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| **Radiocommunication Assembly (RA-15)Geneva, 26-30 October 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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|  | **Document 7/1001-E** |
| **1 September 2015** |
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| Chairman, Radiocommunication Study Group 7 |
| CHAIRMAN’S REPORT |
| SCIENCE SERVICES |
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# 1 Introduction

In accordance with Resolution ITU-R 4-6, ITU-R Study Group 7 (SG 7) studies topics of concern and interest to the science services which include the time signal and frequency standard emissions, space research, Earth exploration-satellite, space operation, meteorological, radio astronomy and radar astronomy services. The elected officers of the Study Group are:

Chairman: Mr V. MEENS (France)

Vice-Chairmen: Dr A. AL-ARAIMI (Sultanate of Oman)
Dr H.-S. CHUNG (Republic of Korea)
 Mr U.K. SRIVASTAVA (Republic of India)
Mr A.V. VASSILIEV (Russian Federation)
Mr J. ZUZEK (United States of America)

In order to conduct its assigned studies in an efficient and effective manner, Study Group 7 delegates the specific studies to one of four Working Parties (WP):

WP 7A – Time signals and frequency standard emissions, chaired by Ronald BEARD (USA)

WP 7B – Space radiocommunication applications, chaired by Bradford KAUFMAN (USA)

WP 7C – Remote sensing systems, chaired by Edoardo MARELLI (ESA)

WP 7D – Radio astronomy, chaired by Anastasios TZIOUMIS (AUS)

# 2 Transparency

The management of the SG is overseen by the SG Steering Group. The Steering Group comprises the SG Chairman and Vice-Chairmen and the WP Chairmen, advised by the BR Counsellor. Decisions of the Steering Group are presented to the SG as a whole for concurrence by the participants. The Steering Group meets at least once during the SG meeting and the WP meetings, and conducts some of its preparatory work by electronic correspondence.

# 3 Meetings

During the reporting period (20 January 2012 - 26 October 2015), SG 7 held four (two one-day and two two-day) meetings. The two-day meetings were held on two non‑consecutive working days, separated by the Working Group meetings. The reasons for this method of working are more fully described later in the “Working methods” section of this document. The Summary Records of each of these meetings may be found at <http://www.itu.int/md/R12-SG07-C/en>.

As indicated in the table below, during this period WPs 7A, 7B, 7C and 7D each met six times, once in 2012, twice in 2013 and 2014 and once in 2015.

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|  | **May-12** | **Sept-12** | **Apr-13** | **Sept-13** | **May-14** | **Oct-14** | **May-15** |
|  | **SG** | **WP** | **SG** | **SG** | **WP** | **SG** | **WP** | **SG** |
| SG 7 |  |  |  |  |  |  |  |  |  |  |  |  |
| WP 7A |  |  |  |  |  |  |  |  |  |  |  |  |
| WP 7B |  |  |  |  |  |  |  |  |  |  |  |  |
| WP 7C |  |  |  |  |  |  |  |  |  |  |  |  |
| WP 7D |  |  |  |  |   |   |   |   |  |  |  |  |

# 4 Participation

Except for the first meeting in May 2012 the number of participants to the meetings of SG 7 ranged between 50 and 70. The May 2012 meeting was a short meeting to set up the new team and objectives for the cycles and was not tied to other meetings of the WP, the participation was in the range of 25.

The participation in WP meetings ranged from approximately 40 to 50 for WPs 7A and 7D and 60 to 70 for WPs 7B and 7C.

# 5 Productivity

The Radiocommunication Assembly 2012 assigned 35 Questions to SG 7. During the SG cycle one Question was revised, two Questions were deleted and three new Questions were drafted.

Additionally, the SG is responsible for the maintenance of 138 ITU-R Recommendations. These Recommendations are published in one of four series of Recommendations:

• The RA-series concerning radio and radar astronomy (14 Recommendations)

• The SA-series concerning space radio applications (65 Recommendations)

• The RS-series concerning remote sensing systems (36 Recommendations) and

• The TF-series concerning time signals and frequency standards emissions (23 Recommendations).

During the reporting period the SG adopted, and the Member States approved, 12 revised Recommendations and 11 new ITU-R Recommendations while two Recommendations were suppressed.

The SG also revised four ITU-R Reports and developed and approved 25 new ITU-R Reports. Four of these Reports were developed by the JTG 4-5-6-7 and approved by SG 7.

Some of the new Recommendations and Reports have relevance to items on the agenda of WRC-15.

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| Revised Questions | New Questions | Deleted Questions |
| 236-1/7 | 254/7, 255/7, 256/7 | 149-1/7, 235-1/7 |

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| Revised Recommendations | New Recommendations | Deleted Recommendations |
| RA.1417-1, RA.1513-2 |  |  |
| SA.509-3, SA.1155-1, SA.1275-4, SA.1276-4, SA.1414-1, SA.1626-1 | SA.2044-0, SA.2045-0, SA.2078-0, SA.2079-0 |  |
| RS.515-5 | RS.2017-0, RS.2042-0, RS.2043-0, RS.2064-0, RS.2065-0, RS.2066-0 | RS.1028-3, RS.1029-3 |
| TF.374-6, TF.686-3, TF.1153-4 | TF.2018-0 |  |

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| Revised Reports | New Reports |
| RA.2099-1, RA.2126-1 | RA.2259-0, RA.2332-0 |
| SA.2164-1 | SA.2271-0, SA.2272-0, SA.2275-0, SA.2276-1, SA.2277-0, SA.2307-0, SA.2309-0, SA.2312-0, SA.2325-0, SA.2329-0, SA.2348-0, SA.2349-0 |
| RS.2068-1 | RS.2260-0, RS.2273-0, RS.2274-0, RS.2308-0, RS.2310-1, RS.2311-0, RS.2313-0, RS.2314-0, RS.2315-0, RS.2336-0, RS.2350-0,  |

SG 7 currently has six existing Handbooks, two of the handbooks were edited during this cycle:

**Use of Radio Spectrum for Weather, Water and Climate Monitoring and Prediction** – this is the second edition of the joint ITU/WMO Meteorology Handbook published in 2008. This Handbook was signed jointly by the Secretary Generals of two United Nations Organizations, the ITU and the WMO.

**Radio Astronomy** – this is the third edition of the Radio Astronomy Handbook which was extensively revised in 2013.

**Selection and Use of Precise Frequency and Time Systems** – this is the first edition of the Selection and Use of Precise Frequency and Time Systems Handbook developed by Working Party 7A and published in 1997.

**Space Research Communications** – this is the second edition of the Space Research Handbook which was published in 2014.

**Satellite Time and Frequency Transfer and Dissemination** – this is the first edition of this Handbook developed by Working Party 7A and published in 2010.

**Earth Exploration-Satellite Handbook** – this is a new handbook published in 2011. This Handbook is also recognized in Resolution **673 (Rev.WRC-12)**.

# 6 Radiocommunication conference preparation

The agenda for the 2015 World Radiocommunication Conference has provided significant sources of activity for SG 7 and its Working Parties since 2012.

The WG of SG 7 have been contributing groups regarding agenda item 1.1, 1.6, 1.9, 1.0, 1.17, 1.18 and 9.1.1.

WP 7A was the responsible group for agenda item 1.14 on the feasibility of achieving a continuous time scale. This agenda item was a direct consequence of the discussion during RA-12 concerning the approval of the proposed modifications to Recommendations ITU-R TF.460-6. These modifications concerned the suppression of the leap second in the definition of UTC. Since there was no consensus and thus no possibility to adopt the Recommendation at the SG level, the Chairman of SG 7 decided to bring it forward to the RA, however the lack of knowledge and position from a large number of administrations led to the decision to give it a larger audience by making it an agenda item for WRC-15.

WP 7B was the responsible group for agenda items 1.11, 1.13 and 9.1.8.

• Agenda item1.11 relates to a new allocation for EESS (Earth-to-space) in the 7-8 GHz range for which WP 7B developed five new reports.

• Agenda item 1.13 relates to the feasibility of increasing the 5 km distance limitation for the space research service (space-to-space) allowing the use of the band 401-420 MHz for proximity operation for space vehicle communicating with a manned spacecraft; this agenda item led to the development of a new report.

• Agenda item 9.1.8 relates to regulatory aspects for nanosatellites and picosatellites for which WP 7B produces a Report.

WP 7C was the responsible group for agenda item 1.12 relative to the extension of the EESS (active band 9 300‑9 900 MHz by up to 600 MHz. WP 7C developed three Recommendations and four Reports on this issue.

# 7 Personnel

The team set-up at the beginning of the Study cycle remained as is at the end of the cycle. The work of the SG and the WPs was done under the very capable chairmanship of those people mentioned in Section 1 of this report but also with the help and good spirit of cooperation of all delegates having participated in the work of SG 7 and its WGs.

As Chairman of SG 7 I would like to express my gratitude to all participants during these almost four years of hard work.

Mr MARELLI, Chairman of WP 7C, mentioned his upcoming retirement; it will up to the new team to decide on the organization of the work for which at least one WP Chairman will be replaced. My sincere appreciation to Mr MARELLI for his work as Chairman of WP 7C.

# 8 Working method

## 8.1 Meetings

The number and duration of SG meetings was closely aligned with the product delivery from the WPs. It is useful to be able to plan dates for the annual SG meeting about one year in advance to enable the cancellation of a meeting six months prior to the planned date(s) if the WP’s report has insufficient documents for discussion. Considering the outcome from the steering group meetings, it was then decided not to have SG meetings every year.

On two occasions the SG meetings were held on two non-consecutive working days, separated by the Working Party meetings. This allowed, in case of difficulties in the adoption or approval of a Recommendation, Report or Question, to keep it within the SG and have informal discussions that allowed to resolve the difficulty during the second day of the meeting. In many instances this working method has proved to be a very useful tool in resolving the difficulties.

The four Working Parties held their meetings in parallel, however to try to make it easier for small delegations to participate fully in the discussions and decisions that concern them, the opening and closing of WP meetings were staggered wherever feasible to provide better access and to accommodate the needs of the BR Counsellor where necessary.

## 8.2 Consent Agenda

The SG meeting is scheduled for two non-contiguous days separated by a four-day meeting of the WPs. On the first day of the SG documents from the published agenda are considered one-by-one. If no objections are received to a given document’s text, that document, along with the appropriate method of submission for approval by the Member States, is “agreed” (not adopted). All documents with “agreed text” are appended to a Consent Agenda for early block consideration at the opening of the second day of the SG meeting. The Consent Agenda is published within 24 hours on the ITU website. This is done for the convenience of members/delegations that cannot afford to have their executives out of the office for six days or more, and choose to participate only in the second day of the SG meeting.

In the case of an objection or contention during the first day of the SG the discourse is curtailed and the document is either sent back to the appropriate WP for detailed discussion and modification, or in case of minor difficulties, kept within the SG for informal discussions to resolve the difficulty before the second day of the SG meeting. The WP can take advantage of the presence of the objector to resolve any difficulty.

An early item on the agenda of the second day of the SG meeting is the Consent Agenda. The list of documents (Consent Agenda) is read as one item and, if agreed again, then all items on the list are considered adopted. Any objection being raised to an item on the Consent Agenda simply means that the item is removed from the Consent Agenda for more detailed discussion later that same day.

The remainder of the second day of the SG meeting is given to consideration of those documents that were not agreed on day one (if the issues have been resolved amicably) and new items coming from the WP meeting that are either a) “mature” as described above or b) urgently required (such as for a WRC). These new items would not be adopted but would be sent for Simultaneous Adoption and Approval (PSAA).

In the case of Recommendations that were foreseen to be discussed on the second day of the SG meeting, if agreed by the SG, they would be sent for Adoption by correspondence and then Approval by correspondence.

The method has been used throughout the reporting period and has improved the efficiency and effectiveness of the SG.

# 9 Proposed modification of Appendix 7

In the current study period, Working Party 7B has prepared a report on the protection of SRS earth stations from aircraft stations in the 2 200-2 290 MHz band (Report ITU-R [SA.2276](http://www.itu.int/pub/R-REP-SA.2276-2013)), which was consequently adopted by Study Group 7. This Report gives separation distances between aircraft stations and several SRS earth stations as a function of aircraft altitudes to protect the SRS earth stations. The results show that the current 500 km predetermined coordination distance given in Table 10/Annex 7/Appendix **7** of the Radio Regulations (RR) is not sufficient to protect the SRS earth stations and actually 880  km would be needed to protect them. Based on this report, Study Group 7 has approved Recommendation ITU-R SA.2078-0 which recommends to use 880 km as the coordination distance between SRS earth stations and aircraft stations.

The last row of Table 10/Annex 7/Appendix **7** of the current RR specifies a 500 km predetermined coordination distance between mobile (aircraft) stations and ground-based stations in the bands in which the frequency sharing situation is not covered in the other rows. Since the current Table 10 does not include a row that specifies the required coordination distance between space research earth stations and mobile (aircraft) stations in the 2 200-2 290 MHz band, the administrations are likely to use 500 km as the coordination distance between these stations.

[Document 7/1005](http://www.itu.int/md/R12-SG07-RP-1005/en), therefore, proposes to add a new row to Table 10, Annex 7 in Appendix **7** of the RR that specifies the required coordination distance between aircraft stations and SRS earth stations in the 2 200-2 290 MHz band.

Under Resolution **74** **(Rev.WRC-03)** which outlines the process to keep the technical bases of Appendix **7** current, Study Group 7 seeks the view of the Radiocommunication Assembly to confirm the need to modify Appendix 7 coordination parameters. If so under *resolves* 2 of Resolution **74 (Rev.WRC-03)**, the Director of the Radiocommunication Bureau shall identify the matter in the Director’s report to WRC-15.

# 10 Conclusions

The SG has worked well during this study period. It has been able to complete all its work related to the preparation of WRC-15, adopting and approving all Reports and Recommendations that were essential in the proposed methods described in the CPM Report. The cooperation between all administrations and Sector Members was exemplary.

The review of Recommendations and Questions led by the Vice-Chairmen and the WP Chairmen implied that several Recommendations were deleted and replaced by more appropriate Reports, all in all leading to a cleaner distribution of Recommendations vs. Reports while keeping studies that have valuable information in the work of the SG.

# 11 Closing

As Chairman of SG 7, I would like to offer my sincere thanks to the Working Party Chairmen who have led the studies during the last four years. Their work has been exemplary and their leadership appreciated by the whole SG. I also wish to thank the Vice-Chairmen of the SG who cooperated well, and addressed assigned tasks diligently. Their advice within the Steering Group was invaluable in a number of cases and helped the SG achieve its goals.

I cannot adequately express my respect and admiration for the staff of the Radiocommunication Bureau, from the Director on down. I have had the privilege of working Mr Vadim NOZDRIN as counsellor. It has been a great pleasure to work with him.

A big “thank you” to all SG participants. It has been an honour and a privilege to serve you for the past four years.

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