

Resolution 23-1

**SFCG OBJECTIVES FOR
WORLD RADIOCOMMUNICATION CONFERENCES**

The SFCG,

CONSIDERING

- a) that its member agencies are vitally interested in achieving changes to the ITU Radio Regulations (RR) in order to enhance future space science system operations;
- b) that changes to the RR can only be accomplished at World Radiocommunication Conferences (WRCs);
- c) that on the agendas of all of these WRCs, items of interest to SFCG member agencies may be included;
- d) that it is essential for SFCG member agencies to coordinate their conference preparations and to provide the necessary rationale for their requirements in order to achieve the desired results at WRCs;

RESOLVES

- 1. that consideration of SFCG WRC Objectives for the next and subsequent competent conferences identified in Annex 1 is vital for member agencies;
- 2. that, in preparation for WRCs, Annex 1 shall be up-dated in the light of conference agendas and evolving Objectives;
- 3. that Annex 2 shall list items of interest to SFCG members for consideration at a future conference, but not yet sufficiently mature for inclusion in Annex 1.
- 4. that member agencies will urge their administrations to make proposals to competent WRCs which satisfy these Objectives.

Annex 1 to SFCG Resolution 23-1

SFCG WRC-07 Objectives

Introduction

These are the objectives of SFCG members relative to the space science services on the agenda of the 2007 World Radio Communication Conference (WRC-07). The contents may be used by SFCG members to inform their Administrations, and to facilitate conference preparation and WRC consideration.

The presentation is organized to align with Agenda for the WRC-07 as presented in Resolution 802 [COM7/A] (WRC-03). Not all of the items in that agenda are of interest to the SFCG and therefore only those specific agenda items, relating to SFCG issues, are discussed herein.

SFCG promotes the use of space-based passive sensors to provide vital ecological and environmental data that is unobtainable by any other means. Such passive sensors depend for their successful operation on frequency bands that are defined by the physical laws of the atmosphere.

SFCG also promotes spectrum efficiency and recognizes the need for and the value of sharing frequency bands between more than one radio service, in cases where mutually agreed sharing and protection criteria have been established based on the results of ITU-R studies.

However, in frequency bands allocated to the Earth exploration-satellite (passive) service, where sharing with active systems has been shown to be not feasible, the SFCG holds the view that such active systems should not be implemented, and would support any review by administrations that might lead to a reduction in the number of such infeasible sharing situations in the Table of Frequency Allocations.

Agenda Item 1.2 “to consider allocations and regulatory issues related to the Earth exploration-satellite (passive) service, space research (passive) service and the meteorological satellite service in accordance with Resolutions 746 [COM7/8] (WRC-03) and 742 [COM5/3] (WRC-03)”

Resolution 746 [COM7/8] resolves 1 calls for sharing analyses between geostationary meteorological satellites operating in the space-to-Earth direction and the fixed, fixed-satellite and mobile services in the band 18-18.4 GHz to

define appropriate sharing criteria with a view to extending the current 18.1-18.3 GHz geostationary meteorological satellites allocation in the space-to-Earth direction to 300 MHz of contiguous spectrum. This will satisfy the requirement for the transmission of data from high resolution sensors on the next generation geostationary meteorological satellites, which will be launched in the time-frame 2015-2020.

SFCG Objective

SFCG supports this expansion of the current 18 GHz allocation for transmission of high rate data from geostationary meteorological satellites. SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Party 7B.

Resolution 746 [COM7/8] resolves 2 calls for sharing analyses between the EESS (passive) and the SRS (passive) and the fixed and mobile services in the band 10.6-10.68 GHz to determine appropriate sharing criteria. The EESS (passive) operating in the band 10.6-10.68 GHz may experience harmful interference from the emissions of systems of active services. The band 10.6-10.68 GHz is of primary interest for the measurement of rain, snow, sea state, ocean wind and soil moisture.

SFCG Objective

SFCG supports the protection of the passive services from the active services in the 10.6-10.68 GHz band. SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Party 7C.

Resolution 742 [COM 5/3] calls for sharing studies between the passive services and the fixed and mobile services in the band 36-37 GHz in order to define appropriate sharing criteria. EESS (passive) systems may experience harmful interference if a high density of fixed or mobile service stations is deployed in the band 36-37 GHz.

SFCG Objective

SFCG supports the protection of EESS (passive) systems and encourages its members to carefully consider any deployment of fixed or mobile service stations in the 36-37 GHz band within their Administrations. SFCG members are encouraged to support sharing studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Party 7C.

Agenda Item 1.3 “in accordance with Resolution 747 [COM7/9] (WRC-03), consider upgrading the radiolocation service to primary allocation status in the bands 9 000-9 200 MHz and 9 300-9 500 MHz and extending by up to 200 MHz the existing primary allocations to the Earth exploration-satellite service (active) and the space research service (active) in the band 9 500-9 800 MHz without placing undue constraint on the services to which the bands are allocated”

Resolution 747 [COM7/9] calls for the technical characteristics, protection criteria, and other factors of radiolocation, radionavigation, EESS (active) and space research (active) systems that ensure compatible operations in the band 9 300-9 500 MHz and the study of the compatibility between terrestrial radars of the radiolocation and radionavigation services, and spaceborne radars of the Earth exploration-satellite and space research services in the band 9 300-9 500 MHz. In the event that sharing studies in the 9 300-9 500 MHz band lead to unsatisfactory conclusions which do not fully satisfy the requirement for an increase by up to 200 MHz of contiguous spectrum for EESS (active) and space research (active) services, additional sharing studies in the alternative frequency range 9 800-10 000 MHz are to be performed.

SFCG Objective

SFCG supports the increase in the current 9 GHz allocation to the EES (active) and SRS (active). SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Parties 7C and 8B.

Agenda Item 1.4 “to consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account of the results of ITU-R studies in accordance with Resolution 228 (Rev.WRC-03)”

Any allocation to the IMT-2000 systems in bands already allocated to the meteorological aids, meteorological-satellite, Earth exploration-satellite, and space research services could pose a threat to those services.

SFCG Objective

The SFCG objective is to protect space science services allocations that may be considered for allocation to IMT-2000 and future systems, and support suppression of Resolution 228 (Rev. WRC-03). It is recommended that SFCG

members participate in and contribute to the preparation of CPM text, either directly or through their administrations, to ensure that the bands of interest to SFCG members, in particular the 2025 - 2110 MHz, 2200 – 2290 MHz bands and the 2290 – 2300 MHz bands, are not considered suitable and available to satisfy the requirements of IMT-2000 and systems beyond IMT-2000. And, in addition, that the provisions regarding the use of the 2110 – 2120 MHz band are not further eroded to accommodate the future requirements of IMT-2000 and systems beyond IMT-2000. SFCG members are also encouraged to review the results of these studies as documented by ITU-R Working Party 8F and to offer comments to Working Party 8F through Study Group 7.

Agenda Item 1.5 “to consider spectrum requirements and possible additional spectrum allocations for aeronautical telecommand and high bit-rate aeronautical telemetry, in accordance with Resolution 230 [COM7/5] (WRC-03)”

Resolution 230 [COM7/5] (WRC-03) calls for additional allocations between 3 and 30 GHz for wideband aeronautical telemetry and associated telecommand. The impacts to existing allocations to meteorological aids, meteorological-satellite, Earth exploration-satellite, and space research need to be considered as new allocations to wideband aeronautical telemetry and associated telecommand are pursued.

SFCG Objective

The SFCG objective is to protect existing space science services allocations and to support the studies that may lead to additional allocations in the 3 to 30 GHz band for aeronautical telecommand and high bit-rate aeronautical telemetry, which may also be used during atmospheric testing by space agencies. SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Party 8B.

Agenda Item 1.6 “to consider additional allocations for the aeronautical mobile (R) service in parts of the bands between 108 MHz and 6 GHz, in accordance with Resolution 414 [COM7/6] (WRC-03) and, to study current satellite frequency allocations, that will support the modernization of civil aviation telecommunication systems, taking into account Resolution 415 [COM7/7] (WRC-03)”

Resolution 414 [COM7/6] (WRC-03) calls for a review of bands allocated to aeronautical systems in the frequency range between 108 MHz and 6 GHz, and to determine whether additional allocations to the aeronautical mobile (R) service are required. The band 5 091-5 150 MHz is of particular interest.

Existing allocations to meteorological aids, meteorological-satellite, Earth exploration-satellite, and space research need to be taken into account during the studies of possible new allocations to the aeronautical mobile service.

SFCG Objective

The SFCG objective is to protect existing space science services allocations in the 108 MHz and 6 GHz bands. SFCG members are encouraged to review studies within SFCG and contribute to and participate in ITU-R Working Party 8B.

Agenda Item 1.7 “to consider the results of ITU-R studies regarding sharing between the mobile-satellite service and the space research service (passive) in the band 1 668-1 668.4 MHz, and between the mobile-satellite service and the mobile service in the band 1 668.4-1 675 MHz in accordance with Resolution 744 [COM5/12] (WRC-03)”

Resolution 744 [COM5/12] calls for studies relating to provisions to protect space research (passive) space stations from harmful interference from mobile earth stations in the band 1 668-1 668.4 MHz.

SFCG Objective

SFCG supports the protection of the space research allocation in the band 1668-1668.4 MHz. SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Parties 7C and 8D.

Agenda Item 1.8 “to consider the results of ITU-R studies on technical sharing and regulatory provisions for the application of high altitude platform stations operating in the bands 27.5-28.35 GHz and 31-31.3 GHz in response to Resolution 145 [COM5/17] (WRC-03), and for high altitude platform stations operating in the bands 47.2-47.5 GHz and 47.9-48.2 GHz in response to Resolution 122 (Rev.WRC-03)”

Resolution 145 [COM5/17] (WRC-2003) calls for technical sharing criteria or high altitude platform stations (HAPS) system design conditions to ensure that HAPS applications in the fixed service operate successfully on a non-harmful interference, non-protected basis in the bands 27.5-28.35 GHz and 31-31.3 GHz. The 31.3-31.8 GHz band is allocated to the radio astronomy, Earth exploration-satellite (passive) and space research (passive) services. WRC-03 amended No. 5.543A to specify signal levels that would protect satellite passive services and radio astronomy stations in the band 31.3-31.8 GHz.

HAPS unwanted emission limits as given in footnote 5.543A may have to be revised in light of modifications to ITU-R SA.1290 (see also AI 1.20).

SFCG Objective

SFCG supports the need for protection of the 31.3-31.8 allocation to the radio astronomy, Earth exploration-satellite (passive) and space research (passive) services. SFCG members will review the results of the HAPS studies as documented by Working Party 4-9S, and participate in Working Parties 7C, 7D and 4-9S as necessary to ensure that the passive space science services are protected.

Agenda item 1.17 “to consider the results of ITU-R studies on compatibility between the fixed-satellite service and other services around 1.4 GHz, in accordance with Resolution 745 [COM5/14] (WRC-03)”

Resolution 745 [COM5/14] (WRC-03) calls for studies, including the measurement of emissions from equipment that would be employed in operational systems, to validate that the systems meet all requirements for the protection of passive services in the band 1 400-1 427 MHz from unwanted emissions from FSS feeder links for non-GSO satellite systems in the MSS with service links operating below 1 GHz, and to study the power flux-density (pfd) values required to protect sensors of the EESS (passive) operating in the band 1 400-1 427 MHz. Acceptable emission levels have already been identified in Working Party 7C.

SFCG Objective

SFCG supports the protection of the passive services in the band 1400-1427 MHz. SFCG recognizes the need for studies of adequate unwanted emission level specifications as well as the required bandpass rejection capability of sensor filters. SFCG members are encouraged to support these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Parties 7C, 7D and 8D.

Agenda item 1.18 “to review pfd limits in the band 17.7-19.7 GHz for satellite systems using highly inclined orbits, in accordance with Resolution 141 [COM4/23] (WRC-03)”

Resolution 141 [COM4/23] (WRC-03) calls for studies to determine whether the current pfd limits for non-GSO systems in the FSS in Article 21 are adequate to protect the fixed service in the 17.7-19.7 GHz band from non-geostationary systems without unduly constraining the use of these non-GSO FSS systems, and to determine whether there are technical and operational measures in the band 17.7-19.7 GHz that could be implemented in the fixed service to mitigate

interference from FSS space stations. The band 18.1-18.3 GHz is allocated to the meteorological-satellite service (space-to-Earth) on a primary basis, limited to geostationary satellites and in accordance with the provisions of Article 21, Table 21-4, under footnote 5.519. The band 18.6-18.8 MHz is allocated to EESS (passive) and SRS (passive).

SFCG Objective

SFCG supports the protection of these existing science service allocations. SFCG members are encouraged to monitor these non-GSO FSS system studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Parties 7C and 4-9S.

Agenda item 1.20 “to consider the results of studies, and proposals for regulatory measures regarding the protection of the Earth exploration-satellite service (passive) from unwanted emissions of active services in accordance with Resolution 738 [COM4/14] (WRC-03)”

Resolution 738 [COM4/14] (WRC-03) calls for studies on the compatibility analyses between EESS (passive) and the corresponding active services in certain bands listed below with a view to updating Recommendation ITU-R SM.1633 or developing additional Recommendations.

EESS (passive) band	Active service band	Active service
1 400-1 427 MHz	1 350-1 400 MHz	Fixed service (FS) Mobile service (MS) Radiolocation service
1 400-1 427 MHz	1 427-1 429 MHz	FS, MS (except aeronautical mobile service) and space research service (Earth-to-space)
1 400-1 427 MHz	1 429-1 452 MHz	FS and MS
23.6-24 GHz	22.55-23.55 GHz	Inter-satellite service
31.3-31.5 GHz	30-31 GHz	FSS (Earth-to-space)
50.2-50.4 GHz ¹	50.4-51.4 GHz ¹	FSS (Earth-to-space) ¹
50.2-50.4 GHz ¹	47.2-50.2 GHz (Regions 2 and 3) 49.44-50.2 GHz ¹ (Region 1)	FSS ¹

¹ Studies in this band must take into account No. 5.340.1 of the Radio Regulations.

According to Recommendation ITU-R SM.1633, the EESS (passive) in the band 52.6-54.25 GHz can be protected if the unwanted emissions of fixed-service systems operating in the band 51.4-52.6 GHz do not exceed –33 dBW in a 100 MHz reference bandwidth in the band 52.6-54.25 GHz. The results of Rec. ITU-R SM.1633 were based on the use of values obtained from Rec. ITU-R

SA.1029-1 which have been superceded by Rec. ITU-R SA.1029-2. This will require that the Rec. ITU-R SM.1633 annexes pertaining to EESS will need to be revised and the corresponding results re-examined.

SFCG Objective

SFCG supports the protection of these EESS (passive) allocations. SFCG members are encouraged to participate in these studies and their discussions within SFCG and via contributions to and participation in ITU-R Working Party 7C and Task Group 1/9 In addition, SFCG members are encouraged to consider contributions to Working Party 7C in bands other than those listed in Resolution 738 for possible development of joint ITU-R Recommendations with the affected active services.

Agenda item 7.1 “to consider and approve the Report of the Director of the Radiocommunication Bureau on inconsistencies encountered in the application of the Radio Regulations, and action in response to Res. 80 (WRC-2000)”

Resolution 951 [COM7/2] (WRC-03) calls for studies to be carried out by ITU-R to examine the effectiveness, appropriateness and impact of the Radio Regulations, with respect to the evolution of existing, emerging and future applications, systems and technologies, and to identify options for improvements in the Radio Regulations.

SFCG Objective

SFCG supports the opportunity to improve the Radio Regulations. SFCG members are encouraged to participate in these studies and their discussions within SFCG and via contributions to and participation in ITU-R Study Groups 7 and 1.

Annex 2 to SFCG Resolution 23-1-1

Items of interest to SFCG members for consideration at a future conference

The items of interest to SFCG members for consideration at a future conference are listed here. The presentation is organized to align with Agenda for the WRC-10 as presented in ITU-R Resolution 803 [COM7/B] (WRC-03). Not all of the items in that agenda are of interest to the SFCG and therefore only those specific agenda items, relating to SFCG issues, are presented herein.

Agenda item 2.2 “to consider frequency allocations between 275 GHz and 3 000 GHz taking into account the result of ITU-R studies in accordance with Resolution 950 [COM7/1] (WRC-03)”

Agenda item 2.7 “to consider the progress of ITU-R studies concerning the technical and regulatory issues relative to the fixed service in the 81-86 and 92-100 GHz frequency bands, taking into account Resolutions 731 (WRC-2000) and 732 (WRC-2000)”

Agenda item 2.8 “to consider the progress of the ITU-R studies concerning the development and regulatory requirements of terrestrial wireless interactive multimedia applications, in accordance with Recommendation 951 [COM7/2] (WRC-03) and to take any appropriate action on this subject”

Other items of interest to SFCG which are not currently proposed for any WRC agenda include:

- To review ITU-R footnote 5.332 and 5.335A with respect of the frequency band 1 215-1 260 MHz and 1260-1300 MHz concerning the Earth exploration-satellite (active) service and other services

- Upgrade from secondary to primary the allocation to EESS (active) in the band 24.05-24.25 GHz

- Make primary allocations to the space research (passive) service below 10 GHz, including the following bands:
 - 322 - 328.6 MHz
 - 1660-1660.5 MHz
 - [1668.4 - 1670 MHz]
 - 4950 - 5000 MHz

- Review ITU-R footnotes 5.469A, 5.476A, 5.498A, 5.501B and 5.513A, which affect active sensor operations in the following bands
 - 8550 – 8650 MHz
 - 9500 – 9800 MHz
 - 13.25 – 13.75 GHz
 - 17.2 – 17.3 GHz

- To highlight the importance and restrictions imposed on the 1544-1545 MHz band under ITU-R footnote 5.356 for safety and distress communications by modifying the Table of Frequency Allocations of the ITU Radio Regulations.

- The SFCG should advocate the introduction of a change to the Table of Frequency Allocations precluding the operation of aeronautical mobile transmissions in the band 37-38 GHz, to improve the sharing situation between the mobile service and the space research service. A similar effort is underway in ITU-R Working Party 9D to protect stations in the fixed service by excluding emissions from aeronautical mobile stations in bands above 37 GHz.

- Review the need for ITU-R footnotes 5.536A and 5.536B appended to the allocations to the space science services in the 25.25-27.5 GHz band.