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| **WORLD WEATHER WATCHCOMMISSION FOR BASIC SYSTEMS** |  |
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| **Steering Group on Radio-Frequency Coordination (SG-RFC)WMO Geneva, 17-19 Nov 2014** | **CBS/SG-RFC/Final Report**Draft V0.1 |
|  | 30 Jan 2015 |

**FINAL REPORT**

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Recommendations of working groups shall have no status within the Organization until they have been approved by the responsible constituent body. In the case of joint working groups the recommendations must be concurred with by the presidents of the constituent bodies concerned before being submitted to the designated constituent body.

**Regulation 44**

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# SG-RFC MEETING REPORT

[Appendix 1](#_Appendix_1_–) : Agenda

[Appendix 2](#_Appendix_2_–) : List of participants

## 1 OPENING AND ORGANIZATION OF THE MEETING

1. A meeting of SG-RFC was held during 17 to 19 November 2014 at WMO headquarters, Geneva. The meeting was chaired by Mr Jose Arimatea de Sousa Brito (Brazil). The prime focus of the meeting was to review the WMO Position Paper for WRC-15 Agenda. It was also an opportunity to address some other issues as described in the agenda. The meeting agreed on an agenda and list of documents as described in [Appendix 1](#_Appendix_1_–) and on working arrangements. A list of participants is in [Appendix 2](#_Appendix_2_–).

## 2 WMO support to radio-frequency spectrum activities

1. The meeting noted the report from CBS Ext(2014) on radiofrequency matters ([Doc-03](https://docs.google.com/a/wmo.int/uc?id=0ByYrF_HiRIHHenBGUEdZMC0zRTA&export=download)). The report contained the draft resolution for Congress to replace Resolution 4 Cg-XV and a recommendation from CBS for Congress to approve the publication of the new Guide for NMHS on Radio Frequency Coordination. SG-RFC noted further that the continued turnover of PRs made this guide even more important for ensuring new PRs were equipped with the understanding of the importance of RFC to their essential services. To this end, SG-RFC recommended that the Secretariat arrange a side meeting at Congress 17 for experts to introduce the new Guide to PRs and to take the opportunity to emphasise this important activity to Members.

## 3 WMO/SG-RFC preparation for the World Radiocommunication Conference 2015 (WRC-15)

1. The Chair briefed the meeting on the status of activities in preparation for WRC-15 including his attendance to the ITU-R WRC-15 second inter-regional workshop[[1]](#footnote-1). He noted that the Draft CPM report[[2]](#footnote-2) was available, and that although regional groups were still to clarify their positions, it was clear that Agenda Item 1.1 on mobile and IMT remained a very difficult issue. The chair expressed his appreciation to all members of SG-RFC for their contributions and hard work in the lead up to the WRC-15 to date. He further expressed his appreciation at being able to represent WMO at the inter-regional workshops in December 2013 and November 2014. He further noted that there will be a final inter-regional workshop in 1 to 3 September 2015 where the WMO position paper will need to be presented with appropriate representation. The September 2015 meeting will also provide input to the final version of the WMO position paper at the next meeting of the SG-RFC for submission to WRC-15.
2. Participants reviewed the status and positions of the ITU regional telecommunication organizations. Mr Henry Karunja reported on the African Telecommunication Union (ATU), Mr Philippe Tristant on the European Conference of Postal and Telecommunication Administrations (CEPT), the Chair on the Inter-American Telecommunication Commission (CITEL), Mr Aleksandr Azarov on the Regional Commonwealth in the Field of Communications (RCC) and the secretariat on the Asia-Pacific Telecommunity (APT). The meeting also considered what was available from the Arab Spectrum Management Group (ASMG). It emphasized the importance of getting regional participation in the SG-RFC and requested that the secretariat continue to work on getting representation from ASMG.
3. The meeting noting that as the draft CPM Report was available, ITU’s regional organizations will begin finalising their positions. It agreed that it is essential to have WMO position represented at the ITU regional telecommunication organizations’ WRC-15 preparation meetings. It requested that the secretariat write to the chairs of the ITU regional groups, sending them the WMO position paper and asking for 15 minutes to present the paper at their meetings. It noted that it will be necessary to choose which meetings are best to participate in and that upcoming preparation meetings to be involved in included ATU, ASMG and RCC. It noted that the chair should be able to cover the upcoming CITEL and that CEPT was already well represented by the SG-RFC experts. APT will also need to be covered.
4. The meeting reviewed its cooperation with other organizations including GEO, the Space Frequency Coordination Group (SFCG) and the Coordination Group on Meteorological Satellites (CGMS).
	1. The chair noted that he had been working closely with Mr Brian Killough (CEOS) who is the coordinator for the Infrastructure - Earth Observing Systems task on Radio Frequency Protection (IN-01-04 – See <http://www.earthobservations.org/ts.php?id=134>). The chair reported that there had been a lot of activity in preparation for the GEO Plenary[[3]](#footnote-3) X and XI with WMO SG-RFC taking the lead.
	2. Mr Markus Dreis reported on CGMS issues including the exchange of letters between CGMS and WMO (available to registered SG-RFC members as Docs [9a](http://wis.wmo.int/doc%3D3379) & [9b](http://wis.wmo.int/doc%3D3381) on the meeting page) relating to the 5GHz and the impact on the next generation scatterometers. He expects that EUMETSAT and ESA will undertake impact studies for consideration by the next WRC cycle if necessary.
	3. Mr Dreis also reported on the work of SFCG. The meeting noted the close alignment of the SFCG position with WMO on overlapping issues
5. Mr Oguzhan Sireci introduced the report from CIMO ([Doc 11](http://wis.wmo.int/doc%3D3391)). The meeting noted that CIMO was now addressing the issue of the interference from wind farms on weather radar which will be identified in the WIGOS manual pointing to the CIMO Guide, which will also be updated on how to address this issue. The meeting noted the strong support from CIMO regarding Wireless Avionics Intra-Communication (WAIC) addressed under WRC15 agenda item 1.17 (preliminary studies could show some conflicts with S and C Band weather radars), and emphasised that this is a very different issue to that raised by CIMO relating to Unmanned Aeronautical Vehicles (UAV) even in the 5 GHz band which also will need to be addressed separately. The meeting also discussed the issues of frequency allocation to wind profilers, noting existing allocation by footnote did not exclude Met services from seeking protection nationally including application of exclusion zones. SG-RFC noted the draft work plan for theme leaders on radio frequency protection and that Mr David Franc has now replaced Ms Kraai to work with Mr Sireci. It expressed its appreciation to the work done by Ms Kraai and Mr Sireci.
6. The meeting reviewed the WMO Position Paper on the WRC-15 Agenda, taking into consideration the Draft CPM Report and the discussions on regional activity and status reports. It reviewed the structure of the position paper noting that the role of the paper will vary with time, and that although the final position paper will be targeted to WRC15, its present role will be to assist experts, NMHS and SG-RFC members in making WMO’s position known to the ITU national and regional organizations in their final preparations for WRC15. Participants agreed to the final working document and to advise the secretariat of any changes within the following week so that the updated position paper could be processed within the secretariat and made available for distribution to stakeholders as soon as possible. The approved WMO Position Paper will be maintained at [http://wis.wmo.int/file=965](http://wis.wmo.int/file%3D965).

## 4 Other radio-frequency spectrum issues

1. **Space Weather**. Mr David Franc presented [Doc 04](http://wis.wmo.int/doc%3D3349) on Space Weather. As a follow-up to SG-RFC discussions on space weather sensors in March 2014 the USA developed an ITU-R Study Group 7 Question that was approved by ITU-R Study Group 7 in September 2014. The Question, attached to [Doc 04](http://wis.wmo.int/doc%3D3349), is the first step in determining the actions required to provide the necessary protection to space weather sensors. Members are encouraged to make contributions to the study process through submissions to either ITU-R Working Party 7C or to the WMO SG-RFC. Information on system characteristics, operations and known spectrum compatibility issues are needed.
2. **S-Band Radar.** Mr Franc presented [Doc 05](http://wis.wmo.int/doc%3D3365) introducing an ITU-R DRAFT NEW REPORT ITU-R M.[OOB S-BAND] “Assessment of interference to radars operating within the 2 700-2 900 MHz band from broadband wireless systems operating in adjacent frequency bands.” The Report addresses issues experienced by radar systems from broadband mobile systems operating in adjacent frequency bands. It was developed to be used as a reference for administrations that may experience similar interference in the frequency band 2700-2900 MHz. It was agreed that the SG-RFC take steps to make this Report known to Members.
3. **MetSat/EESS.** The meeting reviewed [Doc 06](http://wis.wmo.int/doc%3D3393) and [Doc 10](http://wis.wmo.int/doc%3D3385) on MetSat/EESS and related active and passive sensing. It noted the report of Mr Bryan Huneycutt ([Doc 06](http://wis.wmo.int/doc%3D3393)) on EESS active. In addition to the components that related to the WRC-15 agenda covered under item 3 above, the meeting noted that the report is an excellent summary of recent activity of Working Party 7C of ITU-R Study Group 7 and related active sensing under EESS. Mr Jim Metzner presented [Doc 10](http://wis.wmo.int/doc%3D3385) which provided an update on issues affecting MetSat systems including those related to active and passive sensing instruments. The meeting noted the recent work of Working Parties 7B and 7C on WRC-15 preparation and other MetSat/EESS activities.
4. **Oceanographic Radars.** Mr David Franc and Mr Robert Leck presented [Doc 07](http://wis.wmo.int/doc%3D3369) on Oceanographic Radars. The meeting noted the ITU-R Draft New Report “Guidelines for the use of spectrum by oceanographic radars in the frequency range 3 to 50 MHz” that was attached to [Doc 07](http://wis.wmo.int/doc%3D3369) and agreed that WMO Members should be made aware of the existence of this Report, the ITU-R Oceanographic Radar Database, and the need for coordination of all oceanographic radars sharing spectrum within a geographic area. It noted that the Oceanographic Radar Database will need TIES accounts to access but that the project was described online at <http://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/res_612_or.aspx>. It noted that, although use of the database was not mandatory, submission of data will be in the best interest of all oceanographic radar operators to provide complete and accurate information so that effective coordination between radars can be accomplished.
5. **Lightning Detection.** Mr Neil Bewley presented [Doc 08](http://wis.wmo.int/doc%3D3395) on Lightning Detection. The meeting was not aware of any current frequency management actions concerning lightning detection sensors and systems under work in ITU study groups, with no specific update subsequent to the attainment of VLF allocation at WRC-12. However, it noted that lightning detection sensors operating outside the frequency allocation 8.3 to 11.3 kHz are very susceptible to radio interference, and would benefit from better protection under the Radio Regulations. The information provided by these sensors and systems is vital for predicting severe weather events and protecting the general public and critical services and infrastructure during these events. The meeting noted that the science and technology of lightning detection was advancing and that some countries were looking at a proposal for WRC-19 of *a primary allocation of approximately 6 MHz in the frequency range 47-68 MHz to the Meteorological Aids (MetAids) (Passive) Service for the detection of intra-cloud lightning.* It noted that Sweden has proposed that a primary allocation be made to the Mobile Service in the entire 47-68 MHz band (VHF Band I), therefore it is a timely opportunity to make the above alternative proposal for a primary allocation for part of this band to the MetAids (passive) service. The meeting considered a request that had been received from the USA by Australia on lightning detection. It recommended that Australia advise the requestor to contact NOAA who can then provide guidance on appropriate procedures.

## 5 Any other business

1. **Wind Profilers and Wind Farms**. Mr David Franc, Mr Philippe Tristant and Mr Oguzhan Sireci reported on a side meeting with WMO Secretariat CIMO staff to discuss wind profiler and wind farm issues. SG-RFC noted that the guidance for weather radar operators on wind farm avoidance needed to be updated in both the RFC guide[[4]](#footnote-4) and the CIMO guide[[5]](#footnote-5) with a broader table of placement characteristics (eg. Height of towers, distance, etc). Mr Franc noted that he would bring something to the next meeting of SG-RFC on this matter.
2. SG-RFC noted that CIMO also had concerns about protection for wind profilers from other users of the frequencies they operate in. These are typically around 50MHz, 400MHz and 1200MHz, depending on the height of penetration into the atmosphere that the profiler is designed to monitor. SG-RFC advised that claiming for protection would need to be raised by administrations as a future WRC item, which in turn needs to come from the ITU-R regions. Normally, two regions need to support the idea. The meeting noted that it might be difficult to get the support needed and agreed that Mr Franc will prepare a document for CIMO describing what bands are available under existing Radio Regulations (ie Resolution 217, Article 29A WRC-12, Res 5.162.a and Res 5.291.a). CIMO should then provide advice and information SG-RFC would need to be able to follow up further. Mr Gilles Fournier noted that there was an existing action item on Mr Fournier and Dr Ming Zhang to follow up on gathering information to update resolutions, footnotes and recommendations. The meeting also noted that 5.291.a listed mostly European countries. Mr Tristant agreed to follow up on Europe and Mr Bewley on the UK.
3. **Provision of information to NMHS management processes**. The meeting noted the increasing need for experts to be able to provide their senior management with more detailed information on why NMHS need to participate in RFC matters and what risks the NMHS is facing if contributions are not made or how much concession can be tolerated to any particular WMO position or decision. The meeting agreed that experts should be able to provide risk based analysis on issues including options and the impacts of each but that such information needs to be appropriately protected from being used out of context. Noting that placing such information on our WMO Servers, even password protected, would not ensure sufficient control. It agreed that experts should feel free to consult with SG-RFC members to assist in briefing their management but not to try and make such detailed information available through the SG-RFC document servers.

## 6 Closure of meeting

1. The chair thanked participants for their hard work and contributions to the meeting. He noted that the secretariat will put the WRC15 position paper on the server and distribute to Members. He noted that it is important to continue to advocate participation of NMHS in frequency regulatory bodies and that this would need the secretariat to produce a condensed guide or executive summary in the form of a flyer that can be made available to Members. He would like this to be available at the Congress 17 side meeting on RFC matters.
2. The meeting reviewed the schedule of events leading up to WRC15 and agreed that the next meeting should be in October 2015, allowing time to receive the final CPM report and regional positions.
3. The chair thanked the secretariat for their support of the meeting and on-going work of SG-RFC. He wished everyone a pleasant and safe journey home and closed the meeting.

# Appendix 1 – Agenda

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|  |  | Document SG-RFC/ |
| **1.** | **ORGANIZATION OF THE MEETING** |
| 1.1 | Opening of the meeting |  |
| 1.2 | Approval of the agenda | [Doc-01](http://wis.wmo.int/doc%3D3387)  |
| 1.3 | Working arrangement |  |
| **2** | **WMO support to radio-frequency spectrum activities** |
| 2.1 | Outcome of CBS Ext 2014 and the way forward | [Doc-03](https://docs.google.com/a/wmo.int/uc?id=0ByYrF_HiRIHHenBGUEdZMC0zRTA&export=download) |
| **3** | **WMO/SG-RFC preparation for the World Radiocommunication Conference 2015 (WRC-15)** |
| 3.1 | Short report on the WRC-15 2nd Inter-regional Preparation Workshop (Nov 2014) | [ITU Web](http://www.itu.int/en/ITU-R/conferences/wrc/2015/irwsp/2014/Pages/default.aspx)# |
| 3.2 | Reports on regional preparation to WRC-15 |
| 3.2.1 |  African Telecommunication Union (ATU)  | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0008)# |
| 3.2.2 |  Arab Spectrum Management Group (ASMG) | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0014)# |
| 3.2.3 |  Asia-Pacific Telecommunity (APT) | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0007)# |
| 3.2.4 |  European Conference of Postal and Telecommunication  Administrations (CEPT) | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0006)# |
| 3.2.5 |  Inter-American Telecommunication Commission (CITEL) | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0009)# |
| 3.2.6 |  Regional Commonwealth in the Field of Communications (RCC) | [ITU PPT](http://www.itu.int/md/meetingdoc.asp?lang=en&parent=R14-WRC15PREPWORK-C-0004)# |
| 3.3 | Cooperation with other organizations in preparation to WRC-15 |
| 3.3.1 |  Coordination Group for Meteorological Satellites (CGMS) | \*\*Doc [9a](http://wis.wmo.int/doc%3D3379) & [9b](http://wis.wmo.int/doc%3D3381) |
| 3.3.2 |  Space Frequency Coordination Group (SFCG) | \*\*[SFCG FTP](https://www.sfcgonline.org/ftp/File%20Library/Plenary/Plenary-Output/SWG1/012%20RES%20SFCG%2032-1R2%20%28SFCG%20Objectives%20for%20WRC%29.docx) |
| 3.3.3 |  CIMO report | [Doc 11](http://wis.wmo.int/doc%3D3391) |
| 3.3.4 |  GEO | xx |
| 3.4 | Review of the WMO preliminary position on the relevant WRC-15 Agenda items | Output Doc[http://wis.wmo.int/file=965](http://wis.wmo.int/file%3D965)  |
| 3.5 | Organization of SG-RFC activity at WRC-15 | Discussion |
| **4** | **Other radio-frequency spectrum issues** |
| 4.1 | Space Weather | [Doc 04](http://wis.wmo.int/doc%3D3349) |
| 4.2 | S Band Radar | [Doc 05](http://wis.wmo.int/doc%3D3365) |
| 4.3 | MetSat/EESS and related active and passive sensing | Doc [06](http://wis.wmo.int/doc%3D3367), [10](http://wis.wmo.int/doc%3D3385) |
| 4.4 | Oceanographic Radars | [Doc 07](http://wis.wmo.int/doc%3D3369) |
| 4.5 | Lightning Detection | [Doc 08](http://wis.wmo.int/doc%3D3371) |
| **5** | **Any other business** | [Doc 02](http://wis.wmo.int/file%3D1057) |
| **6** | **Next meeting** | xx |

(\*\* Document has restricted access to WMO Wiki, ITU Ties or SFCG ftp.)
(# See ITU-R meeting page - http://www.itu.int/en/ITU-R/conferences/wrc/2015/irwsp/2014/Pages/default.aspx)

# Appendix 2 – List of participants

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| --- | --- |
| **Country or Organization** | **Representative** |
| Brazil | José Arimatea de Sousa Brito (Chair) |
| Canada | Gilles Fournier (Co-chair) |
| CIMO | Mr Oguzhan Sireci |
| EUMETSAT | Markus Dreis |
| EUMETNET | Philippe Tristant |
| France | Éric Allaix |
| Kenya | Henry Karanja |
| Russian Federation | Aleksandr Azarov |
| Switzerland | Jean-Michel Clerc |
| Switzerland | Maxime Hervo |
| UK | Neil Bewley |
| USA | David Franc |
| USA | James Metzner |
| USA | Robert Leck |
| WMO | David THOMAS, Alexandre VASSILIEV |

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1. <http://www.itu.int/en/ITU-R/conferences/wrc/2015/irwsp/2014/Pages/default.aspx> [↑](#footnote-ref-1)
2. Draft CPM Report on WRC-15 [http://wis.wmo.int/doc=3313](http://wis.wmo.int/doc%3D3313) (Need WMO wiki login to access) [↑](#footnote-ref-2)
3. <http://www.earthobservations.org/meetings.php> [↑](#footnote-ref-3)
4. [“Use of radio spectrum for meteorology: weather, water and climate monitoring and prediction”](http://www.itu.int/en/publications/ITU-R/pages/publications.aspx?parent=R-HDB-45-2008&media=electronic) [↑](#footnote-ref-4)
5. “ [CIMO Guide - Provisional 2014 Edition as approved by CIMO-16](http://www.wmo.int/pages/prog/www/IMOP/publications/CIMO-Guide/Provisional2014Edition.html)" [↑](#footnote-ref-5)