in the passive frequency band 36-37 GHz are protected,

The frequency band 37.5-39.5 GHz is covered also by Agenda item 1.13 of WRC-19.

Currently, under WRC-19 agenda item 9.1, issue 9.1.9, similar studies have been conducted for the frequency band 51.4-52.4 GHz (see Resolution 162 (WRC-15) “Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space)”).

With a positive decision by WRC-19 on issue 9.1.9 and allocation of the frequency band 51.4-52.4 GHz for the FSS (Earth-space, limited to FSS feeder links for geostationary orbit use) the current spectrum requirements of the GSO FSS feeder links (Earth-to-space) can be fully satisfied.

Therefore CEPT is of the view that additional considerations to identify more spectrum for this spectrum range are unnecessary. Consequentially Resolution 161 (WRC-15) is proposed for suppression.

### Review of 470 - 960 MHz in region 1

Resolution 235 (WRC 15) and the preliminary agenda item 2.5 were adopted to respond to some proposals at WRC 15 under agenda item 1.1 in relation to IMT use of the frequency band 470-694 MHz in Region 1. The deliberation of these requests was considered premature at WRC 15 and WRC 19, and hence the issue was included in the preliminary agenda for WRC 23.

Resolution 235 (WRC-15) resolves to invite ITU-R, after the 2019 World Radiocommunication Conference and in time for the 2023 World Radiocommunication Conference:

* to review the spectrum use and study the spectrum needs of existing services within the frequency band 470-960 MHz in Region 1, in particular the spectrum requirements of the broadcasting and mobile, except aeronautical mobile, services, taking into account the relevant ITU Radiocommunication Sector (ITU-R) studies, Recommendations and Reports;
* to carry out sharing and compatibility studies, as appropriate, in the frequency band 470-694 MHz in Region 1 between the broadcasting and mobile, except aeronautical mobile, services, taking into account relevant ITU-R studies, Recommendations and Reports;
* to conduct sharing and compatibility studies, as appropriate, in order to provide relevant protection of systems of other existing services.

CEPT supports this agenda item and Resolution 235 (WRC15).

## PROPOSALS for New Agenda items

### Aeronautical issues

#### VHF Space-Based Voice Communication Service

* Considerations on new allocation to the AMS(R)S in all or part of the band 112-137 MHz in order to support both the uplink and downlink of aeronautical VHF applications, while preventing any undue constraints on existing systems operating in the AM(R)S, the ARNS, and in adjacent bands.

Space-based VHF Voice service would enable Direct Controller Pilot Communication (DCPC) in airspace where it is geographically remote or cost-prohibitive to provide and maintain terrestrial VHF voice services. When used in combination with air traffic service surveillance systems (ADS-B, including space-based ADS‑B following WRC-15 decision to allow the space station reception of ADS-B in the frequency band 1 087.7‑1 092.3 MHz), the technology could be used to support radar-like separation minima and has the potential to improve airspace capacity and efficiency, particularly for remote and oceanic airspace. The technology could also be helpful as contingency communication infrastructure for airspace impacted by natural disasters, such as floods and earthquakes.

Proposal includes different frequency range compared to the proposal of Singapore discussed in APT, which indicates the range 118‑137 MHz.

#### New non-safety aeronautical mobile applications

* To conduct studies on spectrum needs, coexistence with radiocommunication services and regulatory measures for the possible introduction of new non-safety aeronautical mobile applications in accordance with Resolution

New non-safety aeronautical mobile applications will support applications like: imagery, video, fire and border surveillance, environment monitoring, traffic/disaster monitoring. Such applications require ground to air, air to ground and air to air, communications on-board manned and unmanned aircraft. Use of innovative sharing methods may be considered to ensure the protection of existing services while offering the possibility to have access to new frequency bands. Several frequency bands are proposed for investigation within different ranges in order to meet the various operational requirements for new non-safety aeronautical mobile applications.

It is proposed to study the bands 162.0375-174.000 MHz, 862-874 MHz and 22-22.21 GHz in order to evaluate the possible revision or deletion of the "except aeronautical mobile" restriction and the bands 144-146 MHz, 5000-5010 MHz and 15.4-15.7 GHz for possible new allocations to the aeronautical mobile service.

#### Removal of the limitation regarding aeronautical mobile in the IMT bands in the range 694 - 960 MHz

* Considerations on the removal of the limitation “except aeronautical mobile” within the frequency range 694-960 MHz for non-safety applications, where appropriate.

The IMT identifications within the frequency range 694-960 MHz could be considered for additional use cases to enhance connectivity to and from BSs and UEs on board of aircrafts and drones. It is assumed that this usage will be of increasing relevance to the aeronautical industry. The existing IMT networks can provide the necessary coverage without requiring additional dedicated infrastructure, while IMT technologies are providing for economies of scale and availability of equipment.

With the emergence of such use cases, it is important to identify the appropriate bands in order to:

ensure compatibility with services co-frequency and in adjacent bands,

trigger harmonisation and economies of scale, ideally on a worldwide basis.

#### Review of radio regulatory provisions related to aeronautical terrestrial services

* Review of radio regulatory provisions related to aeronautical terrestrial services, including Appendix 27 but excluding Article 5.

The provisions in the Radio Regulations relating to aeronautical terrestrial services, excluding Article 5, have not been reviewed since the 1980s at the latest. Certain technologies and operational practices have evolved since and, as highlighted during the discussions on the Global Aeronautical Distress & Safety System as well as in the draft Director’s report to WRC-19, there are a number of provisions in the Radio Regulations that are either no longer relevant or need to be modified to reflect current practices within aviation.

Additionally, advances in HF digital technology offer the possibility to increase both the quality and capacity of the HF frequencies current allocated to aeronautical services but this will require revisions to Appendix 27.

This issue has been discussed with ICAO and agreed.

####  Sub-orbital vehicles (follow-up from discussions under Agenda item 9.1, issue 9.1.4)

* Consideration on changes to the Radio Regulations, as appropriate, based on the outcome of studies conducted to identify any required technical and operational measures in relation to stations on board sub-orbital vehicles, to avoid harmful interference between radiocommunication services and existing applications operated in the same service.

ITU-R Studies in response to Agenda item 9.1, issue 9.1.4, provided information on the current understanding of radiocommunications for sub-orbital vehicles including a description of the flight trajectory, categories of sub-orbital vehicles, technical studies related to possible avionics systems used by sub-orbital vehicles, and service allocations of those systems. The need for further work to facilitate radiocommunications for sub-orbital vehicles has been identified.

### Satellite issues

#### Non-GSO FSS ESIM

* Study and develop technical, operational and regulatory measures, as appropriate, to facilitate the use of the bands 17.7-18.6 (space-to-Earth), 18.8-20.2 GHz (space-to-Earth), 27.5-30.0 GHz (Earth-to-space) by FSS non-GSO ESIM, while ensuring due protection of existing services in those bands.

Non-GSO satellite constellations provide broadband connectivity for a variety of applications and with the added benefits of increased flexibility/security and decreased latency. More of such, non-GSO systems are planned to be deployed to meet the increasing consumer demand for access to broadband connectivity, regardless of location. Noticeable growth for non-GSO systems is for ESIM to respond to the demand for high performance connectivity for users on maritime vessels and aircraft, at both ubiquitous fixed locations and while in motion. Next generation non-GSO systems will be designed to serve even smaller ESIM terminals and, as such, non-GSO systems offer the potential to rapidly expand service provision to new market segments, such as narrow body aircraft.

Considerations are needed to develop internationally harmonized technical, operational and regulatory measures to enable and facilitate deployment of these critical and valuable service using non-GSO satellites, while making sure that no harmful interference is caused to other services. Lack of a harmonised regulatory framework will lead to uncertainty also in terms of protection criteria for others users of the band, while impairing suitable deployment of these novel satellite services.

In studying the frequencies 29.1-29.5 GHz for use by FSS non-GSO ESIMs, it is necessary to first study the technical, operational and regulatory measures necessary to allow other uses by FSS non-GSO satellite systems not limited to MSS feeder links, subject to provision No 22.2.

#### Review of the band 18.6-18.8 GHz

* Review of the technical and regulatory conditions pertaining to the 18.6-18.8 GHz to address possible new Fixed-Satellite Service usage and the protection of EESS (passive) from existing systems and stations, and possible new deployments of the FSS (LEO and MEO and, if appropriate, ESIM and possible transmission from non-GSO FSS space stations to GSO and non-GSO FSS space stations); taking account of Nos 5.522A and 5.522B as well as relevant power limits given Nos 21.5A and 21.16.2 to ensure coexistence between FS/FSS and EESS (passive).

Studies performed under WRC-2000 Agenda item 1.17 leading to the establishment of No 5.522B, considered FSS systems known at that time, i.e. GSO systems and one non-GSO satellite system planning to use this band above an altitude of 20000 km -- highly elliptical orbit (HEO). The conditions related to the FSS use in the 18.6-18.8 GHz band were determined accordingly. Additionally, ITU-R WP 7B considered reported cases of experienced interference into EESS passive sensors of multiple Earth Observation missions.

Noting the growing demand for global satellite broadband services based on LEO and MEO, revisiting the studies performed in the band 18.6-18.8 GHz, while taking account of the latest technology developments, could help facilitate the deployment of non-GSO LEO and MEO systems.

#### Satellite-to-satellite links

* To identify the cases and conditions under which satellite to satellite links in the Earth-to-space direction in the 27.5–30 GHz frequency band and space-to-Earth direction in the 17.7-18.6 GHz and 18.8-20.2 GHz frequency band may be accommodated with reference to RR 1.21 between non-geostationary-orbit space stations and geostationary-orbit space stations and to other non-geostationary-orbit space stations that may be accommodated on a basis other than under No. 4.4 of the Radio Regulations taking into account the necessary protection of existing services, in accordance with Resolution.

In accordance to No 1.21 satellite-to-satellite links can be provided in the FSS, but are not elaborated in either the Radio Regulations or associated ITU publications. Nevertheless, this opportunity seems particularly reasonable in cases where links from a non-GSO space station are transmitted in the same direction within the receiving beam of a higher-altitude GSO space station using very similar technical parameters compared to transmitting FSS ground stations within that GSO space station receive beam.

The Radio Regulations should recognise such uses based on the technical conditions. Because frequency bands allocated to the FSS are used for links between space stations and earth stations, it is necessary to analyse the use of the same bands for satellite-to-satellite links to ensure compatibility and avoid harmful interference. The sharing scenario is likely to differ as the orbital characteristics of the linked satellites vary.

#### Protection of GSO operating in 7/8 and 20/30 GHz from emissions of non-GSO operating in the same bands

* Discuss and verify the existing regulatory framework for the protection of GSO networks operating in the frequency bands 7250-7750 MHz (space-to-Earth), 7900-8400 MHz (Earth-to-space), 20.2-21.2 GHz (space-to-Earth) and 30-31 GHz (Earth-to-space) from harmful interference caused by emissions of non‑GSO systems and clarify, if appropriate, the regulatory provisions to ensure the protection of GSO networks operating in those frequency bands.

According to the ITU-R Space Network List, in the considered frequency bands the Appendix 4 information of more than 20 non-GSO constellations have been submitted to the BR (17 filings within the last 2 years with rising tendency).

Non-GSO networks and systems require coordination with GSO networks, if an administration believes that unacceptable interference may be caused to its existing or planned GSO systems. The implementation of current provisions regarding coordination of GSO and non-GSO networks leaves room for interpretation such as no coordination is required or this is based on a best effort basis only. No 22.2 regulates that non-GSO systems shall not cause unacceptable interference to GSO networks in the FSS and BSS. There exist, however, no protection criteria to avoid unacceptable interference to GSO networks in the considered frequency bands is available. Because of this apparent ambivalent regulatory framework, the protection of GSO in these bands cannot be fully ensured. Therefore, clarification of the existing regulatory provisions to also ensure the protection of GSO networks operating in the frequency bands is needed. These bands are also allocated to the fixed-satellite, mobile-satellite, earth exploration-satellite, meteorological-satellite, maritime mobile-satellite and standard frequency and time signal service which status and existing regulations should not be affected by this proposed agenda item.

#### Considerations towards the revision of Resolution **155 (WRC-15)**

* Consideration of appropriate regulatory actions on the basis of results of ITU-R studies, with a view to reviewing and, if necessary, revising Resolution 155 (WRC-15) and No 5.484B

Resolution 155 (WRC-15) is pointing in its resolves part to some specific issues to be taken into account for communications between any earth station on-board an unmanned aircraft and a space station of a GSO network of the FSS. Especially since the content of required international aeronautical standards and recommended practices (SARPs) still need to be developed, it was resolved to invite WRC-23 to consider the results of those studies with a view to reviewing and, if necessary, revising Resolution 155, and take necessary actions, as appropriate.

Furthermore, WRC-15 resolved further to invite WRC-23 to consider the results of the studies referred to in Resolution 155 with a view to reviewing and if necessary revising the Resolution as appropriate. This review will provide the basis for the Director of the BR to decide on the processing of respective satellite network filings in context with instructs the Director of the Radiocommunication Bureau 4 of Resolution 155 (WRC-15).

Noticeable progress has been made by ITU-R WP5B regarding a number of resolves of Resolution 155 and ICAO has developed a first set of SARPs regarding Control and Non-Payload Communications (CNPC) for Unmanned Aircraft. The available information should be reflected in a revision of Resolution 155.

#### Harmonisation of 13 GHz band for earth stations on aircraft (GSO FSS)

* Consideration of global harmonised use of the frequency band 12.75-13.25 GHz by earth stations on aircraft communicating with geostationary space stations in the fixed-satellite service (Earth-to-space)

The use of the frequency band 12.75-13.25 GHz by earth stations on aircraft communicating with GSO space stations in the FSS will provide for in-flight connectivity (IFC). The growing demand for internet-based applications for the airline industry and passengers calls for capacity for such services. IFC is a service deployed throughout the world, therefore globally harmonized approach within the Radio Regulations that provide the required protection to stations operation under other primary and secondary service would benefit the administrations as well as both, aviation and satellite industries. The current usage and future development of the existing services in the band should be protected without imposing additional constraints on them.

The use of the frequency band 12.75-13.25 GHz is subject to Appendix 30B (No 5.441). The proposed harmonised use of the band will not be in contradiction with the existing Appendix 30B assignments nor should result in any changes to them. The earth stations on aircraft, similar to any other earth stations operating within Appendix 30B frequency assignments, are to be operated within the service area and with the characteristics notified for earth stations of the GSO FSS system. Such operation therefore will neither cause interference to other allotments/assignments of Appendix 30B.

#### Additional MSS in 1.5-6 GHz

* to determine, reassess and carry out appropriate regulatory actions for determining additional allocations to the mobile-satellite service between 1.5 GHz and 6 GHz, on the basis of ITU-R studies

Systems proposing to use rapidly deployed satellites are being hindered due to frequency crowding and a lack of available spectrum for emerging systems, especially in relation to initiating global IoT services. Identifying additional MSS allocation or methods of sharing existing allocations is paramount to ensuring the spectrum gap identified in ITU-R M.2077 is not prohibiting the deployment of novel systems. Small satellites (usually having a mass of less than 100 kg) can provide the ability to rapidly iterate on in service technology, subsequent efficient use of spectrum and typical ability to deorbit post mission life without the need for propulsion, noting the fast pace of system deployment.

### Science issues

#### EESS 23 GHz

* Consideration towards a new EESS (Earth-to-space) allocation in the band 22.55-23.15 GHz

Similarly to the achievements under WRC-12 Agenda item 1.11 with a primary allocation to the space research service (Earth-to-space) in the band 22.55-23.15 GHz, this new allocation would provide a companion Earth-to-space allocation to the existing EESS (space-to-Earth) allocation in 25.5-27 GHz to host the associated command and control links.

#### Active and passive imaging systems and EESS (passive) above 231.5 GHz

* Review of frequency allocations, in particular for EESS (passive) and RLS, for millimetre and sub-millimetre wave imaging systems to accommodate requirements for spectrum usage above 231.5 GHz:

to consider additional spectrum allocations to the radiolocation service on a co-primary basis in the frequency band 231.5-275 GHz and identification of frequency bands for radiolocation applications in the range 275-700 GHz for millimetre and sub-millimetre wave imaging systems

to review and consider possible adjustments of the existing or possible new primary frequency allocations to EESS (passive) in the range 231.5-252 GHz, to ensure alignment with more up-to-date remote sensing observation requirements

Millimetre and sub-millimetre wave frequencies have been recognized by the scientific communities and governmental organisations as well suited for stand-off detection of concealed objects. The radiated energy at these frequencies has good penetration through optically opaque media such as clothing, foliage, a truck with soft top, etc. Stand-off systems working at these frequencies have the advantage to allow good cross-range resolution with reasonably small aperture size compared to microwave (used for portal-like systems). Moreover, this radiation is non-ionizing, and therefore preferable to x-rays, which can be harmful for living beings. The related imaging systems are typically designed in two main configurations: active (radars) and passive (radiometers) systems. Both types of imagers require wide bandwidth operation. Active millimetre and sub-millimetre wave imagers require a bandwidth wider than 30 GHz to achieve range resolutions in the order of a few millimetres. The latter is required, for example, to detect weapons concealed under clothing. Passive imagers detect the extremely weak power that is naturally radiated by objects and require much wider bandwidth than active systems, in the order of 100 to 200 GHz, to collect enough power for detection. An optimal frequency band, with reasonably low atmospheric absorption, selected for the operation of these technologies, is in the range between 231.5 GHz and 320 GHz.

In addition, there is a need to review the EESS (passive) allocations in the 231.5-252 GHz frequency range, taking into account the scientific and technology developments for passive microwave sensor measurements, as is the case in Europe with the development of the Ice Cloud Imager (ICI) instrument of the second generation of the EUMETSAT Polar System (EPS-SG). The objective is to ensure that the allocations to EESS (passive) within this range considered correspond to the observation requirements for satellite passive microwave sensing.

### Other specific issues

#### Sharing conditions in the 71-76/81-86GHz bands

Sharing conditions between fixed service and satellite services in the 71-76/81-86GHz bands (issue 1) or conditions for the use of the 71–76 GHz and 81–86 GHz bands by stations in the satellite services (issue 2)

* to consider, based on the results of ITU‑R studies:

the introduction of pfd and e.i.r.p. limits in Article 21 for the bands 71 -76 GHz and 81 – 86 GHz (Issue 1);

the conditions for the use of the 71–76 GHz and 81–86 GHz bands by stations in the satellite services to ensure compatibility with passive services (Issue 2)

These bands are becoming increasingly significant for the fixed service for 5G backhaul and fronthaul. As there are currently no Article 21 limits in place to manage the international sharing environment the aim of this proposal is to develop appropriate pfd and e.i.r.p. limits between the co-primary satellite (FSS, BSS & MSS) and fixed services (FS).

The work under Issue 1 should be focussed solely on the in-band technical sharing framework between the primary fixed services and satellite in Article 21 for the E-band.

In addition, taking into account Resolution 731 (Rev. WRC-12), studies under Issue 2 would also address the compatibility between satellite services and passive services, namely Radio Astronomy in the 81-86 GHz band and in adjacent bands and the EESS/SRS (passive) in the adjacent 86-92 GHz band.

This agenda item is not to change the allocations that already exist in these bands.

### Issues related to issues under agenda item 9.1

Agenda item 9.1 (to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article **7** of the Convention, on the activities of the Radiocommunication Sector since WRC) is to considering of issues that do not demand changes in the Radio Regulations.

In some cases this is used as a backdoor in case to add an agenda item to the WRC agenda. Sometimes these new issues of agenda item 9.1 are as difficult as regular agenda items of the WRC and to decide them it is necessary to make modifications to the Radio Regulations.

CEPT is of the view that agenda item 9.1 shall not include issues that are intended to be addressed through modifications to the Radio Regulations, including issues related to frequency allocation for radiocommunication services and/or changing the conditions of their use. In order to implement the above proposals, CEPT proposes to modify Resolution **804 (Rev. WRC-12)**.

## view on proposals from other regional organisations

|  |  |  |
| --- | --- | --- |
| Topic | Proponent  | View |
| **IMT identification of 470-694 MHz**to consider possible additional MS allocations on a primary basis and identification of frequency band (470-694 MHz) for the future development of IMT, and take appropriate action | ASMG | Not supported, issue covered preliminary agenda item 2.5 (Resolution **810**) and the associated Resolution **235** and additional agenda item is not needed. |
| **GSO ESIM in 37.5-52.4 GHz**to consider the use of bands within the range 37.5-51.4 GHz by ESIM communicating with GSO FSS | ASMG | under review |
| IMT identification of the bands 3.3-3.8 GHzto consider possible additional MS allocations on a primary basis and identification of frequency band 3.3-3.8 GHz for the future development of IMT, and take appropriate action | ASMG | under review |
| **HIBS below 2.7 GHz**to consider identification of certain frequency bands below 2.7 GHz identified for IMT for use by high altitude platform station as IMT base stations (HIBS), and whether changes are needed to the set of existing bands identified for use by HIBS  | APT | under review |
| **VHF AMS(R)S**consider the study and potential identification of the frequency band 118-137 MHz for Aeronautical Mobile Satellite (Route) Service | APT | under review |
| **MSS space-to-space**consider an allocation of the bands 1518-1559 MHz, 1626.6-1660.5 MHz and 1668-1675 MHz to the MSS (s-s), in accordance with a Resolution | APT | under review |
| **SRS upgrade in 15 GHz**to consider possible upgrade of allocation to the SRS in the 14.8‑15.35 GHz band, noting that modern modulation techniques along with usage of filtration, used in high data rate links, allow to significantly reduce OoBE, minimizing possible interference to stations in adjacent bands.  | RCC | under review  |
| Modification of Resolution 804to change Resolution 804 to avoid inclusion in the agenda item 9.1 of future WRC issues implying possible modifications to the Radio Regulations and not having relation to the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since the previous WRC | RCC | supported (see draft ECP) |

## The regulatory process at WRC-19

In conformity of the past WRCs actions, normally the Resolution containing the preliminary agenda for the following conference, i.e. Resolution 810 (WRC-19), will be suppressed and the WRC-19 will approve a new Resolution containing the agenda for WRC-23 for consideration by the Council. Consequently, the draft ECP on this Agenda item should contain a relevant proposal.

# List of relevant documents

ITU-Documentation (Recommendations, Reports, other)

CEPT and/or ECC Documentation (Decisions, Recommendations, Reports)

EU Documentation (Directives, Decisions, Recommendations, other), if applicable

ETSI Documentation

# Actions to be taken

Develop CEPT view on the proposals for new agenda items from other regional organisations

# Relevant information from outside CEPT

## European Union (date of proposal)

## Regional telecommunication organisations

APT (January 2019)

Preliminary Views:

General Issues

* 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 encouraged to consider the WRC-23 preliminary agenda items included in Resolution **810 (WRC-15)** and provide their views to the next APG meeting, together with conditions and course of actions to be undertaken in regard with these preliminary agenda items.

Standing Agenda Item 7

* APT Members are of the view that it is required to develop a course of action such as establishment of a deadline to identify and study issues under WRC standing agenda item 7. Therefore it is proposed that the identified issues under this agenda item should be studied by ITU-R before the second session of the CPM and required regulatory examples be included into the draft CPM Report. The Conference should consider under WRC agenda item 7 only those issues which have been adequately studied by ITU-R and included in the CPM Report.
* In view of the above, APT Members propose the following modifications (not include here) to Resolution **86 (Rev. WRC-07)** and the text of standing agenda item 7.

Standing Agenda Item 9.1

* APT Members are of the view that issues which are identified by WRC resolutions to be studied by ITU-R, the results of which are to be included in the Report of the Director of the Radiocommunication Bureau to the Conference, should not propose any changes to the Radio Regulations. Those issues that may lead to a modification to the Radio Regulations should not be included in the list of issues under agenda item 9.1. Instead, they should be considered as a regular WRC agenda item, if agreed by the Conference.
* APT Members propose to modify the text of WRC standing agenda item 9 and propose a new related resolution (not included here).

Standing Agenda Item 9.2

* Preliminary Views: APT Members are of the view that this standing WRC agenda item is strictly limited to the Report of the Director on any difficulties or inconsistencies encountered in the application of the Radio Regulations and the comments from administrations. The difficulties or inconsistencies encountered by administrations in the application of the Radio Regulations should be sent to the Radiocommunication Bureau for appropriate action, and should not be considered by the Conference under this standing WRC agenda item.
* APT Members propose the following modification to the text of WRC standing agenda item 9 (not included here) and propose a new related resolution.

Availability of proposed items for inclusion in the agenda of future WRC under WRCs standing Agenda Item 10

* APT Members are of the view that administrations and regional groups need sufficient time to examine the proposed items for inclusion in the agenda of future WRC and prepare their views and proposals to the Conference.
* One option to resolve the above mentioned difficulty could be to modify Resolution **804 (Rev. WRC-12)** and request administrations and regional groups to submit their proposals under WRC standing agenda item 10 to the second session of the CPM and invite the CPM to include these proposals in its Report to the Conference. This may also need to modify Resolution **ITU-R** **2**. An example for modification of Resolution **804 (Rev. WRC-12)** is given below (not included here) for further consideration.

New items under Agenda Item 10

High altitude platform station as IMT base stations

APT Members are considering the establishment of an agenda item for WRC-23 which aims at identifying frequency bands for HIBS subject to Resolution of various issues related to the subject matter, including the choice of frequency bands, depending on the results of studies currently carried out by AWG, in a satisfactory manner.

The following Attachment 1 contains a description of the proposal and Attachment 2 contains draft text for a possible Resolution related to the proposed new agenda item (*Attachments not included here*).

VHF Space-Based Voice Communication Service

The proposed new item for inclusion in the agenda of WRC-23 to consider the possible identification of the VHF frequency band 118–137 MHz for Aeronautical Mobile Satellite (Route) Service is forwarded to the next APG meeting for further consideration. Description of the proposal using the template in accordance with Annex 2 to Resolution **804 (Rev. WRC-12)**, is given below (*not included here*).

Revision of RR No. 5.522B relating to the use of 18.6-18.8 GHz for FSS NGSO systems

The proposed new item for inclusion in the agenda of WRC-23 to study the technical and regulatory issues associated with a possible revision to footnote No. **5.522B** to enable the use of the band 18.6-18.8 GHz (space-to-Earth) by FSS non-GSO systems with an apogee below 20000 km is forwarded to the next APG meeting for further consideration. Description of the proposal using the template in accordance with Annex 2 to Resolution **804 (Rev. WRC-12)**, is given below (not included here).

Allocation of the frequency bands 1518-1559 MHz, 1626.6-1660.5 MHz and 1668-1675 MHz to the MSS (space-to-space)

The proposed new item for inclusion in the agenda of WRC-23 to consider possible allocation of the frequency bands 1518-1559 MHz, 1626.6-1660.5 MHz and 1668-1675 MHz to the mobile-satellite service (space-to-space) is forwarded to the next APG meeting for further consideration. Description of the proposal using the template in accordance with Annex 2 to Resolution **804 (Rev. WRC-12)**, is given below (not included here).

Stations on board sub-orbital vehicles

The proposed new item for inclusion in the agenda of WRC-23 for stations on board suborbital vehicles is forwarded to the next APG meeting for further consideration.

View on preliminary agenda items

Support for Space Weather Sensors (AI 2.3)

ATU (November 2018)

APM19-3 recommends ATU member states to:

1. Actively consider possible issues for discussion under this agenda item with a view to resolving any possible arising issues at an early stage: doing so would avoid the past experience whereby AI 10 issues are raised during the concluding stages of WRC thereby presenting significant challenges in the thorough considerations of the issues.

2. Pay extra attention to the proposed agenda on review of the use of UHF band in view of the fact that majority of African countries plan to extensively use the 470- 694MHz band for broadcasting. Also, in view of the fact DTT broadcasting remains a key service in the majority of the African countries, hence the preservation of this band for unconstrained use of the DTT services.

Arab Group (December 2018)

Initial proposed ASMG positions for AI 10:

* to consider possible additional allocations to the mobile service on a primary basis and identification of frequency band (470-694 MHz) for the future development of International Mobile Telecommunications (IMT), and take appropriate action;
* to consider identification of frequency bands within the range 3300-3800 MHz for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service on a primary basis, and take appropriate action;
* to consider the use of the frequency bands within the range 37.5-51.4 GHz by earth stations in motion communicating with geostationary space stations in the fixed-satellite service.

CITEL (April 2019)

Proposals:

FSS 17.3-17.7 GHZ

to consider a new primary allocation to the fixed satellite service in the 17.3-17.7 GHz band in Region 2, while protecting primary services in the band.

NGSO FSS 71-76 GHz and 81-86 GHz

to develop regulatory provision for NGSO FSS in the 71-76 GHz (s-E)and 81-86 GHz (E-s) limited to gateway links and Earth stations.

FSS 37.5 – 39.5 GHz

to suppress the proposed agenda item 2.4 on FSS “reverse band” operation in the frequency band 37.5 – 49.5 GHz.

NGSO FSS 18.6 – 18.8 GHz

to study the technical and regulatory provisions for NGSO FSS operating in 18.6 – 18.8 GHz with an orbital apogee less than 20, 000 km.

Draft Inter-American Proposals:

NGSO ESIMs

to consider the use of the frequency bands 17.7-20.2 GHz and 27.5-29.1 GHz and 29.5-30.0 GHz by earth stations on mobile platforms communicating with non-geostationary space stations in the fixed-satellite service.

Space Weather

to consider studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations and protection for space weather sensors, including possible additional spectrum allocations and regulatory provisions , without placing additional constraints on incumbent services. Resolution 657 is suppressed and replaced with a new Resolution.

Sub-Orbital Vehicles

to consider, in accordance with Resolution [YYY] (WRC-19), regulatory provisions to facilitate radiocommunications for sub-orbital vehicles.

AMS(R)S VHF

to consider an AMS(R)S allocation for both the uplink and downlink of aeronautical VHF applications.

RCC (May 2019)

The RCC Administrations are in favour of including in the WRC-23 agenda the item on upgrading the allocation of the frequency band 14.8-15.35 GHz for the SRS.

The RCC Administrations are in favour of the improvement WRC-23 standing agenda items 7, 9.1 and 9.2 activities according to principles and proposals of the document entitled "Proposals towards drawing up issues under individual World Radiocommunication Conferences agenda items" and in document RAG18/7-R "Proposals towards drawing up issues under individual World Radiocommunication Conferences agenda items".

The RCC Administrations do not oppose including into WRC-23 agenda the items from resolves 2.2, 2.3 and 2.5 of Resolution **810 (WRC-15)**.

## International organisations

IARU (April 2019)

(Interim position) Resolution **767 (WRC-15)** recognizes that other active services, including the radiolocation service and the amateur service, are also developing and demonstrating applications above 275 GHz. If studies supporting WRC-23 agenda items proceed to identify candidate frequency bands for other services above 275 GHz, the IARU supports maintaining access for non-commercial experimentation by stations in the amateur service to as much of the frequency range above 275 GHz as possible, consistent with the recognised protection of the passive and other active services.

IATA (date of proposal)

ICAO (January 2019)

To support the inclusion of an item on the WRC-23 agenda to review and update Appendix **27** of the ITU Radio Regulations to ensure it meets current and future use of aeronautical HF communications and evolving technologies in the existing exclusive Aeronautical Mobile (R) Service frequency bands between 2850 – 22000 kHz.

To support a WRC-23 agenda item to seek an Aeronautical Mobile Satellite (Route) Service allocation for both the uplink and downlink of aeronautical VHF applications, while preventing any undue constraints based on the results of studies with existing VHF systems operating in the Aeronautical Mobile (R) and Aeronautical Radionavigation Services

IMO (January 2019)

Retain agenda item 2.1 of resolution 810 (WRC-15) containing the preliminary agenda for WRC-23, to consider possible spectrum needs and regulatory actions to support Global Maritime Distress and Safety System (GMDSS) modernization and the implementation of e-navigation, in accordance with Resolution **361 (WRC-15)**, which may need to be amended.

NATO (date of proposal)

SFCG (date of proposal)

WMO and EUMETNET (March 2019)

WMO supports retention of both of the preliminary agenda items on the WRC-23 Agenda, related to EESS (active) around 45 MHz (AI 2.2) and to space weather sensors (AI 2.3).

In addition, WMO has concerns about two proposals made in document CPM19-2/7 related to the FSS in the 17.7-51.4 GHz frequency range. WMO does not support these two proposed agenda items, unless corrections presented in document CPM19-2/178 are captured to ensure that the necessary protection of EESS (passive) is duly considered.

Finally, WMO has also concerns about the proposal for possible MSS (s-to-s) allocations in the 1518-1675 MHz range made in document CPM19-2/154 and that could only be supported if the due protection of the MetAids and Metsat services in the 1668-1710 MHz range is specifically addressed.

## Regional organisations

ESA (date of proposal)

Eurocontrol (2019)

“UPDATES TO ITU RADIO REGULATIONS TO REFLECT BOTH CURRENT AND FUTURE AERONAUTICAL HF REQUIREMENTS”

To support the inclusion of an item on the WRC-23 agenda to review and update Appendix 27 of the ITU Radio Regulations to ensure it meets current and future use of aeronautical HF communications and evolving technologies in the existing exclusive Aeronautical Mobile (R) Service frequency bands between 2 850 – 22 000 kHz.

“SPACE-BASED VERY HIGH FREQUENCY (VHF) VOICE SERVICES”

To support a WRC-23 agenda item to seek an Aeronautical Mobile Satellite (Route) Service allocation for both the uplink and downlink of aeronautical VHF applications, while preventing any undue constraints based on the results of studies with existing VHF systems operating in the Aeronautical Mobile (R) and Aeronautical Radionavigation Services.

## OTHER INTERNATIONAL AND REGIONAL ORGANISATIONS

EBU (November 2018)

The EBU supports the WRC-15 conclusions that there should be no further discussions on allocations in the 470-694 MHz band at WRC-19, and that any studies on the future of that band should be started after WRC-19.

EBU supports No Change to ITU-R Resolution **235 (WRC-15)** which defines WRC-23 Agenda Item 2.5 related to the UHF band in Region 1.

The European Union has decided that the 470-694 MHz band should be retained for DTT use until at least 2030. This recognises the importance of the DTT platform and the need to provide certainty for investments in broadcasting infrastructure. DTT will continue to play an essential role as a major distribution platform in the foreseeable future and long-term certainty for spectrum below 700 MHz will give it the capacity to further innovate, develop and remain competitive.

The EU has also agreed to release the 700 MHz (694-790 MHz), as per WRC-15 decisions, by 2020/22. Releasing the 700 MHz band from broadcasting services will require technical changes to the DTT network due to the change of frequencies. In many countries, introduction of new technologies such as DVB-T2 and HEVC will also be required to maintain the range of programmes currently offered by DTT and to allow the possibility of new services being introduced. As a consequence, millions of consumers across Europe will need to change their reception equipment at home. These new technologies will be introduced in the sub-700 MHz spectrum and this requires long term certainty of access to the band 470-694 MHz. Otherwise, timely release of the 700 MHz band might be hindered.

GSMA (June 2019)

GSMA supports consideration of the following agenda item that has been proposed for WRC-23:

Consideration of additional spectrum for IMT below 24 GHz.

This agenda item should include consideration of possible regulatory actions for 3.4 - 3.8 GHz, based on local market conditions and current regulatory status, including the following:

* 3.4 - 3.6 GHz: Based on the current IMT identifications for Regions 1, 2 and 3 in RR Nos. 5.430A, 5.431B, 5.432A, 5.432B and 5.433A, consider relaxing the conditions referring to Article 9 procedures in those footnotes;
* 3.4 - 3.6 GHz: Based on the current IMT identification for certain countries in Region 3 in RR Nos. 5.432A, 5.432B and 5.433A, consider adding further countries to those footnotes or revising those footnotes to apply to the entire Region 3 (as is the case already for Regions 1 and 2) and consider possible changes to the corresponding MS allocations as appropriate;
* 3.6 - 3.8 GHz: Consider upgrading the secondary MS allocation in Region 1 to a co-primary MS allocation;
* 3.6 - 3.8 GHz: Based on the current IMT identification in RR No. 5.434 (for 3.6 - 3.7 GHz in some Region 2 countries), consider extending the IMT identification per Region and relaxing the conditions referring to Article 9 procedures in those footnotes.

The agenda item could also consider and review IMT identifications in 3.3 - 3.4 GHz for countries outside CEPT (a new agenda item for WRC-23 "to consider identification of frequency bands within the range 3300 - 3800 MHz for IMT" is expected to be proposed by ASMG).

Consideration of spectrum in 3.8 - 4.2 GHz, which is expected to be an important band for 5G in some parts of the world, should also be included in this agenda item, including to:

* Consider upgrading the secondary MS allocation in Region 1 to a co-primary MS allocation;
* Consider possible IMT identifications for countries in Regions 1, 2 and 3.

This new agenda item should also consider and study other potential bands below 24 GHz that may be possibilities for IMT use in the future. It is already clear that it will be very difficult to find frequency bands that are suitable for IMT use in all parts of the world, and current usage of different bands varies between different countries/regions, hence it is likely to be necessary to consider frequency bands/ranges from within which different portions may be used in different countries/regions according to their particular situations and needs. Bands that have been discussed within GSMA to date include:

* 3800 - 4200 MHz
* 5925/6425 - 7125 MHz
* 7125 - 8500 MHz
* 10.7 - 11.7 GHz
* 14.3/14.5 - 15.35 GHz

CRAF (date of proposal)

ETNO (March/June 2019)

ETNO strongly supports to keep the preliminary agenda item on the UHF band for WRC-23 (as contained in Res. 810 (WRC-19)) to enable the discussion on a mobile allocation in the band 470-694 MHz or part thereof In Region 1.

As the identification and release of spectrum bands is a long and complex technical and regulatory process, ETNO would like to encourage stakeholders to start early with the identification of potential additional new IMT bands. This exercise should take into account the experiences from initial 5G deployments and trials.

ETNO supports reconsideration of a possible IMT identification in the 3.8 GHz - 24 GHz range at the WRC-23 to ensure the future 5G expansion around year 2025-2030. It is proposed to study under a new agenda item for WRC-23 the bands 3800-4200 MHz, 6425-8500 MHz and 14.3-15.35 GHz for IMT to ensure expected massive development of 5G in Europe.

The 3.8-4.2 GHz band offers additional adjacent spectrum to the 3.4-3.8 GHz pioneer 5G band allowing possibility to obtain up to 800 MHz of contiguous spectrum for high data rate services, with reasonable propagation characteristics, supporting outdoor to indoor propagation and coverage. For the 3.6-4.2 GHz band upgrade to primary mobile allocation is proposed to be considered in Region 1. The bands 6425-8500 MHz and 14.3-15.35 GHz are also of interest as they already have primary mobile allocation on a global basis (only the portion 14.3-14.4 GHz in Region 2 does not have it) and the standardisation work is ongoing. 3GPP already completed its work on 3.3-4.2 GHz (band 77) with 3GPP specification in TS 38.101-1. For the 7 to 24 GHz frequency range there is a Study Item: RP-182884. Operators request on potential frequency bands in this range can be found in R4-1901752 (which includes 6425-8500 MHz and 14.3-15.35 GHz ranges).

There is a need to address already now the future IMT spectrum needs and consequently to include a new agenda item at WRC-23 Agenda as the identification process is laborious, lengthy and complex.

ESOA (March 2019)

For multiple consecutive ITU-R study cycles, critical resources from the satellite industry have been subjected to sharing studies aiming for use of spectrum by multiple services both new and incumbent. Members of ESOA have been highly supportive to the spectrum needs of different industries and multiple delicate compromises have been made possible both at ITU-R and CEPT level to allow coexistence use as a result of consensus decisions and in some cases with detrimental impact to the satellite industry. Such compromises have been and are being made in good faith and members of ESOA rely on CEPT administrations to respect and protect these compromises for long term future regulatory certainty.

The experience in Europe has been that, in a satellite core band such as 3.4-3.8 GHz, where IMT has been identified, there is no sharing of spectrum in practice, and administrations expect FSS operators to accommodate traffic in “higher” bands. Therefore, it is critical the remaining satellite bands in C-band, Ku-band and Ka-band remain preserved, as they are all in extensive use based on multi-billion investments from satellite operators worldwide.

ESOA continues to believe that at international level the key is to find the right balance, which allows a variety of industries and technologies to coexist and offer services to the public without detrimental impact to crucial services. Today satellite networks complement the offering of terrestrial networks by providing connectivity to areas not reachable by terrestrial means whether to enhance the universal service obligation of European countries or complement existence mobile services to ensure citizens are connected everywhere, including rural areas, aircrafts, international waters and mobile vehicles.

Therefore, ESOA requests CEPT to continue supporting the development of all industries in a balanced manner by providing them the regulatory certainty required for continued operations and future sustainable investment which is vital to all telecom sectors. In consideration, any proposed new agenda item for terrestrial IMT systems without a demonstration that current IMT spectrum is well utilized and without real justification that additional spectrum is needed on a global basis, should be rejected or at most placed on the provisional agenda for future WRCs, beyond WRC-23.