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| |  |  | | --- | --- | | **World Radiocommunication Conference (WRC-15) Geneva, 2-27 November 2015** |  | | **INTERNATIONAL TELECOMMUNICATION UNION** |  | |  |  | | **PLENARY MEETING** | **Addendum 1 to**  **Document CMR15/4-E** | | **2 July 2015** | | **Original: English** | | Director, Radiocommunication Bureau | | | REPORT OF THE DIRECTOR ON THE ACTIVITIES OF THE RADIOCOMMUNICATION SECTOR | | | part 1: activities of the radiocommunication sector in the period between WRC‑12 and WRC‑15 | | |  | | |

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# Introduction

This Report sets forth details on the activities undertaken by the Radiocommunication Sector since the last World Radiocommunication Conference. It takes into account information provided in Reports previously submitted to both the Radiocommunication Advisory Group and the Council, such as the operational plans for the concerned time-frame.

It is structured along with the four main activities of the Sector:

– To establish and update international regulations on the use of the radio-frequency spectrum and satellite orbits (Section 1).

– To implement and apply international regulations on the use of the radio-frequency spectrum and satellite orbits (Sections 2 and 3).

– To establish and update worldwide Recommendations, Reports and Handbooks for the most efficient use of the radio-frequency spectrum and satellite orbits (Sections 4 and 5).

– To inform and assist the ITU-R membership in radiocommunication matters (Sections 6, 7, and 8).

# 1 WRC-15 preparations

### 1.1 BR preparations for WRC‑15

The Bureau’s preparations for WRC‑15 are following the usual process. The Bureau prepared its Report to the conference pursuant to the provisions of CV180 and item 9 of the agenda. An additional section on the studies carried out on the topic of Global Flight Tracking for Civil Aviation was developed, in accordance with Resolution 185 (Busan, 2014) and may be found in Document CMR15/5. The contributions from Member States are processed in the standard manner and are posted in a timely way on the web. The necessary documents have been prepared for the attention of the Members States (e.g. CA/219 and its Addenda, dealing with guidelines for submission of proposals, delegate registration, publication of documents, etc.).

The activities of the Study Groups in preparation for WRC‑15 are described in Section 4.3.

In keeping with Decision 5 of the Plenipotentiary Conference (Busan, 2014), it was decided that WRC-15 will be conducted in a paperless environment. All documents will be available electronically on the WRC‑15 website. In addition, an ITU Sync Application will enable the expeditious download and synchronization of WRC‑15 documents from the ITU servers.

### 1.2 Regional preparations in response to Resolution 72 (Rev.WRC‑07)

The Bureau organized in Geneva three ITU interregional workshops on WRC‑15 preparation, the first one on 4-5 December 2013, the second one on 12-13 November 2014 and the third one on 1-3 September 2015 (see details at <http://www.itu.int/en/ITU-R/conferences/wrc/2015/irwsp>).

Staff of the Bureau also participated regularly in WRC‑15 preparatory meetings of regional organizations, providing assistance as necessary.

## 1.3 ITU-R Study Groups work for WRC‑15

This activity is reported in Section 4.3 below.

# 2 Application of the Radio Regulations for Spaces services

## 2.1 Introduction

In the period since WRC‑12 there has been a continuing heavy workload for the Space Services Department in processing notices for non-planned services (Advance Publication, Coordination requests and Notification for entry into the Master Register), including the implementation of WRC‑12 decisions (in particular Resolution 552 (WRC‑12), Resolution 553 (WRC‑12), Resolution 555 (WRC‑12), Resolution 907 (WRC-12) and Resolution 908 (WRC-12)). Similarly, in respect of services subject to Plans, the Radiocommunication Bureau has undertaken substantial work sinceWRC‑12.

During this period, the objective to meet the regulatory deadlines set up in the Radio Regulations for processing satellite network filings has generally been achieved in the treatment of all procedures: advance publication of information, coordination requests and notification and recording in the Master Register for non-planned satellite network services, use of guardbands, modifications or additional uses and notification and recording of frequency assignments to the broadcasting-satellite service and associated feeder links subject to a Plan (AP30/30A) and conversion of allotments, introduction of additional systems, modification and recording of frequency assignments to the fixed-satellite service subject to a Plan (AP30B).

To ensure that regulatory deadlines set up in the Radio Regulations for processing satellite network filings continue to be met and that processing backlog situations will not reoccur, staff resources and work have been continuously adapted to the requirements.

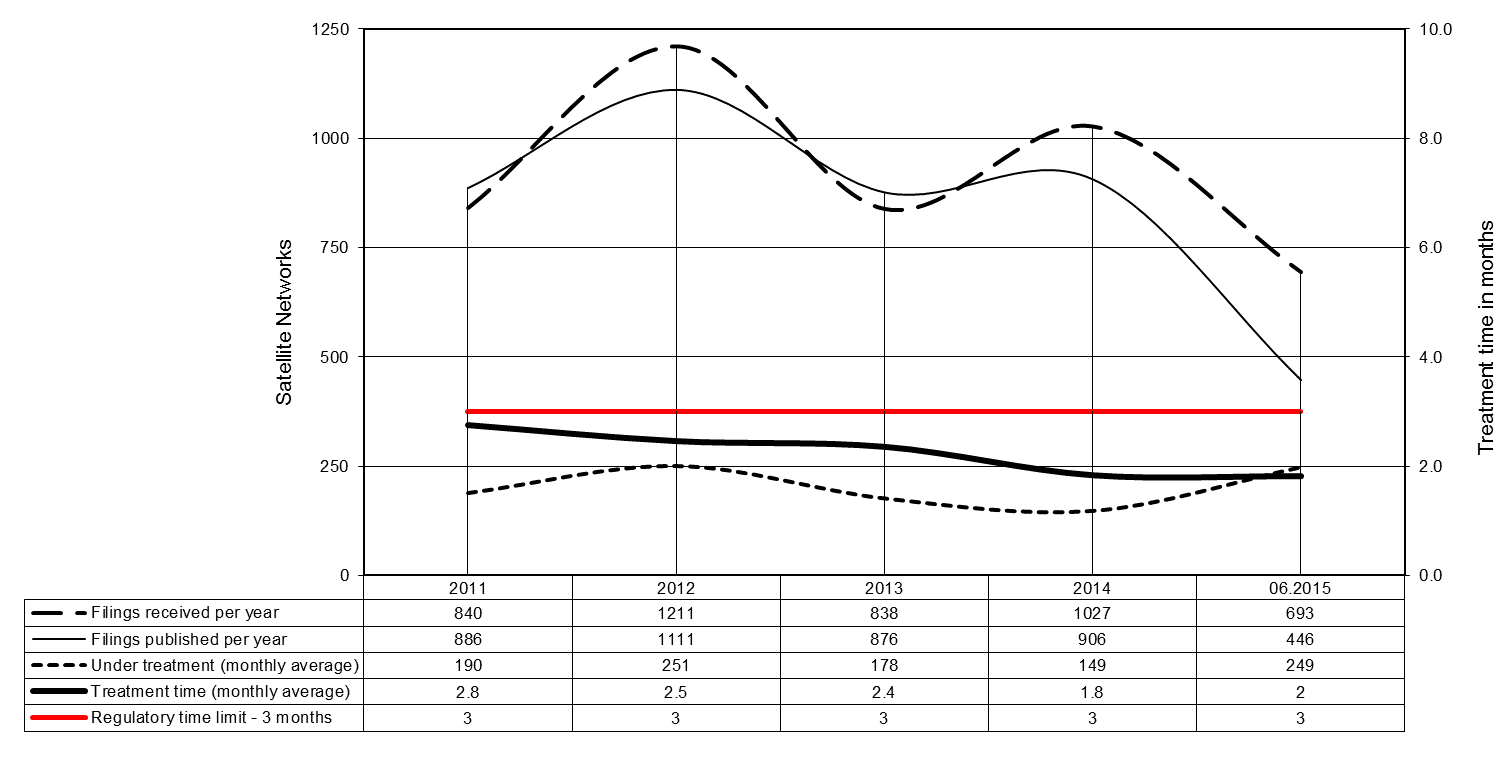
Full details of these situations are contained in the following paragraphs.

## 2.2 Processing of notices: non-planned services

### 2.2.1 Advance publication information (API)

2.2.1.1 API treatments include mainly (1) the examination, validation and publication of therelevant Special Sections (API/A, API/B) in BR IFIC of information received on satellite networks under Article 9, subsections IA and IB; (2) the application of No. 9.5D (reminders and follow-up (API/A SUP/MOD if the coordination information under No. 9.30 has not been received or has been partially received by the Bureau within a period of 24 months after the date of receipt of the relevant information under Nos. 9.1 and 9.2)); and (3) the API/A Special Sections SUP or MOD as a follow-up to the application of No. 11.44, No. 11.44.1, Resolution 49, No. 9.2B.1 and No. 9.38.1.

#### 2.2.1.2 Treatment time in the processing of requests for API

****

The above Figure shows the statistics on the treatment time in the processing of requests for API in the 2011-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.2.1.3 Resolution 908 (WRC-12)

In conformity with Resolution 908 (WRC-12), the Bureau has developed a system for submission and publication of Advance Publication Information (API) notices, as well as for comments submitted under No. 9.5B of the Radio Regulations, using a secure paperless electronic approach in the form of a web-based application called SpaceWISC (Space Web-based Interface for Secure Communication).

This new approach replaces the electronic submission of API for satellite networks or systems subject to the coordination procedure under Section II of Article 9 of the RR, currently submitted via e-mail to the brmail@itu.int address and confirmed by fax/letter in accordance with the Rules of Procedure on Receivability. This new approach also facilitates the commenting procedure described in No. 9.5B.

The Bureau made the SpaceWISC system available for beta testing on 11 April 2014. Through circular letter CR/363, all administrations were invited to carry out tests and submit feedback to the Bureau. In addition, training on the use of the system was provided to more than 200 participants during the World Radiocommunication Seminar 2014 held on 8-12 December 2014 in Geneva.

Following successful testing by administrations and the Bureau, and further to the approval by the 66th meeting of the Radio Regulations Board (30 July – 5 August 2014) of revised and new rules of procedure on the receivability of forms of notice and on Nos. 9.2B and 9.5B, the Bureau sent out circular letter CR/376 to all administrations and released the operational version of the SpaceWISC system on 1 March 2015 for the submission of APIs subject to the coordination procedure under Section II of Article 9 of the RR.

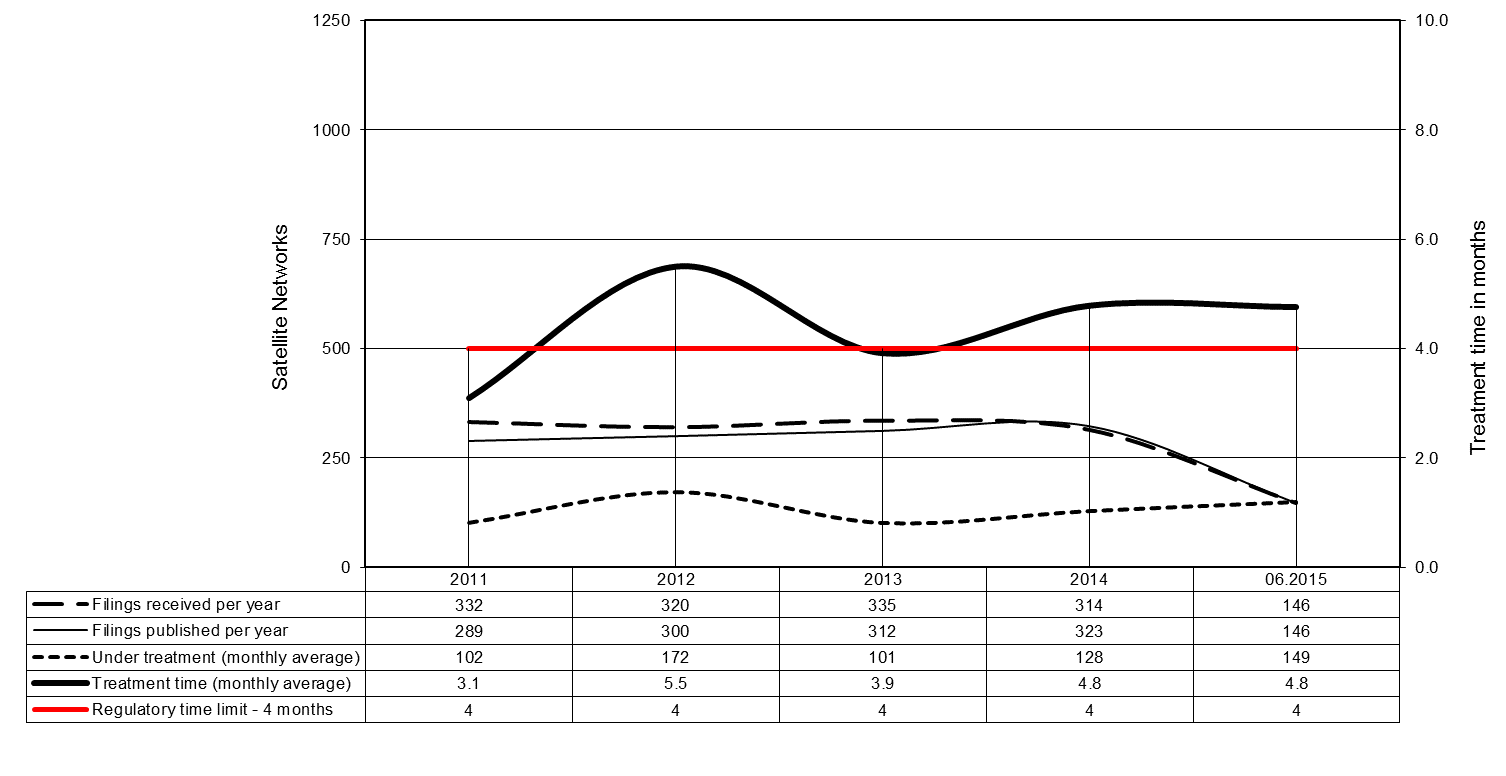
As from 1 March 2015, the submission of API notices under subsection IB of Article 9 of the RR to satellite networks or systems subject to coordination procedure is effected exclusively via SpaceWISC, available at <https://extranet.itu.int/itu-r/spacewisc>, and no longer via e-mail or surface mail. In accordance with updated § 1.1 and 2b of the Rules of Procedure on the receivability of forms of notice, there is no more requirement to submit a confirmation fax or letter for SpaceWISC submissions. An automatic acknowledgment of API submission via SpaceWISC is sent to the TIES e-mail accounts of the SpaceWISC Administration.

As of 29 June 2015, there are 249 registered users from 40 administrations in SpaceWISC. 524 APIs have been submitted to the Bureau through SpaceWISC, of which 528 are for GSO satellite networks and 6 are for NGSO satellite networks. 4 other APIs were submitted to the Bureau and subsequently withdrawn by the administration before the APIs were processed by the Bureau. For some administrations having internal administrative difficulties for using the SpaceWISC system, the Bureau assists them, for a temporary period, by uploading their API notices (submitted via email and confirmed with a fax) to SpaceWISC. The first API subject to SpaceWISC was published in BR IFIC (Space services) 2796 of 9 June 2015

### 2.2.2 Coordination requests (CR)

2.2.2.1 CR treatments include the processing of coordination request information submitted to the Bureau under Article 9 and relevant resolutions and appendices of the Radio Regulations, i.e. data capture, validation, examination (establishment of Findings concerning compliance with Radio Regulations, applicable forms of coordination and coordination requirements) and publication of CR/C special sections, the update of databases made available to administrations on the ITU website and correspondence/assistance to administrations. After publication of CR/C Special Sections, it also includes the treatment of requests under No. 9.41 which are subsequently published in Special Section CR/E and, in accordance with No. 9.53A, processing of comments under No. 9.52 concerning coordination requests under Nos. 9.11 to 9.14 and 9.21 (Special Section CR/D).

#### 2.2.2.2 Treatment time in the processing of requests for coordination



The above Figure shows the statistics on the treatment time in the processing of coordination requests in the 2011-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.2.2.3 Resolution 553 (WRC-12)

Pursuant to Resolution 553 (WRC-12), as of 18 February 2012, the special procedure outlined in the Attachment to the Resolution for processing of coordination request for BSS frequency assignments in Regions 1 and 3 in the 21.4 – 22 GHz band has been applied in respect of submissions of administrations meeting the specified requirements in the Attachment.

Some data requirements being different for notices submitted under this provision from those for the ordinary notices of requests for coordination, for example, test points data, characteristics to be provided for each satellite antenna beam (rotational accuracy, antenna pattern), some changes to the database structure and capture software were made to accommodate these notices.

Up to now, the Bureau has received only two requests to apply the Special Procedure under this Resolution and has processed them. The list of satellite networks for which a request for the special procedure under Resolution 553 (WRC-12) has been received by the Bureau is made available to administrations on the ITU R website (http://www.itu.int/ITU-R/go/space-res553).

Resolution 553 calls for the notices submitted under this procedure to be treated ahead of submissions not yet processed under No.9.34. In order to be able to process such notices ahead of other ordinary notices containing the same frequency bands, the Bureau had decided to split any coordination notice including frequency assignments in the band 21.4-22 GHz into 2 parts: one containing the band 21.4– 22 GHz, and the other containing the other bands. These 2 parts were then examined separately and published separately as CR/F and CR/C special sections respectively. However, for the purpose of cost recovery, the ITU Council in 2013 decided that it should be invoiced as one notice.

#### 2.2.2.4 Coordination requests for non-GSO FSS systems subject to Nos. 22.5C, 22.5D, 22.5E

##### 2.2.2.4.1 Submission of coordination request for non-GSO FSS systems

Since November 2014, the Bureau has received numerous requests for coordination for non-GSO systems operating in the FSS subject to equivalent power flux density (epfd) limits in Article 22 and also to coordination under No. 9.7B of the Radio Regulations. A non-exhaustive list of such requests is provided below:

i) Satellite systems consisting of hundreds of satellites (about 800 satellites) on low earth circular orbits with a single inclination value, and with an indication that all frequency assignments of the system would be operated simultaneously;

ii) Satellite systems consisting of tens of satellite (about 40 satellites) in different orbit planes, including e.g. one Toundra, one Molniya and one TAP (Three Apogee) orbits, with an indication that satellites at the proposed orbits would not be operated simultaneously and that only one of these orbit configuration would be implemented and notified for recording in the MIFR;

iii) Satellite systems consisting of tens of thousands of satellites (from 70000 to more than 230 000 satellites) in more than 1000 orbit planes, low earth orbit for some systems and medium earth orbits for others, including different inclination values with the indication that the satellites in this system would be operated in different technically compatible subsystems corresponding to a unique altitude;

iv) Satellite systems consisting of thousands of satellites (about 4000 satellites) on low earth circular orbits with different inclination values and with an indication that all frequency assignments of the system would be operated simultaneously.

Due to the amount of the assignments in such complex systems and the limitation of the BR software tool, the Bureau could not include individual findings for each group of assignments in the SRS database. Some findings under No. 11.31 have been temporarily indicated in a tabular format shown in the note of the Bureau in the CR/C Special section. The findings will be inserted in the SRS database for each group of assignments once the software tools are upgraded.

Qualified Favourable findings were also provided in accordance with resolves 2 of Resolution 85 (WRC-03), based on the commitment of the responsible administration that its non-GSO FSS system complies with the limits given in Tables 22-1A, 22-1B, 22-1C, 22-1D, 22-1E, 22-2 and 22-3 of Article 22 of the Radio Regulations, taking account that these findings will be reviewed once the epfd validation software is available. Coordination requirements relating to No. 9.7B which have been established in application of resolves 4 of Resolution 85 (WRC-03) based on bandwidth overlap and will be reviewed once the epfd validation software is available in accordance with instructs 3 of Resolution 85 (WRC-03).

The Bureau also informed the administrations that submitted non-GSO satellite systems, that it would not be in be in a position to comply with the four-month time limit referred to No. 9.38 for the publication of the filing due to numerous other non-GSO satellite systems received at the same period and that their complex and technical characteristics were requiring modifications to the tools the Bureau currently uses for the examination and publication of the coordination information. However, the Bureau also informed the administrations that all efforts were undertaken for a publication as soon as possible.

##### 2.2.2.4.2 Submission of spectrum masks (item A.14, Appendix 4)

The epfd validation software being currently under development (see Section 2.2.3.5 ), the Bureau issues a qualified favourable finding under No. **9.35** based on the commitment from the notifying administration to comply with the epfd-limits in Article 22 in accordance with resolves 2) of Resolution **85 (WRC-03)**.

In order to conduct accurate epfd examinations, pfd and eirp mask data needs to be provided in accordance with the detailed description of the masks as contained in Recommendation ITU-R S.1503-2, Part B. The mask data is to be submitted using XML-format, the description of which is provided at: <http://www.itu.int/ITU-R/go/space-mask-XMLfile/en>.

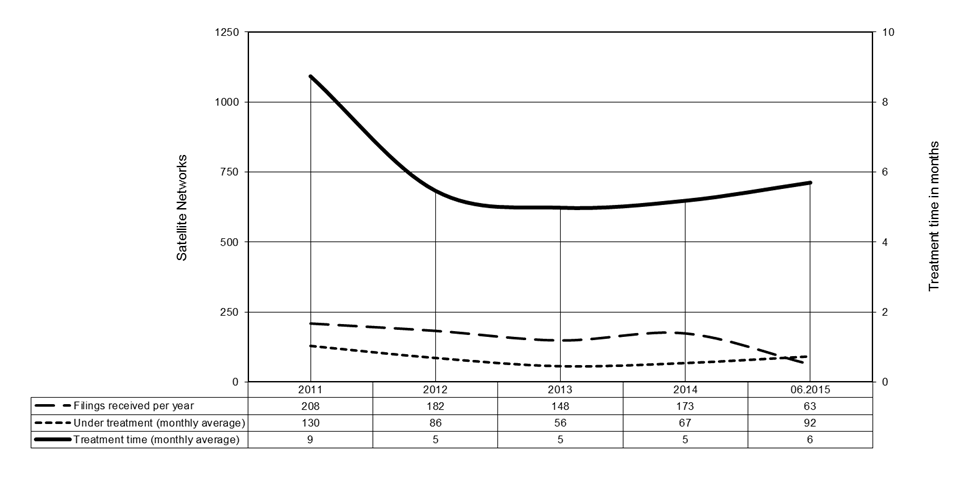
In that regard, the Bureau is requesting the pfd and eirp masks, indicating however that the data concerning the masks are to be used by the Bureau only to proceed with the last phase of testing of the epfd validation software and are not used to establish any findings for the concerned coordination request.

Once the epfd validation software made available to all administrations, the administration would have a possibility to adjust the epfd and eirp masks which will be used in establishing the findings in accordance with Resolution 85.

### 2.2.3 Notification for recording in the Master Register

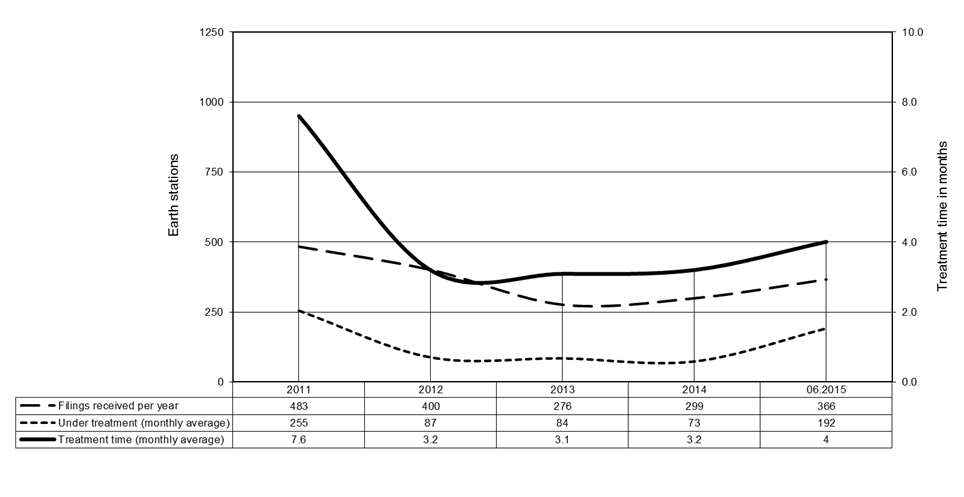
2.2.3.1 Tasks related to processing of notification information submitted to the Bureau underArticle 11 and relevant resolutions and appendices of the Radio Regulations include the validation, publication of the information in Part-IS of BR IFIC, examination (data comparison, analysis, establishment of Findings), recording in the MIFR and publication in Part-IIS or -IIIS of BR IFIC, including the update of databases made available to administrations on the ITU website and correspondence/assistance to administrations. Also part of this activity is the implementation of regulatory deadlines and further actions in order that the Bureau and administrations do not take into account those assignments for which notification under Article 11 has not been received or were not brought into use within the regulatory period as stipulated in Resolution 49 and in the provisions of Nos. l1.44/11.44.1 and corresponding Rules of Procedure.

#### 2.2.3.2 Treatment time in the processing of space stations notifications



The above Figure shows the statistics on the treatment time in the processing of satellite networks notification requests in the 2010-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.2.3.3 Treatment time in the processing of earth station notifications



The above Figure shows the statistics on the treatment time in the processing of earth station notification requests in the 2010-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.2.3.4 Resolution 4 (Rev.WRC‑03)

In accordance with Resolution 4, the period of validity of a frequency assignment can be extended and the revised period of validity is published in a Special Section RES4 of the Bureau’s International Frequency Information Circular (BR IFIC).

After the expiry of the period of validity of the frequency assignments, in accordance with *resolves* 1.1 of Resolution 4, the Bureau shall invite the notifying administration to cancel the corresponding frequency assignments, if the Bureau has not been informed of the wish of the administrations to extend the original period of operation under *resolves* 1.2 of the same resolution. If no reply is received within three months, the Bureau shall insert a symbol in the Remarks Column of the Master Register to indicate that the assignments are not in conformity with this Resolution.

Table 2.2.3.4-1

Statistics on Resolution 4

|  |  |
| --- | --- |
| Number of RES 4 publications by year | |
| 2010 | 33 |
| 2011 | 51 |
| 2012 | 66 |
| 2013 | 67 |
| 2014 | 57 |
| 06.2015 | 26 |
| Total number of networks recorded as not in conformity with RES 4 | |
| 2010 – 2014 | 33 |
| Period of validity recorded in the Master Register | |
| Minimum | 1 year |
| Maximum | 99 years |
| Average | 34 years |
| Extension requested by the administrations | |
| Minimum | 1 year |
| Maximum | 79 years |

In line with Circular Letter CR/301 dated 1 May 2009 on the removal of unused satellite network frequency assignments from the MIFR, the Bureau has been sending since the 23 June 2011 a telefax to all administrations that did not reply after the expiry of the period of validity, asking them to provide, in accordance with the provisions of No. 13.6, evidence of continuous operation of the frequency assignments of the satellite network, or to remove these assignments from the MIFR in case some of them were discontinued. In the absence of information by the notifying administration on the evidence of the continuing use of frequency assignments beyond the recorded period of validity, the Bureau initiate the cancellation of the relevant MIFR entries in accordance with the provisions of No. 13.6 and the associated Rule of procedure.

#### 2.2.3.5 Resolution 85 (WRC‑03)

A prerequisite for the Bureau to perform the required examination relating to the compliance with the equivalent power flux-density (epfd) limits set forth in Article 22, as established by WRC‑2000, is the availability of a simulation software package that permits the calculation of epfd values.

In order to be in a position to perform its duties, the Bureau contracted two specialised software development companies that have been independently developing the epfd validation software tools for the analysis of non-GSO fixed-satellite service (FSS) systems, in accordance with the software specifications of Recommendation ITU‑R S.1503-1.

The software tools developed by these two companies have shown test results with sufficiently close consistency and have been supplied to the Bureau in December 2011 for thorough internal review. The test-package of the epfd software was made available to interested administrations in 2013. This test package included two test-cases prepared in 2000-2003 year period.

Due to some inherent limitation in the methodology of Recommendation ITU-R S.1503-1, the implemented algorithms do not support non-GSO satellite networks having particular types of equatorial and elliptical orbits. To resolve this issue Working Party 4A (WP 4A) initiated in 2012 a review of Recommendation ITU-R S.1503-1and a new revision 2 was approved by end of 2013.

The last step in completing the development of the software in accordance with the latest version of ITU-R S.1503 recommendation (Rec.1503-2) agreed in September 2014 is currently undergoing using as the baseline the epfd validation software so far developed by the two companies and is planned to be concluded by Autumn 2015.

In view of the above, the Bureau proposes to keep Resolution 85 (WRC-03) until such time as the tool is ready for use and the *instructs the Director of the Radiocommunication Bureau 2* and *3* of Resolution 85 (WRC 03) is therefore implemented. This is expected to be the case by mid-2016.

#### 2.2.3.6 Resolution 552 (WRC-12)

WRC-12 adopted Resolution **552** **(WRC-12)** on “Long-term access to and development in the band 21.4-22 GHz in Regions 1 and 3”, which requests administrations to provide certain specific information for geostationary-satellite networks in the BSS in the 21.4-22 GHz band and the Bureau to report to future competent World Radiocommunication Conferences the results of the implementation of this Resolution.

Pursuant to *resolves* 3 of Resolution 552 (WRC-12), the concerned notifying administrations had to submit to the Bureau, not later than 17 August 2012, the complete information relevant to the operational situation as of 18 February 2012, in accordance with Annex 2 to this Resolution. Accordingly the Bureau has individually drawn the attention of the concerned administrations to the required information to be submitted to the Bureau by 17 August 2012 and issued Circular letter CR/336 on 17 July 2012.

The Bureau subsequently received the required information for the following networks for which the confirmation of the date of bringing into use under the provisions of Article 11 was received by the Bureau before 18 February 2012: EUTELSAT-B1-16E (F), EUTELSAT-B1-7E (F), NILESAT-301-7W (EGY), SIRIUS-5E (S) and SIRIUS-P (S) satellite networks.

The SpaceCap software has been modified in June 2014 to enable administrations to submit to the Bureau, in electronic format, the information under this Resolution. The information required for the identity of the spacecraft includes an ITU ID number (item 2a of Annex 2 to Resolution 552). The Bureau published the numbering scheme in its Circular Letter CR/343 of 31 January 2013.

Until 15 June 2015 the Bureau has received total of 15 submissions under this Resolution including those received under *resolves* 3.

#### 2.2.3.7 Resolution 555 (WRC-12) dealing with additional regulatory provisions for broadcasting-satellite service networks in the band 21.4–22 GHz in Region 1 and 3 for the enhancement of equitable access to this band

In Resolution 555 (WRC-12), WRC-12 resolves that administrations in compliance with Article 44 of the Constitution should review their submissions in the band 21.4-22 GHz submitted before 18 February 2012 with a view to reducing the number of their submissions to the absolute minimum necessary and indicate to the Bureau networks no longer required, before 30 June 2012. In accordance with *resolves* 3 and 4 the notifying administration were also invited to modify, without any change in their initial date of receipt, the characteristics of the submissions, as necessary.

On 16 March 2012, through its Circular Letter CR/331, the Bureau brought this Resolution to the attention to the administrations. Out of 323 coordination requests in the BSS for Regions 1 and 3 in the 21.4–22 GHz band submitted before 18 February 2012, only five satellite networks have been requested to be cancelled by the notifying administrations and no networks has been modified.

#### 2.2.3.8 Resolution 755 (WRC-12) dealing with power flux-density limits for transmitting stations in the 21.4–22 GHz band (space stations).

*Resolves* 1 of Resolution 755 (WRC-12), indicates that frequency assignments of stations in the fixed and mobile services (in the band 21.4–22 GHz) recorded in the MIFR or notified under the provisions of Article 11 before 18 February 2012 shall comply with the limit specified in No. 5.530A (5.D113) by 31 December 2015, or the first day of the next World Radiocommunication Conference, whichever is earlier.

In accordance with *instruct* of the Resolution, on 18 May 2012, the Bureau issued Circular Letter CR/334, to bring to the attention of the administrations the new pfd limits and the requirements in respect of transmitting stations submitted before 18 February 2012.

The administrations were invited to verify the compliance of their frequency assignments submitted and if required to modify the characteristics of recorded assignments in the MIFR accordingly on or before 17 August 2012.

Subsequently the Bureau undertook a review of the findings of frequency assignments of 12 satellite networks already recorded in the MIFR or received by the Bureau under No 11.2 before 18 February 2012. The characteristics of one network assignments were modified to be in conformity with the required pfd limits. Assignments of 4 satellite networks were cancelled according to the requests of the administrations or in application of other provisions of the Radio Regulations.

All assignments currently recorded in the MIFR are in compliance with the new pfd limits.

The implementation of this Resolution with respect to stations of the fixed and mobile services is described in Section 3.6.8

#### 2.2.3.9 Removal of obsolete information from the SRS database

In accordance with the provisions of No. **11.48**, the Bureau cancels frequency assignments not brought into use or for which the first notice for recording the assignments under No. **11.15** has not been submitted to the Bureau within the regulatory period specified under Nos. **11.44** and **11.44.1**, and cancels the corresponding information published under Nos. **9.2B** and **9.38**, as appropriate.

Information related to requests for coordination for which the corresponding frequency assignments have been submitted for notification and recorded in the MIFR, however, continued to be maintained in the Space Radiocommunication Stations (SRS) database even beyond the end of the above regulatory period, and to be taken into account in the technical examination of subsequent satellite network coordination requests by the Bureau.

On 1 January 2015*,* the SRS database included 1 018 recorded satellite networks including associated requests for coordination with dates of receipt earlier than 1 January 2008.

This situation resulted in the identification of coordination requirements based on obsolete requests for coordination information, a likely overprotection of recorded frequency assignments with characteristics (e.g. smaller bandwidth, restricted service area, lower EIRP of earth stations, etc.) different from the coordination request characteristics still taken into account, and thus also created an unnecessary coordination burden on administrations.

As already suggested in paragraph 3.4 of Addendum 7 to WRC-12 Document 4 (Report of the Director to WRC-12), as a possible solution to facilitate the completion of coordination and to alleviate the above coordination burden, the Bureau in its Circular Letter CR/377 dated 23.01.2015 informed all administrations of the removal of obsolete API and request for coordination information from the SRS database for which the regulatory period specified under Nos. **11.44** and **11.44.1** has expired and for which the frequency assignments have partly or wholly been recorded in the Master International Frequency Register (MIFR).

The first SRS database without obsolete API and request for coordination information was published in BR IFIC 2787 (17.02.2015). Starting from this IFIC, on a regular basis every two weeks, the Bureau identifies the satellite networks or systems for which the regulatory deadline (seven-year period) has been reached and for which a PART II-S special section has been published. The corresponding API and request for coordination information for these networks are then removed from the SRS database or SpaceWisc, as appropriate, and the administrations informed accordingly on both the Bureau website and in the BR IFIC (Space services).

**2.2.3.10 Resolution 222 (Rev. WRC-12)**

Resolution 222 (Rev.WRC 12) “Use of the frequency bands 1 525-1 559 MHz and 1 626.5‑1 660.5 MHz by the mobile-satellite service, and procedures to ensure long-term spectrum access for the aeronautical mobile-satellite (R) service” establishes procedure for spectrum requirements coordination process between the notifying administrations of MSS, including AMS(R)S to fulfil spectrum requirements of different AMS(R)S systems in the bands 1 525‑1 559 MHz and 1 626.5-1 660.5 MHz.

This procedure also considers the possibility for calling out a Reassessment Meeting in case of AMS(R) spectrum requirements are not fulfilled. According to Resolution 222 (Rev. WRC-12) the Bureau may be invited to a Reassessment Meeting and to publish the report of that meeting.

The Bureau has no information regarding any Reassessment Meetings held so far and has not received any invitation or request for assistance in this regard.

#### 2.2.3.11 Resolution 756 (WRC-12)

Resolution 756 (WRC-12) “Studies on possible reduction of the coordination arc and technical criteria used in application of No. 9.41 in respect of coordination under No. 9.7” dealing with Agenda Item 9.1.2 of WRC-15 requests the Director inter alia to include in his Report statistics on the use of No. **9.41** in respect of coordination under No. **9.7**.

In order to support the studies under Agenda Item 9.1.2 the Bureau submitted an input contribution to Working Party 4A meeting in June 2014 (doc. WP4A/579). This contribution included statistics on No. 9.41 requests processed by the Bureau. The main conclusion, since the introduction of CR/E Special Section publication together with Spacecom software in 2011 containing the status of comments received under No. **9.41**, is the Bureau’s observation of a steady increase in the number of requests submitted under No. **9.41** per coordination request (CR/C).

Subsequently, the abovementioned contribution was included into the CPM Report (see Section 5/9.1.2/3.1.4) and Preliminary Draft New Report ITU-R S.[RES756].

In this study presented to WP4A the Bureau also requested that consideration be given to the appropriate means which would either directly or indirectly lead to the limitation of wide distribution of the Appendix 4 characteristics of the filings. Indeed, the Bureau has noticed that some frequency assignments are notified with parameters which may not be justified from technical point of view and which would lead to unrealistic calculations (e.g., unrealistic earth station antenna parameters, very low earth station noise temperature…). Without these measures properly investigated and studied, the Bureau considers that simple transition to another coordination trigger may not fully address the problem of “effectiveness and appropriateness” of the existing and proposed criteria, in particular with respect to the satellite networks and associated characteristics already submitted for coordination or recorded in the MIFR. The foreseen increased in the workload of the Bureau for implementing the changes and then processing the satellite network filings would also require to be carefully considered.

**2.2.3.12 Resolution 903 (WRC-07)**

Resolution 903 (WRC-07) on “Transitional measures for certain broadcasting-satellite/fixed-satellite service systems in the band 2 500-2 690 MHz” provides power-flux density limits to be applied for some FSS/BSS satellite systems for which coordination information was received before 14 November 2007. The list of the systems for which pfd-limits in Resolution 903 are applied is given in Annex 1 to the Resolution 903 (WRC-07).

For other systems than those listed in Annex 1, Nos. **5.418**, **5.417A** and Resolution 539 (Rev.WRC‑03) having frequency assignments in the FSS or BSS received by the Bureau after 14 November 2007, the pfd limits for the band 2 500-2 690 MHz in Table 21-4 of Article 21 shall apply.

This Resolution was implemented by the Bureau as requested. The pfd technical examination included in GIBC software package is selecting applicable pfd-limits based on the date of receipt of the frequency assignments and calculates pfd accordingly.

Among 10 systems listed in Annex 1 to the Resolution 903 (WRC-07) only 3 systems continue to operate frequency assignments in the band 2 500-2 690 MHz: INSAT-2(74), INSAT 2(83) and INSAT-2(93.5).

The WRC-15 may wish to update the Resolution including the list of networks in Annex 2.

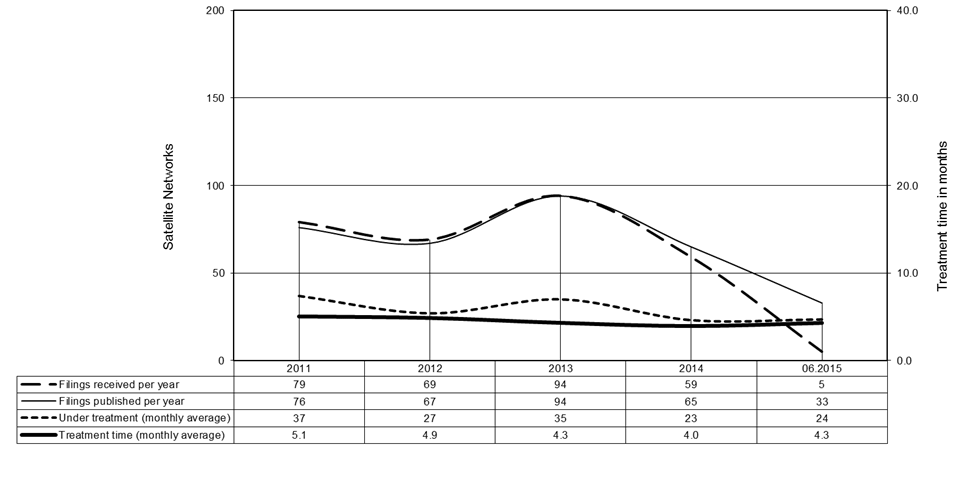
## 2.3 Processing of notices: planned services

### 2.3.1 Appendices 30 and 30A

2.3.1.1 Tasks under both appendices comprise the examination and publication of submissions under Articles 2A, 4 and 5 of Appendices 30 and 30A (BSS and associated feeder-link Plans), taking also due account of Resolutions 49 (Rev.WRC‑07) and 548 (WRC‑03). Under Article 4, the Bureau processes requests for modifications to the Region 2 Plan, and proposed new or modified assignments in the Regions 1 and 3 Lists, submitted by administrations. The characteristics and list of administrations whose frequency assignments are considered to be affected are published in Part A of a Special Section in BR IFIC. New or modified assignments entered in the Regions 1 and 3 List or Region 2 Plan as a result of the successful application of the provisions of Article 4 are then published in Part B of a Special Section. The above processing entails acknowledgement of received information, validation, examination and publication of relevant Special Sections, including application of Resolution 49, Decision 482 invoicing, correspondence/assistance to administrations, processing of comments (publication of a list of administrations whose agreements are required in Part D of a Special Section) and the update of databases made available to administrations on the ITU website and in BR IFIC. The Bureau processes notifications submitted under Article 5 of these appendices for recording in the Master International Frequency Register, i.e. data acknowledgement,

validation, publication of the information in Part I-S of BR IFIC, technical examination (establishment of Findings) and publication in Part II-S or III-S of BR IFIC, recording in the MIFR, including the update of databases made available to all administrations on the ITU website and in BR IFIC. The Bureau also processes requests for coordination of assignments for space operation functions in the guardbands submitted under Article 2A of these appendices, i.e. data capture, validation, examination and publication of a Special Section in BR IFIC.

#### 2.3.1.2 Treatment time in the processing of requests for AP30-30A (Article 4 Part A)

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The above Figure shows the statistics on the treatment time in the processing of requests for the application of Article 4 of Appendices 30/30A in the 2010-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.3.1.3 Resolution 547 (Rev.WRC‑07)

In accordance with the *resolves* of Resolution 547 (Rev.WRC‑07) the Bureau carried out the compatibility analyses based on Notes 5 to 7 in § 9A.2 of Article 9A of Appendix 30A and Notes 5 to 8 in § 11.2 of Article 11 of Appendix 30. In accordance with *instructs the Director of the Radiocommunication Bureau* of that Resolution the results of analyses are contained in Part [6] of the Report with a view to updating the “Remarks” column in the Tables of Article 9A of Appendix 30A and Article 11 of Appendix 30.

The assignments of the affected or affecting networks, terrestrial stations or beams of administrations remaining in the Tables 2, 3 and 4 of Article 11 of Appendix 30 and in Tables 1A and 1B of Article 9A of Appendix 30A either have already been recorded in the Master International Frequency Register and brought into use, or included in the original Region 2 Plan. Therefore the status and characteristics of these assignments will remain unchanged.

The Bureau is of the opinion that the updating of the “Remarks” columns in the Tables of Article 9A of Appendix 30A and Article 11 of Appendix 30 of the Radio Regulations may not be any more required. In that regard the Conference may to consider suppressing that Resolution.

#### 2.3.1.4 Change of beam identification and notifying administrations for assignments in Appendices 30 and 30A Plans

Since WRC‑12 the beam identifications and notifying administrations have been modified for the following assignments in Appendices 30 and 30A Plans due to the change of the country code and/or administrative situations.

Table 2.3.1.4-1

Change of beam identification and notifying administrations (AP30/30A)

|  |  |  |  |
| --- | --- | --- | --- |
| **Current** | | **WRC‑07** | |
| **Beam identification** | **Notifying administrations** | **Beam identification** | **Notifying administrations** |
| XANBEAM1 | HOL | ATNBEAM1 | HOL |

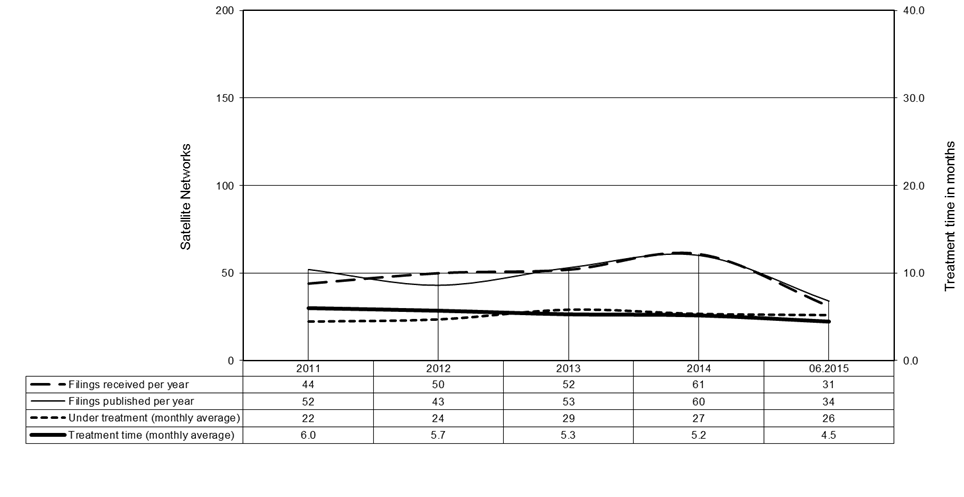
#### 2.3.1.5 Equivalent protection margin (EPM) and overall equivalent protection margin (OEPM) values for the assignments in the Appendices 30 and 30A Plan

A summary of the change in the reference situation (EPM) of the Regions 1 & 3 Plan Beams contained in Appendices **30** and **30A** is provided at <http://www.itu.int/en/ITU-R/space/plans/Pages/AP30-30A.aspx>.

### 2.3.2 Appendix 30B

2.3.2.1 The processing tasks for AP30B FSS Plan include the examination and publication of submissions under Articles 6, 7 and 8 of Appendix 30B. Article 6 of the Appendix 30B and its related Rules of Procedure provide the procedures for the conversion of an allotment into an assignment, for the introduction of an additional system and for the modification of an assignment in the List. The characteristics of the satellite network and list of administrations whose frequency assignments are considered to be affected are published in a Special Section AP30B/A6A in BR IFIC. New or modified assignments entered in the AP30B List as a result of the successful application of the provisions of Article 6 are then published in a Special Section AP30B/A6B. The above processing entails data capture of received information, validation, examination and publication of relevant Special Sections, including application of Resolution 49, Decision 482 invoicing, correspondence/assistance to administrations, processing of comments and the update of databases made available to administrations on the ITU website and in BR IFIC. Article 7 of the Appendix 30B and its related Rules of Procedure regulate addition of a new allotment to the Plan for a new Member State of the Union. Article 8 and its related Rules of Procedure cover the notification procedure. The Bureau processes notifications submitted under Article 8 for recording in the Master International Frequency Register, i.e. data capture, validation, publication of the information in Part I-S of BR IFIC, technical examination (establishment of Findings) and publication in Part II-S or III-S of BR IFIC, recording in the MIFR, including the update of databases made available to all administrations on the ITU website and in BR IFIC.

#### 2.3.2.2 Treatment time in the processing of requests for AP30B



The above Figure shows the statistics on the treatment time in the processing of requests for the application of Article 6/7 of Appendix 30B in the 2010-2015 period. These statistics are regularly updated and the latest version may be found at: <http://www.itu.int/en/ITU-R/space/Pages/Statistics.aspx>.

#### 2.3.2.3 Resolution 148 (WRC‑07)

There is nothing to report for the period 2012-2015 in relation to Resolution 148 (WRC-07) –Satellite systems formerly listed in Part B of the Plan of Appendix 30B (WARC Orb-88).

#### 2.3.2.4 Resolution 149 (Rev.WRC‑12)

There is nothing to report for the period 2012-2015 in relation to Resolution 149 (Rev.WRC‑12) – Submission from New Member States of the Union relating to Appendix 30B of the radio Regulations.

#### 2.3.2.5 Change of beam identification and notifying administrations for allotments in Appendix 30B

Since WRC-12, the beam identifications and/or notifying administrations have been modified for the following allotments in Appendix **30B** due to the change of country code and/or administrative situations, or to align the identification of beams in 6/4 GHz bands and 13/10-11 GHz bands for allotments located at the same orbital position and belonging to one administration.

table 2.3.2.5-1

Change of beam identification and notifying administrations (AP30B)

|  |  |  |  |
| --- | --- | --- | --- |
| Allotments in Appendix 30B | | | |
| Current | | WRC-07 | |
| Identification | Notifying administrations | Identification | Notifying administrations |
| SVK00000 | SVK | XCS00000 | XCS |
| XAN00000 | HOL | ATN00000 | HOL |
| RUS00002 | RUS | RUSLA201 RUS0B\* | RUS |

*\* Multi-beams at orbital position 87.7°E, converted to 87.7°E and reinstated.*

#### 2.3.2.6 Reference situation for the allotment of Appendix 30B

The current reference situation values for all allotments in AP30B is provided at <http://www.itu.int/en/ITU-R/space/plans/Pages/AP30B.aspx>

## 2.4 Special assistance on coordination, notification and Plans

### 2.4.1 Assistance cases for non-planned services

2.4.1.1 Due to the requirement to notify assignments within the 7-year period, administrations increasingly rely on the regulatory assistance by the Bureau under Sub-Sections IIB and IID of Article 9 to complete or continue coordination in cases of non-reply or objections without details concerning the assignments that are the reason for objection. Between January 2012 and June 2015, the number of requests for assistance cases handled were 881 for space stations and 450 for earth stations. The Bureau endeavours to deal with these cases as expeditiously as is consistent with the relevant procedure of Article 9.

2.4.1.2 In addition to the regulatory assistance described above, various provisions in the Radio Regulations (notably in Articles 7 and 13) specify a wide range of possibilities for assisting administrations. This activity requires the identification of the nature of the assistance, identification of procedures and administrations involved and preparation of replies in a timely fashion. The Space Services Department is also involved in a number of contacts, on a daily basis, with many administrations, operating agencies, private companies and the general public which request assistance, support or clarification concerning the application of regulatory and administrative provisions of the Radio Regulations.

### 2.4.2 Assistance cases for Appendices 30, 30A and 30B

**2.4.2.1** The Bureau continued to provide assistance to administrations in application of Appendices 30, 30A and 30B and Article 13 of the Radio Regulations including coordination and detailed information concerning the results of the Bureau’s calculations.

**2.4.2.2** The Bureau received many requests for information from various entities including Member States and Sector Members concerning application of these appendices by e-mail and telephone. The requested information was provided as quickly as possible. Between January 2012 and June 2015, the Bureau also processed 270 formal assistance cases from administrations concerning the detailed results of the calculations performed by the Bureau or application of provisions of the Radio Regulations including those under § 6.13 of Article 6 of Appendix **30B** (see § 2.4.3 below). The administrations were assisted as requested.

### 2.4.3 Request for assistance under § 6.13 of Article 6 of Appendix 30B

**2.4.3.1** Provision 6.13 of Article 6 of Appendix 30B allows a notifying administration to request the Bureau to assist in respect of potentially affected administrations which have not made comments within four-month period to a network published under § 6.7 of Article 6 of that Appendix.

**2.4.3.2** Between January 2012 and June 2015, the Bureau has processed 53 requests for assistance under § 6.13. The Bureau has sent 338 reminders by telefax in accordance with §§ 6.14 and 6.14*bis* to administrations whose allotment(s)/assignments were identified as affected. Whenever an administration was not reachable by telefax, the reminders were sent through mail and e-mail. The Bureau received 75 replies with decisions from those administrations (including 12 replies received after the 30-days deadline), which is less than 23% of all reminders sent.

**2.4.3.3** Provision 6.15 of Article 6 of Appendix 30B which states that “If no decision is communicated to the Bureau within thirty days after the date of dispatch of the reminder under § 6.14, it shall be deemed that the administration which has not given a decision has agreed to the proposed assignment” has been applied to those administrations who did not respond within the deadline. The protection of those allotments/assignments with no reply will be diminished in subsequent examinations under Article 6 if the proposed assignments enter into the Appendix 30B List.

## 2.5 Resolution 49 (Rev.WRC‑12) – Due diligence

### 2.5.1 Introduction

The Radiocommunication Bureau presents this Report on the activities it has undertaken pursuant to the requirements of Resolution 49 (Rev.WRC‑12) in accordance with “*instructs the Director of the Radiocommunication Bureau*” wherein the Director of the Radiocommunication Bureau was required to report to future competent World Radiocommunication Conferences on the results of the implementation of the administrative due diligence procedure.

### 2.5.2 Changes made by WRC‑12

Changes were made at WRC‑12 to exclude from the scope of this resolution satellite networks or satellite systems of the broadcasting-satellite service in the 21.4-22 GHz band in Regions 1 and 3. Instead, specific due diligence procedures apply in this case (See Resolution 552 (WRC-12)).

### 2.5.3 Implementation

2.5.3.1 Six months before the beginning of each semester, the Bureau regularly sends to alladministrations a circular telefax with a comprehensive list of networks with assignments whose deadlines fall in that semester, indicating the deadline applicable, and requesting the administrations to timely bring assignments into use, send the first notification and provide due diligence information (DDI), as appropriate. This information is also placed on the ITU‑R website to help administrations in case of non-receipt of the Circular Telegram sent by telefax or by mail. For planned services, individual reminders for satellite networks are sent to the notifying administration six months before the deadline.

2.5.3.2 To help administrations to submit relevant, accurate and complete DDI and facilitate its own processing, the Bureau has made available a new software feature within Spacecap, a Res49/552 builder. This software extracts frequency-band information from the coordination, notification of Plans modification data provided for a satellite network, the administrations select all or some of the extracted frequency bands at their choice, then capture only the DDI related to the spacecraft manufacturer and launch service provider, as appropriate. The software then links the DDI with all relevant groups of frequency assignments that use the selected frequency bands.

At the receipt of the DDI, the Bureau verifies that all the required information has been submitted, and that frequency bands are covered by a corresponding request for coordination. For cases where the information is unclear, the Bureau may request further information about the actual satellite in operation.

2.5.3.3 After the expiry of the applicable deadline and in accordance with resolves 6 of Resolution 49 (Rev.WRC‑03) and paragraph 11 of its Annex 1, the Bureau: i) informs the concerned administration of the list of satellite network(s) or frequency ranges for which the required DDI was not received by the Bureau before the regulatory expiry date; and ii) proceeds with cancellation of the related Special Sections and notification information or parts thereof, as the case may be, and publishes this information in BR IFIC.

### 2.5.4 Results of the process

The relevant and accurate Due Diligence Information is being published in RES49 Special Sections and made available to administrations in database format within one month of receipt of the submission. See details in the table below.

Table 2.5.4-1

Implementation of Resolution 49 (Rev.WRC‑12)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Year** | **Due diligence received (number of networks)** | **Due diligence published  (number of networks)** | **Cancellations  (number of networks)** |
| ***resolves* 6 of Res. 49** |
| Planned/unplanned services | 2012 | 27/62 | 23/50 | 32/55 |
| 2013 | 23/62 | 22/69 | 22/19 |
| 2014 | 24/76 | 24/64 | 39/14 |
| 06.2015 | 13/32 | 16/35 | 2/2 |

### 2.5.5 Suggestions for improvement of the Resolution 49 procedure

2.5.5.1 Resolution 49 information (administrative due diligence) is supposed to be provided before the launch and beginning of operation of a satellite network. Indeed, the information to be submitted refers to a contractual delivery window for the spacecraft manufacturer and a launch or in-orbit delivery window for the launch service provider. There is no provision today in Resolution 49 to compel administrations to update their due diligence information – e.g. post-launch confirmation of information already provided, change of spacecraft for frequency assignments already recorded, or resumption of use following a suspension.

**2.5.5.2** In order to remedy the above issues, possible improvements to Resolution 49 might include:

– The submission of due diligence information within [30] days following the bringing into use/resumption of operation of frequency assignments to a satellite network (this would allow for easier association of a real satellite/date of launch (when applicable) with the orbital location at which these assignments are brought into use).

– A formal requirement to renew the information whenever changes occur (requirement to be linked also with the suspension under No. 11.49).

2.5.5.3 Another difficulty encountered by the Bureau when examining Resolution 49 information is the tracking of a satellite already filed under Resolution 49, in order to avoid the same satellite being recorded as operational at several orbital locations simultaneously. One possibility to increase transparency in this context could be to extend the existing ITU ID number for the identity of the spacecraft, item 2a of Annex 2 to Resolution 552 (WRC-12). The Bureau published the numbering scheme for this item in its Circular Letter CR/343 of 31 January 2013.

2.5.5.4 The Conference may wish to consider the above proposed changes with a view to including them in a new/enhanced Resolution 49. In order to increase confidence and obtain experience on the proposed changes, WRC-15 might consider first applying such modifications on a field trial basis to specific services and bands

## 2.6 Resolution 55 (Rev.WRC‑12)

**2.6.1** Instructs the Radiocommunication Bureau 1 of Resolution 55 (Rev.WRC‑12) charged the Radiocommunication Bureau to make available coordination requests and notifications referred to in resolves 1, “as received”, on its BR International Frequency Information Circular CD-ROM, within 30 days of receipt, and also on its website.

**2.6.2** In order to help administrations and to comply with the above tasks, the Bureau has been distributing since June 2000 (after WRC-2000) “as received” notices related to space station coordination requests received under No. **9.6**, Notification of space station under Article 11 and submissions received under Articles 2 and 4 of Appendices **30** and **30A** and Articles 6 and 7 of Appendix **30B** on the BR IFIC (Space services) and also at the Bureau website SNL Part C at: <http://www.itu.int/ITU-R/go/space/snl/en>. Distribution and posting of “as received” notices is taking important part of space notices processing time. The essence of the “*instructs the Radiocommunication Bureau* 1” was relevant in the time of significant Bureau’s processing backlog related to above mentioned space notices. As presented in this Report in the above paragraphs, processing delays beyond the applicable regulatory deadlines are generally no longer experienced.

**2.6.3** In that regard, the Conference may wish to address this issue and consider modifying *instructs the Radiocommunication Bureau* 1 of Resolution 55 (Rev.WRC‑12) to take account of the above as follows:

1 to make available coordination requests and notifications referred to in *resolves*1, “as received”, on its BR International Frequency Information Circular DVD-ROM, within 30 days of receipt, and also on its website, where the Bureau is not in a position to comply with the time limit referred to in the Radio Regulations for the publication of the related Special Section or Parts of the BRIFIC;

## 2.7 Resolution 609 (Rev.WRC‑07)

**2.7.1** Resolution 609 (Rev.WRC‑07) instructsthe Radiocommunication Bureau to determine whether the pfd level in *recommends* 1 of Recommendation 608 (Rev.WRC‑07) is exceeded by any space station that is subject to this resolution, and to report the findings of this determination to the participants of the consultation meeting referred to under *resolves* 6 of the same resolution. *Instructs the Radiocommunication Bureau* 1 further charged the Bureau to participate to the consultation meetings and to observe carefully results of the epfd calculation mentioned in *resolves* 1.

**2.7.2** In order to help administrations and to comply with the above tasks, the Bureau is maintaining an up-to-date list of Articles 9 and 11 satellite network filings including RNSS frequency assignments in the 1 164-1 215 MHz band (as of 08.04.2015, this List contains 303 satellite network filings (API/A, CR/C or Part-I/II-S) representing 196 satellite networks from **21** administrations: 172 GSO /24 non-GSO). The Bureau also maintained a RES-609 (Rev.WRC‑07) webpage and forum at: [http://www.itu.int/ITU‑R/space/res609/](http://www.itu.int/ITU-R/space/res609/) for submission and exchange of information between the participants of the consultation meetings as well as for any administration interested in these meetings.

**2.7.3** Eleven Resolution 609 (Rev.WRC‑07) Consultation Meetings has been held so far (Geneva-2003, Ottawa-2004, Munich-2005, Bangalore-2006, Xi’an-2007, Correspondence Meeting-2009, Toulouse-2010, Geneva-2011, Tokyo-2012, Los Angeles-2013 and Shenzhen-2014) for which the Bureau has completed the required actions and published the results in its BR IFIC. Based on conclusion of the 11th Resolution 609 (Rev.WRC‑07) Consultation Meeting the maximum aggregate epfd of satellites associated with the referenced RNSS networks and systems is determined to be no greater than **-122.01** dB(W/(m2·MHz)), i.e. 0.51 dB below the Resolution 609 limit of -121.5 dB(W/(m2·MHz)). This result is based on the use of worst-case assumptions in terms of interference from RNSS into ARNS.

**2.7.4** The 11th Resolution 609 (Rev.WRC‑07) Consultation Meetings encouraged the Bureau to continue contacting those administrations with RNSS filings in the 1 164-1 215 MHz band that have not until now participated fully or on a continuing basis to the Resolution 609 consultation process in an effort for these administrations to attend when appropriate to the consultation meeting, highlighting the mandatory nature of the Resolution 609 (Rev. WRC-07) Consultation Meeting for those systems/administrations with concrete plans to operate RNSS systems in the 1 164-1 215 MHz band.

The Conference may wish to consider this issue.

## 2.8 Resolution 80 (Rev.WRC‑07)

In response to WRC‑15 Agenda item 9.3, the second session of the 2015 Conference Preparatory Meeting (CPM15-2), held in Geneva from 23 March to 2 April 2015, included in its Report to WRC‑15 under § 5/9.3/3 the actions undertaken in response to Resolution 80 (Rev.WRC‑07) regarding the equitable access to the GSO (§ 5/9.3/3.1), the efficient use of the GSO (§ 5/9.3/3.2) and further regulatory and procedural considerations (§ 5/9.3/4).

The Report of the Radio Regulations Board to WRC‑15 on Resolution 80 (Rev.WRC‑07) can be found in Document WRC15/14-E (Report by the Radio Regulations Board to WRC‑15-Res 80 (Rev.WRC‑07)).

## 2.9 Resolution 907 (WRC‑12)

In response to the *instructs the Radiocommunication Bureau* of Resolution 907 (WRC-12), the Bureau identified the basic requirements to offer modern and secure electronic correspondence between administrations and the Bureau with high trust and of high degree of acceptance by all users. In cooperation with the ITU IS Department, the Bureau studied existing and possible measures on user management authentication, computer server and network security.

Currently the ITU user identity management system is using the TIES user system. At the end of 2015 it is expected that ITU will move from the TIES user management to a more consolidated and secure CRM users management system**[[1]](#footnote-1)**. In order to improve the TIES user account identification system a more secure and robust login system using a two-phase Multifactor Authentication (MFA) system was successfully tested in 2014. The implementation of the MFA was kept in abeyance pending the conclusion on the implementation of the CRM user management system.

The Bureau is also considering extending the notion of “digital box” for the exchanges between administrations and also between administrations and the Bureau.

WRC-15 is invited to provide advice on whether the current TIES or the new CRM user management system or any of these approaches using a MFA system would be responding to Resolution 907 requirement as well as the development of “digital box” approach.

Resolution 907 mentions that a modern and secure electronic correspondence system would be used for the administrative correspondence between the administrations and the Bureau. The Bureau understands that the administrative correspondence could also include filing submissions for satellite networks, earth stations and radio astronomy stations and comments to the Bureau or between the administrations under relevant provisions of the RR.

## 2.10 Cost recovery for processing satellite network filings

In accordance with Council Decision 482 (modified 2008), the Bureau has been issuing invoices for satellite network filings. The Bureau also tracks the payment status, sends reminder letters as appropriate, and cancels filings wherein the invoices are not received in accordance with the Council Decision. Following the entry into force of footnote A.11.6 to the title of Article 11, this procedure is also applied to notifications.

## 2.11 Resolution 703 (Rev.WRC-07)

In accordance with *resolves* 1 of Resolution **703 (Rev.WRC-07)**, the Director of the Radiocommunication Bureau, in consultation with the Chairmen of Study Groups 4 and 5, prepared a list identifying the relevant newly approved ITU‑R Recommendations relating to sharing between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services, since RA-07. In accordance with *resolves* 2 of Resolution **703 (Rev.WRC-07)**, this list is provided at <http://www.itu.int/oth/R0A0E000083/en> for the information of all administrations.

## 2.12 Resolution 647 (WRC‑07)

In order to assist Member States with their emergency communication preparedness activities, WRC‑07 instructed BR to establish a database of currently available frequencies for use in emergency situations in various countries, to issue an appropriate listing and to facilitate online access.

The Bureau developed the necessary forms and software applications and the database was made available at <http://www.itu.int/ITU-R/go/res647/en>

Subsequently, WRC-12 approved a revision to Resolution 647 reiterating, inter-alia, the encouragement to administrations to communicate to the BR the frequencies available for use in emergency and disaster relief. However, it is to be noted that after WRC-12 only two administrations submitted information to the Bureau.

To date, the database contains information received from the following administrations: Argentina, Armenia, Saudi Arabia, Bahrain, Belarus, Myanmar, Brunei Darussalam, Canada, Spain, Egypt, Estonia, Finland, Italy, Jordan, Kuwait, Malaysia, New Zealand, Oman, Portugal, Qatar, Seychelles, Slovakia, Syria, Thailand, United Arab Emirates, Uzbekistan for terrestrial services, and Canada, Czech Republic, United Kingdom, Malaysia, Romania and Slovakia for space services.

# 3 Application of the Radio Regulations for terrestrial services

## 3.1 General observations

In the period between WRC‑12 and WRC‑15, the Bureau dealt with a substantive number of activities related to terrestrial services. These activities included processing and examination of submissions from administrations, mainly frequency assignment notices to stations in various terrestrial radiocommunication services, under the relevant provisions of Articles 9, 11, 12 and 20 of the Radio Regulations (RR) and various regional agreements.

In this period, the Bureau examined frequency assignment notices to terrestrial services under two different sets of provisions: under Article 11 of the RR (2008 edition) for notices received between 18 February and 31 December 2012, and under Article 11 of the RR (2012 edition) for notices received after 31 December 2012. In addition, the submissions related to plan modifications were treated in accordance with the relevant regional agreements.

During the reporting period, all regulatory deadlines for processing terrestrial submissions set up in the Radio Regulations and regional agreements have been met.

The activities related to terrestrial services also covered maintenance of the Master Register, worldwide and regional plans, including periodical review of findings of the corresponding assignments, technical and regulatory assistance to administrations, enhancement of terrestrial software, including the notice processing systems TerRaSys and MARS, web portals and standalone examination tools. These activities are summarised below.

## 3.2 Coordination requests pertaining to terrestrial services

This activity comprises the processing of all coordination requests pertaining to terrestrial services mainly under No. **9.21** of the RR, including the regulatory and technical examinations, publication of the relevant Special Section in BR IFIC, monitoring of the procedures and publication of the resulting situation upon expiry of the deadlines through Special Sections in BR IFIC.

With respect to the cases submitted under No. **9.21**, during the reporting period (2012-2015), all of the requests for the application of the procedure under No. **9.21** were related to Nos. **5.177** and **5.316A** (from amongst the 30 footnotes that are applicable to terrestrial services).

Table 3.2-1 summarizes statistics on the Bureau’s activities related to coordination requests pertaining to terrestrial services.

Table 3.2-1

Activities related to coordination requests pertaining to terrestrial services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 2015[[2]](#footnote-2) |
| No. of received cases | 3 (Broadcasting services) | 2 (Broadcasting services)  56  (Other services) | 14 (Broadcasting services)  1407 (Other services) | 0 |
| No. of treated cases[[3]](#footnote-3) | 3 (Broadcasting services) | 2 (Broadcasting services)  56  (Other services) | 14 (Broadcasting services)  1463 (Other services) | 507 (Other services) |

The Bureau processed all these requests within the statutory limits. At the time of preparation of this Report there was no backlog in this activity.

## 3.3 Plan modification procedures for terrestrial services

**3.3.1** This activity comprises the processing of submissions under various plan modification procedures, including the relevant coordination and/or compatibility examinations, where appropriate, and publication of the initial and final results in Special Sections. These activities are performed either through TerRaSys (for the AP25 Plan and for the Plans governed by Regional Agreements ST61, GE84, GE89, GE85EMA, GE06A and GE06L) or through other standalone systems, not yet integrated in TerRaSys (for the AP26 Plan, as well as for the Plans governed by Regional Agreements GE75, RJ81, GE85MM and GE06D).

The Bureau processed all these requests within the statutory limits. There is no backlog in the treatment of submissions under all these plans. Table 3.3-1 summarizes the Bureau’s activities concerning the processing of submissions for plan modification procedures for terrestrial services.

Table 3.3-1

Activities related to plan modification procedures pertaining to terrestrial services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 20152 |
| No. of received assignments | 15 464 | 38 646 | 20 542 | 11 674 |
| No. of assignments/allotments resulting in updates to the relevant Plan | 5 861 (Broadcasting services)  280 (Other services) | 21 671 (Broadcasting services)  16 (Other services) | 16 644 (Broadcasting services)  0 (Other services) | 9 202 (Broadcasting services)  0 (Other services) |

The relevant details (the notices under treatment and updated versions of the master copies of the Terrestrial Frequency Assignment and Frequency Allotment Plans), are distributed through the consolidated publication BR IFIC-terrestrial services, which is published every two weeks. These master copies of the plans also include the results of the plan modification procedures that are carried out through standalone systems (outside the TerRaSys).

## 3.4 Notification, examination, recording and other regulatory procedures

### 3.4.1 Notification procedure (Article 11 of the Radio Regulations)

**3.4.1.1** This activity comprises the processing (i.e. reception, registering, validation, correspondence, data correction and publication in BR IFIC) of the notices received from administrations, as well as subsequent examination under the relevant provisions of Article **11** of the Radio Regulations (in conformity with the Table of Frequency Allocations and the other provisions of the Radio Regulations and, where appropriate, from the viewpoint of their conformity with the coordination procedures or with a frequency allotment or assignment Plan and/or to other provisions of the Agreement, when applicable). The Bureau examined all notices within the regulatory limits, including the notices in the bands shared with space services, where the examination of notices related to terrestrial services is in phase with the processing of notices related to space services. Table 3.4.1‑1 summarizes the Bureau’s activities in this respect.

Table 3.4.1-1

Activities related to notification procedures pertaining to terrestrial services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 20152 |
| No. of received notices | 182 391 | 301 561 | 117 578 | 70 893 |
| No. of examined notices | 3 285 (Broadcasting services)  137 493 (Other services) | 9 754 (Broadcasting services)  189364 (Other services) | 3 123 (Broadcasting services)  111 208(Other services) | 2 363 (Broadcasting services)  56 354 (Other services) |
| No. of notices pending examination (earliest date of receipt) | 11 244 (services other than broadcasting)  22.03.2012 | 11 945 (services other than broadcasting)  28.06.2013 | 11 370 (services other than broadcasting)  23.09.2014 | 7036 (services other than broadcasting)  04.03.2015 |

**3.4.1.2** It is also to be noted that, after WRC‑12, the Bureau carried out the following activities with a view to implementing the relevant decisions of WRC‑12 related to the procedures of notification and recording of terrestrial services:

– the existing Rules of Procedure were reviewed and appropriate changes were proposed, where necessary, for consideration by the Radio Regulations Board;

– all internal procedures were reviewed and several elements of the production chain (validation rules, examination rules, finding system) have been adapted to the modified requirements of the Radio Regulations and to the modified Rules of Procedure;

– Findings of some categories of recorded frequency assignments were reviewed so as to reflect the modified conditions established by WRC‑12, for example:

– findings of the assignments in the band 415 – 495 kHz were revised pursuant to the change of category of allocation and conditions of No. **5.77** by WRC‑12;

– findings of the assignments in the band 510 - 525 kHz were revised pursuant to change of the allocation from the mobile service to the maritime mobile service;

– findings of the assignments in the bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHzwere revised pursuant to change of the allocation status of the fixed and mobile services in these bands;

– findings of the assignments to land mobile service stations in the band 790‑862 MHz were revised pursuant to the abrogation of Nos.**5.316** and **5.316A** and entering into force No.**5.316B** from 17 June 2015.

### 3.4.2 Processing of submissions for HF broadcasting schedules

#### 3.4.2.1 Application of the procedures of Article 12 of the Radio Regulations

This activity comprises the technical processing of submissions related to HF broadcasting schedules under the procedure of Article 12 of the Radio Regulations, including the identification of severe incompatibilities and the selection of appropriate bands and frequencies when requested by administrations, and the preparation of tentative and final schedules. In the reporting period,11 CD-ROMs have been published in 2012, 2013, 2014 and 5 in 2015 by the date of publication of this document. Six more will be published before the end of this year, which contain, *inter alia*, HFBC schedules, results of compatibility analysis and the latest version of the HFBC software. This activity also comprises exchange of correspondence with administrations and regional coordination groups concerning possible improvements to software, update of reference data, improvements in the presentation of calculation results, and maintenance of webpages with the latest software updates and reference data. It also comprises participation in the coordination meetings of the regional coordination groups.

Table 3.4.2-1 summarizes the Bureau’s activities with respect to the preparation of HFBC schedules.

Table 3.4.2-1

Activities related to preparation of HF broadcasting schedules

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 20152 |
| No. of processed cases | 45 004 | 40 165 | 36 346 | 17005 |

### 3.5 Activities related to the end of the Transition period from analogue to digital broadcasting set forth by the GE06 Regional Agreement

According to provision 12.6 of Article 12 of the GE06 Regional Agreement, the Transition period from analogue to digital broadcasting ended on 17 June 2015 for all countries of the GE06 planning area, with the exception of 35 administrations for which the Transition period for the VHF band ends on 17 June 2020 according to footnotes 7 and 8 of Article 12 of the GE06 Agreement.

In order to implement this regulatory change set forth by the GE06 Regional Agreement, the following actions have been undertaken by the Bureau:

– Circular Letter CR/375 dated 19 December 2014 and BR letter 31B(DIR/TSD)O-2015-001942 dated 17 June 2015 were issued successively to remind administrations about the end of the Transition period and inform about required consequential actions;

– the entries in the analogue Plan, for which the applicable Transition period ended on 17 June 2015, have been cancelled;

– the Plan remarks with respect to these analogue assignments ceased to apply;

– the **pending** analogue broadcasting assignments in the band 470-862 MHz under treatment by the date of 17 June 2015 were deleted from the database;

– the assignments to analogue broadcasting stations recorded in the Master Register in the GE06 planning area and bands were analysed and consultations concerning the assignments not having any corresponding plan entry since 17 June 2015 with the responsible administrations were initiated in order to delete these entries or to review the findings of these assignments.

At the time of preparation of this Report, the consultations were still going on.

### 3.6 Other regulatory procedures pertaining to terrestrial services

### 3.6.1 Resolution 12 (WRC-12)

Resolution 12 (WRC-12) instructs the Director of the BR to report to the WRC-15 on the progress achieved in the implementation of this Resolution, which deals with assistance and support to Palestine.

The Bureau organized a coordination meeting between Palestine and its neighbouring countries in Geneva on 29.9-1.10.2014, to coordinate Digital Television broadcasting frequency channels in the band 470-694 MHz. This meeting was concluded on the agreement on some technical criteria for frequency coordination, such as a limiting interfering margin between Israel and the Arab countries.

The Bureau also assisted Palestine together with all ASMG countries in the GE06 coordination meeting relating to the planning of additional frequency channels in the band 470-694 MHz (see 9.1 below).

### 3.6.2 Implementation of Resolution 150 (WRC‑12)

Resolution 150 (WRC-12) deals with the use of the bands 6 440-6 520 MHz and 6 560-6 640 MHz by gateway links for high-altitude platform stations in the fixed service. With this Resolution, WRC-12 imposed a number of regulatory and technical restrictions on the usage of the HAPS gateway links in the bands 6 440-6 520 MHz and 6 560-6 640 MHz.

In addition, this Resolution made mandatory the notification of the corresponding assignments for the recording in the MIFR and invited administrations and the Bureau to identify the data items required for notification and examinations of frequency assignments to HAPS in the above bands.

Following these instructions, the Bureau developed a draft list of data elements required for notification and examination of the HAPS gateway links and conducted consultations on this draft list with the administrations concerned, i.e. listed in No. **5.457** and those which might bepotentially affected by the use of HAPS gateway stations. As these consultations had confirmed the completeness and appropriateness of the data elements included in the draft list, on 8 May 2013 the Bureau issued Circular Letter CR/345 containing a consolidated list of data elements for notification and examinations of frequency assignments to HAPS gateway links in the bands 6 440-6 520 MHz and 6  560-6 640 MHz.

The Bureau also wishes to report that by the date of preparation of this document no frequency assignments related to HAPS stations in the above-mentioned bands were received.

### 3.6.3 Resolutions 205 (Rev.WRC-12)

Resolution 205 (Rev.WRC-12) deals with the protection of the systems operating in the mobile-satellite service in the band 406-406.1 MHz and instructs the Director of the BR:

– to organize monitoring programs in the frequency band 406-406.1 MHz in order to identify the source of any unauthorized emission in that band;

– to report to WRC-15 the results of the studies decided by WRC-12 that were aimed at ensuring the adequate protection of MSS systems in the frequency band 406-406.1 MHz from any emissions that could cause harmful interference, taking into account the current and future deployment of services in adjacent bands 390-406 MHz and 406.1-420 MHz.

With respect to the first issue, the monitoring program in the frequency band 406-406.1 MHz is a long-term task originally assigned to the BR by Resolution 205 at WARC MOB-87 in 1987. In the reporting period between WRC‑12 and WRC‑15 the Bureau continued to ensure the necessary liaison between administrations performing special monitoring programmes in the band 406‑406.1 MHz and the administrations from where unauthorized emissions are generated. As a result of this liaison, several unauthorized emissions ceased. The Bureau also liaised with the COSPAS-SARSAT Secretariat on these issues and participated in the meetings of the Joint Technical Committee of this organization.

The Bureau also processed data on regular monitoring, as submitted by monitoring stations of the Member States. A summary of this BR activity is provided in Table 3.6.3-1 below. All observations from this regular monitoring were processed in a timely manner and were made available on the ITU website.

Table 3.6.3-1

Summary information regarding the treatment of monitoring reports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 20152 |
| Regular monitoring: No. of observations processed | 61 941 | 58 418 | 52 339 | 24 348 |
| Special monitoring under Res. 205: No. of unauthorized emissions | 316 | 154 | 182 | 57 |

With respect to the second issue, the results of the studies on protection of MSS systems in the frequency band 406-406.1 MHz, available by March 2015, have been summarized in Section 5/9.1.1 (in particular, sub-section 3) of the Report of the CPM to WRC-15, and are not reproduced in this Report.

### 3.6.4 Implementation of Resolution 417 (Rev.WRC-12)

With this Resolution, WRC-12 introduced a number of new conditions on the operation of the aeronautical mobile (R) service (AM(R)S) in the band 960 – 1 164 MHz. These conditions included, *inter alia*, new power limits on the emissions of AM(R)S ground and airborne stations in order to protect radionavigation-satellite service operating in the adjacent band 1 164 – 1 215 MHz, as contained in *resolves 6* of the Resolution.

In order to ensure the conformity of the aeronautical mobile (R) service stations with the power limits of Resolution **417** (Rev.WRC-12), the Bureau developed and implemented an examination module for verification of these technical limitations, contained in *resolves* 6 of this Resolution. This module is currently in operation and used for examination of the relevant frequency assignments.

### 3.6.5 Implementation of Resolution 612 (Rev.WRC-12)

This Resolution regulates theusage of HF oceanographic radars and requires, *inter-alia*, that administrations should coordinate their operation with other administrations whose border is located within separation distances specified in *resolves 6*. Some post-conference considerations of the usage of HF oceanographic radar in different ITU-R fora resulted in a conclusion that establishment of a database of existing and planned oceanographic radars could considerably facilitate the coordination of oceanographic radars, increase their visibility and assist in international cooperation for their usage.

Based on this conclusion, the Bureau initiated the establishment of such a database and, in consultation with ITU‑R Study Group 5, developed the notification formats and a dedicated web page for the database. On 17 December 2014 the Bureau issued Circular Letter CR/372, in which it provided the guidelines for submission of the relevant oceanographic radars data and the list of data items to be notified.

It should be noted that this database will serve as reference information for coordination purposes and cooperation activities and will not have any regulatory status. Administrations wishing to obtain the status of international recognition for their oceanographic radars still need to notify the frequency assignments to the Bureau for their inclusion into the Master International Frequency Register in accordance with Article **11** of the Radio Regulations.

A dedicated webpage for consultation of the database is available at the following address: <http://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/res_612_or.aspx>.

### 3.6.6 Implementation of Resolution 647 (WRC‑07)

The scope of Resolution **647** (WRC‑07), which deals with spectrum management guidelines for emergency and disaster relief radiocommunication, comprises both the terrestrial and space services. The Bureau’s activities with regards to this resolution are described in Section 2.12.

### 3.6.7 Implementation of Resolution 749 (Rev. WRC-12)

Resolution 749 (Rev. WRC-12) deals with the use of the band 790-862 MHz in countries of Region 1 and the Islamic Republic of Iran by mobile applications and by other services. With this Resolution, WRC-12 decided that administrations implementing the mobile service in Region 1 according to Nos. **5.316A** and **5.316B** shall seek agreement under No. **9.21** with respect to the aeronautical radionavigation service in the countries mentioned in No. **5.312** of the Radio Regulations. Annex 1 to this Resolution introduced new criteria for identification of potentially affected administrations for coordination of the mobile service under No. **9.21**.

In order to ensure a correct processing of the relevant coordination requests, the Bureau developed and implemented an examination module for the identification under No. **9.21** of administrations potentially affected by stations of the mobile service operating according to Nos. **5.316A** and **5.316B**.

As from 17 June 2015 this examination module is used only for the coordination requests submitted for mobile service stations under No. **5.316B**, since No. **5.316A** ceased to apply on 16 June 2015.

### 3.6.8 Implementation of Resolution 755 (WRC-12)

Resolution 755 (WRC-12) deals with power flux-density limits for transmitting stations in the 21.4‑22 GHz band (terrestrial stations). *Resolves* 1 of Resolution 755 (WRC-12), indicates that frequency assignments of stations in the fixed and mobile services (in the band 21.4–22 GHz) recorded in the MIFR or notified under the provisions of Article 11 before 18 February 2012 shall comply with the limit specified in No. **5.530A** by 31 December 2015, or the first day of the next World Radiocommunication Conference, whichever is earlier.

In accordance with *instructs the Director of the Radiocommunication Bureau* of the Resolution, on 18 May 2012 the Bureau issued Circular Letter CR/334, to bring to the attention of administrations to the new pfd limit and the requirements in respect of transmitting stations submitted before 18 February 2012.

The administrations were invited to verify the compliance of these frequency assignments with the established pfd limit and if required to modify the characteristics of recorded assignments in the MIFR accordingly on or before 17 August 2015. At the time of preparation of this Report the relevant consultations with administrations concerned were still going on.

## 3.7 Software development related to the terrestrial services

In the period between WRC‑12 and WRC‑15, the software related to terrestrial services was enhanced with additional functionalities and modules, including the following developments:

– A software tool for identification, under the coordination procedure of No. **9.21**, of administrations potentially affected by stations in the radiolocation service operating in accordance with No.**5.225A** was completed;

– An online validation tool for preparing terrestrial frequency assignment/allotment notices, which was developed to assist administrations in the preparation of their submission for updating the Master International Frequency Register and Plans;

– Online tools for technical examinations in the scope of the RJ81 Plan, as requested by CITEL:

– to simulate the Article 4 Plan modification procedure

– to perform what-if studies (including the possibility to recalculate on-the-fly the Reference Situation, based on configurable nominal usable field strength )

– Enhancement of the necessary tools (compatibility analysis, online and stand-alone) instrumental in the GE06 frequency coordination processes for the ATU and ASMG groups.

# 4 Study Groups

## 4.1 BR support for Study Group activities

Since RA-12, the Radiocommunication Bureau has continued to support the work of six ITU‑R Study Groups, the Special Committee on Regulatory/Procedural Matters (SC), the Coordination Committee for Vocabulary (CCV) and the Conference Preparatory Meeting (CPM). It has contributed to meetings of RAG and subsequently responded to advice offered by RAG concerning Study Group and other ITU-R activities (See Section 5). Towards the end of the study period, its responsibilities have also included the preparation for the Radiocommunication Assembly 2015 (RA-15) and the World Radiocommunication Conference 2015 (WRC‑15) (See Section 1).

## 4.2 Response to the results of RA-12

The Radiocommunication Assembly in 2012 approved the 40 Resolutions that serve as the basic texts and directives upon which the Study Groups undertake their responsibilities.

Resolutions ITU‑R 4 and 5 provide the structure of the Study Groups and their respective work programmes. These Resolutions were used as the basis for the Study Group work during the 2012‑2015 study period.

Resolution ITU‑R 9 (Liaison and collaboration with other organizations) recognizes the need to facilitate coordination and information exchange between ITU‑R and other bodies, particularly those involved with standards development. The Resolution as revised at RA-12 includes the principles for interaction of ITU‑R with other organizations, and these principles have been used by BR and the Study Groups for such interactions.

RA-12 approved several new and revised Resolutions relating to the work of the Study Groups concerning, for example, short-range devices, disaster prediction detection mitigation and relief, cognitive radio systems, terrestrial electronic news gathering systems, and reduction of energy consumption for environmental protection and mitigation of climate change, and the concerned Study Groups have taken due note of such Resolutions in their work programmes.

RA-12 approved new Resolution ITU-R 63 regarding admission of academia, universities and their associated research establishments to participate in the work of ITU-R. Furthermore, the Plenipotentiary Conference (Busan, 2014) revised Resolution 169 (Guadalajara, 2010) to further enhance participation of academia in the work of the Union. Consequently academia members have been granted access to all Study Group documentation and are able to participate in the Radiocommunication Assembly, Study Groups and Working Party meetings. In accordance with resolves 5 of Resolution 169 (Rev. Busan, 2014), academia do not have a role in decision-making, including the adoption of resolutions and recommendations regardless of the approval procedure.

## 4.3 Preparatory work for WRC‑15

Study Group activities in preparation for WRC‑15 were conducted through the CPM process, in accordance with Resolution ITU‑R 2-6.

The first session of the 2015 Conference Preparatory Meeting (CPM15-1) was held in Geneva on 20‑21 February 2012 to organize the preparatory studies for WRC-15. It also identified studies in preparation for the following WRC. A structure for the CPM Report to WRC-15 was agreed together with a preparatory process, working procedures and a chapter structure. The meeting appointed a Rapporteur for each chapter to assist the Chairman in managing the development and flow of draft report contributions. The results of CPM15-1 were published in Administrative Circular [CA/201](http://www.itu.int/md/R00-CA-CIR-0201) of the Radiocommunication Bureau, dated 19 March 2012.

CPM15-1 activated the Special Committee on Regulatory/Procedural Matters (in short the Special Committee, SC), in accordance with Resolution ITU-R 38-4, and noted that the SC activities consist of two categories:

1) work assigned directly to the Special Committee by the first session of CPM;  
and

2) tasks related to regulatory aspects of work assigned by the first session of CPM to the Study Groups and their Working Parties.

CPM15-1 also noted that the results of the studies by the SC shall be submitted as contributions to the work of the CPM in preparing its report to the relevant WRC.

The ITU-R preparations for WRC-15 were concentrated in the following responsible groups (listed in the order of the Study Groups):

**Study Group 1** chaired by Mr S. Pastukh (Russian Federation) and WP 1B chaired by Mr N. Al‑Rashedi (United Arab Emirates);

**Study Group 3** chaired by Mr B. Arbesser-Rastburg (European Space Agency);

**Study Group 4** chaired by Mr C. Hofer (United States of America), WP 4A chaired by Mr J. Wengryniuk (United States of America) and WP 4C chaired by Mr A. Vallet (France);

**Study Group 5** chaired by Mr A. Hashimoto (Japan), WP 5A chaired by Mr J. Costa (Canada) and WP 5B chaired by Mr J. Mettrop (United Kingdom of Great Britain and Northern Ireland);

**Study Group 6** chaired by Mr C. Dosch (Germany (Federal Republic of));

**Study Group 7** chaired by Mr V. Meens (France), WP 7A chaired by Mr R. Beard (United States of America), WP 7B chaired by Mr B. Kaufman (United States of America) and WP 7C chaired by Mr E. Marelli (European Space Agency);

**Joint Task Group 4-5-6-7** initially chaired by Mr T. Ewers (Germany (Federal Republic of)) and subsequently chaired by Mr M. Fenton (United Kingdom of Great Britain and Northern Ireland).

**The Special Committee on Regulatory/Procedural Matters** (SC) chaired by Mr T. Shafiee (Iran (Islamic Republic of)).

Texts for the draft CPM Report were prepared by the responsible groups identified by CPM15‑1 and provided by the Chairmen of these groups to the CPM-15 Chapter Rapporteurs.

The work was coordinated by the Chairman of CPM-15, in consultation with the CPM-15 Management Team, as defined in Sections 5 and 6 of Annex 1 to Resolution ITU-R 2-6.

In accordance with Section 6 of Annex 1 to Resolution ITU-R 2-6, the CPM-15 Management Team meeting was held in Geneva from 1 to 5 September 2014. It consolidated the draft CPM Report which was distributed to all Member States and Radiocommunication Sector Members as Document CPM15-2/1.

The SC met in Geneva from 1 to 5 December 2014, reviewed the regulatory and procedural aspects of the draft CPM Report and prepared its report to the second session of CPM-15, which was subsequently distributed to all Member States and Radiocommunication Sector Members as Document CPM15‑2/2.

The second session of CPM-15 (CPM15-2) met in Geneva from 23 March to 2 April 2015 under the chairmanship of Mr Aboubakar Zourmba (Cameroon (Republic of)) to consider the draft CPM Report together with the SC Report, contributions from the ITU membership and additional material submitted by the Radiocommunication Bureau.

CPM15-2 divided the work amongst six working groups according to the agreed Chapter structure. In addition, an Ad-hoc Group of the Plenary was established to address contributions related to Resolution 185 (Busan,2014) on global flight tracking for civil aviation.

table 4.3-1

Structure of the CPM15-2 Report

|  |  |  |
| --- | --- | --- |
| CPM15-2 Groups | Topic | (Co-)Chairman |
| Working Group 1 | Chapter 1: Mobile and amateur issues; AI 1.1, 1.2, 1.3, 1.4 | Ms C. Cook (CAN) Mr C. Glass (USA) |
| Working Group 2 | Chapter 2: Science issues; AI: 1.11, 1.12, 1.13, 1.14, 9.2 (relevant issues) | Mr A. Vassiliev (RUS) |
| Working Group 3 | Chapter 3: Aeronautical, maritime and radiolocation issues; AI 1.5, 1.15, 1.16, 1.17, 1.18 | Mr M. Weber (D) |
| Working Group 4.1 | Chapter 4 (Satellite services), Sub-Chapter 4.1: FSS; AI 1.6, 1.7, 1.8, 1.9.1 | Mr X. Gao (CHN) |
| Working Group 4.2 | Chapter 4 (Satellite services), Sub-Chapter 4.2: MSS; AI 1.9.2, 1.10 | Mr M.A. Nazari (IRN) |
| Working Group 5 | Chapter 5: Satellite regulatory issues; AI 7, 9.1 (issues 9.1.1, 9.1.2, 9.1.3, 9.1.5, 9.1.8), 9.2 (relevant issues), 9.3 | Mr K. Al-Awadhi (UAE) |
| Working Group 6 | Chapter 6: General issues; AI 2, 4, 9.1 (issues 9.1.4, 9.1.6, 9.1.7), 9.2 (relevant issues), 10 | Mr P.N. Ngige (KEN) |
| Ad-Hoc Group of the Plenary | Contributions related to Global Flight Tracking for civil aviation | Mr W. Guggi (AUT) |

Since CPM15-2, the CPM Report has become a contribution to WRC‑15 as Document 3.

The Report comprises six Chapters, following the structure described above. In addition, Annex 1 was added to the Report to reflect the work of the CPM, which discussed how to deal with the subject of global flight tracking.

The Report also contains in Annex 2 a list of the ITU-R Recommendations, including certain draft new and revised Recommendations, that are referred to in the text of the Report. The final version of this list reflecting the decisions of the Radiocommunication Assembly 2015 will be made available to the World Radiocommunication Conference 2015.

Document CPM15-2/85 regarding the use of the bands 1 980‑2 010 MHz and 2 170-2 200 MHz by the satellite and terrestrial components of IMT was not discussed by CPM15-2, on the understanding that the difficulties raised in that document would be reported to WRC-15 as part of the BR Director's report to WRC-15. That information is provided as Annex 1 to this document (Annex 1 to Doc. 4 (Add.1)).

## 4.4 Recommendations, Handbooks and Reports

Up to July 2015, around 250 new or revised Recommendations and 150 new or revised Reports have been approved in the 2012-2015 study period. Many of these have stemmed from studies associated with CPM activities, although a good number reflect the vital “basic” studies that underpin the fundamental work of the Study Groups. Some notable topic areas for which recommendations and reports are being produced include:

– harmonization of short-range devices;

– propagation studies dealing with building entry loss and propagation models and related characteristics for higher frequencies (6-100 GHz);

– a carrier identification system for digital-modulation transmissions of fixed-satellite service occasional use carrier earth station transmissions;

– Protection criteria for Cospas-Sarsat search and rescue instruments in the band 406‑406.1 MHz;

– technology trends of terrestrial IMT systems considering the time-frame 2015-2020 and beyond;

– technical parameters, operational characteristics and deployment scenarios of SAB/SAP as utilized in broadcasting production;

– active sensing at around 9 GHz;

– characteristics and spectrum requirements of satellite systems using nano- and pico-satellites.

Ten new or revised handbooks have also been published, addressing:

– National spectrum management.

– Global trends in International Mobile Telecommunications.

– Computer-aided techniques for spectrum management.

– Guidance for bilateral/multilateral discussions on the use of frequency range 1 350 MHz - 43.5 GHz by fixed service systems.

– Space research communications.

– Amateur and amateur-satellite services.

– Ground wave propagation.

– Radio astronomy.

– Radiometeorology.

– Propagation prediction methods for interference and sharing studies.

## 4.5 Liaison with ITU‑D and ITU‑T

The BR has been instrumental in supporting ITU‑R liaison with ITU‑D and ITU‑T and between the respective Bureaux. Such liaison influences areas of study within the Study Groups and helps to avoid duplication of effort in the three Sectors. See Section 8 for more detail.

## 4.6 Liaison and collaboration with other organizations

Effective collaboration with other organizations has been undertaken within the framework of Resolution ITU‑R 9. See Section 8 for further details.

## 4.7 Support to membership

During the study period, participants of the ITU‑R Study Groups, as well as staff of the BR, have continued to respond to requests for information and guidance on technical issues concerning the work of the Study Groups. Such questions often relate to problems encountered by Members from developing countries who are seeking relevant ITU‑R texts or an explanation of the material contained therein. Assistance has also been provided by way of presentations at seminars or workshops (See Sections 6 and 9).

## 4.8 Statistics regarding meetings, documentation and finalized texts (in electronic or paper form)

The following figures relate to the study period since RA-12:

– Number of documents processed (to June 2015): 23 180

– Number of pages processed (to June 2015): 316 210

– Number of meetings: 168

– Number of meeting days (total): 898

– Number of days on which meetings were held (block meeting days): 440

– Average number of participants at SG and WP meetings: 129

– Number of Recommendations approved (to June 2015): 254

– Number of Reports finalized (to June 2015): 147

– Number of Handbooks finalized (to June 2015): 10

# 5 Radiocommunication Advisory Group

During the reporting period RAG held four meetings.

Nineteenth meeting (25-27 June 2012)

RAG concluded that the extension of the free online access to the ITU‑R Recommendations, as confirmed by Decision 12 (Guadalajara, 2010), was to be further encouraged, as it resulted in a substantial increase of downloads (a factor of almost 10 times). RAG proposed that the ITU‑R Handbooks on National Spectrum Management, Computer Aided Techniques for Spectrum Management, and Spectrum Monitoring be made available online to the membership as well.

RAG expressed support for fully paperless work for Study Groups and subordinate groups meetings; it supported that interpretation in a given official language for Study Groups meetings will only be provided when it has been requested by administrations in that language at least one month before the meeting; RAG encouraged remote participation and captioning trials for selected SG/WP meetings.

RAG advised that Study Groups carry out a review of the ITU‑R Recommendations for which conformance assessment or interoperability testing could be applicable.

RAG established three new Correspondence Groups in order to:

i) establish guidelines for the format(s) of ITU‑R Recommendations;

ii) prepare a draft revision of Resolution ITU‑R 1-6 including its structure; and

iii) prepare a draft revision of Resolution ITU‑R 6 -1, taking into account any changes to ITU‑T Resolution 18 (see Annex 3).

Twentieth meeting (22-24 May 2013)

RAG supported the revised version of the Working Guidelines and advised that they be updated more frequently to take into account any conclusions of RAG regarding working methods.

RAG encouraged the continuation of the development of the Recommendations database search facility and recommended the inclusion of a field indicating which Recommendations are incorporated by reference in the Radio Regulations, possibly indicating in which RR provisions they are referenced. RAG also invited the Study Groups to review which services and frequency bands are applicable to the Recommendations under their responsibility and to advise BR accordingly, as well as to consider developing lists of systems/applications or general topics that could be used to further classify the Recommendations.

RAG supported the use of the new format for Recommendations proposed by its Correspondence Group, and requested that this information be brought to the attention of the Study Groups and the membership.

RAG also supported the proposed revision to Resolution ITU-R 6-1 prepared by its Correspondence Group and requested that further work be carried out to review any inconsistencies between the proposed text and the text of Annex C to ITU‑T Resolution 18.

RAG supported the holding of periodical Regional Radiocommunication Seminars (RRS) aimed at increasing participation of Members from countries with very low participation in the current ITU-R events, including the World Radiocommunication Seminars (WRSs). The strategy consists in holding a cycle of RRSs, with a view to cover all regions yearly, and all sub-regions in a four-year period (between WRCs).

Twenty-first meeting (24-27 June 2014)

RAG supported the efforts aimed at reinforcing cooperation amongst the three Sectors, including the proposal for an Intersectoral Coordination Team of the advisory groups of the three Sectors to review areas of mutual interest and to provide valuable suggestions as and when deemed appropriate in order to ensure that respective interests are adequately addressed. RAG appointed Mr. Albert Nalbandian and Mr. Peter Major (Vice-Chairmen of RAG) to represent RAG in the Intersectoral Coordination Team.

RAG supported the efforts being made by BR and the ITU in the attempt to attract more Sector Members, including Academia, into the work of the Union.

In the framework of the ongoing work on possible amendments to be made to ITU-R Res.1-6, RAG requested to investigate how the status of Recommendations incorporated by reference could be shown more clearly on the Recommendations web page.

In relation to WRC-15 preparations, RAG advised the BR Director to maintain the current practice of holding the first session of the CPM on the Monday and Tuesday after the WRC.

RAG thanked the Administration of Japan for their generous contribution and support in the development of a search facility for ITU-R Recommendations.

RAG called upon Members to contribute and participate actively in the development of the Spectrum Management Training Programme (SMTP) to be deployed by the BDT.

Twenty-second meeting (5-8 May 2015)

RAG noted the status of preparations for the RA and WRC-15, and expressed its satisfaction for the flawless organization of CPM15-2. RAG took note of ongoing activities in preparation for WRC-15, notably regarding the addition of the issue related to Global Flight Tracking for Civil Aviation as per PP-14 Resolution 185 (Busan, 2014).

RAG noted that the work of the Study Groups on the preparation of World Radio Conferences has significantly increased over the past years, in addition to their regular work on standard making related activities, and suggested that increased use of virtual meetings, when appropriate, could help increase participation, particularly by developing countries.

RAG supported the proposed revision to Resolution ITU-R 1-6 prepared by its Correspondence Group and requested that it be included in the Chairman’s report to RA-15.

RAG also supported suggested additional amendments to the text of Resolution ITU-R 6-1 to avoid inconsistencies between the proposed revisions to Resolution ITU-R 6-1 (as approved by the RAG at its 19th meeting) and Annex C to ITU‑T Resolution 18, and agreed that the new amendments be incorporated in the proposed revision to Resolution ITU-R 6-1 to be included in the Chairman’s report to RA-15.

RAG agreed to an amended version of the proposed terms of reference and indicative list of issues of mutual interest of the Inter-Sector coordination team (ISCT), which was jointly established by the Advisory Groups of all three Sectors in accordance with Resolution 191 (Busan, 2014) and relevant resolutions emanating from the RA, WTSA and WTDC.

RAG encouraged the BR to implement measures to reduce the cost of dispatching ITU-R documents, and advised that the future dispatching of all correspondence be done by electronic means, unless otherwise specifically requested. Correspondence that has to be mandatorily sent by traditional means should be excluded from this measure, pending consideration of possible amendments to the relevant provisions of the Radio Regulations by WRC-15.

# 6 Publications, seminars/workshops, communication and outreach

The purpose of the activities relating to publication, organization and participation in seminars and workshops, and more generally communication and outreach, is to ensure that the outputs produced by the activities of the ITU-R Sector (regulations, recommendations, reports and handbooks) are disseminated worldwide and familiar to the ITU membership, and more generally to all stakeholders on spectrum.

## 6.1 Publications

## 6.1.1 Regulatory publications

During the 2012-2015 time-frame, the preparation of the regulatory publications followed the standard pattern, as foreseen in the Operational Plan, notably:

– the edition of the Radio Regulations reflecting the changes decided by WRC‑12 was published during the fourth quarter of 2012 in all ITU languages;

– the consolidated version of the Rules of Procedure reflecting the WRC‑12 decisions was published during the fourth quarter of 2012. Since then, seven updates have been published with modifications decided by RRB. The Rules of Procedure and their updates are published in all ITU languages.

Table 6.1.1-1 summarizes the Bureau’s activities on other statutory publications resulting from the application of the Radio Regulations in the period 2012-2015.

Table 6.1.1-1

Summary information regarding the publications resulting from the application of the Radio Regulations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 2015 |
| BR IFIC | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) | 25 issues (on DVD-ROM) |
| HFBC schedules | 11 issues  (on CD-ROM) | 11 issues  (on CD-ROM) | 11 issues  (on CD-ROM) | 11 issues  (on CD-ROM) |
| IFL (terrestrial services) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |
| Terrestrial plans | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |
| Preface to the IFL | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) | 25 issues (incorporated within each BR IFIC) |

## 6.1.2 Service publications

#### 6.1.2.1 Background and general observations

The Bureau prepares and issues various service publications, as specified in Article 20 of the Radio Regulations (RR).

In view of the importance of the operational information contained in the maritime-related service publications, particularly with regard to safety, administrations are required to communicate the necessary amendments, as stipulated in No. 20.16 of the RR. It should however be noted that the concerns raised during WRC‑12, about the fact that administrations do not always provide regular updates of the information to BR, are still valid.

Furthermore, information contained in the maritime-related service publications, in particular the List of Ship Stations and Maritime Mobile Service Identity Assignments (List V), are also used for other administrative procedures (e.g. eligibility for additional MID).

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

Two editions of List IV have been prepared during this reporting period. This List is composed of a paper booklet containing the Preface and Reference tables and a CD‑ROM (in pdf format) containing the information notified to BR, on coast stations, pilot stations, port stations, VTS stations, etc.

Information pertaining to this list is also made available via the online information system ITU Maritime mobile Access and Retrieval System (MARS).

The ITU MARS webpage has been enhanced to allow administrations to download files containing all their coast stations notified to the ITU and to search and retrieve coast station(s) based on a frequency or frequency bands.

A new feature to download, via ITU MARS, a compilation of all changes notified to the ITU, was implemented. The Bureau continues to provide, every six months, such a compilation.

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

Four editions of List V have been prepared during this reporting period. This List is composed of a paper booklet containing the Preface and Reference tables and a CD‑ROM (in pdf format and MS access database) containing the information notified to BR on ship stations, coast stations assigned an MMSI, search and rescue (SAR) aircraft assigned an MMSI, etc.

Information pertaining to this list is also made available via the online information system ITU Maritime mobile Access and Retrieval System (MARS), on a daily basis.

The feature to download, via ITU MARS, a compilation of all changes notified to the ITU, continues to be provided, every three months.

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

WP 1C, during its June 2012 meeting, decided to proceed with the update of List VIII in a new format. As a consequence, the BR prepared Circular letter CR/348 issued on 10 May 2013 related to the preparation of edition 2013 of this List. Administrations were invited to review their data and submit the relevant amendments. This List (edition of 2013) was issued in December 2013.

#### 6.1.2.5 List of service publications issued

Table 6.1.2.5-1 below summarizes the different publications prepared and delivered during the period 2012-2015:

Table 6.1.2.5-1

Summary information regarding the service publications issued in the period 2012-2015

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** |
| List IV (List of Coast Stations and Special Service Stations) | - | Edition of 2013 (November) | - | Edition of 2015 (November) |
| List V (List of Ship Stations and Maritime Mobile Service Identity Assignments) | Edition of 2012 (March) | Edition of 2013 (March) | Edition of 2014 (March) | Edition of 2015 (March) |
| List VIII (List of International Monitoring Stations) | - | Edition of 2013 (December) | - | - |
| Maritime Manual |  | Edition of 2013 (October) |  |  |

## 6.1.3 Study Groups and other publications

During this period, the preparation of ITU‑R Study Groups and other publications followed the standard pattern, as foreseen in the Operational Plan, notably:

– ITU-R Recommendations: 355 were published (posted) on the ITU website in English (E).All Recommendations issued from 2005 to 2013 are available in the six ITU languages (A/C/E/F/R/S), and translation to the remaining five languages is in progress for those Recommendations issued since 2014.

– ITU-R Reports: 202 were published (posted) on the ITU website (E).

– ITU-R Handbooks (published; by default the English version, unless otherwise indicated):

– Climate Change – Edition of 2012.

– Propagation prediction methods for interference and sharing studies Handbook - Edition of 2012.

– Spectrum Monitoring Handbook (A/C/F/R/S).

– Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services,

– DTTB Handbook (Digital terrestrial television broadcasting in the VHF/UHF bands), Revision 1.02.

– Radio Astronomy Handbook, Edition of 2013

– Radiometeorology.

– Amateur and amateur-satellite services - Edition of 2014.

– Ground wave propagation - Edition of 2014.

– Handbook on Amateur and amateur-satellite services (A/C/F/R/S).

– Space Research Communications (Edition of 2014).

– Radiometeorology (R).

– Satellite Time and Frequency Transfer and Dissemination (A/C/F/R/S).

– Ground Wave Propagation (A/S/F/R).

– Other publications (A/C/E/F/R/S):

– Book of ITU-R Resolutions 2012.

– Provisional final Acts WRC-12.

– Final Acts WRC-12.

– Rules of Procedure - Edition of 2012.

– ITU-R Rules of Procedure 2012 - Update 1.

– ITU-R Rules of Procedure 2012, Update 2.

– ITU-R Rules of Procedure 2012, Update 3.

– ITU-R Rules of Procedure 2012, Update 4.

– ITU-R Rules of Procedure 2012, Update 5.

– ITU-R Rules of Procedure 2012, Update 6.

– ITU-R Rules of Procedure 2012, Update 7.

– ITU-R Radiocommunication: Committed to connecting the world.

– CD-ROM and DVD-ROM of Recommendations and Reports. (seven issues) corresponding to this period (January 2012 – March 2015).

### 6.1.4 ITU-R Publications Downloads.

The free online access policy continues to provide a very large dissemination of ITU regulatory texts and standards to a broader public, especially in developing countries with financial constraints. This wide outreach via free online access is helping to build the visibility of ITU’s mission and reinforce ITU as the global telecommunication authority.

By Decision 12 (Guadalajara, 2010), PP-10 expanded the free online access policy to include, *inter alia*, ITU‑R Recommendations and Reports. Later on, Council 2012 Decision 571 provided free online access to the Radio Regulations to the general public for a trial period until PP-14, and Council 2013 revised Decision 571 and extended this free online access to include the ITU-R Handbooks on radio-frequency spectrum management[[4]](#footnote-4) to the general public on a permanent basis. Council 2014 further revised Decision 571 to provide free online access to the Radio Regulations and the Rules of Procedure to the general public on a permanent basis. Finally, PP-14, in adopting Decision 12 (Rev. Busan, 2014), confirmed that the free online access should be provided on a permanent basis.

In conclusion, the ITU-R publications now available free of charge (for download) to the general public on a permanent basis are the following:

– Radio Regulations.

– Rules of Procedures.

– ITU-R Recommendations (16 Series, 1,155 Recommendations in Force).

– ITU-R Reports (13 Series, 410 Reports in Force).

– ITU-R Handbooks related to Spectrum Management:

– National Spectrum Management

– Computer-aided Techniques for Spectrum Management (CAT)

– Spectrum Monitoring

The impact of these Decisions is well reflected in the number of deliveries of such publications, as shown next.

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

Concerning these regulatory documents, Table 6.1.4.1-1 compares the number of sales for the RR‑2008 edition (released in September 2008) and the RR-2012 (released in December 2014), as of 31 March 2015:

Table 6.1.4.1-1

**Comparison of the number of deliveries of the Radio Regulations and RoP since 2008**

|  |  |  |
| --- | --- | --- |
|  | **Sold** | **Free Download** |
| *RR-08 (51 months deliveries)* | 15,178 | - |
| *RR-12 (31 months deliveries)* | 16,511 | 19,475 |
| *ROP 2012* ***(****since Council 2014 decision)* | 15 | 16 |

This comparison shows that the free downloads had no impact on the level of sales. Compared to sales of RR-08 during 51 months, the RR-12 have overpassed the amount of sold versions in only 31 months (109%). The large number of free downloads (roughly 18% more than sold versions) illustrates the positive impact of this policy. Also, downloads were made from 182 countries, representing 94% of ITU Member States.

#### 6.1.4.2 ITU-R Recommendations

As a result of the free access policy, ITU-R Recommendations have been disseminated worldwide, becoming an universal reference, reaching all audiences, regardless their economic situation ; in a 27 months period (January 2013 to March 2015) it was registered near 9 million of downloads (from ITU web site). Table 6.1.4.2-1 summarizes their distribution by year and series. At this time there are 1,155 ITU-R Recommendations in force, hence the average download is around 7,600 per Recommendation.

Table 6.1.4.2-1

**Distribution of ITU-R Recommendations**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SERIES** | **2013** | **2014** | **2015** | **Total** | **%** |
| **P** | 1,474,978 | 1,355,667 | 361,198 | **3,191,843** | **36.4%** |
| **BT** | 678,265 | 594,916 | 166,001 | **1,439,182** | **16.4%** |
| **M** | 619,938 | 544,416 | 136,647 | **1,301,001** | **14.8%** |
| **SM** | 384,600 | 336,767 | 89,992 | **811,359** | **9.3%** |
| **BS** | 323,804 | 315,991 | 76,315 | **716,110** | **8.2%** |
| **F** | 270,692 | 254,728 | 59,319 | **584,739** | **6.7%** |
| **S** | 171,095 | 124,307 | 25,716 | **321,118** | **3.7%** |
| **BO** | 39,365 | 25,336 | 8,468 | **73,169** | **0.8%** |
| **SA** | 29,350 | 29,885 | 9,315 | **68,550** | **0.8%** |
| **RS** | 28,490 | 22,725 | 9,511 | **60,726** | **0.7%** |
| **V** | 29,038 | 25,437 | 5,194 | **59,669** | **0.7%** |
| **TF** | 19,708 | 15,209 | 5,497 | **40,414** | **0.5%** |
| **SF** | 19,738 | 15,383 | 4,798 | **39,919** | **0.5%** |
| **BR** | 12,627 | 9,239 | 3,032 | **24,898** | **0.3%** |
| **RA** | 9,283 | 7,879 | 2,375 | **19,537** | **0.2%** |
| **SNG** | 4,809 | 2,929 | 1,000 | **8,738** | **0.1%** |
|  |  |  |  |  |  |
| **TOTAL** | **4,117,793** | **3,682,828** | **966,393** | **8,760,972** | **100.0%** |

As indicated in the table, more than 36% of downloads come from Series P (Propagation), which illustrates the worldwide recognition of ITU-R works on this matter.

#### 6.1.4.3 ITU-R Reports

Like ITU-R Recommendations, ITU-R Reports have been disseminated worldwide, becoming a universal reference, reaching all audiences, regardless of their economic situation. In a 27 months period (January 2013 to March 2015) more than three million downloads were registered from the ITU web site. Table 6.1.4.3-1 summarizes their distribution by year and series. At present there are 410 ITU-R Reports in force, with an average download of approximately 8,000 per Report.

Table 6.1.4.3-1

**Distribution of ITU-R Reports**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SERIES** | **2013** | **2014** | **2015** | **TOTAL** | **%** |
| **M** | 395,360 | 515,745 | 160,855 | **1,071,960** | **32.2%** |
| **BT** | 363,675 | 342,768 | 94,859 | **801,302** | **24.1%** |
| **SM** | 224,747 | 293,305 | 79,789 | **597,841** | **18.0%** |
| **BS** | 106,279 | 156,835 | 41,577 | **304,691** | **9.2%** |
| **BO** | 78,401 | 104,646 | 27,244 | **210,291** | **6.3%** |
| **P** | 57,317 | 79,659 | 23,343 | **160,319** | **4.8%** |
| **S** | 27,643 | 29,009 | 8,164 | **64,816** | **1.9%** |
| **F** | 17,971 | 21,030 | 6,405 | **45,406** | **1.4%** |
| **RS** | 12,049 | 12,476 | 6,094 | **30,619** | **0.9%** |
| **RA** | 8,542 | 6,575 | 997 | **16,114** | **0.5%** |
| **SA** | 4,190 | 7,690 | 2,749 | **14,629** | **0.4%** |
| **SF** | 490 | 533 | 117 | **1,140** | **0.0%** |
| **BR** | 132 | 103 | 55 | **290** | **0.0%** |
|  |  |  |  |  |  |
| **TOTAL** | **1,298,809** | **1,572,388** | **454,263** | **3,325,460** | **100.0%** |

As indicated in the table, more than 32% of downloads are of Series M (Mobile), which also illustrates the worldwide recognition of ITU-R works on this matter.

#### 6.1.4.4 Handbooks on radio-frequency spectrum management

Since the Council 2013 Decision, the quantity of downloads continues to increase, as reflected in Table 6.1.4.4-1.

Table 6.1.4.4-1

**Distribution of ITU-R Handbooks on spectrum management and monitoring**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Handbook** | **Sold 2005 to 2Q2013\*** | **Sold 3Q2013 to 2Q2015 \*\*** | **Downloads** | **%** |
| National Spectrum Management 2005 | 488 | 19 | 1,031 | 25.30% |
| Computer-aided Techniques for Spectrum Management (CAT) | 257 | 6 | 385 | 9.50% |
| Spectrum Monitoring 2011 | 139 | 74 | 2,658 | 65.20% |
| **Grand Total** | **884** | **99** | **4,074** |  |
| \*before Council 14 Decision 571 |  |  |  |  |
| \*\*after Council 14 Decision 572 |  |  |  |  |

These numbers illustrate the very positive impact of this decision for the dissemination of the ITU-R Handbooks:

– within two years, the number of downloads was more than four times the number of handbooks sold in 8 years;

– since the free access policy decision, downloads represent 99,7% of total deliveries;

– these downloads come from all 193 Member States.

## 6.1.5 Navigation and analysis tools for ITU-R electronic publications

#### 6.1.5.1 Radio Regulations tools

The Bureau is developing software tools to facilitate the use and review of the Radio Regulations:

– An electronic browser tool for navigation within the Radio Regulations following the references from one provision of the RR to another, including Appendices, Resolutions and Recommendations, or to Rules of Procedure, ITU-R Recommendations (incorporated by reference or not) or basic texts of the Union.

– A software tool to conduct detailed search and analysis of the Table of Frequency Allocations of Article 5 of the Radio Regulations, enabling filtering and reformatting by frequency range, service, category of service, footnote, country, etc.

The development of these tools is nearing completion. A *ready-to-use* version is expected to be available during WRC-15.

#### 6.1.5.2 ITU-R Recommendations database search tool

At its 19th meeting, the RAG invited the BR Director to develop a database, within existing budgetary limitations, that would enable ITU-R Recommendations to be searched and filtered by categories such as the radiocommunication service(s) and applicable frequency band.

In April 2014, considering the importance of its early introduction, and the usefulness of expansion of this search function to the ITU-R documents such as Questions, Reports, Handbooks, Resolutions, the Ministry of Internal Affairs and Communications (MIC), Japan kindly provided a voluntary contribution of USD 290’000 to encourage and expedite this search database development, which BR is responsible for, and to make it accessible for ITU Members, including developing countries.

Since then, with the support of experts from the Japanese Administration and ITU’s IS Department, the development of the ITU-R documents database search facility has been progressed, in parallel with ITU’s on-going migration to the new Sharepoint platform.

The work has covered the following areas:

– Review all ITU-R documents and extract search elements.

– Use the ITU’s new SharePoint platform.

– Provide a synchronization function for maintaining the ITU-R documents and their search elements.

– Document the working procedures specifying roles and responsibilities of ITU/BR and ITU‑R SGs/WPs to maintain the database.

– Develop a search application accessible by mobile terminals.

At this stage, the search database for ITU-R Recommendations and ITU-R Questions is ready for review and comment.

In parallel to the development of the search database of ITU-R Recommendations and ITU-R Questions, the review of the ITU-R Reports has started. The search criteria for ITU-R Reports will be similar to the ones for the ITU-R Recommendations.

The implementation of ITU-R Questions and Reports on the search database is expected to be finalized by the end of 2015, followed by the implementation of the ITU-R Resolutions and Handbooks in 2015-2016. Consideration of the procedure to maintain the database and the possible development of a mobile application will be carried out in 2016.

The whole project is estimated to be completed by the end of 2016.

## 6.2 Seminars and workshops

## 6.2.1 World Radiocommunication Seminars (WRS)

Since WRC-12, the biennial World Radiocommunication Seminar was held in Geneva:

**– WRS-12**, from 3 to 7 December 2012, attended by 394 participants from 96 countries;

**– WRS-14**, from 8 to 12 December 2014, attended by 357 participants from 104 countries.

The presentations and discussions during both events were in the six official languages of the ITU with simultaneous interpretation facilities. Three-day workshops were held in parallel for both Terrestrial and Space services. Groups were divided up in accordance with the language requirements and available facilities. WRS-12 and WRS-14 were conducted in a “paperless” environment. The proceedings are available on the ITU website: [http://www.itu.int/ITU R/go/seminars](http://www.itu.int/ITU%20R/go/seminars).

The BR has provided full fellowships for WRSs (limited to one per administration for eligible countries). More than 60 full fellowships were granted.

## 6.2.2 Regional Radiocommunication Seminars (RRS)

As a complement to the biennial Word Radiocommunication Seminars, the BR has implemented a strategy for regional outreach through the organization of yearly cycles of Regional Radiocommunication Seminars (RRS), held in different regions worldwide, fostering human capacity building on the use of the radio-frequency spectrum and the satellite orbits, and, in particular, the application of the provisions of the ITU Radio Regulations.

Regional seminars include two days of theoretical sessions and two days of workshops on terrestrial and space services, which may be in parallel or in series according to the specific requirements of the region. RRSs are complemented with a one-day forum, dedicated to spectrum-related topics of particular interest to the region.

Table 6.2.2-1 provides a summary of the ten RRS which were held since WRC-12. These seminars are generally hosted by the government, the regulator or the spectrum management authority in the country, in cooperation with the relevant regional organizations and the ITU regional/areas offices.

An analysis of the participation in WRSs and RRSs shows that these two types of seminars complement each other:

**– In two WRSs**: 751 participants from 121 countries (including 49 not coming to RRS)

**– In ten RRSs**: 824 participants from 115 countries (including 42 not coming to WRS)

**– Total:** 12 seminars, 1575 participants from 165 countries.

Table 6.2.2-1

ITU Regional Radiocommunication Seminars (2013-2015)

| **Date** | **RRS** | **Place** | **Host** | **Cooperation** | **Forum Topics** | **Languages** | **Participants/ administrations** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8-12 July 2013 | **RRS-13-Americas** | Asuncion, Paraguay | CONATEL Paraguay | ITU Americas Office | Digital Dividend in Latin America | **S, E** | **121/9** |
| 16-20 September 2013 | **RRS-13-Africa** | Yaounde, Cameroon | MINPOSTELCameroon | ATU, ITU Africa Office | UHF band in Africa | **F, E** | **135/33** |
| 28 October - 1 November 2013 | **RRS-13-Asia-Pacific** | Nadi, Fiji | Ministry of Communications Fiji | PITA, ITU Asia-Pacific Office | C Band in Asia-Pacific | **E** | **53/18** |
| 9-13 December 2013 | **RRS-13-Arab** | Tunis, Tunisia | ANF Tunisia | ASMG, ITU Arab Regional Office | Cognitive radio and TV White Spaces | **A, E** | **49/12** |
| 26-30 May 2014 | **RRS-14-Asia** | Ha Noi, Viet Nam | MIC  Viet Nam | APT, ITU Asia-Pacific Office | New issues on Spectrum Management | **E** | **94/15** |
| 14-18 July 2014 | **RRS-14-Americas** | Island of Tobago, Trinidad and Tobago | Telecommunications Authority of Trinidad and Tobago | CTU, ITU Americas Office | WRC-15 Agenda: Regional matters  C-band registration | **E** | **46/19** |
| 2-6 March 2015 | **RRS-15-Eastern Europe and CIS** | Bishkek, Kyrgyz Republic | State Communications Agency - Kyrgyz Republic | RCC, ITU Offices for Eastern Europe and CIS | WRC-15 regional preparation | **R** | **56/8** |
| 20-24 April 2015 | **RRS-15-Africa** | Niamey, Niger | Autorité de Régulation des Télécommunications et de la Poste, ARTP, Niger | ATU, ITU offices for Africa | Emerging concepts in spectrum utilization and monitoring: Preparing for future spectrum management for the region | **F, E** | **100/36** |
| 25-30 May 2015 | **RRS-15-Asia-Pacific** | Manila, Philippines | Information and Communications Technology Office, Department of Science and Technology (ICTO‑DOST), Philippines | APT, Dpt of Communications, Government of Australia, ITU offices for Asia and Pacific | Space Planned Services: current status and challenges | **E** | **70/20** |
| 27-31 July 2015 | **RRS-15-Americas** | San Salvador, El Salvador | Superintendencia General de Electricidad y Telecomunicaciones of El Salvador (SIGET) | COMTELCA, ITU area office for Central America | WRC15: Challenges and opportunities for the Region  C-band registration  Unlicensed Devices Regulations | **S** | **TBC** |

The BR has provided partial fellowships for RRS (only one per administration for eligible countries). More than 80 partial fellowships were granted.

## 6.2.3 Other Events

The period witnessed a busy schedule of events organized entirely by BR or in cooperation with BDT/TSB and/or other bodies (see details at: [http://www.itu.int/ITU‑R/go/seminars](http://www.itu.int/ITU-R/go/seminars)). A new series of workshops on the efficient use of the orbit and spectrum was organized with a view to openly discussing issues often qualified as “sensitive” and making progress on the exchange of ideas to adapt and improve the international satellite regulatory registration framework at the next WRC.

Within the framework of the ITU Centres of Excellence for Asia-Pacific Region, the Bureau organized the first ever online program on "Satellite Network Registration Procedures and International Regulations" for the Asia-Pacific Region jointly with the ITU office in Bangkok (Thailand) and the State Radio Monitoring Centre (SRMC), MIT, China, from 1st till 28th June 2015. The program focused on Satellite Network Registration Procedures and International Regulations and covered an introduction to satellite projects, the Radiocommunication Sector in the ITU & Orbit-Spectrum Regulations, Non-planned Space Services Procedures, Planned Space Services (BSS & FSS) Procedures and other topics.

The course objectives was to develop a basic knowledge of satellite projects, to understand the international regulations governing satellite network registration, to understand in detail, the coordination procedures concerning satellite registration and share experiences and challenges concerning satellite network registration.

An ITU Symposium and Workshop on small satellite regulation and communication systems was also held in Prague, Czech Republic, 2-4 March 2015. The three-day symposium and workshop focused on the regulatory aspects of the use of the radio-frequency spectrum and satellite orbits for small satellite communication systems, in particular on the application of the provisions of the [ITU Radio Regulations](http://www.itu.int/pub/R-REG-RR/en). The symposium was organized by ITU in cooperation with ITU Academia Member, the Czech Technical University’s [Faculty of Electrical Engineering (CTU FEE)](http://www.fel.cvut.cz/en/). It was attended by more than 160 participants from around 40 countries.

The participants concluded the Symposium with the unanimous endorsement of the ‘[Prague Declaration](http://www.itu.int/en/ITU-R/space/workshops/2015-prague-small-sat/Documents/Prague%20Declaration.pdf) on Small Satellite Regulation and Communication Systems’, which urges the small satellite community to comply with the applicable international and national laws, regulations and procedures, indispensable to guarantee the long-term sustainability of small satellite projects, the avoidance of harmful interference and proper management of space debris. The declaration also recommends that ITU continue capacity-building activities on the regulation of satellite communication systems (see <http://www.itu.int/en/ITU-R/space/workshops/2015-prague-small-sat/Documents/Prague%20Declaration.pdf>).

The Bureau intends to continue its cooperation with the ITU Centres of Excellence for Asia-Pacific Region and to organize, on a regular basis, online courses on satellite network registration procedures. In view of the success of this activity, the Bureau intends also to develop the same online course for Africa and the Americas.

Table 6.2.3-1 summarizes the missions carried by BR staff for the above activities since WRC-12. For completeness, this also includes the participation of BR staff in providing assistance to the membership.

Table 6.2.3-1

Participation of BR staff to events in order to disseminate information

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2012** | | **2013** | | **2014** | | **2015 (up to 30/June)** | | **TOTAL** | |
| **Missions** | **Countries** | **Missions** | **Countries** | **Missions** | **Countries** | **Missions** | **Countries** | **MISSIONS** | **COUNTRIES** |
| ***SPECIALIZED UN AGENCIES*** | 14 | 9 | 16 | 12 | 17 | 12 | 11 | 8 | ***58*** | ***41*** |
| ***REGIONAL TELECOMMUNICATION ORGANIZATIONS*** | 23 | 17 | 34 | 27 | 33 | 25 | 39 | 33 | ***129*** | ***102*** |
| ***Non-ITU CONFERENCES & SYMPOSIA*** | 63 | 42 | 60 | 37 | 59 | 43 | 39 | 32 | ***221*** | ***154*** |
| ***ITU SEMINARS, WORKSHOPS & MEETINGS*** | 36 | 34 | 24 | 22 | 29 | 22 | 16 | 16 | ***105*** | ***94*** |
| ***ASSISTANCE REQUESTS*** | 9 | 9 | 21 | 15 | 9 | 6 | 4 | 4 | ***43*** | ***34*** |
| ***OTHER EVENTS*** | 5 | 5 | 11 | 8 | 10 | 8 | 12 | 10 | ***38*** | ***31*** |
| **TOTAL** | **153** | **119** | **168** | **123** | **159** | **118** | **124** | **106** | **604** | **154** |

## 6.3 Communication and Outreach

## 6.3.1 Membership

Table 6.3.1-1 shows the evolution of the number of ITU-R Sector Members, Associates and Academia during the period of 1 April 2014 to 31March 2015.

Table 6.3.1-1

**Evolution of the ITU-R membership since 2011**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2011** | **2012** | **2013** | **2014** | **2015** | **2015 VS 2011** | **% Increase** |
| **Sector Members** | 252 | 255 | 259 | 262 | 267 | 15 | 6.0% |
| **Associates** | 22 | 21 | 18 | 19 | 19 | -3 | -13.6% |
| **Academia** | 12 | 14 | 15 | 30 | 92 | 80 | 666.7% |

These figures show a moderate upwards trend, in contrast with the negative trend form the past period. It may be noted that:

– Among the associates which withdrew from ITU-R in the period, two became Sector Members.

– In accordance with Resolution 169 (Rev Busan 2014), a single ITU membership has been implemented since 1st January 2015. Consequently, academia members from other sectors are also counted as ITU-R academia members since that date.

– Before PP-14, ITU-R academia membership increase was significant however, with a 100% increase in 2014.

## 6.3.2 Communication and Promotion

In order to position the ITU-R in line with its strategic objectives (create brand value, strengthen reputation, mobilize internal and external stakeholders, engage supporters and advocate in the interests of membership). The Bureau works in close collaboration with the Corporate Communications Division (CCD) and ITU Press Office, the membership Dept. and the Publication and Composition Service (C&P/COMP) of the General Secretariat. This work has included several ITU Inter-Sectoral meetings: WSIS Implementation Task Force, Communications Groups, Web Editorial Board, ITU 150th Anniversary, Emerging Trends and Gender Task Force Group.

## 6.3.3 Web management

Throughout 2014, a continuous migration of the [ITU-R website](http://www.itu.int/en/ITU-R) to SharePoint was undertaken with total re-design following new Inter-Sectoral web-template guidelines and with upgrade from SharePoint 2010 to SharePoint 2013. From 2015 onwards, online resources are being made available in all six official languages of ITU as far as possible for the first two levels (0 and 1) of the ITU-R web site, as shown in Table 6.3.3-1 below.

Table 6.3.3-1

ITU-R website situation on languages

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Category | Number  of Pages | **English** | **French** | **Spanish** | **Arabic** | **Chinese** | **Russian** |
| Level 0 | [**ITU-R homepage**](http://www.itu.int/en/ITU-R/Pages/default.aspx) | 1 | 100% | 95% | 95% | 95% | 95% | 95% |
| Level 1 | Conferences | [1](http://www.itu.int/en/ITU-R/conferences/Pages/default.aspx) | 100% | 100% | 100% | 100% | 100% | 100% |
|  | Director\* | 3 | 100% | 100% | 100% | 98% | 98% | 98% |
|  | GE06-Symposium-2015\* | 4 | 100% | 50% | 50% | 50% | 50% | 50% |
|  | Information\* | [5](http://www.itu.int/en/ITU-R/information/Pages/circulars.aspx) | 100% | 70% | 70% | 70% | 70% | 70% |
|  | Seminars\* | 2 | 100% | 0% | 0% | 0% | 0% | 0% |
|  | Space\* | 47 | 100% | 98% | 98% | 0% | 0% | 0% |
|  | Study Groups\* | 3 | 100% | 7% | 7% | 7% | 7% | 7% |
|  | Terrestrial\* | 10 | 100% | 0% | 0% | 0% | 0% | 0% |
| (\*) Most of these pages (except 1 for each category) are considered as Level 2 in terms of navigation (2 clicks from the ITU-R homepage), but as Level 1 in terms of site structure | | | | | | | | |
|  | page(s) not yet published for this language | | | | | | | |

## 6.3.4 Frequently Asked Questions (FAQ)

The BR has been developing and regularly updating various sets of FAQ. They are, available for media, the industry in general and the general public And currently cover the following topics:

– RR, ITU-R SG, RRB, RAG, BR.

– IMT and Wireless Broadband.

– Transition to digital TV broadcasting and Digital Dividend.

– Universal Time Scale (UTC) – Leap Second.

– Satellite Filings and associated procedures.

They can be found on the ITU-R main web page (tab: FAQs at right side).

# 7 Assistance to Member States

## 7.1 Assistance to administrations of developing countries

In the period between WRC‑12 and WRC‑15, the Bureau provided assistance to the administrations of developing countries in more than 40 instances, in areas such as:

* Supporting national spectrum management activities in the rapidly changing regulatory environment (see Resolution 7 (Rev.WRC‑03)) and providing technical assistance in the field of space radiocommunication (Resolution 15 (Rev.WRC‑03); to this end, missions were undertaken either on request of administrations, or under special missions jointly organized with the BDT, including participation of BR experts to provide capacity building in regional seminars organized by BDT or regional organizations. Furthermore, experts from administrations of least developed countries were granted fellowships to attend BR radiocommunication seminars and workshops. Experts from administrations were also received for individual or group in‑service training in the ITU headquarters on radio regulatory procedures;
* Participating in the meetings of the regional coordination groups, as requested by Article 12 of the Radio Regulations;
* Providing assistance in Long Term Frequency management and assignment for mobile broadband (IMT);
* Providing guidance and technical support for the transition to Digital Television and the allocation of the digital dividend.

Table 6.2.3-1 illustrates this activity.

## 7.2 Assistance to Regional Groups

In the period between WRC‑12 and WRC‑15, following the request of assistance from the Regional Groups ATU and ASMG in implementing the decisions of WRC-07 and WRC-12 on the allocation of the 700 and 800 MHz band, the Bureau provided technical expertise and the associated software to enable ATU and ASMG Administrations to plan additional channels in the frequency band 470‑694 MHz in preparation to the transition to digital TV and the allocation of these bands to the mobile service.

Assistance was also provided by the Bureau in support of frequency coordination between the administrations of smaller groups of countries.

## 7.2.1 Assistance to ATU

The process of coordination was initiated in response to two African summits of Ministers conveyed by ATU: in Nairobi (December 2011) and Accra (September 2012), and included 47 Sub-Saharan countries. The intensive discussions and technical compatibility analysis of frequencies, based on the recommendations of ATU adopted in Bamako in March 2012, covered 18 months, during which 33 compatibility iterations were performed, based on the requirements submitted by administrations.

To enable the participating administrations to proceed with bilateral and multilateral coordination, ATU, with the assistance of the ITU, organized three planning and coordination meetings, respectively in Bamako, Kampala and Nairobi.

The average of satisfied requirements achieved was 97.37%. By the date of preparation of this report, 89% of ATU Administrations had successfully modified the GE06 Plan in line with the agreement reached.

## 7.2.2 Assistance to ASMG

The process of coordination between ASMG countries was initiated in response to a recommendation from the 35th meeting of the Permanent Arab Committee for Communications and Information (Cairo: 4-5 March 2014) and involved 17 Arab Administrations (with the exception of the Arab countries also part of ATU).

The process covered eleven months, with the coordination criteria and establishment of the frequency requirements in the frequency band 470-694 MHz based on ASMG recommendations (Dubai, 2014). A total of 27 iterations were performed for the compatibility analysis, based on the requirements submitted by administrations. To facilitate bilateral and multilateral coordination, three meetings were organised successively in Dubai, Hammamet and Marrakech.

The average of satisfied requirements achieved was 76.87%. By the date of preparation of this report, ASMG Administrations were in the process of modifying the GE06 Plan according to the agreement reached channels. Coordination with several administrations outside the ASMG is still ongoing. It is be necessary to permit the corresponding modifications to the GE06 Plan.

## 7.2.3 Assistance to CITEL

Following the development by BR of online tools for technical examinations in the scope of the RJ81 Plan, the BR provided remote training for the use of this software, on request from CITEL.

## 7.3 Assistance to other groups of countries

The Bureau hosted two sub-regional frequency coordination meetings in March 2013 and November 2014 at the ITU headquarters in Geneva, between the Administrations of Saudi Arabia, Bahrain, United Arab Emirates, Iran, Kuwait, Oman and Qatar. These meetings enabled the concerned administrations to conclude two agreements:

– Arrangement to control cross-border spillover and harmful interference to the Mobile service;

– Mechanism for coordinating the VHF Sound Broadcasting service;

The application of these agreements has significantly improved the coordination of frequencies used for the Mobile.

The Bureau hosted a coordination meeting between the Administrations of Egypt, Israel, Lebanon, Palestine and Syria on the Digital Television broadcasting frequency planning in the band 470‑694 MHz. This meeting took place in Geneva from 29th September to 1st October 2014 and agreement on some technical criteria for frequency coordination was reached, such as a limiting interfering margin between Israel and the Arab countries.

## 7.4 Treatment of cases of harmful interference

## 7.4.1 General overview

In the application of the procedures of Article 15 of the Radio Regulations, the Bureau has treated all reports of harmful interference as a matter of urgency, particularly where safety services were involved. Each reported case is normally handled by the Bureau within 48 hours from its receipt. In several cases, the Bureau was asked to provide assistance in determining the source of interference; such assistance was provided in collaboration with the monitoring stations of the Member States. Some cases were reported to the RRB, as requested by administrations whose services suffered interference. For some cases, the Bureau received declaration, from affected administrations, claiming the cases were closed. Table 7.4.1‑1 summarizes statistical information regarding terrestrial systems and Table 7.4.1-2 with respect to cases affecting space services.

Table 7.4.1-1

Statistical information regarding the treatment of cases of harmful interference affecting terrestrial services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 20152 |
| Cases submitted for BR information | 23 | 31 | 53 | 32 |
| Cases of assistance to administrations | 20 | 18 | 26 | 13 |

Table 7.4.1-2

Statistical information regarding the treatment of cases of harmful interference affecting space services

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2012 | 2013 | 2014 | 2015 (till 30.06) |
| Cases submitted for BR information (RR 15.41) | 25 | 20 | 9 | 9 |
| Cases requesting BR Assistance under RR 13.2 | 22 | 9 | 7 | 3 |

NOTE: One case may refer to one or several short or long term occurrences of harmful interference.

Annex 2 to this Report provides an in depth analysis describing the current situation as well as the actions and initiatives being taken by ITU together with the latest developments to contribute to the prevention and resolution of cases of harmful interference affecting space services.

### 7.4.2 Developments regarding specific cases of harmful interference

#### 7.4.2.1 Harmful interference to the VHF/UHF broadcasting services of Cuba

Since WRC-12 and until May 2013, the Administration of Cuba continued to submit reports on several longstanding cases of harmful interference to their broadcasting services (sound and television) caused by emissions on board an aircraft under the responsibility of the Administration of the United States.

These cases have been included in the agenda of the Radio Regulations Board (RRB) meetings and dealt by the Board until RRB meeting No. 63 (June 2013).

The Bureau wishes to report that no complaint of harmful interference was received from the Administration of Cuba since May 2013.

#### 7.4.2.2 Harmful interference caused by Italy to the broadcasting services (sound and television) of its neighbouring countries

The 13th Plenary meeting of WRC-12 agreed that the Director of BR would continue to monitor the situation of multiple longstanding cases of harmful interference caused by Italy to the broadcasting services (sound and television) of its neighbouring countries and provide progress reports to the RRB and WRC-15.

On request from the RRB, the Director of the Bureau and the Chief of Terrestrial Services Department met twice with the Italian authorities and the Italian broadcasting operators during 2014, in order to evaluate the situation and discuss about the possibilities to resolve the issue.

The Administration of Italy committed to address the interference issues from both a legal, regulatory, technical and operational standpoint.

A law was adopted in order to phase out the use by television networks of the specific frequencies which result in the most critical harmful interference cases to television broadcasting in neighbouring countries and a new frequency plan was developed by Italy to identify appropriate channels.

A Decree associated to this law was published on 6 June 2015, allowing for the implementation of reverse auctions by which the concerned broadcasters in Italy could apply for compensation and/or switch off the transmission of the relevant television broadcasting stations causing harmful interference.

It is expected that situation of interference will progressively improve after the end of 2015 with the finalization of the reverse auction process, for which a budget of 50.8 M€ was adopted by law for 2015.

No specific action has been reported by Italy with regards to resolving the harmful interference to the sound broadcasting services. This issue will still take significant time to be definitively settled.

All the related monitoring and interference reports regularly received by the BR are available on the ITU website at <http://www.itu.int/md/R11-MMHI-SP/en>.

#### 7.4.2.3 Harmful interference between the mobile–satellite service and Radioastronomy in the band 1 610.6-1 613.8 MHz

The Bureau has been informed of harmful interference to Radioastronomy stations operating in the band 1 610.6-1 613.8 MHz with a primary status generated by unwanted emissions from a non-GSO satellite network in the mobile satellite service operating in the band 1 618.25-1 626.5 MHz (space to Earth) on a secondary status. The Bureau has however so far not received any request for assistance in accordance with the provisions of section I of Article 13.

No. 5.149 and No. 5.372, respectively indicate that “In making assignments to stations of other services to which the bands: …, 1 610.6-1 613.8 MHz, … are allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. “ and that “Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies)”.

In addition No. 29.11 specifies that “When assigning frequencies to stations in other bands, administrations are urged, as far as practicable, to take into consideration the need to avoid spurious emissions which could cause harmful interference to the radio astronomy service operating in accordance with these Regulations” with the regulation governing the resolution of harmful interference in this case mentioned in the provisions of No. 4.6 of the Radio Regulations: “For the purpose of resolving cases of harmful interference, the radio astronomy service shall be treated as a radiocommunication service. However, protection from services in other bands shall be afforded the radio astronomy service only to the extent that such services are afforded protection from each other”.

In order to settle this issue, the Bureau encouraged the involved administrations to cooperate and exercise the utmost goodwill and mutual assistance, noting also the relevant ITU‑R Recommendations with the aim of limiting interference to the radio astronomy service from other services (No. 29.13)

# 8 Cooperation

## 8.1 Cooperation with ITU‑D

As reported in Sections 6 and 7 above, the BR continues to fulfil its objective of informing and assisting the ITU membership, in particular in developing countries, on issues relating to radiocommunication matters. For this purpose BR organizes and participates in a number of spectrum related workshops, seminars, meetings and capacity building activities. These actions are being carried out in close cooperation with the BDT and the ITU regional and area offices, and the relevant international organizations and national authorities.

### 8.1.1 GSR

Recognizing the importance of expert information to Member States, the BR continues to support the BDT by providing technical expertise in relation to spectrum management, digital broadcasting and digital dividend. The BR contributed to the ITU Global Symposium of Regulators 2012, 2013, 2014, 2015) with the organization of, and participation in, sessions related to spectrum management.

### 8.1.2 ICT Survey and ICT Eye

ICT-eye and its survey form an essential tool for gathering data from administrations on key ICT metrics. The BDT does the tracking of such data on a yearly basis, and displays the data results in a meaningful way in the statistics portal. In order to capitalize from the existing platform provided by ICT-eye, the BR engaged with the BDT to expand the current survey and include a chapter on key spectrum-specific information (i.e. auctions, caps, mobile technologies/standards, spectrum licensing). The spectrum chapter was developed by BR and published in the ICT survey for first time in 2013.

### 8.1.3 Spectrum Management Training Programme (SMTP)

The BR has actively participated on a joint project with BDT to develop a: *Spectrum Management Training Programme (SMTP*) along its different phases, since 2013: design, material preparation, peer review, and the pilot test currently in progress and evaluation.

Close contact has continued with the BDT on work 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 that calls for the identification of study topics in ITU‑R (and ITU‑T) considered of particular interest to developing countries.

In response to requests from the BDT, experts from ITU‑R and BR have participated in ITU seminars and workshops organized by ITU‑D (see § 7.1). Within the framework of Resolution ITU‑R 11-4 (Further development of the spectrum management system for developing countries), BR has been involved with the design, testing and training associated with the software SMS4DC (Spectrum Management System for Developing Countries), with advice provided on the use of relevant ITU‑R Recommendations. In addition, ITU‑R Study Group 1 has continued to work closely with the ITU‑D Study Groups in pursuing studies on spectrum usage in accordance with Resolution ITU‑D 9.

In 2013, the BR developed jointly with the BDT an ITU Report on the Digital Dividend. On this basis, ITU-R Study Group 1 has since developed and recently adopted an ITU-R Report on this subject.

With the needs of developing countries always in mind, the production of Handbooks has continued to be viewed as a major Study Group activity. In this respect, new or revised Handbooks have been developed on topics such as spectrum monitoring, radiowave propagation information for designing terrestrial point-to-point links, amateur and amateur-satellite services, migration to IMT-2000 systems and use of radio spectrum for meteorology – weather, water and climate monitoring and prediction.

## 8.2 Cooperation with ITU-T

In addition to climate change and emergency communications, topics of mutual interest between ITU‑R and ITU‑T include IMT 2020, the effects of human exposure to radio frequencies, power line transmission systems, intelligent transport systems, common patent policy and intellectual property rights and audiovisual media accessibility.

SG 6 established a new Intersector Rapporteur Group (IRG) on Integrated Broadband Broadcasting (IBB) systems in addition to the two existing IRGs on audiovisual media accessibility (IRG‑AVA) and on audiovisual quality assessments (IRG-AVQA).

There continues to be a requirement for close coordination on the various topics being addressed by ITU‑T that impinge on radiocommunication issues to reduce the potential for overlap, duplication and conflict of work undertaken by the two Sectors.

## 8.3 Cooperation with international and regional organizations

As in the past, the Bureau maintained close cooperation with many international and regional organizations with the following objectives: 1) to promote dialogue amongst bodies having common interests; 2) to help coordination leading to more effective preparation for events such as WRCs; and 3) to keep ITU‑R abreast of relevant activities in other organizations to help planning of work programmes.

The BR continues its close cooperation with the relevant international and regional organizations dealing with the use of spectrum (APT, ASMG, ATU, CEPT, CITEL and RCC) or more generally with the use of radiocommunications services (e.g. ICTO, ITSO, ESOA, GVF, GSMA, EBU) by organizing, promoting and participating in events to build capacity on the use of the RRs, including WRS and RRS, as indicated in Section 7.

In accordance with Resolution ITU‑R 9-4, liaison has been strengthened with several other standard-making organizations. For example, a memorandum of understanding has been developed between ITU and ARIB, CCSA, TTA and TTC to harmonize standardization activities, and the existing ITU‑R and ITU‑T MoUs with ETSI were reviewed and combined as a single ITU/ETSI MoU.

Attention to the activities of the Global Standards Collaboration (GSC) continues, to which ITU‑R/BR and ITU‑T/TSB contributions were made each year and ITU hosted the meeting of the GSC in July 2015. Involvement with the 3G partnership projects and IEEE has been pursued, given their importance and relevance to the work of Study Group 5. Other notable areas of liaison with Study Group activities include those with the World Meteorological Organization (through SG 7), CISPR (through SG 1), the World health Organization (through SGs 3 and 6), Space Frequency Coordination Group (through SG 7) and the European Broadcasting Union (through SGs 3 and 6).

The BR ensured liaison and cooperation with the UN Committee on the Peaceful Uses of Outer Space (UN-COPUOS), the International Maritime Organization (IMO), the International Maritime Satellite Organization (IMSO), the International Telecommunications Satellite Organization (ITSO), COSPAS-SARSAT, CICR and ICAO with regard to the application of ITU treaty texts. BR experts also participated in various meetings of these organizations.

The BR also ensured liaison and cooperation with IMO, WMO, CEPT, CITEL, APT, ASMG, ATU, RCC, EBU, ABU, ASBU and WBU, regarding effective preparation for WRC‑15. Appropriate liaison and cooperation was also maintained with IEC, ISO, ETSI, and IEEE.

# Annex 1

Matters raised in Document CPM15-2/85 regarding the use of the bands 1 980‑2 010 MHz and 2 170-2 200 MHz by the satellite and terrestrial components of IMT

Document CPM15-2/85 was not discussed by CPM15-2 on the understanding that the difficulties raised in that document would be reported to WRC-15 as part of the BR Director's report. This is the purpose of this Annex.

Document CPM15-2/85 draws attention to existing studies and on-going discussions between ITU-R Study Group 5 (Terrestrial services) and ITU-R Study Group 4 (Satellite services) regarding the use of the bands 1 980 2 010 MHz and 2 170-2 200 MHz by the satellite and terrestrial components of IMT. The document claims that there are differing interpretations of the provisions of the Radio Regulations regarding operation of terrestrial and satellite IMT systems in these bands and that there are no suitable regulatory provisions for coordination between these systems in the Radio Regulations.

Since CPM15-2, the liaison activity between the above-mentioned Study Groups and the relevant Working Parties has been continuing in an attempt to harmonize the differing views.

Document CPM15-2/85 noted that the coordination procedure under No.9.11A should not be applied between the satellite and terrestrial components of IMT in the 2 170-2 200 MHz frequency bands because of the non-applicability of the coordination threshold values provided in Table 5‑2 of Appendix 5 for coordination under No.9.11A due to Note 3 to the Table which states:

*“Note 3   The coordination thresholds in the band 2 160-2 170 MHz (Region 2) and 2 170-2 200 MHz (all Regions) to protect other terrestrial services do not apply to International Mobile Telecommunications (IMT) systems, as the satellite and the terrestrial components are not intended to operate in the same area or on common frequencies within these bands.”*

When applying No. 5.389A for the coordination under No. 9.11A between stations in the mobile-satellite service (MSS) and stations in the fixed service (FS) and mobile-service (MS) in the band 2 170-2 200 MHz, the Bureau determines administrations whose terrestrial services might be affected by the planned satellite network by:

i) identifying the administrations on the territory of which the PFD threshold values in Table 5-2 of Annex 1 to Appendix 5 are exceeded; and,

ii) indicating among the identified administrations those that have either MS or FS stations, or both with overlapping frequency bands that are recorded in the Master International Frequency Register (MIFR).

When establishing the coordination requirements under No. 9.11A for an MSS satellite network, the Bureau takes into account only the services of the space and terrestrial stations, but does not consider the use of the bands, i.e. whether or not it is intended to implement IMT, due to the lack of such information in Appendix 4 of the Radio Regulations.

In that context, an administration operating MS stations implementing IMT but on the territory of which the PFD threshold values are not exceeded, would therefore not be identified by the Bureau in the coordination under No. 9.11A of the planned MSS satellite network. However, that administration may, if it so wishes, be included in the coordination under No. 9.11A of the planned MSS satellite network, by informing the requesting administration of its disagreement and providing information concerning its assignments upon which the disagreement is based, with copy to the Bureau, in accordance with No. 9.52.

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| Annex 2 Considerations relating cases of Harmful interference to Space Services |

# 1 Current Situation

Based on information made available to the Bureau for information or in application of the relevant provisions of the Radio Regulations on requests for assistance in resolving cases of harmful interference, the most frequently affected services include the broadcasting-satellite service, fixed-satellite service and mobile-satellite service. However with fewer occurrences, the Earth exploration-satellite service and the radionavigation-satellite service are also affected by harmful interference.

These cases cover the following frequency bands:

1.2 GHz; 1.5/1.6 GHz; 2.2 GHz; 3/4 GHz, 5/6 GHz, 10-12/13-14 GHz and 17/18 GHz.

The steady increase in incidents between closely separated satellite networks where the coordination procedure is not fully completed or even has not been initiated is an issue of concern which has drawn the Bureau’s attention over the past few years and deserves thorough and careful consideration.

Based on the reports and statements submitted by administrations to the Bureau, the main reason for harmful interference affecting satellite services in almost 50% of the cases is unnecessary transmission as defined in RR No. 15.1. Typically, this refers to harmful interference caused by a high-power unmodulated carrier (CW).

A non-exhaustive list of other reasons behind harmful interference incidents, is given hereafter:

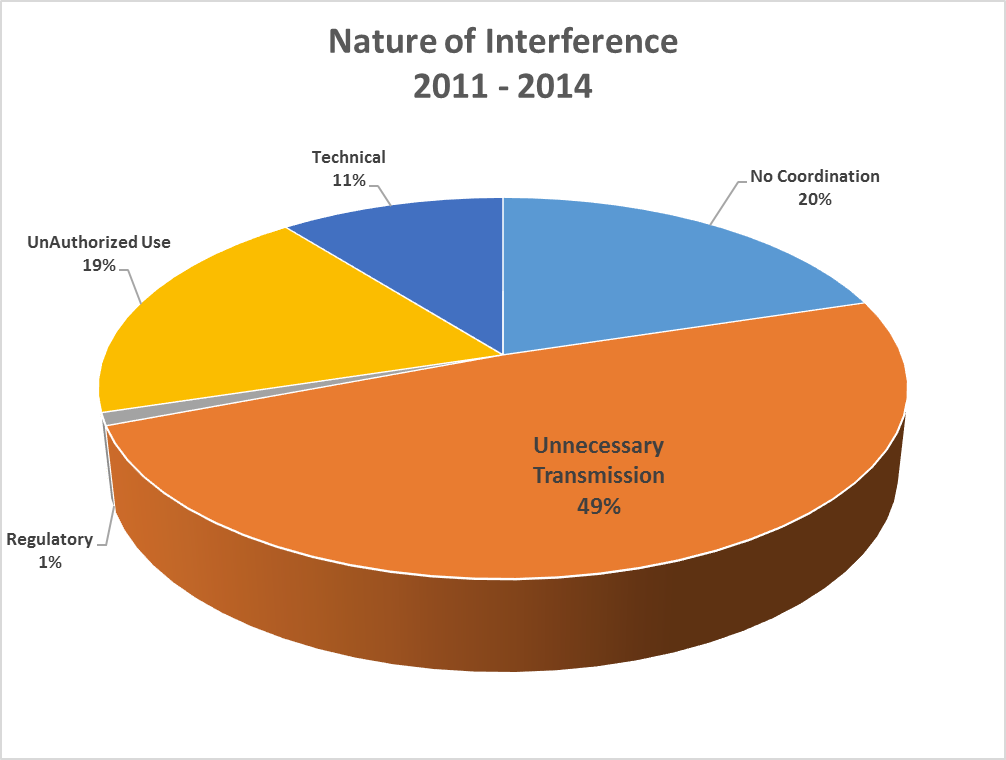
a) *Technical or operational*: spurious emissions, excessive transmitting power, transmitting stations that are not in conformity with frequency tolerances, miss-pointing of antennas associated with earth stations, cross-polarization interference or interference due to transponder saturation, for example;

b) *Regulatory*: out-of-band operations not authorized by the Radio Regulations, or exceptionally under a non-interference/non-protection basis;

c) *No coordination*: cases of harmful interference caused by the operation of uncoordinated frequency assignments (satellite network recorded or in the process of being recorded in the MIFR without having initiated and completed the normal and mandatory coordination process under the ITU framework);

d) *Unauthorized use*: accessing transponders without the required authorization, either accidentally or deliberately (very common reasons for accidental cases include equipment failures and human errors).

Taking account the above categorisation and with all caution to be exercised to label the cases reported to the Bureau during the 4 year-period between 2011 to 2014, the distribution of harmful interference events could be represented as follows:



The distribution over the GSO arc of the harmful interference cases reported to the Bureau during 2011 to 2014, is as follows:

**Number of cases**





18





**Orbital Position on the GSO arc**

# 2 ITU actions and initiatives to combat harmful interference

## 2.1 Extension and use of the international monitoring system (IMS) related to space services (cooperation agreement)

The Radiocommunication Bureau, within its role of promoting a rational, equitable, efficient and economical use of the radio-frequency spectrum and orbit resources and in line with the strategic goal of the ITU Radiocommunication Sector to ensure interference-free operation of radiocommunication systems has contacted in November 2014 administrations having monitoring facilities on their territories which form or being in the process of forming part of the international monitoring system in accordance with Resolution ITU-R 23-1 and Recommendation ITU-R SM.1139. The aim of this approach was to conclude Cooperation Agreements that would establish a framework for the assistance that could be provided to ITU by these administrations by means of their space monitoring earth station facilities.

The above communications was a follow-up to prior action taken by the Secretary General of ITU on 6 August 2013.

The scope of these Cooperation Agreements is to cover the provision of data to assist ITU in the resolution of cases of harmful interference pursuant to Article 15 and No. 13.2 of the ITU Radio Regulations, as appropriate, the provision of monitoring data, at the request of ITU, in cases of reported interference arising from coordination issues (ITU Radio Regulations Article 11, No. 11.41), and the provision of monitoring data concerning the technical characteristics of GSO satellite systems to ensure the compliance of the actual use with the information recorded by ITU in the MIFR or plans, as appropriate.

In its Resolution **186** (Busan, 2014) on “strengthening the role of ITU with regard to transparency and confidence-building measures in outer space activities”, the 2014 Plenipotentiary Conference has resolved:

*“to encourage the dissemination of information, capacity building and the sharing of best practices in the use and development of radiocommunication satellite networks/systems, with the objectives to, inter-alia, bridge the digital divide and enhance the reliability and availability of the above mentioned satellite networks/systems”,*

and instructed the Director of the Radiocommunication Bureau:

*“1 to promote access to information, upon request by concerned Administrations, related to satellite monitoring facilities, to address cases of harmful interference in accordance with Article 15 of the Radio Regulations, through Cooperation Agreements referred to under invites the Council above within the budgetary limitations of the Union in order to implement the objectives of this Resolution”.*

In line with Resolution **186** (Busan, 2014), the Bureau has pursued discussions with administrations having an interest in concluding a cooperation agreement with ITU. As of July 2015, one such agreement has been signed with one administration, in April 2015.

## 2.2 Exchange of experiences, cooperation, and provision of assistance to ITU Members

ITU has organized and participated in several information meetings around the world on space related harmful interference issues, where stakeholders from all the sectors involved in satellite communication business have exchanged experiences, views and solutions.

## 2.3 ITU-R studies

New recommendations related to alleviating the satellite interference issues have been adopted.

### 2.3.1 Access Procedures for fixed-satellite service Occasional Use, transmissions to GSO Space Stations in the 4/6 GHz and 11-12/13/14 GHz FSS Bands (Rec. ITU-R S.2049, December 2013)

This ITU-R Recommendation is intended to provide some easy‑to-follow practices to enable occasional-use operators to transmit to geostationary-satellite orbit space stations without interfering with other users on the satellite concerned or users on any other, nearby satellites.

### 2.3.2 Carrier Identification system for digital-modulation transmissions of fixed-satellite service occasional use carrier earth station transmissions using geostationary-satellite networks in the 4/6 GHz and 11-12/13/14 GHz FSS bands (Rec. ITU-R S.2062, September 2014)

The objective of this New Recommendation is to facilitate the rapid identification of a source of interference and to reduce the time required to clear the interference that occurs unintentionally.

Studies within [ITU-R Working Party 1C](http://www.itu.int/ITU-R/index.asp?category=study-groups&rlink=rwp1c&lang=en) (spectrum monitoring) on aspects related to satellite monitoring are on-going.

In addition to the above-mentioned Reports ITU-R SM.2181 and ITU-R SM.2182 and to the information in Chapter 5.1 of the [ITU Handbook on Spectrum Monitoring](http://www.itu.int/pub/R-HDB-23) (2011 edition), development of a preliminary draft new ITU-R Report on measurement techniques and new technologies for satellite monitoring is on-going.

## 2.4 Development of an Interference Resolution and Reporting System

Resolution 186 (Busan, 2014) instructs the Director of the Radiocommunication Bureau:

*“2        to continue taking action to maintain a database on cases of harmful interference, reported in accordance with relevant provisions of the Radio Regulations and in consultation with Member States concerned;”*

In this regard the Bureau is developing a project to facilitate effective and fast communication among the administrations involved in a case of harmful interference to space services in response to any incident reported, either for information or requesting the assistance of the Bureau under No. **13.2** of the Radio Regulations, with the aim of contributing to a prompt resolution of the case.

The main characteristics under consideration for the project are listed below:

**–** Web-based Application (online submissions and consultations);

**–** Alert provided when a case of harmful interference is reported;

**–** Remote access from fixed or mobile devices;

**–** Possibility to export/download data for analysis, statistics, reports;

**–** Possibility of controlled read-only access;

**–** Submission of events facilitated and granted to administrations through a secure connection;

**–** List of parameters based on Appendix 10 to the radio Regulations with additional elements from [Report ITU-R SM.2181](http://www.itu.int/pub/R-REP-SM.2181);

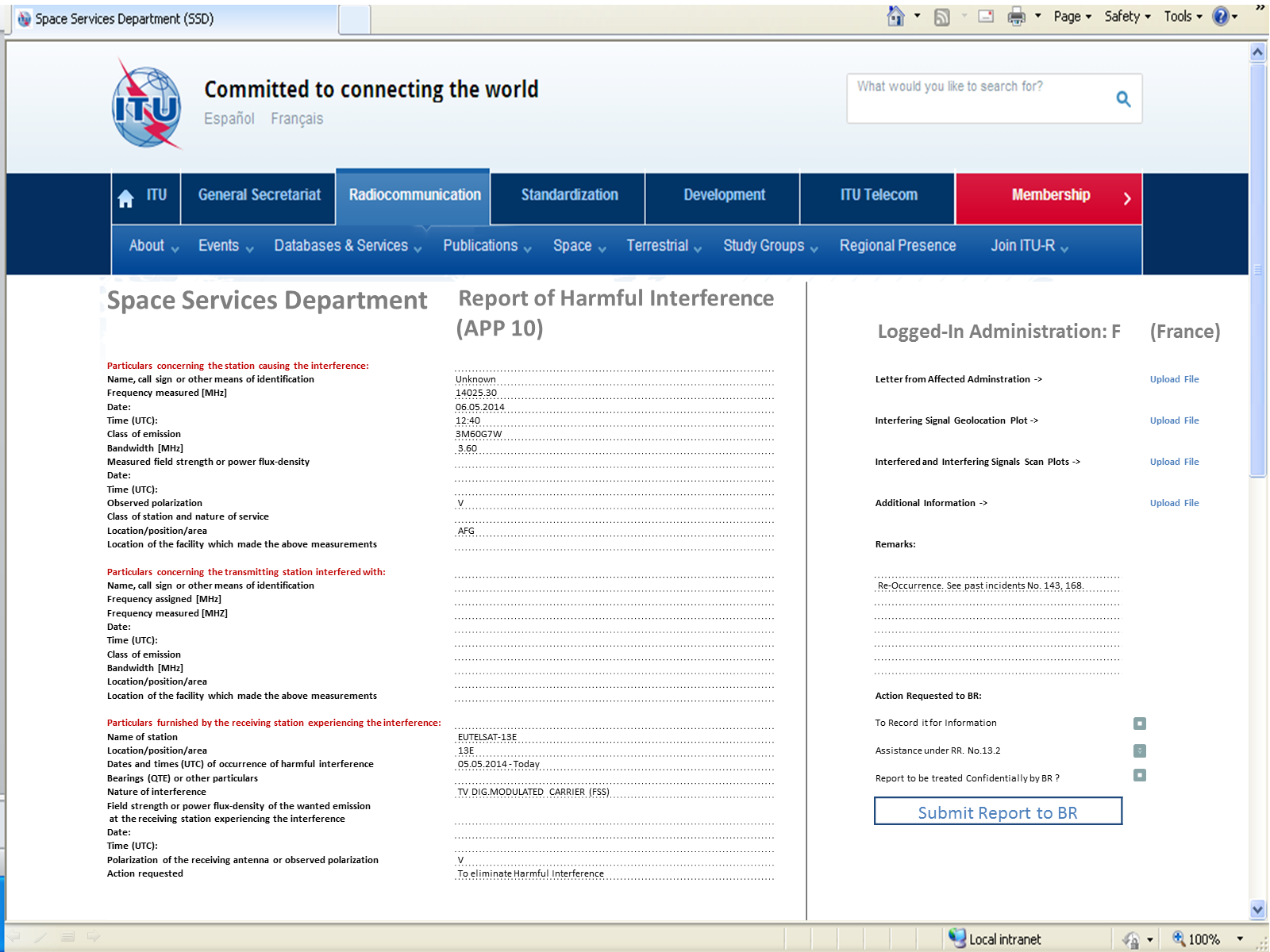
**–** Flexibility for future expansion of parameters;

**–** Graphical information such as scan plots, geolocation plots, uplink-downlink footprints and other documents in any common used format can be uploaded;

**–** The information to be displayed can be configured at different levels depending on the sensitivity indicated by the administration, i.e. the administration reporting the case of harmful interference may choose and request the Bureau to treat the case publically or not.

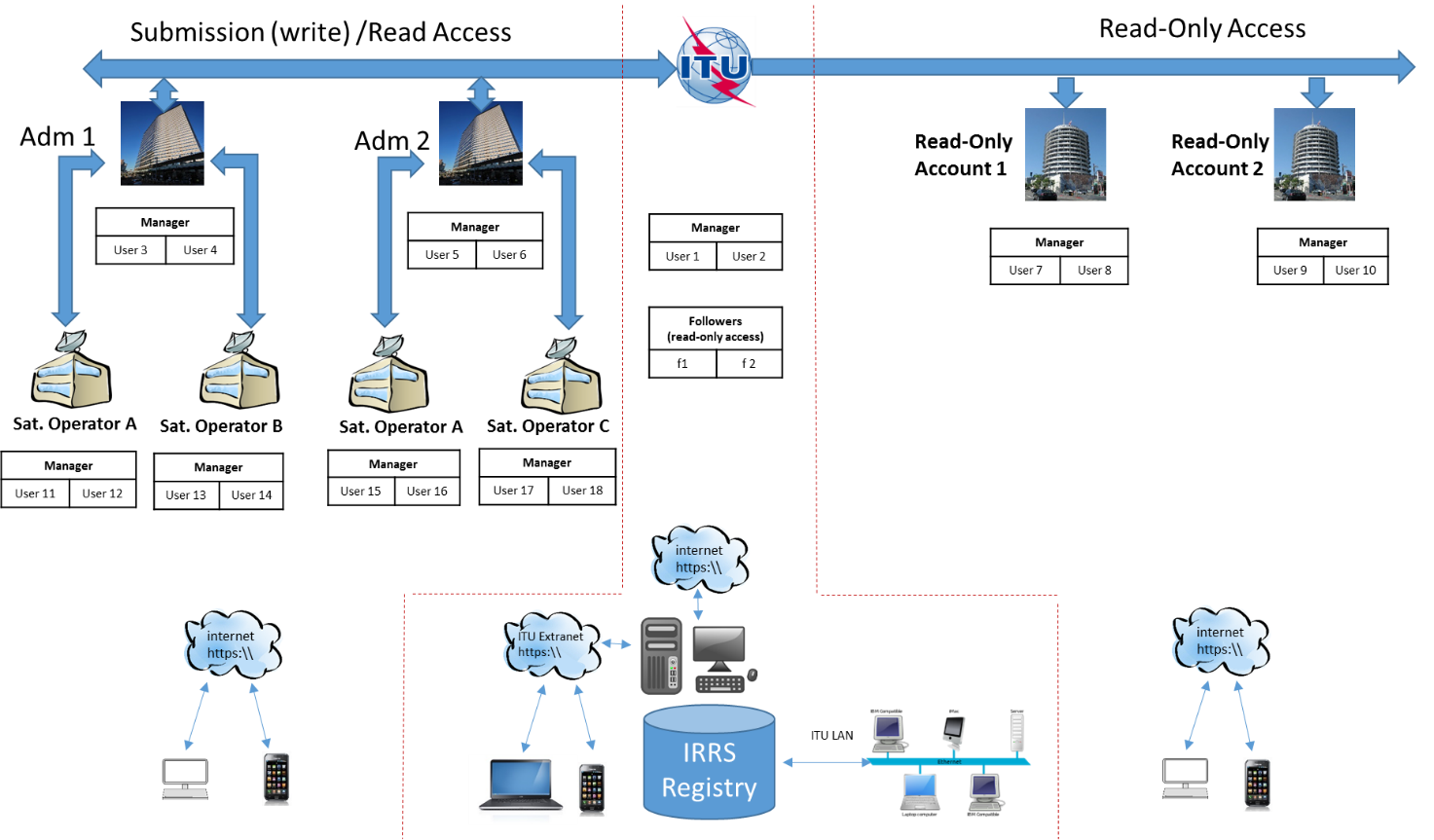
In view of the *“instructs 2”* Resolution 186 (Busan, 2014) and the current software development, WRC-15 may wish to consider further improvements to the list of parameters required for the resolution of a case of harmful interference to satellite networks, including appropriate revisions to, for example, Appendix 10 of the Radio Regulations to include possibly appropriate elements from Report ITU-R SM.2181.

A draft screen for submission of reports of cases of harmful interference by using this application may look as follows:



Draft architecture of the system is described below:

WRC-15 may wish to consider appropriate actions, as possible modification to Article 15 or Appendix 10 or the Radio Regulations or as a WRC Resolution, to provide a steady framework to the harmful interference database mentioned in “*instructs* 2” of Resolution 186 (Busan, 2014).



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1. https://www.itu.int/en/ITU-R/conferences/rag/Documents/Vlachos\_ITU\_RAG\_CRM\_Project\_Briefing.pptx [↑](#footnote-ref-1)
2. This Column includes cases up to the end of June 2015. [↑](#footnote-ref-2)
3. The difference between the number of cases received and treated is due to the fact that sometimes notices received during one year were completed during subsequent year. [↑](#footnote-ref-3)
4. These include the ITU‑R Handbooks on National Spectrum Management; Computer Aided Techniques for Spectrum Management and Spectrum Monitoring. [↑](#footnote-ref-4)