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| **Radiocommunication Advisory Group Geneva, 25-27 May 2020** | | C:\Users\murphy\AppData\Local\Temp\Temp1_ITU logo Entire package.zip\jpg\ITU official logo_blue_RGB.jpg |
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|  | **Revision 1 to Document RAG20/1-E** | |
| **16 March 2020** | |
| **Original: English** | |
| Director, Radiocommunication Bureau | | |
| report TO the twenty-SEVENTH meeting of the radiocommunication advisory group | | |

# 1 Introduction

This document provides status reports and background information on some of the issues that appear on the draft agenda for the 27th meeting of RAG (see [CA/250](https://www.itu.int/md/R00-CA-CIR-0250/en) of 17 December 2019). This document is intended to assist the meeting in considering the relevant agenda items.

Separate reports will be submitted for some of the agenda items.

# 2 Council issues

This section covers and updates the issues addressed by the 2019 session of the Council (see: <https://www.itu.int/en/council/2019/Pages/default.aspx>).

## 2.1 Free on-line access to ITU-R Publications

ITU continues to publish flagship and various other publications in both print and digital/electronic versions. By Decision 12 (Guadalajara, 2010), PP-10 adopted a free online access policy to include, inter alia, ITU R Recommendations and Reports. This policy was expanded by Council 2012 Decision 571, revised by Council 2013 and 2014, and confirmed by PP-14 revised Decision 12, which provides free online access for the general public, on a permanent basis. Many publications were added to the free online access to disseminate information and reach out to a wider general public. These include major publications such as the Radio Regulations, Rules of Procedure, Recommendations, Basic Texts of the Union, WCIT Final Acts, Council Resolutions and Decisions, and ITU Handbooks, resulting in only Maritime Service Publications and a few other titles still for sale.

Furthermore, in response to requests from Member States, in particular developing countries, in January 2017 the free access policy has been extended by the BR Director to include all ITU-R Handbooks.

The impact of these Decisions is well reflected by the large number of downloads of these publications, as indicated in Section 8.1.4.

## 2.2 Cost recovery for satellite network filings

The Bureau presented to Council 2019 the *Report by the Secretary-General on Cost Recovery for the Processing of Satellite Network Filings* (see [Document C19/16](https://www.itu.int/md/S19-CL-C-0016/en)) providing the status of the implementation of cost recovery for satellite network filings (Decision 482 (modified 2018)). Table 1 in this report showed that more than 99 percent of satellite network filing invoices issued in 2017/2018, which were due by 31 December 2018, have been paid. The Council took note of this report.

Council 2019 revised the parts of Decision 482 (see [Document C19/143](https://www.itu.int/md/S19-CL-C-0143/en)) concerning complex/large non-GSO satellite filings as proposed by the Council Expert Group on Decision 482 (*i.e.* no change to the methodology and fee for values from 0 to 25 000 units; from 25 000 to 75 000 units, a fee linearly increasing from the flat fee as contained in Decision 482 (Modified 2018) to twice this value; above 75 000 units, a second flat fee, which would be twice the flat fee as contained in Decision 482 (Modified 2018)) and agreed to review this Decision during its 2022 session. The revised Decision 482 entered into force on 1st July 2019.

Council 2019 also decided to discuss the costs associated with future software updates related to epfd examination during the approval of biennial budgets.

With regards to exceptionally complex GSO satellite filings, Council 2019 instructed the Director of the Radiocommunication Bureau to report to WRC-19 on exceptionally large geostationary satellite filings (see section 2.11.2 of Addendum 1 to [Document CMR19/4](https://www.itu.int/md/R16-WRC19-C-0004/en)) and endorsed the instruction of the Radio Regulations Board to the Radiocommunication Bureau to contact the notifying administration of exceptionally large geostationary satellite networks drawing their attention to the consequences of processing of such networks: staff resource absorption and complications that could have a negative impact for subsequent submissions.

Finally, Council decided to continue the work of Council Expert Group on Decision 482 with revised terms of reference (see Annex J to [Document C19/107](https://www.itu.int/md/S19-CL-C-0107/en)).

## 2.3 Budget for 2020-2021 period

Council 2019 adopted the following budget for the ITU-R in the 2020-2021 timeframe.



# 3 Results of RA-19 and WRC-19 and consequential actions

## 3.1 RA-19

As per Council Resolution 1343, the Radiocommunication Assembly 2019 (RA-19) was held in Sharm el-Sheikh, Egypt, from 21 to 25 October 2019 with 521 participants representing 91 Administrations and 31 Sector Members and 1 specialized agency of the United Nations.

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| Committee 1  (Steering) | Chairman: Mr Sergey PASTUKH (Russian Federation)  Vice-Chairmen: Mr Christopher Ross HOSE (Australia)  Mr Alexander KÜHN (Germany)  Mr Agostinho LINHARES (Brazil)  Mr Rizat NURSHABEKOV (Kazakhstan)  Mr Wael SAYED (Egypt)  Mr Peter John ZIMRI (South Africa)  This Committee was made up of the Chairman and Vice-Chairmen of the Assembly and the Chairmen and Vice-Chairmen of the Committees. |
| Committee 2 (Budget) | Chairman: Mr Daniel OBAM (Kenya) |
| Committee 3 (Editorial) | Chairman: Mr Christian RISSONE (France)  Vice-Chairmen: Mr Celestino MENENDEZ ARGUELLES (Spain)  Mr Vladimir MINKIN (Russian Federation)  Mr Paul NAJARIAN (United States)  Mr Georges YAYI (Benin)  Mr Ayham BANIHANI (Jordan)  Ms Pengpeng LI (China (People’s Rep. of)) |
| Committee 4 (Structure and work programme of the Study Groups) | Chairman: Mrs Carol WILSON (Australia)  Vice-Chairman: Dr Haim MAZAR (ATDI) |
| Committee 5 (Working methods of the Radiocommunication Assembly and Study Groups) | Chairman: Mr Chris HOFER (United States)  Vice-Chairman: Mr El Hadjar ABDOURAMANE (Cameroon) |

RA-19 was a fully paperless assembly, with all of the detailed drafting activities being conducted using the RA-19 SharePoint web site. A Sync Application was also provided and used.

As decided during the opening plenary and in line with the decisions of PP-14, all input documents were freely accessible by the public in advance of the assembly since no Member State considered that their disclosure would cause potential harm to a legitimate private or public interest that outweighs the benefits of accessibility.

The ITU-R Resolutions, Recommendations and Questions, as the main outputs of the assembly, are available for public access. The Plenary sessions, as well as those of committees, were webcast in the six official languages and provided with captioning in English, and the corresponding files (archives) are also available on the RA-19 website. Full information on RA-19 can be found on the webpage at: <http://www.itu.int/en/ITU-R/conferences/RA/2019>.

In total, RA-19 revised 23 ITU-R Resolutions.

Resolution ITU-R [1](http://www.itu.int/pub/R-RES-R.1) "Working methods for the Radiocommunication Assembly, the Radiocommunication Study Groups, the Radiocommunication Advisory Group and other groups of the Radiocommunication Sector" was revised, but no substantial changes were made. Consequentially, Resolution ITU-R 43 was suppressed since the relevant provisions were included under Resolution ITU-R [1](http://www.itu.int/pub/R-RES-R.1).

Substantial revisions were made to Resolution ITU-R [2](http://www.itu.int/pub/R-RES-R.2) “Conference Preparatory Meeting” with the objective of improving the process of preparations towards the World Radiocommunication Conference (WRC) based on the experience gained during previous study periods and in order to improve the implementation of the Resolution. The revision to Resolution ITU-R 2 also includes a change to the structure of the text with the aim of aligning it with the presentation style of Resolution ITU-R [1](http://www.itu.int/pub/R-RES-R.1).

The structure of the ITU-R Study Groups has been maintained. As such, the existing six ITU-R Study Groups continue into the new study period (2019-2023) with the same scopes of activity. In accordance with the provisions of Resolution ITU-R 15 "Appointment and maximum term of office for Chairmen and Vice‑Chairmen of Radiocommunication Study Groups, the Coordination Committee for Vocabulary and of the Radiocommunication Advisory Group", the Chairman/Vice- Chairmen for these Groups were appointed as appropriate. The structure of Radiocommunication Study Groups, including their scopes, chairmen and vice-chairmen, can be found in Resolution ITU‑R [4](http://www.itu.int/pub/R-RES-R.4).

RA-19 approved the work programme and Questions of the Radiocommunication Study Groups (see Resolution ITU-R [5](http://www.itu.int/pub/R-RES-R.5)) as well as five ITU-R Recommendations.

Resolution ITU‑R [36](http://www.itu.int/pub/R-RES-R.36) “Coordination of vocabulary in the six official languages of the Union on an equal footing in the ITU Radiocommunication Sector” was also significantly revised by RA-19. The update incorporated issues treated in Resolutions ITU-R 34 and ITU-R 35 with the aim of bringing together topics related to the work of the Radiocommunication Sector in the field of terminology, including the activities of the ITU-R Coordination Committee for Vocabulary (CCV).

Additionally, two new ITU-R Resolutions were approved, both related to broadcasting issues:

**Resolution ITU-R** [**70**](http://www.itu.int/pub/R-RES-R.70) –- Principles for the future development of broadcasting

**Resolution ITU-R** [**71**](http://www.itu.int/pub/R-RES-R.71) – Role of the Radiocommunication Sector in the ongoing development of television, sound and multimedia broadcasting

The Assembly also decided to suppress three ITU-R Resolutions:

**Resolution ITU-R** [**34**](http://www.itu.int/pub/R-RES-R.34) – Guidelines for the preparation of terms and definitions

**Resolution ITU-R** [**35**](http://www.itu.int/pub/R-RES-R.35) – The organization of vocabulary work covering terms and definitions

**Resolution ITU-R** [**43**](http://www.itu.int/pub/R-RES-R.43) – Rights of associates

The decisions of RA-19 of particular relevance to WRC-19 were reported in Document [WRC‑19/129](http://www.itu.int/md/R19-WRC19-C-0129)

### 3.1.1 Instructs from RA-19 to RAG

A number of issues, which would have required further discussion, were identified as being of relevance for the coming study cycle. Therefore, RA-19 instructed the RAG:

– Concerning Resolution ITU-R [15](http://www.itu.int/pub/R-RES-R.15), based on proposals from the Member States and Sector Members and in consultation with the Study Group Chairmen, to review the maximum term of office for Chairmen of Radiocommunication Working Parties and report the results of this review to RA-23.

– To identify possible modifications to Resolution ITU-R 1 with respect to the approval procedures when a text is relevant to the topics of multiple SGs and to the circulation of objections received during the approval process.

– Based on proposals from the Member States and Sector Members and in consultation with the Study Group Chairmen, to consider the need to review Resolution ITU-R 1, including the addition of provisions for training newly-elected Study Group Chairmen and Vice-Chairmen.

RA-19 also suggested to prepare a sort of briefing note and guidelines for newly elected Vice‑Chairmen in order to acquaint them with the working methods of the SGs.

### 3.1.2 Follow-up actions for Study Groups from the RA-19

Based on discussions held, RA-19 endorsed the following actions for the next study period:

– The Administrations are invited to directly contribute to SG 1 and SG 3 in order to revise existing Questions on the potential impact of unintentional electromagnetic energy generated by electrical or electronic apparatus.

– Concerning studies on methodologies for calculating coordination zones around Earth exploration-satellite and space research earth stations to avoid harmful interference from IMT-2020 systems, SG 7 shall continue, in close cooperation with SG 5, the development of a Recommendation and complete the work, to the extent possible, by the first SG7 meeting in 2021.

The above information has been conveyed to the concerned Study Groups.

## 3.2 WRC-19

### 3.2.1 Final preparations for WRC-19

After the 26th RAG meeting in 2019, the preparations for WRC 19 continued, taking into account Resolution 72 (Rev.WRC-07), with in particular the BR’s active participation in the final preparatory meetings of the regional groups, APT, ASMG, ATU, CEPT, CITEL and RCC, wherever possible. In addition, the BR organized the [3rd ITU Inter-regional Workshop on the WRC-19 preparation](http://www.itu.int/go/ITU-R/wrc-19-irwsp-19) on 4 to 6 September 2019.

### 3.2.2 Results of WRC-19

#### 3.2.2.1 Introduction

Further to Resolution 809 (WRC-15), and in accordance with Council Resolution 1380 (Modified 2017), the World Radiocommunication Conference 2019 (WRC-19) was held in Sharm el-Sheikh, Egypt from 28 October to 22 November 2019.

A total of 3,420 participants representing 163 Member States and 129 observer organizations attended WRC-19.

At the first Plenary Meeting, Dr Amr BADAWI (Egypt) was elected as Chairman of the WRC-19. Six Vice-Chairmen were elected as follows:

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| Dr Kyu Jin WEE (Korea (Rep. of)) | Mr Alexander KÜHN (Germany) |
| Mr Tareq AL AWADHI (United Arab Emirates) | Ms Grace KOH (United States) |
| Mr Peter ZIMRI (South Africa) | Mr Sergey PASTUKH (Russian Federation) |

The following committees were established:

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| Committee 1 (Steering) | (composed of the Chairman and Vice-Chairmen of the Conference and of the Chairmen and Vice-Chairmen of the other committees) |
| Committee 2 (Credentials) | **Chairman**: Mr Timofey KIM (Kazakhstan)  **Vice-Chairmen**: Dr Tommy CHEE (New Zealand)  Mr Aws MAJEED (Iraq)  Dr Samuel RITCHIE (Ireland)  Mr Hector BUDE (Uruguay)  Mr Henry KANOR (Ghana) |
| Committee 3 (Budget Control) | **Chairman**: Mr Daniel OBAM (Kenya)  **Vice-Chairmen**: Mr Christopher HOSE (Australia)  Mr Muhammed ABDELHASEEB (Egypt)  Mr Aurelian CALINCIUC (Romania)  Mr Naylamp LOPEZ GUERRERO (Peru)  Mr Artur KYDYRMYSHEV (Kyrgyzstan)  Mr Andrew KISAKA (Tanzania) |
| Committee 4 (Specific agenda items) | **Chairman**: Mr Jose ARIAS (Mexico)  **Vice-Chairmen**: Dr Hyangsuk SEONG (Korea (Rep. of))  Mr Mohammed ALJNOOBI (Saudi Arabia)  Mr Gerlof OSINGA (Netherlands)  Mr Gulam ABDULLAYEV (Azerbaijan)  Ms Stella BANYENZA (Tanzania)  Ms Amy SANDERS (United States) |
| Committee 5 (Specific agenda items) | **Chairman**: Mr Nobuyuki KAWAI (Japan)  **Vice-Chairmen**: Mr PHUONG Phung Nguyen (Viet Nam)  Mr Abdelkarim BELKHADIR (Morocco)  Mr Eric FOURNIER (France)  Mr Tarcisio BAKAUS (Brazil)  Mr Maxim STRELETS (Russian Federation)  Mr Siaka Boubacar COULIBALY (Mali) |
| Committee 6  (Specific agenda items) | **Chairman:** Mr Martin Weber (Germany)  **Vice-Chairmen:** Mr Xie YUANSHENG (China)  Mr Kati SMAIL (Algeria)  Ms Cindy COOK (Canada)  Mr Dilmurod DUSMATOV (Uzbekistan)  Mr Valéry Hilaire OTTOU (Cameroon)  Mr Alexandre KHOLOD (Switzerland) |
| Committee 7  (Editorial) | **Chairman:** Mr Christian RISSONE (France)  **Vice-Chairman:** Mr Georges YAYI (Benin)  Mr Dmitry CHERKESOV (Russian Federation)  Ms Rahma GHARSALLAOUI (Tunisia)  Ms Claire LYONS (United Kingdom)  Ms Isabel MARTINEZ PONTE (Spain)  Mr ZHAO Zheng (China) |
| Ad Hoc Group of the Plenary | **Chairman**: Ms Cindy COOK (Canada) |

WRC-19 was a fully paperless conference. In order to facilitate the handling of the 970 documents containing 5811 proposals issued for the conference, the Proposals Management System was further enhanced in advance of WRC-19, after its successful use in previous ITU conferences.

The ITU also further developed the Conference Proposals Interface which was extensively used by the Member States in creating and submitting 579 documents containing 2598 proposals for the work of the conference.

Other electronic tools used during the conference were: the WRC-19 SharePoint, the WRC-19 Smartphone Applications (on both iOS and Android platforms), the Radio Regulations Navigation Tool, and the Sync Application.

As decided during PP-14, all input documents were freely accessible by the public in advance of the conference. The Provisional Final Acts of WRC-19 are also available for public access as they are considered the main output of the conference.

The Plenary sessions, as well as those of Committees 4, 5 and 6, were webcasted and captioned during the conference. Webcast was also provided for the sessions of the Ad-hoc Group of the Plenary and for the Working Groups of the Committees. The corresponding files (archives) are available for TIES users on the WRC-19 website.

Full information on WRC-19, including the Provisional Final Acts as well as all documents, photos and videos can be found at: [www.itu.int/go/WRC-19](http://www.itu.int/go/WRC-19).

#### 3.2.2.2 Main outcomes of WRC-19

WRC-19 addressed over 36 topics related to frequency allocation and frequency sharing for the efficient use of spectrum and orbital resources. The following are WRC-19 key outcomes:

##### 3.2.2.2.1 Mobile and fixed broadband communications

Satisfying IMT-2020/5G requirements in high capacity spectrum, the WRC-19 identified a total of 17.25 GHz of additional spectrum for IMT in frequencies between 24 GHz and 71 GHz, 86% of which was harmonized on a global basis. The additional (millimetre wave) frequency bands identified for IMT globally are the 24.25-27.5 GHz, 37-43.5 GHz and 66-71 GHz bands, with regional and country identifications made in the 45.5-47 GHz and 47.2-48.2 GHz bands.

To protect systems in the Earth exploration-satellite service (passive) in 23.6 – 24 GHz, WRC-19 updated Resolution 750 (Rev. WRC-19) to specify limits of unwanted emission power levels from IMT systems in the 24.25-27.5 GHz band. The WRC-19 established a two-step approach whereby the limit on unwanted emission power levels become even more stringent for IMT systems deployed after 1 September 2027, the timeframe when it is anticipated that a greater number of IMT systems would be in service in that frequency range.

WRC-19 changed the regulatory conditions for wireless access systems, including radio local area networks (WAS/RLANs) in the band 5 150 -5 250 MHz. This decision allows for the use of Wi-Fi devices in trains and cars, which was very much sought by the automotive and railway industries. It also permits a limited deployment of outdoor WAS/RLANs, with due protection of space services.

WRC-19 identified various frequency bands for high altitude platform stations (HAPS) on a global basis and along with other bands in Region 2, with total of 5.25 GHz spectrum. This will facilitate the development and implementation of HAPS and will enable affordable broadband connectivity and telecommunication services in underserved communities and in rural and remote areas, including mountainous and desert zones, thus connecting the unconnected. HAPS can also be used for disaster recovery communications.

WRC-19 identified various bands between 275 and 450 GHz for the land mobile and fixed services, with conditions necessary to protect the Earth‑exploration satellite service (EESS) (passive) applications in some of these bands. The identification enables future high data rate fixed and mobile systems with data rates more than 100 Gbit/s. The protection of passive services needs further studies.

##### 3.2.2.2.2 Amateur radio service

WRC-19 made allocations to the amateur service on a secondary basis in the frequency band 50‑52 MHz in Region 1, with the conditions to provide protection to the incumbent services. In some R1 countries the allocation to the amateur service is on a primary basis in the entire band 50-54 MHz or its parts. Through this action, WRC-19 completed harmonization of spectrum throughout the three Regions, since in Regions 2 and 3 the allocation existed before WRC-19. This will enhance radio amateurs’ capacity to communicate in this frequency band.

##### 3.2.2.2.3 Radiocommunications for Transportation Systems

WRC-19 adopted a new Resolution on Railway radiocommunication systems between train and trackside (RSTT). It invites ITU-R to continue the development of the ITU-R Recommendations/Report for spectrum harmonization of RSTT. Countries are encouraged, when planning for their RSTT, to consider these study results. This decision contributes to global and regional harmonization of RSTT applications, enabling economies of scale and interoperability.

WRC-19 adopted a new WRC Recommendation on Intelligent Transport Systems (ITS). It recommends administrations to consider the harmonized frequency bands, as described in the relevant Recommendations (e.g. ITU-R M.2121), when planning and deploying evolving ITS applications. This decision contributes to global and regional harmonization of ITS applications, enabling economies of scale and interoperability.

##### 3.2.2.2.4 Enhanced Maritime Communications Systems and Services

NAVDAT (Navigation Data) is a digital system to broadcast maritime safety information, including navigation and meteorological warnings. WRC-19 authorized the usage of NAVDAT in certain medium and high frequency bands in the maritime mobile service, which will provide a variety of safety related information to ships using digital technologies.

WRC-19 adopted the regulatory provisions necessary for adding Iridium as a second satellite provider to the Global Maritime Distress and Safety System (GMDSS). Specifically, WRC-19 upgraded the allocation to the maritime-mobile satellite service in the downlink and entered this band in RR Appendix 15 for GMDSS. Additionally, regulatory provisions were reinforced to protect radio astronomy in the lower adjacent band and the mobile-satellite service in the same band and adjacent upper band. Introduction of this second GMDSS satellite provider, which is a non-geostationary orbit (non-GSO) system, is very beneficial for the maritime community. It allows the GMDSS to cover the entire globe, including polar areas, and reinforces competition in the area of maritime communications.

WRC-19 regulated the usage of maritime frequency channels for autonomous maritime radio devices (AMRDs) by segregating these channels into safety-related and non-safety related groups and limited access to them accordingly. By regulating the operation of AMRDs, the WRC-19 further enhanced safety of navigation at sea.

To enable the satellite component of the VHF Data Exchange System (VDES), WRC-19 made secondary allocations to the maritime mobile-satellite service. WRC-19, by enabling the satellite component of VDES, extended the VDES service beyond the coastal areas reached by the terrestrial component, which was already approved by WRC-15, to global coverage, and allowed for the implementation of the complete VDES concept. This decision enhances VHF communications and improves maritime safety on a global basis.

##### 3.2.2.2.5 Global Aeronautical Distress and Safety Systems

WRC-19 was asked to consider spectrum needs and regulatory provisions for the introduction and use of the Global Aeronautical Distress and Safety System (GADSS). Based on the results of ITU‑R studies, WRC-19 did not make any regulatory changes in the Radio Regulations to accommodate GADSS since it represents an evolving performance-based system that is difficult to describe in the specific regulatory terms.

##### 3.2.2.2.6 Satellite Services

WRC-19 adopted a new regulatory framework, including the bringing into use and a milestone-based approach for the deployment of non-GSO satellite constellations in specific frequency bands and services. The new milestone-based regulatory framework will enable mega constellations of satellites - hundreds to thousands of spacecraft in low-Earth orbit - to rapidly come to fruition ensuring the operation of as many systems as possible. The approach will help ensure that the Master International Frequency Register is aligned with the actual deployment of non-GSO satellite systems. In making this decision, the WRC-19 struck a balance between the prevention of spectrum warehousing, the proper functioning of coordination, notification and registration mechanisms, and the operational requirements related to the deployment of non-GSO systems.

WRC-19 opened up new orbital slots for broadcasting satellites, providing developing countries with the opportunity to regain access to spectrum orbit resources thanks to a priority mechanism especially set for them.

WRC-19 defined the regulatory, operational and technical conditions under which frequency bands in the 30/20 GHz frequency range can be used by earth stations in motion (ESIM) communicating with geostationary-satellite orbit (GSO) space stations in the fixed-satellite service in all Regions. This decision will enable the connection of people on ships (maritime ESIM), aircraft (aeronautical ESIM) and land vehicles (land ESIM) and ensure their safety, security and comfort while in motion. It will also increase the use and further develop ESIMs while protecting other GSO networks and non-GSO systems as well as terrestrial services.

##### 3.2.2.2.7 Support for the Science Services

WRC-19 established in-band and adjacent band protections for EESS and Space Research Service to ensure that space‑based monitoring of the Earth and its atmosphere remain unhindered.

Regulatory and technical measures were approved in order to protect long-term development of Data Collection Platforms. Frequency bands in the space operation service and regulatory procedures were defined for introducing satellites with short duration missions while affording due protection to terrestrial services.

WRC-19 adopted measures to ensure that satellite services supporting meteorology and climatology, which aim to safeguard human life and assess the state of natural resources, will be protected from harmful radio‑frequency interference, as will systems used by radio astronomers for deep space exploration.

WRC-19 adopted additional measures to ensure that radio astronomy stations will be protected from harmful radio interference from other space stations or satellite systems in orbit.

##### 3.2.2.2.8 Palestine

WRC-19 adopted measures to ensure the continuous assistance and support for the timely implementation of new technologies, including 4G and 5G networks and services in Palestine.

##### 3.2.2.2.9 Agenda for WRC-23 and preliminary agenda for WRC-27

WRC-19 adopted new Resolutions containing the agenda for WRC-23 and the preliminary agenda for WRC-27. The WRC-23 agenda contains 19 specific agenda items on technology development and new spectrum requirements for users in the terrestrial, aeronautical, maritime, satellite and science services. The WRC-23 agenda contains also the usual standing agenda items and will further consider the preliminary agenda for WRC-27. The WRC-23 agenda will be presented in a separate document to Council 2020.

##### 3.2.2.2.10 Gender Declaration

WRC-19 adopted its first ever “Gender Declaration”[[1]](#footnote-2), which declared the commitment of the sector to gender equality and balance. It identified specific actions for the ITU-R to accelerate efforts to ensure that all its policies, work programmes, information dissemination activities, publications, study groups, seminars, courses, assemblies and conferences reflect the commitment to gender equality, and promote gender balance. Further, it declared that ITU Member States and Sector Members should encourage the adoption of proven measures to increase globally the number of women pursuing academic degrees at all levels in STEM fields, particularly those related to the ICT. The WRC-19 also declared that Member States should consider and adopt a Resolution at the 2023 Radiocommunication Assembly on gender equality, equity and parity in the ITU-R.

### 3.2.3 Financial implications of WRC-19 decisions

The World Radiocommunication Conference (WRC-19) identified some areas of additional work, studies and development for the implementation of the decisions of the Conference. The estimated costs for the completion of these new tasks are in the magnitude of CHF 1,721 million. The estimated allocations are contained in **Table** **1**.

WRC-19 requested the Secretary-General to bring this to the attention of Council-20 session to discuss the most effective methodology for the funding of these activities as they should be concluded prior to the next World Radiocommunication Conference in 2023.

The meeting of Council Working Group on Financial and Human Resources, which took place in February 2020 reviewed this matter and concluded that the request be submitted to Council-20 session. More information is available in Document 5 of the CWG-FHR (<https://www.itu.int/md/S20-CWGFHR11-C-0005/en>) or in Document C20/56 of Council **(**<https://www.itu.int/md/S20-CL-C-0056/en>).

Table 1

Summary of the Estimated costs

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| --- | --- | --- |
| **Related WRC-19 Decision(s)** | **Required Support.** | **Amount CHF** |
| Resolution 35 (WRC-19) | Software development costs, with the assistance of external resources (new database to follow the non-GSO deployment and software to update the MIFR accordingly) | 340 000 |
| Resolution 169 (WRC-19) | Software development costs | 85 000 |
| Modifications to RR Nos. 9.36, 9.53A, Appendices 30, 30A and 30B | Software development costs | 200 000 |
| Resolution 245 (WRC-19) -studies | Organizational and meeting support | 456 000 |
| Resolution 235 (WRC-15) – studies related to agenda item 1.5 for WRC‑23 | Organizational and meeting support | 340 000 |
| Various RR provisions and Resolutions related to WRC-19 Agenda item 1.6 (non-GSO FSS)  RR Nos. 5.550C, 5.550E, 22.5L, 22.5M and Resolutions 769 (WRC-19) and 770 (WRC-19) | Software development costs (implementation of the new methodology, taking benefit of any potential reuse of existing developments) | 150 000 |
| Various Resolutions related to WRC-19 Agenda item 1.14 (HAPS)    Resolution 122 (Rev.WRC-19) and (WRC-19 Resolutions 165, 166, 167,168) | Software development costs, including the development of calculation modules for more than 30 technical conditions, changes in the Master Register database and filing structure according to modified RR Appendix 4 and design of dedicated notification user interface. | 150 000 |
| **Total** |  | **1 721 000** |

### 3.2.4 Software development to implement WRC-19 decisions

The BR is pursuing software design and development to implement WRC-19 decisions.

At the time of writing this report, the Bureau is still investigating the extent of software development required to implement WRC-19 and additional requirements may therefore be identified in 2020.  
The following presents a summary of the main tasks identified thus far.

#### 3.2.4.1 Implementation of WRC-19 decisions relating to terrestrial services:

* Review and update of the software used for processing and publication of terrestrial notices, both for internal (*TerRaSys*) and external (BR IFIC (Terrestrial)) utilization, as a result of WRC-19 decisions and related Rules of Procedure. These include changes in the terrestrial databases, validation and examination software, and reference tables.
* Development of the software modules for processing of HAPS notifications (validation, examination and publication tools). This task also comprises the development of calculation modules for checking technical conditions specified Resolutions 122 (Rev. WRC-19), 145 (Rev. WRC-19), 165 (WRC-19), 166 (WRC-19), 167 (WRC-19) and 168 (WRC-19), the changes in the database and filing structure.
* Development of the examination software for identification of affected administrations using digital elevation models (DEM) for several frequency bands and services.

#### 3.2.4.2 Implementation of WRC-19 decisions relating to space services:

* Review and update of the software used for processing and publication of satellite network submissions, both for internal and external (BR IFIC (Space)) use. These include changes in the database, validation and examination software modules, reference tables, resulting from WRC-19 decisions and related Rules of Procedure.
* Due to the fact that certain changes adopted by WRC-19 entered into force immediately, an intermediate release of space services software (version 8.5) shall be available in May. The full set of changes related to WRC-19 shall be available in January 2021 in version 9 of BR Soft.
* A partial list of changes to space service software includes:
* Changes to SpaceCom consequent to the changes of provisions 9.36, 9.36.1, 9.52C, 9.53A (AI 7 Issue D);
* Changes to GIBC/Appendix 8 program stemming from modifications in Table 5 of Appendix 5 (AI 7 Issue B)
* Changes to Annex 7 of Appendix 30;
* Changes to the software for Appendix 30B in several phases;
* Changes to PFD limits for BSS in 1462-1492 MHz;
* PFD hard limits (GSO and non-GSO) in 40-40.5 GHz;
* Improvements to the GIMS system concerning non-GSO antenna patterns, and the corresponding improvements to examination software;

### 3.2.5 Other actions to implement WRC-19 decisions

The Gender Declaration, which was adopted at the 8th plenary meeting on 19 November 2019, declared “that ITU-R should accelerate efforts to ensure that all its policies, work programmes, information dissemination activities, publications, study groups, seminars, courses, assemblies and conferences reflect the commitment to gender equality, and promote gender balance” and identified several actions that can be supported by the work of the RAG. Notably, the RAG may wish to consider promoting the objectives of the Gender Declaration by:

* providing guidance and encouragement toward the equitable selection of chairmen, vice chairmen and rapporteurs in the work of the ITU-R Study Groups, the CPM and in the work of the RAG itself;
* developing a draft resolution on gender equality, equity and parity in the ITU-R for submission to the 2023 Radiocommunication Assembly for its consideration and adoption;
* supporting and providing input to the ongoing work of the “Network of Women” to enhance and maximize the effectiveness of this initiative;
* providing advice, where possible, on ITU-R matters supporting the goal of achieving gender equality, equity and parity in the work of the sector.

# 4 Study Groups activities

This topic is presented in Addendum 1 to this document.

# 5 WRC-23 preparation

The WRC-23 Agenda, as contained in Resolution 811 (WRC-19), will be considered at the 2020 session of the Council, which will be invited to adopt a new Resolution containing that Agenda, as well as the venue and exact dates of WRC-23 and RA-23.

The first session of the Conference Preparatory Meeting for WRC-23 (CPM23-1) was held on 25 and 26 November 2019 in Sharm el-Sheikh, Egypt, to organize the preparatory studies for WRC-23.

Taking into account the WRC-23 agenda, the WRC-27 preliminary agenda, the associated WRC-19 resolutions and the relevant WRC-19 decisions, CPM23-1 prepared the structure and developed the working procedures for the preparation of the draft CPM Report to WRC-23. CPM23-1 identified the responsible and contributing ITU-R groups for each of the WRC-23 agenda items, as well as for the WRC-27 preliminary agenda items. For WRC-23 agenda item 1.5, CPM23-1 decided to invite Study Group 6 to establish a Task Group (TG 6/1) as the responsible group for this agenda item with the agreed Terms of Reference. CPM23-1 appointed Rapporteurs or co-Rapporteurs for the five Chapters of the draft CPM Report to assist the Chairman in managing the flow of contributions and the development of the draft CPM texts, in line with the CPM working methods and guidelines for the preparation of these texts as contained in Annexes 1 and 2 to Resolution ITU-R 2-8. Circular letter [CA/251](http://www.itu.int/md/R00-CA-CIR-0251/en) of 19 December 2019 contains the results of CPM23‑1.

As soon as the exact time of WRC-23 is decided by the ITU Council, the CPM-23 Steering Committee, in consultation with the Chairmen of the ITU-R Study Groups and responsible Working Parties/Task Group, will propose dates for the second session of CPM-23 and will determine the deadline for the completion of the draft CPM texts by the responsible groups. This information will be communicated to the membership accordingly.

# 6 Operational planning

As per the approved strategic plan of the Union for 2020-2023 by PP-18, the ITU‑R Operational Plan has been structured in accordance with the results-based management concept of Union in order to ensure complete linkage with the budget and other financial tools of the Union.

The outcome indicators have been revised to reflect more accurately the work of the Bureau. The draft ITU‑R Operational Plan for the period 2020-2023 is presented in Section 2 of Part 2 of Document 10, for review and comments by RAG.

# 7 BR information system

## 7.1 Terrestrial software and tools

### 7.1.1 Changes in the examinations under No. 9.19 of the Radio Regulations

The Bureau completed of development of the software modules and associated tools for processing of terrestrial notices under RR No. **9.19**, following the modified approach for the identification of affected administrations under this provision.

### 7.1.2 Processing of coordination requests under RR No. 9.21

The development of the software modules and associated tools for the processing of coordination requests under RR No. **9.21** continued during 2019. The algorithms and software modules used for technical examinations under No. **9.21** have been finalized and put into production. The completion of the software for the checking the corresponding assignments (subject to **9.21**) notified under RR Article **11** to the Master Register is scheduled for the third quarter of 2020.

### 7.1.3. Integration of GE06 software into TerRaSys

The GE06D (Digital Plan) and GE06L (Other Primary Services List) Article 4 examination modules have been finalized and incorporated into TerRaSys. Consequently, the overall software for the processing, examination and publication of Special Sections related to all parts of GE06 is now fully operational in TerRaSys.

The corresponding software modules for checking the conformity of RR Article 11 assignments with GE06 Plan and List have been also completed and integrated.

### 7.1.4 Migration from Ingres to SQL Server

The work on the migration of the TerRaSys database from Ingres to SQL Server was initiated, together with a deep review and adaptation of the various system components. Significant progress was achieved in this regard, including:

* Review and redesign of the database structures, schemas and procedures (including archiving) to adapt them and take advantage of the modern technology offered by the new DBMS;
* Review and redesign of the data types used for some fields (for example, enhancing and adjusting the precision of the geographic coordinates to higher than one second);
* Review and redesign of various software components and applications used to access the database, with the view of using web applications and modern software development technologies;

It is expected that the full migration and restructuring of the existing system will be completed by the end of the first quarter of 2021.

Copies of the existing terrestrial database on the new DBMS platform are now available and are being used by various BR applications through the web to display, validate and process terrestrial frequency notifications.

### 7.1.5 Developments for Maritime mobile Access and Retrieval System (MARS) and radio-monitoring

The migration of the MARS (Maritime mobile Access and Retrieval System) database from Ingres to SQL Server, the development of a new MARS web-based application, and a publication software have been completed. The 2019 editions of the List of Ship Stations and Maritime Mobile Service Identity Assignments (List V) and the List of Coast Stations and Special Service Stations (List IV) are available through this new web-based publication.

Web application for the Regular Monitoring Programme in bands between 2 850 and 28 000 kHz was enhanced to ease the consultation of the monitoring information submitted by administrations.

The migration from Ingres to SQL server for List VIII (International Monitoring Stations) database and development of a new List VIII web-based application and publication software was completed and is now under testing. The final version of the software will be released by June 2020.

## 7.2 Progress in fulfilling the BR Space Information Systems roadmap (RAG-19, 2012)

RAG-19 (2012) advised the Director to implement recommended actions within the proposed time-frame, as described in the agreed roadmap, comprising: Phase 1 (Implementation of WRC 12 decisions) up to 31 December 2012; Phase 2 (Rewrite some existing software) up to 31 December 2015; and Phase 3 (Set up a project team to implement a common framework, security system and centralized space database) from 1 January 2016 to 31 December 2018. RAG encouraged Member States and Sector Members to submit their comments on Phase 3.

In 2019, the BR continued to maintain existing legacy software, while at the same time working on implementing new versions of key software applications. This parallel effort is both a necessity due to operational exigencies as well as the reason why certain modernization projects are still underway.

### 7.2.1 Phase 2: 1 April 2012 – 31 December 2015

#### 7.2.1.1 Business Continuity and Disaster Recovery (both Space and Terrestrial Services)

In 2019, the ITU completed the Organizational Resilience Management System project with the help of external security consultants, and with active participation from all levels of the Bureau. In addition, work on further strengthening the ITU Risk Management Framework started in 2019, with the setting up of the Inter-Sectoral Task Force Working Group on Risk Management.

#### 7.2.1.2 Rewrite legacy software for technical examination

* Rewrite PFD for protection of terrestrial services calculation: Ongoing
* Rewrite AP8 calculation: The new-generation AP8 software was released on the BR IFIC 2908 (12 November).
* Rewrite PFD for protection of space services: The new-generation PFD software is in internal testing.
* Migrate technical examination software written in Fortran from Compaq Visual Fortran compiler to Intel Fortran compiler
  + GIMS Fortran components: Not yet started
* Mspace – Migration of Visual Basic 6 components to .NET: Ongoing

#### 7.2.1.3 Design and develop the BR Space Information System (BR SIS)

* Rewrite SpaceVal written in Visual Basic 6: The new-generation BRSIS-Validation was released on the BR IFIC 2912 (21 January, 2020)
* Rewrite SpaceCap written in Visual Basic 6: Ongoing. In 2019, the BR researched the latest candidate technologies for the new-generation SpaceCap, in order to choose an approach that will allow both integration of SpaceCap into the BRSIS suite of applications and future compatibility with the e-Submission and ITU Space Explorer web applications.
* Migrate SRS MDB to more modern technology: SQLite databases for testing will be made available to external users in Q2 of 2020, and the applications shipped on the BR IFIC DVD will be SQLite-compatible at the latest as of version 9 of the SNS database, which will implement WRC-19 decisions. Backward compatibility of BR Space Software with the MDB format, as well as conversion tools, will be retained for the foreseeable future, to allow external users sufficient time to adopt the new technology.
* Migrate SNS database on Ingres to SQL Server: The migration of Ingres-environment specific internal processing applications continued in 2019. The remaining internal processing applications will be rewritten or adapted in 2020. The ITU Space Explorer, the replacement of SNS Online and SNL Online, which is being developed to satisfy resolves 4 of Resolution 186 (Rev. PP-18 Dubai), will run on the SQL Server database.
* Review SNTrack: SNTrack will be replaced by a Space Management Information System in 2020 to complete the back office functionality of the e-Submissions system.

### 7.2.2 Phase 3: 1 January 2016 – 31 December 2018 (extended)

The work done during the previous phases, as well as the design and technology choices made thereafter, provide a foundation for successful completion of Phase 3, which will be as follows:

* The Space databases shall be migrated to the SQL Server platform by the end of 2020.
* A schema redesign, preserving equivalence of data, but with the objective to eliminate certain redundancies, will be rolled out together with the changes needed for the implementation of WRC-19 decisions.
* Activities on centralizing and streamlining risk, recovery and security management: Ongoing.

## 7.3 Software developments related to space services

### 7.3.1 Implementation of Resolution 907 (Rev. WRC-15): Use of modern electronic means of communication for satellite network –related administrative correspondence

During 2019, work continued on implementing Resolution 907 (Rev. WRC-15), to deliver a secure online system to modernize and enhance the current correspondence system between Administrations and ITU as well as amongst Administrations. The system entered in production in October, with the following characteristics and features:

* Simple, intuitive user interface to address a worldwide community of ITU Member States and ensure the maximum possible acceptance
* Web-based and self-contained online system hosted in ITU IT infrastructure, relaying online submissions of correspondence to a destination (ITU, Administrations)
* High security and trust in relaying, time stamping, and forwarding correspondence while monitoring the information flow
* Ability to track submission and delivery, as well as successful reception of expedited data
* Seamless integration into existing correspondence processing system and ITU IT infrastructure, as well as full integration with other web services (e-Submissions and SIRRS)

To assist in the development and testing, the Administration of Japan has made a financial contribution and has also made available a space regulatory/technical expert in Geneva. The Radiocommunication Bureau renews its thanks to the Administration of Japan for the specific assistance in the development of this project.

### 7.3.2 Implementation of the new Non-GSO PFD examination software

The new non-GSO PFD examination software was released on BR IFIC 2908 (November 12), implementing:

* verification of compliance of non-geostationary satellite networks or systems with power limits in Radio Regulations (RR) Article 21 and with provisions in RR Nos. 5.268, 5.407, 5.447B, 5.493, 5.506A and No. 22.5,
* identification of affected administrations under RR No. 9.14 using power-flux density thresholds as contained in RR Appendix 5, and
* verification of compliance with the power-flux density value contained in recommends 1) of Recommendation 608 (Rev. WRC-07)

## 7.4 Other BR software and tools

### 7.4.1 Radio Regulations tools

The Bureau continues to update and maintain software tools to facilitate the use and analysis of the Radio Regulations (RR):

1. The Radio Regulation Navigation Tool, which was released during 2Q-2017, is based on the active version of the RR and Recommendations. An updated version is under preparation to incorporate WRC-19 outcomes and will be released along with the release of new edition of the RR 2020 (third quarter 2020). Yearly free updates will be released to incorporate the latest versions of the RoP when available.
2. The software tool to conduct detailed search and analysis of the Table of Frequency Allocations in Article 5 of the Radio Regulations, enables filtering and reformatting by frequency range, service, category of service, footnote, country, etc. The tool is being updated based on the outcomes of the WRC-19 to introduce the changes into the frequency allocations, country footnotes and related references to associated Resolutions and Recommendations. The next release of the tool is planned to accompany the release of the 2020 Edition of the RR (third quarter 2020). All software and data updates will be provided regularly and freely to the subscribers, until the WRC-23.

### 7.4.2 Further enhancement of web tools

The migration and integration of the online tools (eBCD2.0, Online Validation and eMIFR) for terrestrial services to ASP.NET MVC and latest client-side web technologies is being finalized. Geospatial information (see 7.4.4) will be displayed using the open source OpenLayers library.

The production deployment is expected in two phases: the tools to support the GE84 optimization process will be deployed during the first quarter of 2020, and the complete and integrated platform for terrestrial broadcasting services will be deployed by June 2020.

### 7.4.3 Compatibility analysis software for FM sound broadcasting – GE84 optimization

The BR started and considerably advanced in the development of two additional online tools for the GE84 Plan (FM broadcasting) optimization in Africa in the band 87.5-108 MHz:

* *Search most suitable channel* tool identifies the potential interference sources on a new frequency requirement. This analysis can be performed on the entire FM band where interfering sources are identified for all the frequencies in steps of 100 kHz;
* *GE84 Optimization* tool performs the GE84 compatibility calculations (interference generated and received) for all the frequencies in the GE84 band. This tool, in addition to the evaluation of the interference of frequency requirements vis-a-vis the Plan entries, considers the interference between the submitted frequency requirements.

### 7.4.4 BR Geographic Information Systems

The BR GIS Task Force, comprised of staff from all BR departments, has been established to harmonize GIS activities in the BR. An initial activity of the Task Force was to implement the BR GIS Platform using GeoServer. Its current activity is to transfer all relevant radio-meteorological data ([geospatial data catalogue](https://www.itu.int/ITU-R/eBCD/downloads/Datasets_Catalogue_BR_v1.pdf)) and other relevant datasets currently in the IDWM to the server. This data will be made available to users via Open Geospatial Consortium (OGC) compliant web services. The BR is implementing GIS functionalities in its web tools using the open source OpenLayers library.

The ITU is a member of the [UN Geospatial Network](http://ggim.un.org/meetings/GGIM-committee/8th-Session/documents/E_C.20_2018_18_Add-1-UN-activities-in-geospatial-information-management.pdf), a coalition of entities within the UN system that is tasked to strengthen the coordination and coherence of geospatial information management within the United Nations system. The BR participates in the Steering Committee of this Network and leads the ITU Inter-Sectorial Task Force on Geospatial Information Management.

# 8 Outreach

Outreach activities include dissemination of information and assistance to membership, the publication of ITU-R outputs, the organization of, and the participation in, seminars and workshops, as well as the development and maintenance of communication and promotion tools. The purpose of these activities is to ensure that the outputs produced by the ITU-R Sector (regulations, recommendations, reports and handbooks) are disseminated worldwide so that they may form the basis for the formulation of national and regional policies and decisions for the use of the radio spectrum. To carry out these activities, the BR relies on close cooperation with the other Bureaux and Sectors, the ITU regional and area offices and the relevant international organisations and national authorities.

## 8.1 Publications

### 8.1.1 Regulatory publications

Radio Regulations and Rules of procedure

After the publication of the 2016 Edition of the Radio Regulations, in December 2016, the consolidated version of the Rules of Procedure was published in October 2019. Five updates were published since then (November 2017, July 2018, March 2019, July 2019 and October 2019).

BR also published 11 HFBC schedules every year, according to RR Article **12**.

### 8.1.2 Service publications

#### 8.1.2.1 Background and general observations

#### The Bureau prepares and issues the following service publications, as specified in Article 20 of the Radio Regulations.

#### List I − International Frequency List

#### List IV − List of Coast Stations and Special Service Stations

#### List V − List of Ship Stations and Maritime Mobile Service Identity Assignments

#### List VIII − List of International Monitoring Stations

#### Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services

#### 8.1.2.2 List of Coast Stations and Special Service Stations (List IV)

#### This List contains information notified to the ITU (i.e. Call Sign, MMSI, geographical coordinates, transmitting and receiving frequencies, etc.) of coast stations that provide watch-keeping using digital selective calling techniques, public correspondence service, medical advice, navigational and meteorological warnings, notices to navigators and radio time signals, etc.

#### The List of Coast Stations and Special Service Stations (List IV) is published every two years, in CD‑ROM format. One edition of List IV was published in December 2019.

Information pertaining to this list is made available via the online information system ITU Maritime mobile Access and Retrieval System (MARS). A compilation of all changes notified to the ITU is provided on the web every six months.

#### 8.1.2.3 List of Ship Stations and Maritime Mobile Service Identity Assignments (List V)

This List contains information notified to the ITU on Ship, Coast and Search and Rescue (SAR) Aircrafts Stations, Accounting Authority Identification Codes (AAICs) and contact information of notifying administrations.

The List of Ship Stations and Maritime Mobile Service Identity Assignments (List V) is published every year, in CD‑ROM format. One edition of List V was published in April 2019.

Information pertaining to this List is also made available via the online information system MARS. A compilation of all changes notified to the ITU is provided on the web every three months.

#### 8.1.2.4 List of International Monitoring stations (List VIII)

#### The List of International Monitoring stations (List VIII) contains the addresses and other relevant information of centralizing offices, including the detailed information related to monitoring stations measuring terrestrial and space emissions. A direct download facility is available, free of charge, for TIES members only.

One edition of this List was published in December 2019

#### 8.1.2.5 List of service publications issued

Table 8.1.2.5-1 below summarizes the different publications for the period 2016-2019:

Table 8.1.2.5-1

Summary information regarding the service publications issued in the period 2016-2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 |
| List I − International Frequency List (included in the BR IFIC DVD with all Terrestrial Plans) | 25 | 25 | 25 | 25 |
| List IV (List of Coast Stations and Special Service Stations) |  | Edition of 2017 (November) |  | Edition of 2019 (December) |
| List V (List of Ship Stations and Maritime Mobile Service Identity Assignments) | Edition of 2016 (April) | Edition of 2017 (April) | Edition of 2018 (April) | Edition of 2019 (April) |
| List VIII (List of International Monitoring Stations) | Edition of 2016 (December) |  |  | Edition of 2019 (December) |
| Maritime Manual | Edition of 2016 (November) |  |  |  |

### 8.1.3 Study Group publications

Since RAG-19, the ITU‑R Study Group publications, including Recommendations approved by RA‑19, continued to be developed in accordance with Resolution ITU-R 1-7.

#### 8.1.3.1 ITU-R Questions

Between RAG-19 and RA-19, twenty-two new or revised ITU-R Questions were approved, and ten ITU-R Questions were suppressed. Since the beginning of the 2019-2023 study cycle, 2 new and 10 revised ITU-R Questions were approved in accordance with the procedures established in Resolution ITU-R 1-8 and published. Also, one ITU-R Question was suppressed during this period.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WP** | **From RAG-19 up to RA-19 (including those approved by RA-19)** | | **2019-2023 study cycle** | |
| **New Question ITU-R** | **Revised Question ITU‑R** | **New Question ITU-R** | **Revised Question ITU‑R** |
| WP 1B | 241/1 |  |  |  |
| WP 3J |  | 201-7/3 |  |  |
| WP 3K | 235/3 | 203-8/3, 211-7/3 |  |  |
| WP 3L |  | 214-6/5 |  |  |
| WP 3M |  | 208-6/3, 228-3/3 |  |  |
| WP 5A |  |  | 261/5 | 101-5/5, 205-6/5, 209-6/5, 238-3/5, 256-1/5 |
| WP 5C |  |  |  | 246-1/5, 257-1/5 |
| WP 5D |  |  | 262/5 | 77-8/5, 229-5/5, 241-4/5 |
| WP 6A | 146/6 | 56-4/6, 132-5/6, 133-2/6 |  |  |
| WP 6B | 145/6 | 34-3/6, 130-3/6, 131-1/6, 137-1/6 |  |  |
| WP 6C |  | 102-4/6, 135-2/6, 139-2/6, 142-3/6, 143-1/6 |  |  |

#### 8.1.3.2 ITU-R Recommendations

Between RAG-19 and RA-19, 69 new or revised ITU-R Recommendations were published on the ITU website in English. Publication in 6 languages for few of these Recommendations is in progress.

Since the beginning of the 2019-2023 study cycle, 10 revised ITU-R Recommendations were approved in accordance with the procedures established in Resolution ITU-R 1-8 and published.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WP** | **From RAG-19 up to RA-19 (including those approved by RA-19)** | | **2019-2023 study cycle** | |
| **New Rec. ITU-R** | **Revised Rec. ITU‑R** | **New Rec. ITU-R** | **Revised Rec. ITU‑R** |
| WP 1A | SM.2129-0 | SM.1138-3, SM.1448-1, SM.2110-1 |  |  |
| WP 1C |  | SM.1054-1, SM.1268-5, SM.1875-3 |  |  |
| WP 3J |  | P.310-10, P.341-7, P.453‑14, P.525-4, P.526‑15, P.527-5, P.676‑12, P.840‑8, P.841‑6, P.1057‑6, P.1407‑7, P.1511-2, P.1853-2 |  |  |
| WP 3K |  | P.528-4, P.1238-10, P.1411-10, P.1546-6, P.1812-5, P.1816-4, P.2109-1 |  |  |
| WP 3L |  | P.372-14, P.531-14, P.533‑14 |  |  |
| WP 3M |  | P.617-5, P.619-4, P.681‑11, P.1144-10, P.2001-3 |  |  |
| WP 4A |  | S.1782-1 |  |  |
| WP 4B | S.2131-0 |  |  |  |
| WP 4C |  | M.1901-2, M.1902-1, M.1903-1, M.1904-1, M.1905-1 |  |  |
| WP 5A | M.2134-0 |  |  | M.1746-1, M.1808‑1, M.1826‑1, M.2084-1 |
| WP 5B | M.2135-0 | M.585-8, M.1174-4 |  |  |
| WP 5C |  |  |  | F.387-13, F.636-5, F.758-7, F.1565-1 |
| WP 5D |  | M.1036-6 |  | M.2012-4 |
| WP 6A |  | BS.450-4, BS.1114-11, BS.1660-8, BT.2036-3 |  | BT.1877-2 |
| WP 6B | BS.2126-0, BS.2127‑0, BT.2133‑0 | BS.1196-8, BS.1548-7, BS.2076-2, BS.2088-1, BT.1872-3 |  |  |
| WP 6C | BS.2132-0 | BS.1283-2, BT.500-14, BT.1702-2, BT.2111-1 |  |  |
| WP 7B |  | SA.1016-1, SA.1027-6, SA.1161-3, SA.1164-4 |  |  |
| CCV | V.2130-0 |  |  |  |

More details on the above documents are presented in Addendum 1 to this document.

#### 8.1.3.3 ITU-R Reports

Between RAG-19 and RA-19, 64 new or revised ITU-R Reports were published on the ITU website in English.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **WP** | **From RAG-19 up to RA-19** | | **2019-2023 study cycle** | |
| **New Rep. ITU-R** | **Revised Rep. ITU‑R** | **New Rep. ITU-R** | **Revised Rep. ITU‑R** |
| WP 1A | SM.2449-0, SM.2450‑0 | SM.2422-1 |  |  |
| WP 1B | SM.2451-0 | SM.2015-1, SM.2257-5 |  |  |
| WP 1C | SM.2452-0, SM.2453‑0, SM.2454‑0 | SM.2153-7, SM.2182-2, SM2257-5, SM.2355-1 |  |  |
| WP 3J |  | P.2346-3 |  |  |
| WP 3K |  | P.2406-1 |  |  |
| WP 3L |  | P.2297-1 |  |  |
| WP 4A | BO.2465-0, S.2461-0, S.2462‑0, S.2463-0, S.2464-0 |  |  |  |
| WP 4B | M.2460-0 | BO.2071-2 |  |  |
| WP 4C | M.2458-0, M.2459-0 |  |  |  |
| WP 5A | M.2474-0, M.2478-0 |  |  |  |
| WP 5B | M.2477-0 |  |  |  |
| WP 5C | F.2471-0, F.2472-0, F.2473-0, F.2475-0, F.2476-0 |  |  |  |
| WP 5D | M.2479-0, M.2480‑0, M.2481-0 |  |  |  |
| WP 6A | BS.2466-0, BT.2467‑0, BT.2468-0, BT.2469-0, BT.2470-0 | BS.2214-4, BS.2384-1, BT.2140-12, BT.2209-2, BT.2343-5, BT.2384-1, BT.2386-2, BT.2387-1 | BS.2482-0 | BT.2295-3 |
| WP 6B | BT.2448-0 | BT.2267-10, BT.2342-3, BT.2400-3 |  |  |
| WP 6C | BT.2446-0, BT.2447-0 | BS.2159-8, BT.2245-7, BT.2390-7, BT.2408-3 |  | BT.2390-8 |
| WP 7C | RS.2455-0, RS.2456‑0 |  |  |  |
| WP 7D | RA.2457-0 |  |  |  |

More details on the above documents is presented in Addendum 1 to this document.

#### 8.1.3.4 ITU-R Handbooks

Between RAG-19 and RA-19, none of the existing ITU-R Handbooks were updated.

### 8.1.4 ITU-R Publications downloads

#### 8.1.4.1 Radio Regulations and the Rules of Procedure

Concerning these regulatory documents, Table 8.1.4.1-1 shows the number of deliveries for the RR‑2016 edition (released in December 2016). This 2016 version of the RR has been downloaded from at least 130 countries, representing 67% of ITU Membership.

Table 8.1.4.1-1

Number of deliveries of the Radio Regulations

|  |  |  |
| --- | --- | --- |
| RR-16 | 2018 | 2019 |
| Hard copies sold | 1 521 | 1 245 |
| Free downloads | 5 342\* | 18 400\*\* |
| \*Cumulative value from December 2016 to September 2018.  \*\*Cumulative value from 1 January to 1 December 2019. | | |

#### 8.1.4.2 ITU-R Recommendations

As a result of the free online access policy, ITU-R Recommendations are accessed and downloaded worldwide. In a 33-month period (January 2016 to September 2018), more than four million downloads of ITU-R Recommendations from ITU web site were recorded. Table 8.1.4.2‑1 summarizes their distribution by year and series. At this time, there are 1 182 ITU-R Recommendations in force.

Table 8.1.4.2-1

Distribution of ITU-R Recommendations (downloads)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SERIES | 2016 | 2017 | 2018\* | 2019 | TOTAL | % |
| P | 364 869 | 316 019 | 280 201 | \*\* | 961 089 | 21.04% |
| BT | 301 869 | 269 185 | 254 048 | \*\* | 825 102 | 18.06% |
| M | 235 758 | 208 528 | 182 366 | \*\* | 626 652 | 13.72% |
| SM | 187 344 | 147 502 | 136 164 | \*\* | 471 010 | 10.31% |
| BS | 187 123 | 152 305 | 135 637 | \*\* | 475 065 | 10.40% |
| F | 135 300 | 131 647 | 107 795 | \*\* | 374 742 | 8.20% |
| S | 123 412 | 103 445 | 90 408 | \*\* | 317 265 | 6.95% |
| BO | 36 547 | 32 071 | 34 735 | \*\* | 103 353 | 2.26% |
| SA | 22 757 | 25 168 | 25 301 | \*\* | 73 226 | 1.60% |
| RS | 32 637 | 28 578 | 21 263 | \*\* | 82 478 | 1.81% |
| V | 20 044 | 18 827 | 19 778 | \*\* | 58 649 | 1.28% |
| TF | 22 779 | 18 354 | 17 323 | \*\* | 58 456 | 1.28% |
| SF | 20 511 | 15 181 | 15 584 | \*\* | 51 276 | 1.12% |
| BR | 15 632 | 16 844 | 15 014 | \*\* | 47 490 | 1.04% |
| RA | 12 514 | 9 589 | 9 100 | \*\* | 31 203 | 0.68% |
| SNG | 4 809 | 3 221 | 3 049 | \*\* | 11 079 | 0.24% |
| TOTAL | **1 723 905** | **1 496 464** | **1 347 766** | \*\* | **4 568 135** | **100.00%** |
| \*Up to Sept 2018  \*\*The new software required to process the weblogs is under procurement process. | | | | | | |

#### 8.1.4.3 ITU-R Reports

As ITU-R Recommendations, ITU-R Reports have been promulgated worldwide touching most of the audiences and contributing to good technical practices in certain aspects of radiocommunications. In a 47-month period (1 January 2016 to 1 December 2019), more than 1 000 000 downloads of ITU‑R Reports from ITU web site were recorded. Table 8.1.4.3-1 summarizes their distribution by year and series. Currently, there are 593 ITU-R Reports in force.

Table 8.1.4.3-1

Distribution of ITU-R Reports (downloads)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SERIES | 2016 | 2017 | 2018\* | 2019 | TOTAL |
| M | 112 794 | 76 531 | 63 114 | \*\* | \*\* |
| BT | 79 217 | 53 616 | 45 439 | \*\* | \*\* |
| SM | 57 135 | 44 340 | 40 327 | \*\* | \*\* |
| BS | 25 988 | 24 015 | 15 503 | \*\* | \*\* |
| BO | 16 268 | 12 572 | 9 315 | \*\* | \*\* |
| P | 15 321 | 10 541 | 7 520 | \*\* | \*\* |
| S | 15 330 | 10 142 | 7 282 | \*\* | \*\* |
| F | 8 330 | 6 152 | 5 177 | \*\* | \*\* |
| RS | 5 886 | 3 764 | 2 966 | \*\* | \*\* |
| RA | 4 148 | 3 292 | 2 502 | \*\* | \*\* |
| SA | 4 316 | 3 106 | 2 860 | \*\* | \*\* |
| SF | 506 | 303 | 266 | \*\* | \*\* |
| BR | 66 | 65 | 35 | \*\* | \*\* |
| TOTAL | **345 305** | **248 439** | **202 306** | **222 758** | **1 018 808** |
| \*Up to Sept 2018  \*\*The new software required to process the weblogs is under procurement process. | | | | | |

#### 8.1.4.4 Handbooks on Spectrum management

Following the BR director’s decision in 2017, all ITU-R Handbooks are now free to download at the ITU website. More than 16 000 downloads were registered.

At this time, a total of 42 ITU-R Handbooks are published including the Spectrum Management Series. It should be noted that of these 42 published Handbooks, 38 are in force, 1 is merged and 3 are suppressed but still available at the ITU website, for reference purposes.

Table 8.1.4.4-1

Distribution of ITU-R Handbooks on spectrum management and monitoring

|  |  |  |
| --- | --- | --- |
| Handbook | Sold 2018 | Sold 2019 |
| Spectrum Management Series | 9 | 9 |
| Other Handbooks | 21 | 20 |
| GRAND TOTAL | **30** | **29** |

## 8.2 Seminars, workshops and other events

During the 2015-2019 study period, the World and Regional Radio Seminars (WRS/RRS 16-19), aimed at disseminating worldwide the updates contained in the 2016 Edition of the Radio Regulations, along with its associated Rules of Procedure. In this period, the BR conducted two biennial World Radiocommunication Seminars (WRS), complemented by eleven Regional Radiocommunication Seminars (RRS) rotated amongst the Regions, to the maximum extent practicable.

The figures below show the participation for this cycle:

– In two WRS: 940 participants from over 110 countries.

– In 11 RRSs: over 1 000 participants from over 130 countries.

WRS and RRS were conducted in a “*paperless*” environment; their respective proceedings are available on the ITU website: <http://www.itu.int/ITU-R/go/seminars>.

During this period the BR provided more than 100 partial fellowships for RRS and over 60 full fellowships for WRS (one per administration for eligible countries.

### 8.2.1 World Radiocommunication Seminars (WRS)

As a part of the WRS/RRS 2015-2019 cycle, two World Radiocommunication Seminar were held in Geneva:

**– WRS-16**, from 12 to 16 December 2016, attended by 453 participants from 109 countries

**– WRS-18**, from 3 to 7 December 2018, attended by 485 participants from 98 countries

As explained before, WRS are held biennially, hence no WRS was conducted during 2019. A new edition is planned for 2020 as indicated below.

### 8.2.2 Regional Radiocommunication Seminars (RRS)

As a complement to the biennial WRS, the BR maintained its strategy for regional outreach through the organization of Regional Radiocommunication Seminars (RRS) aimed to visit every developing region worldwide, fostering human capacity building on the use of the radio-frequency spectrum and satellite orbits, in particular, the application of the provisions of the ITU Radio Regulations.

RRSs are jointly organized with the spectrum management authorities of host countries, in close cooperation with relevant regional organizations and the ITU regional/areas offices. Their agenda include two days of theoretical sessions and one or two days of workshops on terrestrial and space services. They are complemented with a one or two-day forum, dedicated to spectrum-related topics of particular interest to the region.

Table 8.2.2-1 provides a summary of the RRSs held during this cycle.

Table 8.2.2-1

ITU Regional Radiocommunication Seminars (2016-2019)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date | RRS | Place | Host | Cooperation | Forum Topics | Lang. | Parts/ Adms |
| **2016** | | | | | | | |
| 18-22 July 2016 | RRS-16 Americas | Trinidad and Tobago | Caribbean Telecommunications Union (CTU) | Inter-American Telecommunications Commission (CITEL)  ITU Americas Office | WRC-15 outcomes and WRC-19 Agenda: Regional Challenges and Opportunities for Spectrum Harmonisation | E | 31/14 |
| 19-23 September 2016 | RRS-16 Asia-Pacific | Apia, Samoa | ICT Ministry. Samoa | Pacific Islands Telecommunications Association (PITA)  ITU Asia&Pacific Office | Bridging the Digital divide on the region: role of Radiocommunications Technologies" | E | 78/15 |
| **2017** | | | | | | | |
| 27-31 March 2017 | RRS-17 Africa | Dakar, Senegal | Ministère des Postes et Télécommunications (MPT) and the Autorité de Régulation des Télécommunications et de la Poste (ARTP) | African Telecommunications Union (ATU)  ITU African Office | WRC-19 Agenda: challenges and opportunities for Africa | E/F | 185/35 |
| 11-15 September 2017 | RRS-17 Americas | Lima, Peru | Ministerio de Transportes y Comunicaciones (MTC) | Comunidad Andina de Naciones (CAN)  Inter-American Telecommunications Commission (CITEL)  ITU Americas Office | Transition to 5G: Present and Future in Latin America | S | 70/12 |
| 4-7 December 2017 | RRS-17 Asia-Pacific | Phnom Penh, Cambodia | Ministry of Posts and Telecommunications of Cambodia (MPTC) | ITU Asia&Pacific Office | Transition to 5G in the Region | E | 140/22 |
| 10-14 December 2017 | RRS-17 Arab | Muscat, Oman | Oman Telecommunications Regulatory (TRA) | Arab Spectrum Management Group (ASMG)  ITU Office for Arab Countries | WRC-19 Agenda: challenges and opportunities for Arab Countries | A/E | 153/15 |
| **2018** | | | | | | | |
| 23-28 July 2018 | RS-18 Asia-Pacific | Thimphu, Bhutan | Ministry of Information and Communications (MoIC) of Buthan | Asia-Pacific Telecommunity (APT)  ITU Asia&Pacific Office | Radiocommunication Systems evolution: challenges and opportunities for the Region | E | 70/15 |
| 24-28 September 2018 | RRS-18 Americas | San José, Costa Rica | Ministerio de Ciencia Tecnología y Telecomunicaciones of Costa Rica (MICITT) | Comisión Tecnica Regional de Telecomunicaciones (COMTELCA)  Inter-American Telecommunications Commission (CITEL)  ITU Americas Office | Spectrum Management: Challenges ahead | S | 60/13 |
| **2019** | | | | | | | |
| 13-17 May 2019 | RRS-19 Africa | Johannesburg, South Africa | Department of Telecommunications and Postal Services (DTPS) Independent Communications Authority of South Africa (ICASA) | African Telecommunications Union (ATU).  ITU African Office | 5G Ecosystem: challenges and opportunities for the Region | E/F | 135/36 |
| 10-14 June 2019 | RRS-19 CIS | Tashkent, Uzbekistan | Ministry for Development of Information Technologies and Communications (MITC) Uzbekistan | Regional Commonwealth in the field of Communications (RCC).  ITU office for CIS Countries | Trends in Spectrum Management and Emerging Radiocommunication Technologies, |  | 55/7 |
| 24-27 June 2019 | SRME-19 Europe | Tirana, Albania | Ministry of Infrastructure and Energy of Albania | National regulatory bodies and Regional Coordination Council (RCC).  ITU Office OFR Eastern Europe | 5G Ecosystem: Challenges and Opportunities for Europe | E | 50/10 |

### 8.2.3 Planned World and Regional Radiocommunication Seminars for 2019-2023

For the 2019-2023 study period, the World and Regional Radiocommunication Seminars will be planned based on the following principles:

* During the quarter before and after a WRC, no Seminar is scheduled, in order to allow for the RR updates and the necessary changes to the Software Tools to be made;
* Two WRS per cycle (every 2 years);
* The first WRS after a WRC will have a specific session devoted to explain in detail, the modifications on the RRs introduced by the WRC;
* The two RRSs for Africa will be scheduled in different years than the WRS, considering that the participation in RRS Africa is nearly twice as large as other RRSs, and allowing for an even distribution of the fellowship budget;
* A RRS will be scheduled on every quarter, ensuring at least a biannual visit to every region;
* RRSs will be carried out in the predominant language of the region, which helps reduce interpretation costs and allows for an easier exchange of information during the event;
* The programs of the RRSs will be tailored to the specific needs of the region concerned;
* The last day(s) of each RRS will be devoted to a Forum-type session, where panelists from outside the region could be invited to enlarge the scope of the discussions (provision of interpretation from/to English might become necessary for that day).

Based on the above, the following seminars are being planned for 2020:

* RRS-20-Americas: 13-17 July, Bridgetown, Barbados;
* RRS-20-Asia & Pacific: September 2020 (date and venue TBD);
* WRS-20: 30 November-4 December 2020, Geneva, Switzerland.

### 8.2.4 Other events

BR experts attended and provided support to several events such as those organized by Specialized UN Agencies and by Regional Telecommunication Organizations, as well as non-ITU Conferences and Symposia. The BR also organized Seminars and Workshops and responded to Assistance requests from Member States. Table 8.2.4-1 illustrates these activities.

Table 8.2.4-1

Participation of BR staff to events in order to disseminate information

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | | 2017 | | 2018 | | 2019 | | TOTAL | |
| **Missions** | **Countries** | **Missions** | **Countries** | **Missions** | **Countries** | **Missions** | **Countries** | **Missions** | **Countries** |
| *SPECIALIZED UN AGENCIES* | **33** | **13** | **23** | **11** | **21** | **11** | **16** | **8** | **93** | **43** |
| *REGIONAL TELECOMMUNICATION ORGANIZATIONS* | **57** | **32** | **49** | **37** | **46** | **37** | **43** | **31** | **195** | **137** |
| *Non-ITU CONFERENCES & SYMPOSIA* | **83** | **40** | **51** | **32** | **58** | **44** | **46** | **27** | **238** | **143** |
| *ITU SEMINARS, WORKSHOPS & MEETINGS* | **39** | **19** | **27** | **26** | **21** | **19** | **15** | **14** | **102** | **78** |
| *ASSISTANCE REQUESTS* | **8** | **5** | **8** | **8** | **6** | **5** | **5** | **4** | **27** | **22** |
| *OTHER EVENTS* | **14** | **10** | **15** | **11** | **20** | **6** | **11** | **8** | **60** | **35** |
| TOTAL | **234** | **119** | **173** | **125** | **172** | **122** | **136** | **92** | **715** | **458** |

## 8.3 Assistance to Member States, in particular in developing countries and LDCs

### 8.3.1 Assistance to administrations of developing countries

The Bureau continued assisting Administrations of developing countries in areas such as:

* Supporting national spectrum management activities in the rapidly changing regulatory environment (see Resolution 7 (Rev.WRC-19)) and providing technical assistance in the field of space radiocommunication (Resolution 15 (Rev.WRC-03)) either in ITU headquarters or in the field.
* Participation in the meetings of the regional coordination groups, as requested by Article 12 of the Radio Regulations.
* Provision of assistance in long-term spectrum roadmap for mobile broadband and assignment for mobile broadband (IMT)
* Provision of guidelines and technical support for the transition to Digital Television and the allocation of digital dividend.

At the request of the Administrations, direct assistance was provided to several countries, including Dominican Republic, El Salvador. In coordination with BDT, responses to new requests from Asia-Pacific, Africa and the Americas are in progress.

### 8.3.2 Assistance to Regional Groups

The BR continued its participation in the meetings of the regional coordination groups (e.g. HFCC), as requested by Article 12 of the Radio Regulations, providing the necessary assistance and collaboration. See also Section 8.4.4.

#### 8.3.2.1 Assistance to ATU

PRIDA: The Policy and Regulatory Initiative for Digital Africa (PRIDA) project, is an initiative by the African Union, European Union and ITU. It also includes Regional Economic Communities, ATU, Regional Regulatory Associations, National Regulators, and other stakeholders. The BR, jointly with BDT are actively participating on the Action "*Increasing wireless broadband penetration through improved and harmonized spectrum utilization and regulations*". In that sense, during 2019 three meetings were conducted:

* Workshop on the Use of SMS4DC (English): Monrovia, Liberia, 16-20 September 2019
* Workshop on the Use of SMS4DC (French): Brazzaville, Congo, 30 Sept- 02 Oct. 2019
* National Focal Points meeting and TechComm meeting, Addis Abeba, Ethiopia 17-19 December

In 2020, three meetings on: *Modern Spectrum Management and Spectrum Management Software (SMS4DC)* are planned, in the following dates and countries:

* 2-6 March, Zanzibar (event in English);
* 30 March - 3 April, Tunisia, Tunis (event in English);
* 27 April – 1 May, Kigali, Rwanda (event in French).

## 8.4 Strategic Partnerships, including inter-sector cooperation

Five ITU/ITSO Capacity Building Workshops on Satellite Communications were organized in:

– CIS: Minsk, Belarus, 1-5 April 2019;

– Americas: Asuncion, Paraguay, 22-26 April 2019;

– Africa (English): Maputo, Mozambique, 24-28 June 2019;

– Africa (French): Abidjan, Ivory Coast, 08-12 July 2019;

– Arab Countries: Alger, Algeria, 13-17 October 2019.

These workshops are part of a capacity building partnership between the ITU and ITSO for the delivery of satellite communications related training.

### 8.4.1 Cooperation with ITU‑D

BR works closely with the BDT on issues of mutual interest to ITU-R and ITU-D. The BR has participated in relevant meetings of ITU-D Study Groups, Rapporteur Groups and TDAG, where liaison activities have involved topics such as spectrum management, digital broadcasting and migration from analogue systems, transition towards and implementation of IMT, and broadband wireless access technologies. These topics are in addition to the collaboration undertaken through ITU-D Question 9-3/2, which calls for the identification of study topics in ITU-R (and ITU-T) that are of particular interest to developing countries.

In close cooperation with the BDT and the ITU regional and area offices, and other relevant international organizations and national authorities, the BR organized and participated in the following events:

* ITU Policy and Economics Colloquium-IPEC 2019: Santo Domingo, Dominican Republic, 26-30 August 2019.
* ITU Workshop on Economics, Finance and Business models for 5G and new Technologies for Digital Africa; Lomé, Republic of Togo, 12-13 September 2019.
* ITU Regional Economic Dialogue on Information and Communication Technologies for Europe and CIS (RED-2019); Odessa, Ukraine, 30-31 October 2019.

#### 8.4.1.1 GSR

The BR contributed to the ITU Global Symposium of Regulators in 2019 by supporting the organization of sessions and participating in panel discussions related to spectrum management, 5G and the WRC-19. Previous participation of the BR was in 2014, 2015 and 2017.

#### 8.4.1.2 World Telecommunication/ICT Indicators Symposium, WTIS

The WTIS was not held in 2019, the next one will be WTIS-20, in Geneva 15-17 April 2020, and BR is planning with BDT its participation on the discussions relating to IMT National Spectrum Allocations and Assignments.

#### 8.4.1.3. ICT Survey and ICT Eye

The BR cooperated with the BDT on the indicators and definitions for gathering data on mobile broadband technologies and standards by participating in the meetings of the Ad-Hoc Group of the Expert Group on Telecom-ICT Indicators (EGTI).

In 2019, the Expert Group Telecom/ICT Indicators (EGTI) approved the following two spectrum indicators on IMT:

* Amount of spectrum offered for IMT services, by frequency band, in MHz:

Total spectrum, in MHz, made available for use (i.e. allocated) through any formal national publication, such as the National Frequency Plan, for IMT or IMT Advanced services, including any of the air interfaces in accordance with ITU-R Recommendations concerning these standards for mobile communications.

* Amount of spectrum licensed for IMT services, by frequency band, in MHz

Total spectrum, in MHz, assigned nationally for use for IMT systems, including any of the air interfaces in accordance with ITU-R Recommendations concerning these standards for mobile communications.

They will be included in the 2020 data collection. Most likely in the regulatory survey.

#### 8.4.1.4 Spectrum Management Training Programme (SMTP)

Since 2013, the BR actively participated in a joint project with the BDT to develop the Spectrum Management Training Programme (SMTP) through its different phases: design, material preparation, peer review, pilot test (conducted in 2015). In 2016, improvements were integrated on the basis of feedbacks. In 2017 a comprehensive revision was made, which provided ITU the opportunity to establish working relationship with some regulators in developing countries, interested in an edition of SMTP specifically oriented to their Staff. In 2018 and 2019 the BR performed an exhaustive review of the material contained in the current SMTP, and pertinent updates were made. New updates are in progress to add the outcomes from WRC-19/RA-19. BR and BDT took actions towards implementing special editions of SMTP. These actions are still in progress.

### 8.4.3 ITU Telecom

The BR supported the ITU Telecom 2019 in the organization of sessions in the Forum and provided experts to moderate sessions on new radio technologies, the role of government in 5G and high-capacity network deployment, 5G: the state of play and spectrum challenges ahead of WRC-19. Additionally, the BR provided an Executive Briefing on the WRC-19 to the Chief Technical Officers meeting that was held just prior to the start of the ITU Telecom.

### 8.4.4 Cooperation with international and regional organizations

This topic is presented in Annex to this document.

## 8.5 Membership

### 8.5.1 ITU Membership

The Tables 8.5.1-1 to 8.5.1-3 shows the Membership by Sector and Region, along with the associated contributions in 2019 and the evolution of the number of ITU-R Sector Members, Associates and Academia during the period 2016 to 2019.

Table 8.5.1-1

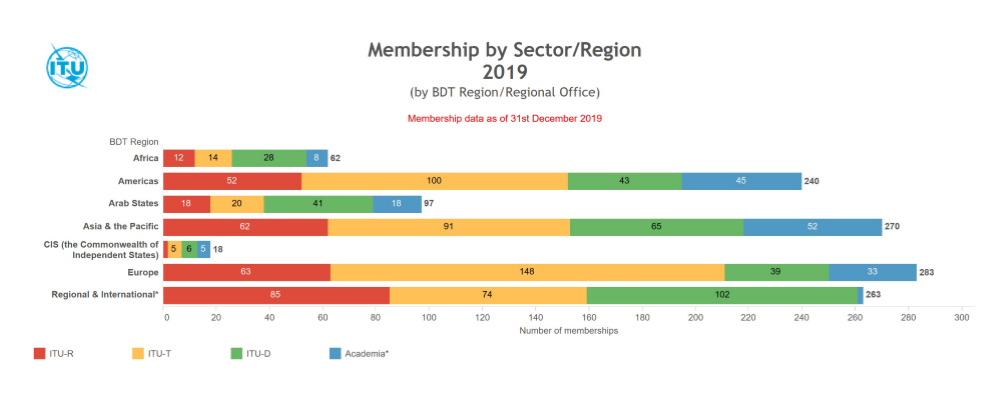


Table 8.5.1-2

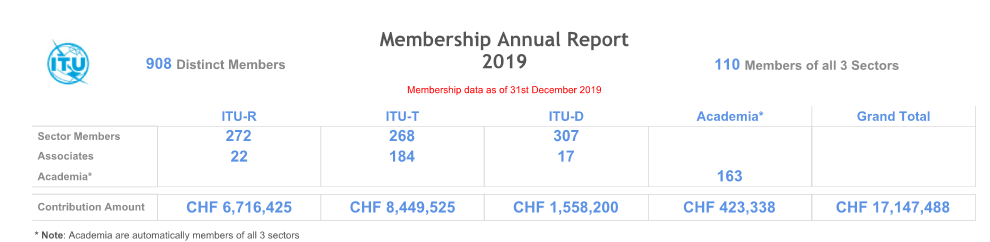
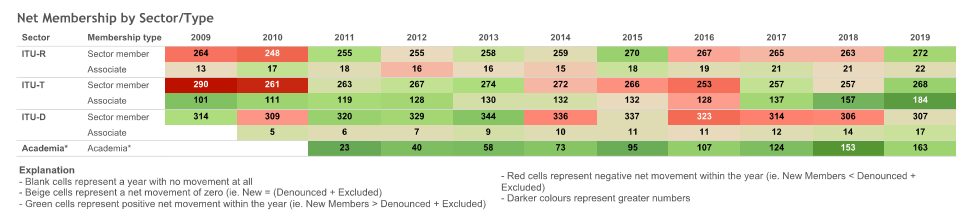


Table 8.5.1-3



### 8.5.2 ITU-R Membership

Table 8.5.2 shows the evolution of the number of ITU-R Sector Members, Associates and Academia during the period 2016 to 2019.

Table 8.5.2

Evolution of the ITU-R membership since 2016

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2019 VS 2016 | % Increase |
| Sector Members | 266 | 264 | 264 | 272 | 6 | 2.3% |
| Associates | 19 | 21 | 21 | 22 | 3 | 15.8% |
| Academia\* | 107 | 125 | 155 | 163 | 56 | 52.3% |
| *\*As per PP-14 decision, Academia membership encompasses all 3 ITU sectors* | | | | | | |

## 8.6 Communication and promotion

### 8.6.1 Website:

The BR completed the enhancements, updates and translations of the [ITU‑R website](http://www.itu.int/en/ITU-R) menus, in accordance with the guidelines for the harmonization of sectoral web menus. This was presented during the Council Working Group CWG-LANG at its meeting held on 14 February 2020.

Table 8.6-1 below shows the current status of the translation of all level-0-and-1 webpages of [ITU‑R website](http://www.itu.int/en/ITU-R) and their availability in the six ITU official languages. The figures in this table refer to the number of landing pages in the various departments of the BR (level 0) and the number of pages that are then accessible via one click only (level 1).

Table 8.6.1-1

ITU-R web pages languages statistics

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Status of ITU-R web pages translations for levels 0+1  (Q1/2020) | | | | | |
| **E** | **F** | **S** | **A** | **C** | **R** |
| SSD | Space | 31 | 19 | 18 | 4 | 5 | 5 |
| TSD | Terrestrial | 21 | 6 | 6 | 6 | 6 | 6 |
| SGD | Study Groups | 32 | 16 | 16 | 14 | 14 | 14 |
| Conf. | Conferences/Meetings/Seminars/Workshops | 15 | 9 | 9 | 8 | 8 | 8 |
| Others | Information/Promotion/Events | 14 | 9 | 9 | 9 | 9 | 9 |
| ITU-R website (total) | | 113 | 59  (52%) | 58  (51%) | 41  (36%) | 42  (37%) | 42  (37%) |

### 8.6.2 Promotion and media relations

During 2019, the primary focus of BR’s Communication and Promotion was related to RA-19 and WRC-19. Media relations was performed in cooperation with the ITU Comms, Media and Press Office with the following results and analysis for WRC-19 and RA-19. Detailed information on this topic is presented in Annex to this document.

#### 8.6.2.1 FAQs & Backgrounders & ITU News Magazine

The following Frequently Asked Questions (FAQs), Backgrounders and other resources continued to be maintained during 2019.

FAQs:

* [ITU-R FAQ on Universal Time Scale (UTC) – Leap Second](https://www.itu.int/en/ITU-R/Documents/ITU-R-FAQ-UTC.pdf)
* [ITU-R FAQ on International Mobile Telecommunications (IMT)](https://www.itu.int/en/ITU-R/Documents/ITU-R-FAQ-IMT.pdf) (updated 2019-02-15)
* [ITU-R FAQ on the Digital Dividend and the Digital Switchover (DSO)](https://www.itu.int/en/ITU-R/Documents/ITU-R-FAQ-DD-DSO.pdf)
* [ITU-R FAQ on Radio Regulations](https://www.itu.int/en/ITU-R/terrestrial/Pages/by-categories-faq.aspx?maincategorizedby=1)

Backgrounders:

* [5G - Fifth Generation of Mobile Technologies (IMT-2020 and beyond)](https://www.itu.int/en/mediacentre/backgrounders/Pages/5G-fifth-generation-of-mobile-technologies.aspx)
* [High-Altitude Platform Systems (HAPS)](https://www.itu.int/en/mediacentre/backgrounders/Pages/High-altitude-platform-systems.aspx)
* [ITU Study Groups](https://www.itu.int/en/mediacentre/backgrounders/Pages/itu-study-groups.aspx)
* [ITU-R: Managing the radio-frequency spectrum for the world](https://www.itu.int/en/mediacentre/backgrounders/Pages/itu-r-managing-the-radio-frequency-spectrum-for-the-world.aspx)
* [Satellite issues: Earth stations in motion (ESIM)](https://www.itu.int/en/mediacentre/backgrounders/Pages/Earth-stations-in-motion-satellite-issues.aspx)
* [Satellite issues: Non-GSO FSS satellite systems](https://www.itu.int/en/mediacentre/backgrounders/Pages/Non-geostationary-satellite-systems.aspx)
* [Satellite issues: SmallSats: Nano and Pico - short duration missions](https://www.itu.int/en/mediacentre/backgrounders/Pages/non-GSO-satellite-systems-with-short-duration-missions.aspx)

Other resources:

* [Free online access to ITU-R Publications, Software and Databases](http://www.itu.int/oth/R040200003F/en)

#### 8.6.2.3 Branding communications

Detailed information on branding for the RA-19 and WRC-19 is included in Annex to this document.

#### 8.6.2.4 Exhibitions and demos

#### During 2019 a Broadcasting Technology Expo & Workshop was organized at ITU HQ in Geneva, Switzerland by ITU-R Study Group 6, Working Party 6C, in parallel with the publication of the new Recommendation [(ITU-R BS.2127](https://www.itu.int/rec/R-REC-BS.2127/en)) on ‘Next Generation Audio’ (NGA), also known as the ‘Advanced Sound System’ (AdvSS). See: <https://news.itu.int/welcome-to-next-generation-audio-itu-launches-a-new-recommendation-for-advanced-sound-systems/>

Detailed information on exhibitions and demos at the WRC-19 is included in Annex to this document.

Annex



1. “Declaration on Promoting Gender Equality, Equity and Parity in the ITU Radiocommunication Sector” (see also <https://www.itu.int/en/mediacentre/Pages/2019-CM10.aspx>) [↑](#footnote-ref-2)