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|  |  **Radiocommunication Advisory Group Geneva, 10-13 May 2016** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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|  | **Addendum 1 toDocument RAG16/1-E** |
| **18 March 2016** |
| **Original: English** |
| Director, Radiocommunication Bureau |
| report TO the twenty-THIRD meeting of the radiocommunication advisory groupSTUDY GROUPS ACTIVITIES |

# 1 Working methods

Study Group activities were pursued within a stable Study Group (SG) and Working Party (WP) structure according to the work programmes defined in the ITU‑R Operational Plan. Working methods were satisfactorily applied in accordance with Resolution ITU‑R 1 (and the associated Working Guidelines).

# 2 Access to meeting documents

In line with the provisions of Resolution ITU‑R 1, meeting documents are posted by SGD staff within one working day “as received” on a webpage established for this purpose, and the official versions are posted on the website within three working days.

# 3 Electronic working facilities

Continuing emphasis has been placed on the use of electronic facilities that have brought considerable benefit to delegates as well as a significant economy in paper.

## 3.1 Sharepoint website

Access to documentation during meetings via a dedicated Sharepoint website is the standard practice. All Study Group and Working Party meetings are now completely paperless.

## 3.2 File synchronization

A file synchronization facility has been implemented for all Study Group/Working Party meetings to facilitate access to the most recent versions of documents during meetings.

# 3.3 Online list of participants

Online versions of the lists of participants for all study group and working party meetings have been implemented with access to the online version restricted to TIES users. The dynamic list can be searched based on parameters such as name, member and position in the delegation.

## 3.4 Remote participation

Since the last meeting of RAG, audio webcasts of all available languages have been provided during the Plenary sessions of all Study Group and Working Party meetings held in Geneva.

During the Working Party meetings, the possibility of active remote participation using Adobe Connect facilities in English only has been offered. Remote participants wishing to actively participate (e.g. to introduce a contribution) need to register for the meeting beforehand and coordinate their active participation with the responsible Counsellor.

Active remote participation was provided to allow participants in Working Parties to present contributions on only 3 occasions since the last meeting of RAG. The general feedback received has been that such participation has been useful, but that it can be difficult to schedule and that it slows the meeting down.

While the Secretariat will make every effort to facilitate such active participation, it should be recognized that on some occasions this may not be possible due to factors such as the limited number of support staff, availability of equipped rooms, many parallel meetings and the need for the remote participants to have a high-quality Internet and phone connection.

# 3.5 Study Group webpages

The ITU is continuing the process of changing the presentation of its webpages to provide an updated and consistent look across the ITU website. All of the main SG and WP pages have been changed to the new format, and associated pages are being changed progressively when they need to be updated.

# 3.6 Further development of the ITU‑R documents database search facility

This activity is reported in Section 8.1.5.2 of the body of this document.

# 3.7 Enhanced correspondence group tool

An enhanced tool as a replacement for the current mailing lists and ftp servers is now being developed and should be introduced progressively in 2016.

# 3.8 Captioning

Since December 2013, all Study Group meetings have been provided with live captioning in English. Feedback on this facility has been generally positive as an aid to following discussions, however some concerns have been raised on occasion regarding the accuracy of the captioning particularly with respect to frequency bands and radiocommunication acronyms.

# 4 Meeting rooms

The shortage of meeting rooms at ITU headquarters continues to hinder the effective planning of meetings. This problem has been exacerbated by the following factors:

* the increased number of meetings being arranged by all of the Sectors and the General Secretariat;
* the shortage of meeting rooms with a capacity of more than 120 participants;
* the need to avoid overlap and clashes of meeting dates;
* the limited availability and very long lead times required for bookings in alternative facilities such as CICG.

# 5 Notable activities in the Study Groups

Since the last meeting of the RAG, Study Group activities largely focused on finalizing the work on the RA-15 preparations and on the new or revised Recommendations/Reports associated with the WRC-15 agenda items. Some of the notable activities and other ongoing standardization studies in each Study Group are highlighted below.

## 5.1 Study Group 1

SG 1 and Working Parties 1A, 1B and 1C met in June 2015.

The preparation for RA-15 was completed and the draft revision of five ITU-R Resolutions were agreed for further consideration at RA-15.

The meetings developed texts to recommend spectrum limit masks for Digital Television Terrestrial Multimedia Broadcasting systems, as well as additional information for spectrum occupancy measurements and evaluation, and to facilitate the technical identification of digital signals.

The meetings approved new ITU-R Reports describing:

* Challenges and opportunities for spectrum management resulting from the transition to digital terrestrial television in the UHF bands;
* ICT aspects of the smart grid power utility management systems;
* Technology trends of active services in frequency range 275-3 000 GHz;
* First results on new spectrum monitoring techniques responding to the rapid development of new radiocommunication systems, such as software-defined radio and cognitive radio systems;
* Procedures for planning and optimization of spectrum-monitoring networks;
* Alternative test procedure for measuring accuracy and immunity of direction finder using a simulator.

The meetings also approved revised ITU-R Reports to update national information on the use of short-range devices (SRD), the organization of spectrum management entities and experiences in spectrum management and monitoring during major events, as well as on the developments of WPT systems.

In addition to other activities in preparation for the next SG 1 block of meetings in June 2016, including studies assigned to WP 1A and WP 1B on some WRC-19 agenda items, correspondence activities continued on the following studies:

– Exchange of information and views between interested parties in ITU-T, ITU-R and other SDOs on issues of mutual interest, especially on the coexistence of wired telecommunication with radiocommunication systems;

– Wireless Power Transmission (WPT) systems, with in particular the development of draft frequency ranges and human hazard guidelines;

– Harmonization of SRD in response to Resolution ITU‑R 54 with in particular the development of draft SRD categories;

– spectrum management principles, challenges and issues related to dynamic access to frequency bands by means of radio systems employing cognitive capabilities in response to Resolution ITU‑R 58;

– spectrum monitoring evolution;

– measurement techniques and new technologies for satellite monitoring;

– other technical studies related to spectrum monitoring (e.g. DF accuracy and sensitivity, and storage of I/Q data.

The new 2015 editions of the ITU Handbooks on National Spectrum Management and on Computer-Aided Techniques for Spectrum Management were published and are available free of charge. The translation in the remaining languages is expected in the coming months.

## 5.2 Study Group 3

Following the Study Group 3 meeting in April 2015, 24 draft ITU-R Recommendations in the scope of the study group were approved. Study Group 3 continued in particular to give priority to studies dealing with propagation prediction for short-range systems in the frequency range 300 MHz to 100 GHz (Recommendations ITU-R P.1238-8 and P.1411-8), work in relation to building entry loss (Recommendation ITU-R P.2040-1) and propagation prediction for interference and sharing studies (Recommendation ITU-R P.452-16).Recommendations in the P‑series remain popular and statistics for the period 1 June 2015 to 31 December 2015 indicated that they received the highest number of downloads (more than 430 000). This is almost twice the number of downloads of the next most popular recommendation series for the same period.

## 5.3 Study Group 4

Working Parties 4A and 4C produced draft new Reports related to WRC‑15 agenda items for which they were the leading groups.

New and revised reports pertaining to the scope of SG 4 were approved, in particular the above-mentioned ones as well as Report ITU‑R S.2361-0 "Broadband access by fixed-satellite service systems” and Report ITU‑R S.2357-0 “Technical and operational guidelines for earth stations on mobile platforms communicating with geostationary space stations in the fixed-satellite service in the frequency bands 19.7-20.2 GHz and 29.5-30.0 GHz”.

New and revised recommendations pertaining to the scope of SG 4 were approved, in particular Recommendations ITU‑R M.2091-0 “Methodology to calculate spectrum requirements within the frequency bands 1 545-1 555 MHz (space-to-Earth) and 1 646.5-1 656.5 MHz (Earth-to-space) for aeronautical mobile-satellite (R) service communications related to the priority categories 1 to 6 of Article 44 of the Radio Regulations”, ITU‑R M.1831-1 “A coordination methodology for RNSS inter-system interference estimation”, ITU-R S.1587-2 "Technical characteristics of earth stations on board vessels communicating with FSS satellites in the frequency bands 5 925-6 425 MHz and 14-14.5 GHz which are allocated to the fixed-satellite service” and ITU‑R M.2082-0“Methodology and technical example to assist coordination of the mobile-satellite service and the radiodetermination-satellite service with the fixed service based on the power flux-density coordination trigger levels in the 2 483.5-2 500 MHz band”.

## 5.4 Study Group 5

Eleven Recommendations and twelve Reports pertaining to the scope of SG 5 were approved, some of which are in support of the studies carried out by SG 5 in relation to WRC‑15 agenda items. Five draft Recommendations were submitted and subsequently approved by the Radiocommunication Assembly 2015.

At the kind invitation of the Administration of Romania and ANCOM, the 15th meeting of Working Parties 5A, 5B and 5C was successfully hosted in Bucharest (Romania) on 6-16 July 2015.

WP 5A produced, among other texts, Report ITU‑R M.2377 on Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR). This report discusses the broad objectives and requirements of PPDR applications, including the increasing use of broadband technologies to meet those objectives and requirements. The expanding scope of PPDR capabilities, ranging from narrowband through wideband and broadband, offers greater utility for emergency response operations around the world, including in developing countries.

The 2014 Plenipotentiary Conference adopted Resolution 185 (Busan, 2014) on global flight tracking, which resolved to instruct WRC‑15 to include in its agenda, as a matter of urgency, the consideration of global flight tracking, including, if appropriate, and consistent with ITU practices, various aspects of the matter, taking into account ITU‑R studies. In order to progress the work on this urgent issue, WP 5B held an additional meeting (11‑15May 2015, Geneva) with the agenda limited to the development of a report on global flight tracking and the progression of an existing potential new Report (ITU‑R M.[ADS-B]) on a future application that might contribute to global flight tracking in accordance with PP Resolution 185 (Busan, 2014).

WP 5D produced several Reports and Recommendations on IMT which were subsequently approved by SG 5. In particular, Recommendation ITU‑R M.2083 (*Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond*) defines the framework and overall objectives of the future development of IMT for 2020 and beyond in light of the roles that IMT could play to better serve the needs of the networked society, for both developed and developing countries, in the future. The Recommendation describes a broad variety of capabilities associated with envisaged usage scenarios and includes further enhancement of existing IMT systems.

## 5.5 Study Group 6

In addition to revision of existing Recommendations and Reports, SG 6 approved a number of key new Recommendations and Reports, namely:

* new Recommendation ITU-R BS.2088 - Long form file format for the international exchange of audio programme materials with metadata
* new Report ITU-R BS.2388-0 - Usage guidelines for the audio definition model and multichannel audio files
* new Recommendation ITU-R BT.2087-0 - Colour conversion from Recommendation ITU-R BT.709 to Recommendation ITU-R BT.2020
* new Report ITU-R BT.2380-0 - TV colorimetry elements
* new Report ITU-R BT.2381-0 - Requirements for High Dynamic Range Television (HDR-TV) Systems
* new Report ITU-R BT.2390-0 - High dynamic range television for production and international programme exchange
* Draft new Recommendation ITU-R BS.[ADM-DEFs] - Common definitions for the Audio Definition Model
* Draft new Recommendation ITU-R BT.[EVP] - Subjective assessment of video quality using Expert Viewing Protocol (EVP)
* Draft new Recommendation ITU-R BT.[HDR-TV] - Image parameter values for high dynamic range television for use in production and international programme exchange

On 17th June 2015 SG 6 organized the [ITU International Symposium on the Digital Switchover](http://www.itu.int/en/ITU-R/GE06-Symposium-2015/Pages/default.aspx) in Geneva, which took stock of the digital TV transition process around the world. On 15th July 2015, SG6 organized an ITU-R Workshop on “[Topics on the Future of Audio in Broadcasting](http://www.itu.int/en/ITU-R/study-groups/workshops/2015-TFAB/Pages/default.aspx)”, in Geneva to present how new developments in audio delivery would affect the way programmes are made, and the new ways that sound would be brought into our lives.

SG 6 also provided important assistance to the ITU-D sector in particular in relation to the digital migration and digital dividend.

## 5.6 Study Group 7

SG 7 prepared and approved four new and two revised ITU-R Recommendations as well as thirteen new ITU-R Reports. A new Handbook on Space Research Service was prepared by WP 7B and published by ITU.

The main areas of current studies are: active sensing at 9 GHz, the future of UTC and the characteristics and spectrum requirements of satellite systems using nano and pico satellites.

## 5.7 Coordination Committee for Vocabulary

As proposed by the CCV and agreed by the RAG, the ITU‑R CCV and ITU‑T SCV meetings are now being conducted jointly, with extensive use of electronic methods. Work is on-going on improvements to the ITU terminology database.

# 6 Liaison and collaboration with ITU‑D and ITU‑T, and with other organizations

The summary of conclusions of the twenty-first Radiocommunication Advisory Group (Annex 1 to Circular Letter CA/215) indicates the main topics in ITU‑R Study Groups currently being addressed as an intersectoral activity. Intersectoral activities have continued throughout the period, particularly concerning ITU’s priority topics of climate change, emergency communications and accessibility.

*Concerning ITU‑D*: BR continues to participate in relevant Rapporteur Group meetings and contributes to the BDT workshops and seminars. These events provide an opportunity to present ITU‑R’s standardization activities and, in turn, to demonstrate their contribution to Resolution 123 (Rev. Busan, 2014) in bridging the standardization gap.

*Concerning ITU‑T*:In addition to climate change and emergency communications, topics of mutual interest between ITU‑R and ITU‑T include 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.

In this context, SG 6 is continuing its work in the three Intersector Rapporteur Groups (IRG's) on Integrated Broadband Broadcasting (IBB) systems, audiovisual media accessibility (IRG‑AVA) and 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.

*Concerning other organizations*:Healthy liaison has continued between ITU‑R Study Groups and other organizations, with due reference to Resolution ITU‑R 9-5, where required. ITU‑R and BR representatives have continued their involvement in the Global Standards Collaboration (GSC), the World Standards Cooperation (WSC), CISPR and IEC. Liaison has also been evident with UN bodies and agencies in various fields, e.g. space weather, climate change and climate monitoring (WMO, UNFCCC, Global Humanitarian Forum, GEO, SFCG, NASA, ESA) and EMF exposure (WHO).

# 7 Other intersectoral activities

BR has actively participated in other intersectoral activities, which are relevant to the work of ITU‑R Study Groups, as described below.

* *Climate Change and Emergency Communications*: Intersectoral activities continue to be coordinated by the ITU Climate Change and Emergency Telecommunications Task Force related to the implementation of Resolution 136 (Rev. Busan, 2014), in which BR has active participation. RA-12 adopted Resolution ITU‑R 60 (Reduction of energy consumption for environmental protection and mitigating climate change by use of ICT/radiocommunication technologies and systems), which is driving additional activities. The ITU‑R webpage on climate change has been updated to reflect the latest developments in this field.
* *Accessibility*: ITU-R has been actively participating in the ITU-T JCA-AHF (Joint Coordination Activity on Accessibility and Human Factors). When addressing spectrum related/EMC issues close coordination with the relevant ITU-R groups should be ensured before liaising with external organizations on those issues, particularly where well-established and efficient collaboration between ITU-R and those organizations already exists.
* *Preparation for ITU meetings*: BR is continuing its participation in the activities related to the major recent and forthcoming ITU events, conferences and meetings.

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