ATTACHMENT 1
to FCC Public Notice DA 11-447

Recommendations presented at 8 March 2011 Meeting of the Advisory Committee for the 2012 World Radiocommunication Conference

Maritime Aeronautical and Radar Services

DOCUMENT WAC/121(08.03.11)

UNITED STATES OF AMERICA

Draft Proposals for the Work of the Conference

Agenda Item 1.21: *to consider a primary allocation for radiolocation services in the band 15.4-15.7 GHz, taking into account the results of ITU-R studies, in accordance with Resolution **614 (WRC-07)***

Background Information: Resolution **614 (WRC-07)** calls for WRC-12 to consider a new primary Radiolocation Service (RLS) allocation in the band 15.4-15.7 GHz to provide additional spectrum for new radar systems, to enhance surveillance, mapping, navigation and weather observation. The additional bandwidth will provide greater image resolution, improve range accuracy, allow for greater radar density, improve interference performance, lower system costs, and increase ability to collect more information about an object or area observed by a radar. Operation of these radars must not adversely affect other co-primary services in the band, or the radio astronomy service in the adjacent band, 15.35-15.40 GHz. This proposal also takes into account the need for an allocation in the range 15.4-15.6 GHz to address the requirements of mobile-satellite service systems under WRC-12 Agenda item 1.25. A separate, complimentary proposal under Agenda item 1.25 makes the allocation to the mobile-satellite service in the range 15.4-15.6 GHz.

Note: This proposal represents a compromise approach between agenda items 1.21 and 1.25 within IWG-1 and IWG-3. It assumes that a companion proposal under Agenda Item 1.25 that provides for a Mobile Satellite Service (MSS) allocation in the 15.4-15.6 GHz band is also adopted. The difference between this document and document IWG-1/53r1 is addition of the following proposals:

1. USA/AI1.21/4 adds a footnote to protect MSS receivers from RLS interference.

2. USA/AI1.21/5 adds a footnote that invokes a resolution for administrations who MSS Earth Stations in the 15.4-15.6 GHz band to provide information to administrations operating or planning to operate RLS stations that will help mitigate interference to RLS receivers It also calls upon the ITU-R to conduct sharing and compatibility studies between RLS stations and MSS networks.

If this document and the companion proposal under Agenda Item 1.25 are both adopted, the authors of this proposal withdraw document IWG-1/53r1.

Proposal:

MOD USA/AI1.21/1

15.4-18.4 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
15.4-15.43	AERONAUTICAL RADIONAVIGATION ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 ADD 5.C121 5.511D ADD 5.D121	
15.43-15.6	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 ADD 5.C121 5.511D ADD 5.D121	
15.6-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 5.511C	
15.63-15.7	AERONAUTICAL RADIONAVIGATION ADD RADIOLOCATION ADD 5.A121 ADD 5.B121 5.511D	

Reason: This allocation will provide additional spectrum for new advanced radar systems. This allocation will support modern radars that employ sophisticated techniques for surveillance, mapping, navigation and weather observation. The additional bandwidth will provide greater image resolution, improve range accuracy, allow for greater radar density, improve interference performance, lower system costs, and increase ability to collect more information about an object or area observed by a radar.

ADD USA/AI1.21/2

5.A121 In the band 15.4-15.7 GHz, stations operating in the radiolocation service shall not cause harmful interference to, nor claim protection from, stations operating in the aeronautical radionavigation service.

Reason: This footnote preserves the regulatory status and minimizes the impact to one of the incumbent radio services.

ADD USA/AI1.21/3

5.B121 In order to protect the radio astronomy service in the band 15.35-15.4 GHz, radiolocation stations operating in the 15.4-15.7 GHz band shall not exceed the power flux density level of -156 dB(W/m^2) in the 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2% of the time.

Reason: This footnote minimizes the impact to radio astronomy service.

ADD USA/AI1.21/4

5.C121 Stations in the radiolocation service shall not exceed a power flux density level of XX dB(W/m^2/MHz) at the satellite receiver antenna for MSS satellite networks in the geostationary arc that have been brought into use and/or notified under the Radio Regulations.

Reason: This footnote prevents harmful interference to operational MSS satellite receivers.

ADD USA/AI1.21/5

5.D121 Resolution [RLS-MSS] (WRC-12) applies to stations in the radiolocation service and in the mobile-satellite service in the band 15.4-15.6 GHz.

Reason: This footnote provides mechanisms to prevent harmful interference between the radiolocation service and in the mobile-satellite service in the band 15.4-15.6 GHz.

SUP USA/AI1.21/6

RESOLUTION 614 (WRC-07)

Use of the band 15.4-15.7 GHz by the radiolocation service

Reason: Resolution 614 is no longer relevant since the requested studies have been completed.

ADD USA/AI1.21/7

RESOLUTION [RLS-MSS] (WRC-12)

Radiolocation and mobile satellite service sharing and compatibility in the frequency band 15.4-15.6 GHz

The World Radiocommunication Conference (Geneva, 2012),

considering

a) the band 15.4-15.7 GHz was allocated to the radiolocation service (RLS) on a primary basis by World Radiocommunication Conference -2012;

b) the band 15.4-15.6 GHz was allocated to the mobile-satellite service (MSS) on a primary basis by World Radiocommunication Conference -2012;

recognizing

a) that ITU-R studies have shown the potential for interference between the radiolocation and mobile-satellite service when they are co-frequency;

b) the need for RLS and MSS stations and networks to operate without causing harmful interference to each other in the band 15.4-15.6 GHz;

resolves

1 that, upon receiving a request from an administration operating or planning to operate RLS stations in the 15.4-15.6 GHz band, administrations who are operating mobile-satellite earth stations

(MES)in the band 15.4-15.6 GHz shall provide the following information to the requesting administration within 60 days of receiving the request:

– MES operational locations or service areas, such that RLS station operators are able to avoid receiving interference from MESs;

– Operational MSS satellite receiver locations, such that RLS station operators are able to avoid interfering with MSS satellite receivers;

2 to invite ITU-R as a priority, to conduct sharing and compatibility studies between RLS stations and MSS networks with a view towards defining operational and technical sharing recommendations that provide mutually adequate access to the band 15.4-15.6 GHz;

invites administrations

to contribute to these sharing and compatibility studies;

invites ITU-R

to complete the necessary studies and create recommendations as a matter of urgency.

Reasons: This resolution provides a method for radiolocation service and mobile satellite service sharing of the band 15.4-15.6 GHz and guidance to the ITU-R on conducting studies to produce final recommendations.

DOCUMENT WAC/122(08.03.11)

Comments of the IWG-1 on NTIA Proposal for Agenda Item 1.4 (Res. 417) contained in Document WAC-092

In *resolves* 4 of Resolution 417, as proposed to be modified, there are new limits on the e.i.r.p. from AM(R)S ground and airborne stations to facilitate sharing between AM(R)S systems operating in the band 960-1164 MHz and RNSS systems operating in the band 1164 MHz to 1215 MHz. These values are based on material in a preliminary draft new report in the ITU-R that was expected to become finalized at the November 2010 meetings of ITU-R Working Party 5B and Study Group 5.

Unfortunately, at its November 2010 meeting, Working Party 5B determined that there is one aspect of the preliminary draft new report that requires further input on RNSS receiver characteristics from Working Party 4C (which has responsibility in the ITU-R for RNSS matters). In developing the limits for the modification to Resolution 417, Working Party 5B had not accounted for the possibility that there may be differences in the protection required in a revision by WRC-12 to Resolution **417 (WRC-07)** for RNSS receivers used in air-navigation RNSS, and the protection required for certain non-aeronautical RNSS receivers (in particular, non-aeronautical RNSS high-precision receivers). At its November 2010 meeting, rather than complete the new report, Working Party 5B sent a liaison statement to Working Party 4C asking for input from the next meeting of Working Party 4C (in April 2011) that would allow Working Party 5B to evaluate protection requirements from Working Party 4C for non-aeronautical RNSS receivers and complete its work on the draft new report at the June 2011 Working Party 5B meeting.

Because the United States will not be in a position to have a final determination for the e.i.r.p. values should go into *resolves* 4 of the proposal to modify Resolution 417 until its input to the April 2011 Working Party 4C meeting is developed (at the earliest), and because a proposal with a placeholder note such as the one that is included in *resolves* 4 of the example modification of Resolution 417 in Section 1/1.4/2.6.1 of the final CPM Report would be inappropriate for a U.S. WRC-12 proposal, finalization of a proposal to modify Resolution 417 will have to wait a U.S. determination on whether different e.i.r.p. values are required for the protection of non-aeronautical RNSS receivers in the 1164-1215 MHz band.

Interested parties will be participating in the studies in Working Party 4C on this issue, and will work with the Executive Branch to help finalize numbers and text for any change to the draft proposal that may be required.

DOCUMENT WAC/123(08.03.11)

IWG-1 Comments on NTIA Proposal on Agenda Item 8.2 on Maritime Issue

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 8.2: *to recommend to the Council items for inclusion in the agenda of the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution* ***806 (WRC-07)***

Background Information: There is a global requirement for modernization of the Global Maritime Distress and Safety System (GMDSS), as noted by the International Maritime Organization (IMO). IMO COMSAR 14 has initiated scoping exercises, and a work plan to define the requirements for GMDSS modernization. This GMDSS modernization has the endorsement of the IMO Maritime Safety Committee 88.

The International Telecommunication Union Radio Regulations contain many provisions, articles, appendices, and recommendations, associated with the GMDSS. Changes to the Radio Regulations will be necessary to support GMDSS modernization.

IMO is also developing an e-Navigation strategy and implementation plan as endorsed by IMO NAV 56. Initial analysis shows that e-Navigation would require global harmonization of data communications systems. IMO technical bodies have identified that countries could not deploy e-Navigation without an ITU review of the Radio Regulations, to accommodate advanced maritime communication systems.

This proposal does not prejudice United States proposals for the work of WRC-07 affecting the maritime services, including, without limitation, Agenda Items 1.9, 1.10, and 1.23.

Proposal:

MOD USA/8.2 /1

RESOLUTION 806 (REV. WRC-~~07~~12)

~~Preliminary a~~Agenda for the 2015 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, ~~2007~~2012),

Reasons: To modify the agenda for WRC-15 to add a new item.

ADD USA/8.2/2

2.XYZ to consider regulatory changes to support implementation of e-Navigation within the maritime mobile service and any possible regulatory action, as necessary, to support GMDSS modernization in accordance with Resolution ~~US~~**XYZ (WRC-12)**.

Reasons: Meet international maritime shipping need and IMO requirements for GMDSS modernization and IMO implementation of e-Navigation.

ADD USA/8.2/3

RESOLUTION XYZ (WRC-12)

Consideration of implementing regulatory provisions from the Global Maritime Distress Safety System modernization and studies related to e-Navigation

The World Radiocommunication Conference (Geneva, 2012),

considering

a) that there is an increasing need, on a global basis, for modern Global Maritime Distress Safety System (GMDSS) communication capabilities, for enhanced maritime safety;

b) that the International Maritime Organization (IMO) has initiated work plans for GMDSS modernization;

c) that the establishment of the maritime Automatic Identification Systems (AIS) offers potential enhancements to VHF maritime safety communications;

d) that advanced maritime MF/HF/VHF data systems may be used to deliver Maritime Safety Information (MSI), and GMDSS communications;

e) that additional global and regional GMDSS satellite providers are being considered by IMO;

f) that IMO is developing a~~n e-Navigation~~ strategy and implementation plan for e-Navigation, defined as the harmonized collection, integration, exchange, presentation and analysis of marine information onboard and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment;

g) that GMDSS modernization may be influenced by the development of e-Navigation,

recognizing

a) that advanced maritime communication systems may support the implementation of GMDSS modernization and e-Navigation;

b) that due to the importance of these radio links in ensuring the safe operation of international shipping and commerce, they must be resilient to interference,

resolves to invite WRC-15

1 to consider appropriate modifications to the Radio Regulations, as necessary, but excluding new allocations, to support GMDSS modernization;

2 to consider appropriate modifications to the Radio Regulations, based on ITU R studies and excluding new allocations, for maritime communication systems supporting e-Navigation within the maritime mobile service,

invites ITU-R

1 to conduct, as a matter of urgency, studies to determine the spectrum requirements and potential frequency bands within the existing maritime mobile service allocations suitable to support e-Navigation;

2 to conduct, as a matter of urgency, studies that identify potential regulatory actions required by WRC-15 to accommodate GMDSS modernization,

further invites

all members of the Radiocommunication Sector and the International Maritime Organization (IMO), the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the

International Electrotechnical Commission (IEC) and the World Meteorological Organization (WMO) to contribute to these studies,

instructs the Secretary-General

to bring this Resolution to the attention of the International Maritime Organization (IMO), and other international and regional organizations concerned.

Reasons: Meet advanced maritime communication systems needs from IMO requirements for GMDSS modernization and IMO implementation of e-Navigation.

Annex

Subject: 2012 World Radiocommunication Conference Agenda Item 8.2 Proposal to support Global Maritime Distress Safety System modernization and e-Navigation studies.

Origin: United States of America

Proposal: to consider regulatory changes to support implementation of e-Navigation within the maritime mobile service and any possible regulatory action, as necessary, to support GMDSS modernization in accordance with Resolution **USXYZ (WRC-12)**

Background/reason:

The International Telecommunication Union Radio Regulations contain many provisions, articles, appendices, and recommendations, associated with the GMDSS. Changes to the Radio Regulations will be necessary to support GMDSS modernization.

Initial analysis shows that e-Navigation would require global harmonization of data communications systems. International Maritime Organization technical bodies have identified that countries could not deploy e-Navigation without an ITU review of the Radio Regulations, to accommodate advanced maritime communication systems.

Radiocommunication services concerned: maritime mobile service, mobile satellite service.

Indication of possible difficulties: None

Previous/ongoing studies on the issue: None

Studies to be carried out by: ITU-R Study Group 5, Working Party 5B.	***with the participation of:*** Working Party 4C, IMO, IALA, IMSO

ITU-R Study Groups concerned: Study Groups 4 and 5.

ITU resource implications, including financial implications (refer to CV126): -- Minimal.

Common regional proposal: No

Multicountry proposal: **No**

Number of countries:

Remarks

Terrestrial Services

DOCUMENT WAC/129(08.03.11)

IWG-2 Recommendations regarding the US Proposal on Agenda Item 8.2 (MB/BWA)

Agenda Item 8.2: *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution* ***806 (WRC-07)***

Summary

IWG-2 considered draft US proposals under agenda item 8.2 for a WRC-15 agenda item on mobile broadband or BWA at three meetings. After extensive discussions, IWG-2 members were unable to reach agreement on a recommended US proposal on agenda item 8.2 for this issue. Considering that this WAC is expected to be the last one, IWG-2 does not believe that it is in a position to progress the work further on this agenda item. Consequently, two draft US proposals were developed.

Proposal A (contained in Attachment A to this document) is supported by AT&T, Alcatel-Lucent, Ericsson, Motorola Mobility, Nokia, Qualcomm, Samsung, T-Mobile, TMG, and Verizon and reflects the views of these companies.

Proposal B (contained in Attachment B to this document) is supported by Intelsat, SES World Skies, Globalstar, Boeing, Inmarsat, US GPS Industry Council and Lockheed Martin and reflects the views of these companies.

IWG-2 respectfully submits this document and the two attached draft US proposals to the WRC Advisory Committee for further consideration.

Document IWG-2/57 (04.03.11)

WAC Informal Working Group (IWG)-2

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 8.2

8.2 *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution **806 (WRC-07)**,*

Introduction

Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with slightly decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. One 3G carrier in the United States reported in February 2010 that its mobile broadband traffic had grown more than 5,000 percent over the past three years. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

For the majority of individuals in developing countries, the first, and the only access to the Internet, is via mobile networks. Other mobile broadband consumers will demand a user experience that is similar to services and applications that they currently experience in wired office and home environments. Thus, the increasing demand for higher data rate services with comparable quality of service to the global mobile broadband consumer will place increasing pressure on finding spectrum resources to support the growth of a variety of mobile applications.

Expanded access to mobile broadband will potentially trigger the creation of innovative new businesses, provide cost-effective connections in developing countries and under-served areas, increase productivity, improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform lives.

Healthcare

Information technology plays a key role in improving health and health care delivery. Mobile broadband can improve care quality, safety, efficiency, and reduce disparities in health care. Increased access to broadband will serve to engage patients and families in managing their health and enhance care coordination.

Broadband access might help ensure adequate privacy and security of health information. Increased access to broadband wireless systems can dramatically improve the collection, presentation and exchange of health care information, and provide clinicians and consumers the tools to transform care. Technology alone cannot heal, but when appropriately incorporated into care, technology can help health care professionals and consumers make better decisions, become more efficient, engage in innovation, and understand both individual and public health more effectively.

Education

Broadband can be an important tool to help educators, parents and students meet major challenges in education. A country's economic welfare and long-term success depend on improving learning for all students, and broadband-enabled solutions hold tremendous promise to help reverse patterns of low achievement and lack of access. With broadband, students and teachers can expand instruction beyond the confines of the physical classroom and traditional school day. Broadband can also provide more customized learning opportunities for students to access high-quality, low-cost and personally relevant educational material. Broadband can improve the flow of educational information, allowing teachers, parents and organizations to make better decisions tied to each student's location, needs and abilities. Improved information flow can also make educational product and service markets more competitive by allowing school districts and other organizations to develop or purchase higher-quality educational products and services.

Economic Growth

Broadband and the Internet make it possible for small businesses to reach new markets and improve their business processes. They have also become a critical pathway for individuals to gain skills and access careers. It is a core infrastructure component for local communities seeking to attract new industries and skilled work forces. As a result, small businesses, workers, and communities must have the broadband infrastructure, training and tools to participate and compete in a changing economy. Broadband can help every community.

Government Services

Smarter use of broadband can facilitate a vast change in government. Like private companies, government can make its services available 24 hours a day, seven days a week, 365 days a year. Broadband-enabled online services can create paths across government's bureaucratic silos so that someone wanting to access unemployment benefits can deal with the local government and the federal government at the same time. Broadband holds the potential to move all government forms online, eliminating paperwork. Broadband allows for online tutorials for simple government services, which can help free government employees to focus on the most complicated cases. And broadband can increase efficiency by increasing the speed and depth of cooperation across departments and across different levels of government.

Civic Engagement

Civic engagement starts with an informed public, and broadband can help by strengthening the reach and relevance of mediated and unmediated information. Broadband can enable government to share unmediated information more easily. Providing more information and data to the public about the processes and results of government can strengthen the citizenry and its government. Broadband can also empower citizens to engage their government through new broadband-enabled tools. Broadband has already increased access to information and revolutionized the way citizens interact with each other.

Public Safety

There are significant benefits, including cost efficiencies and improved technological advancement, if the public safety community can increasingly use applications and devices developed for commercial wireless broadband networks. Ultimately, this system must be flexible, allowing public safety entities to forge incentive-based partnerships with commercial operators and others. This system will allow the public safety community to realize the benefits of commercial technologies, which will reduce costs and ensure the network evolves.

It is envisioned that the above type of future service offerings will open up new opportunities for connectivity, allowing consumers to be situation-conscious, to multi-task, and to access a wide range of telecommunication services supported by packet-based mobile and fixed networks. The mobile

broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through technological innovations such as MIMO and adaptive beam forming antenna systems, the efficiency of spectrum usage has continuously improved. However, the evolution of the technologies will not provide all the necessary capacity to meet the growing demand.

As the use of mobile broadband technologies expands, however, existing mobile service allocations may not be adequate to meet the growing demand. Furthermore, the benefits of global or regional harmonization of frequency bands may not be realized unless adequate spectrum is identified for this purpose. One administration has estimated that a total of 500 MHz of additional spectrum may need to be available for mobile broadband use within the coming 10 years.

For these reasons the United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including new allocations and identifications.

Attachment

ATTACHMENT

Proposal for an additional agenda item to consider spectrum requirements, regulatory provisions, and allocations to support mobile broadband systems, including the terrestrial component of International Mobile Telecommunications

Subject: Proposed WRC-15 agenda item to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and modify the Radio Regulations as required, including new allocations and identifications

Origin: United States of America

Proposal: The United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for regulatory actions as required, including new allocations and identifications.

Background/reason: Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with slightly decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile broadband data traffic will exceed the total broadband data traffic for all of 2008. One 3G carrier in the United States reported in February 2010 that its mobile broadband traffic had grown more than 5,000 percent over the past three years. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

It is envisioned that future IMT service offerings will open up new opportunities for connectivity, allowing consumers to be situation-conscious, to multi-task, and to access a wide range of telecommunication services supported by packet-based mobile and fixed networks. The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through innovations like MIMO and adaptive beam forming antenna systems, interference mitigation, multiple and aggregated carriers, power control, repeaters and scheduling schemes, etc., efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency.

The foundation to permit realization of this vision relies on forward looking regulatory policies, implementing technological advances (such as IMT-Advanced) enabling operators to further increase their capability and capacity within their licensed spectrum, reducing operator and user costs to achieve global affordability and enhancing access to the spectrum needed to support the mobile broadband world of the future.

This agenda item will provide an opportunity to determine the need for spectrum, and to identify suitable spectrum for this purpose through sharing studies of candidate frequency bands. The United States proposes that the ITU-R undertake the studies called for in Resolution [Proposed 2016] below to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including new allocations and identifications.

Radiocommunication services concerned: Mobile, Fixed, Broadcasting, Satellite, Radiolocation

Indication of possible difficulties: Any spectrum likely to be considered as candidates to support mobile broadband systems is equally likely to be encumbered by other mobile, fixed, broadcast, radiolocation and satellite services.

Previous/ongoing studies on the issue: Work has been conducted in the past (Reports ITU-R M.2072 and M.2078) and is currently ongoing within Working Party 5D to document the trends and spectrum requirements to support IMT systems for the next 10 years (2012-2022). Several studies have been performed in SG 5 on sharing between mobile broadband technologies and existing services in a number of bands.

Studies to be carried out by: WP5D	***with the participation of:*** Study Groups 4, 5, 6 and 7

ITU-R Study Groups concerned: 5

ITU resource implications, including financial implications (refer to CV126): Work can be completed within the existing resources of the ITU-R Study Groups, placing no additional burden on ITU-R

Common regional proposal: No***Multicountry proposal****:* No
Number of countries:

Remarks

RESOLUTION 806 (Rev.WRC-12)

Agenda for the 2015/16 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2012),

…

ADD USA/#A###/#

#.XYZ to consider the spectrum requirements and possible regulatory actions, including additional allocations to the mobile service on a primary basis in the frequency range 400 - 6 000 MHz, to accommodate the development of mobile broadband systems, including IMT, based on the results of ITU-R studies, in accordance with Resolution **[USA-0#] (WRC-12)**

Reasons: Available spectrum to meet consumer demand for high-data rate, high-quality mobile services may not be adequate to meet the growing worldwide demand. This agenda item will consider regulatory actions, including additional allocations to the mobile service on a primary basis, to meet this demand.

ADD USA/###

RESOLUTION [USA-0#](WRC-12)

Consideration of spectrum requirements, regulatory provisions, and additional allocations to the mobile service for mobile broadband systems, including the terrestrial component of International Mobile Telecommunications (IMT), in the frequency range 400 – 6 000 MHz

The World Radiocommunication Conference (Geneva, 2012),

considering

a) that, currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals;

b) that mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace;

c) that currently, there are more than one billion mobile broadband subscribers worldwide and, by 2013, the number of mobile broadband subscribers is projected to reach approximately 2.4 billion;

d) that the number of mobile broadband subscriptions has grown steadily and in 2008 surpassed those for fixed broadband;

e) that current projections indicate that by 2014, the monthly worldwide broadband mobile data traffic will exceed the annualized total broadband data traffic for all of 2008;

f) that broadband applications on mobile devices have increased the bandwidth requirements and expectations of mobile users;

g) that the availability of new and innovative telecommunication devices has spurred demand for wireless access to the Internet;

h) that expanded mobile broadband access is expected to trigger new business opportunities, provide the potential for cost-effective connections in developing countries and underserved areas, increase productivity and improve public safety;

i) that expanded mobile broadband access also is expected to allow for the development of mobile telemedicine, telework, distance learning, and other new applications;

j) that for global operation and economies of scale, which are key requirements for the success of mobile communications systems, it is desirable to agree on harmonized or common operational, technical and spectrum parameters;

k) that Question ITU-R 77-6/5 addresses the needs of developing countries in the development and implementation of mobile radiocommunication technology;

l) that mobile broadband and International Mobile Telecommunications (IMT) services are available in most countries of the world;

m) that Question ITU-R 238-1/5 addresses broadband wireless access systems for the mobile service;

n) that Question ITU-R 229-2/5 addresses the future development of IMT;

o) that IMT encompasses both IMT-2000 and IMT-Advanced collectively as described in Resolution ITU-R 56;

p) that the technical characteristics of IMT are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the terrestrial radio interfaces of IMT-2000 and Recommendation ITU-R M.[IMT.RSPEC] which contains the detailed specifications of the terrestrial radio interfaces of IMT-Advanced;

q) that the parameters and their associated values to be used in sharing and compatibility studies involving IMT systems are given in Report ITU-R M. 2039;

r) that ITU-R Report M.2031 contains compatibility studies between IMT systems and the GSM 1900 uplink;

s) that ITU-R Report M.2109 contains sharing studies between IMT Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3 400-4 200 and 4 500-4 800 MHz frequency bands;

t) that ITU-R Report M.2110 contains sharing studies between IMT systems operating in the 450-470 MHz band and the services having a primary allocation in the 450-470 MHz band and in the adjacent 420-450 MHz and 470-480 MHz bands;

u) that ITU-R Report M.2111 contains sharing studies between IMT-Advanced systems and the radiolocation service in the 3 400-3 700 MHz bands;

v) that ITU-R Report M.2112 contains sharing/ compatibility studies between IMT systems and airport surveillance radars and meteorological radar within the 2 700-2 900 MHz band;

w) that ITU-R Report M.2113 contains sharing studies between IMT-2000 systems and fixed broadband wireless access systems including nomadic applications in the same geographical area in the 2500-2690 MHz band;

x) that ITU-R Report S.2199 contains compatibility studies between broadband wireless access systems and systems of the fixed satellite service in the 3400-3600 MHz band;

y) that the ITU recognizes IMT systems, as broadband wireless access systems;

z) that the radio interface standards of broadband wireless access systems operating in the mobile services below 6 GHz are specified in ITU-R Recommendation ITU-R M.1801;

aa) that the characteristics of broadband wireless systems operating in the mobile service for use in sharing studies are specified in ITU-R Report M. 2116;

bb) that the ITU-R Study Group 5 is reviewing and updating M-Series Reports and Recommendations on the characteristics and framework of mobile broadband including IMT systems, taking into account the current state of wireless technology;

cc) that adequate spectrum availability is a prerequisite for the success of the continuing development of mobile broadband systems, including IMT;

dd) that there is a long lead time between the identification of frequency bands by World Radiocommunication Conference and the deployment of systems in those bands;

ee) that it is therefore timely to study demand, technical, spectrum and regulatory issues related to the future development of mobile broadband systems, including IMT,

recognizing

a) the following bands have been identified for IMT in the Radio Regulations (RR) and that this identification does not preclude the use of these bands by any application of the services to which they are allocated or identified and does not establish priority in the Radio Regulations:

Band (MHz)	**Footnotes identifying the band for IMT**
450-470	5.286AA
698-960	5.313A, 5.317A
1 710-2 025	5.384A, 5.388
2 110-2 200	5.388
2 300-2 400	5.384A
2 500-2 690	5.384A
3 400-3 600	5.430A, 5.432A, 5.432B, 5.433A

b) the bands that are allocated in the Radio Regulations to services that support safety-of-life systems and operations;

c) the need to protect existing services when considering frequency bands for possible additional allocations for any service;

d) the economic benefits that the further development of mobile broadband is expected to bring to countries;

e) the role that mobile broadband could play in bridging the digital divide, especially in underdeveloped or rural areas of the world;

f) the need to balance commercial wireless service use of the radio spectrum with other priorities established by individual administrations;

g) that any additional frequency bands allocated to the mobile service to support mobile broadband applications, including IMT, should not preclude the use of these frequencies for other mobile service applications or establish priority in the Radio Regulations;

h) the time necessary to develop and agree on the technical, operational, spectrum and regulatory issues associated with the continuing enhancement of mobile services;

i) the need, particularly in many developing countries and countries with large geographic areas, for the cost-effective implementation of rural broadband services;

j) the increasing importance of ubiquitous coverage and the particular advantages of lower frequency bands for these purposes;

k) that bands at higher frequencies are also required in order to provide sufficient bandwidth to meet future demand;

l) that there may be advantages to identifying new frequency bands adjacent to, or in close proximity to, currently allocated/identified bands,

noting

a) that globally, mobile broadband deployments are overwhelmingly utilizing the technologies contained in ITU-R Recommendations, and these technologies continue to be enhanced;

b) that through these enhancements, efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency; and spectrum efficiency improvements alone are not likely to address the projected spectrum demand,

resolves

1 to invite the ITU-R to study technical and operational issues relating to the development of mobile broadband systems, including IMT, in the frequency range 400 – 6 000 MHz, and develop Recommendations and Reports as required;

2 to invite the ITU-R to study the expected characteristics of mobile broadband systems including IMT, and develop Recommendations and Reports as required;

3 to invite the ITU-R to report, in time for WRC-15, on the results of studies on the spectrum requirements and potential frequency ranges suitable for the development of mobile broadband systems, including IMT;

4 that WRC-15 consider, based on the results of ITU R studies, the spectrum requirements and possible regulatory actions, including additional allocations in the frequency range 400 – 6 000 MHz, to support the development of mobile broadband systems, including IMT,

invites the Director of the Telecommunication Development Bureau

to draw the attention of the Telecommunication Development Sector to this Resolution,

invites administrations

1 to contribute to the studies mentioned in *resolves* 1 and 2 above by, inter alia, providing information on their use of the existing services in candidate bands;

2 to participate in the studies by submitting contributions to ITU-R,

requests the Secretary-General

to bring this Resolution to the attention of the International Maritime Organization (IMO), International Civil Aviation Organization (ICAO), World Meteorological Organization (WMO) and other international and regional organizations concerned.

ATTACHMENT B – PROPOSAL B

Document IWG-2/64 (09.02.11)
Comments on Document IWG-2/57 (01.02.11)

WAC Informal Working Group (IWG)-2

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 8.2

8.2 *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution **806 (WRC-07)**,*

Introduction

Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013,the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

For the majority of individuals in developing countries, the first, and the only access to the Internet, is via mobile networks. The projected increase in demand for higher data rate services with quality of service to the global mobile broadband consumer that is comparable to the wired office and home environments will place increasing pressure on finding spectrum resources to support the growth of a variety of mobile applications.

The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through technological innovations such as MIMO and adaptive beam forming antenna systems, the efficiency of spectrum usage has continuously improved. However, the evolution of the technologies will not provide all the necessary capacity to meet the growing demand.

For these reasons the United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including identification and allocation of new frequency bands.

Attachment

ATTACHMENT

Proposal for an additional agenda item to consider spectrum requirements, regulatory provisions, and allocations to support mobile broadband systems, including the terrestrial component of International Mobile Telecommunications

Subject: Determination of the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and modification of the Radio Regulations as required, including identification and allocation of new frequency bands, if required.

Origin: United States of America

Proposal: The United States proposes that the ITU-R undertake studies to determine the amount of spectrum needed to support mobile broadband systems, including IMT, and report the results of these studies to the next WRC for regulatory actions as required, including identification and allocation of new frequency bands.

Background/reason: Currently approximately 5 billion of the world's estimated 6.8 billion people are connected to global telecommunication networks via mobile terminals. Mobile telephony and mobile broadband demand and consumption have been growing at an unprecedented pace. Currently, 3G technologies are providing services to more than one billion subscribers worldwide and, by 2013, the number of 3G subscribers is projected to reach approximately 2.4 billion. Estimates of worldwide wireless data traffic indicate that it grew by 5,800 percent during the two year period from 2006 to 2008 with decreased rate of 4,500 percent forecast over the next few years. Current projections indicate that by 2014 monthly worldwide mobile data traffic will exceed the total for all of 2008. This strong demand creates an ever-expanding market for 3G-based devices, including 3G feature phones, smartphones, PDAs, tablets, e-readers, gaming devices, consumer electronics devices, and laptops.

The mobile broadband manufacturing industry is evolving towards next generation highly efficient radiocommunication technologies, coupled with an all-IP open Internet network architecture. Through innovations like MIMO and adaptive beam forming antenna systems, interference mitigation, multiple and aggregated carriers, power control, repeaters and scheduling schemes, etc., efficiency of spectrum usage is continuously improving. However, there are practical limitations to the ability to increase spectrum efficiency.

For these reasons the United States proposes that the ITU-R undertake the studies called for in Resolution [Proposed 2016] below to determine the amount of spectrum needed to support the development of mobile broadband systems, including IMT, and report the results of these studies to the next WRC for its regulatory actions as required, including identification and allocation of new frequency bands.

Radiocommunication services concerned: Mobile, Fixed, Broadcasting, Satellite, Radiolocation

Indication of possible difficulties: Any spectrum likely to be considered as candidates to support mobile broadband systems is equally likely to be encumbered by other mobile, fixed, broadcast, radiolocation and satellite services.

Previous/ongoing studies on the issue: Work has been conducted in the past (Reports ITU-R M.2072 and M.2078) and is currently ongoing within Working Party 5D to document the trends and spectrum requirements to support IMT systems for the next 10 years (2012-2022). [revise to include WP5A studies too]

Studies to be carried out by: WP5A	***with the participation of:*** Study Groups 1, 3, 4 and 6

ITU-R Study Groups concerned: 5

ITU resource implications, including financial implications (refer to CV126): Work can be completed within the existing resources of the ITU-R Study Groups, placing no additional burden on ITU-R

Common regional proposal: No***Multicountry proposal****:* No

Number of countries:

Remarks

RESOLUTION 803 (Rev.WRC-12)

Agenda for the 2016 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2012),

…

ADD USA/#A###/#

#.XYZ to determine, based on ITU-R studies, the spectrum requirements for mobile broadband wireless applications and possible regulatory actions, including identification and allocation of additional spectrum in the 400 MHz to 3400 MHz frequency band to the mobile service on a primary basis as required, to accommodate the further development of mobile broadband wireless access (BWA) systems, including IMT, in accordance with Resolution **[USA-0#] (WRC-12)**

Reasons: to provide access to additional spectrum to meet projected consumer demand for high-data rate, high-quality mobile services.

ADD USA/###

RESOLUTION [USA-0#](WRC-12)

Consideration of spectrum requirements, regulatory provisions, and allocations to support terrestrial mobile broadband wireless access (BWA) systems in certain bands in the 400 MHz – 3400 MHz range

The World Radiocommunication Conference (Geneva, 2012),

considering

a) that, at the end of 2009, there were an estimated 640 million mobile and 490 million fixed broadband subscriptions;

b) that there may be a need for additional suitable spectrum worldwide to meet the projected increase in demand for BWA applications,

c) that the ITU recognizes International Mobile Telecommunications (IMT) systems, as broadband wireless access systems;

d) that BWA systems have been in operation since the year 2000 and are available in most countries of the world;

e) that the technical characteristics of broadband wireless access systems are specified in ITU-R and ITU-T Recommendations, including ITU-R M.1801;

f) that International Mobile Telecommunications (IMT) encompasses both IMT-2000 and IMT-Advanced collectively as described in Resolution ITU-R 56;

g) that the technical characteristics of IMT are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the terrestrial radio interfaces of IMT-2000 and Recommendation ITU-R M.[IMT.RSPEC] which contains the detailed specifications of the terrestrial radio interfaces of IMT-Advanced;

h) that for global operation and economies of scale, it is desirable to agree on harmonized or common operational, technical parameters and spectrum for BWA;

i) that where mobile BWA systems, including IMT, are deployed there has been continuing significant growth in the number of users and in the quantity and rate of data carried ;

j) that the development of mobile BWA systems calls for higher data rates than can be provided by currently deployed systems;

noting

a) that the radio interfaces of the mobile broadband systems defined in ITU Recommendations ITU-R M.1457, ITU-R M.1801, and ITU-R M.[IMT.RSPEC] are expected to evolve within the framework of ITU-R beyond those initially specified, to provide enhanced services and services beyond those envisaged in their initial implementations;

recognizing

a) that since WARC-92, the ITU has identified 1.95 GHz of spectrum for IMT applications either on a global, regional or country specific basis;

b) that the bands referred to in *recognizing a)* can be used to deploy IMT as well as other BWA systems;

c) that it is important to ensure compatibility with existing services and to ensure that those services are not unduly constrained, especially with regard to their further development, by the implementation of BWA systems;

d) that ITU-R has already conducted compatibility studies between FSS and BWA systems, FSS and IMT systems and MSS and IMT systems, as contained in Reports ITU-R S.2199, M.2109, and M.2041 respectively, that shows these systems are not compatible;

e) that it is well established that there is inherent incompatibility between BWA/IMT systems and low-power radionavigation-satellite service (RNSS) signals that are provided in the 1164-1215 MHz, 1215-1300 MHz, and 1559-1610 MHz bands, and that the incompatibility extends to BWA/IMT systems that operate in both the RNSS and adjacent/near adjacent bands;

f) that certain frequency bands between 400 and 3400 MHz are used by safety of life services and systems that support safety services and these bands shall not be the subject of study under this Resolution;

resolves

1 to conduct studies on spectrum requirements for BWA, including whether existing mobile service allocations, including those identified for IMT applications, are sufficient to satisfy validated spectrum requirements;

2 to identify additional spectrum within the 400 MHz to 960 MHz, 2000 MHz to 2483 MHz and 2500 MHz to 3400 MHz bands, if deemed necessary from the studies in *Resolves 1*), for BWA;

3 to conduct sharing and compatibility studies between BWA and existing services within the bands mentioned in *resolves 2*, taking into account safety and operational requirements of existing services in the 400 MHz to 3400 MHz frequency range;

4 to develop technical and/or regulatory provisions to protect and avoid undue constraints on incumbent services, especially with regard to the further development of these services, that operate within or adjacent to the bands identified for possible allocation to the Mobile service under this agenda item under *Resolves 3)*, above;

5 to report, in time for WRC-15, the results of studies on the spectrum requirements and, if required, to identify potential frequency bands in the 400 MHz to 960 MHz, 2000 MHz to 2483 MHz and 2500 MHz to 3400 MHz bands that may be suitable for the further development of BWA systems, including IMT applications;

invites the Director of the Telecommunication Development Bureau

to draw the attention of the Telecommunication Development Sector to this Resolution,

invites administrations

to participate in the studies by submitting contributions to ITU-R.

Space Services

DOCUMENT WAC/118(08.03.11)

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.25: *to consider possible additional allocations to the mobile-satellite service in accordance with Resolution **231 (WRC-07)**;*

Background

Working Party 4C was the lead ITU-R Working Party for developing information related to Agenda Item 1.25 (WRC-12). It initiated this activity through a set of Liaison statements to other Working Parties requesting information on certain spectrum allocations of interest. The bands of interest were those which were potential candidates for additional mobile-satellite service (MSS) allocations.

Working Parties to which the liaisons were sent were those with services/bands that were of potential interest. The return Liaison Statements from the Working Parties included reference to various protection criteria and related ITU-R Recommendations. These were developed to provide for the sharing of the allocations by the services in the band whether of the same service or other services. Based on the responses from other Working Parties, WP 4C undertook sharing studies to determine if compatibility with the services already using the allocations could be achieved.

The Executive Summary of the draft CPM text for this agenda item indicates that studies of possible bands for new allocations to the MSS were developed in the (Earth-to-space) and (space-to-Earth) directions, with particular focus on the range 4-16 GHz, taking into account sharing and compatibility, without placing undue constraints on existing services in this band. Based on the results of studies, an appropriate amount of spectrum may be made available to the MSS systems in the 4-16 GHz range to overcome the shortfall of spectrum for the present and future MSS systems. The total requirements for the MSS in the 4-16 GHz range for the year 2020 are estimated to be between 240 and 335 MHz in each direction, and are contained in PDNRep ITU-R M.[MSS-REQS].

The Draft CPM text sets forth several Methods for each of the bands under consideration. The bands under consideration are indicated in the Table below. In general, the Methods of interest to the MSS proponents: Method A2, B2, C2, D2, E, F2, which provide for sharing with the incumbent services, are reflected in the proposals below.

FREQUENCY BAND	**MSS DIRECTION (DL = DOWNLINK) (UL = UPLINK)**
5150-5250 MHZ	**DL**
7055-7250 MHZ	**DL**
8400-8500 MHZ	**UL**
10.5 - 10.6 GHZ	**DL**
13.25-13.4 GHZ	**DL**

15.43-15.63 GHZ	**UL**

This document addresses a sub-set of the above frequency bands (7125-7250 MHz, 8400-8500 MHz, 10.5-10.55 GHz and 13.25-13.4 GHz). The other bands will be the subject of separate proposals.

Proposals:

ARTICLE 5

Frequency allocations

* * * * *

Section IV – Table of Frequency Allocations
(See No. 2.1**)**

*** * * * ***

MOD USA/1.25/1

5 570-7 250 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
*** * * ****		
6 700-7 075	FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE 5.458 5.458A 5.458B 5.458C	
7 075-7 12~~5~~45	FIXED MOBILE 5.458 5.459	
7 125-7 145	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.458 5.459 5.MSS	
7 145-7 235	FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460 MOBILE-SATELLITE (space-to-Earth) 5.458 5.459 5.MSS 5.MSS1	
7 235-7 250	FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.458 5.MSS	

ADD USA/1.25/2

5.MSS Use of the band 7 125-7 250 MHz by the mobile-satellite service is limited to geostationary satellite systems and is subject to application of No. **9.21**. The use of this band by the mobile-satellite service is subject to application of the provisions of No. **9.14**.

Reason: To allocate 7125-7250 MHz to MSS in the downlink direction limited to geostationary satellite systems and to apply coordination mechanisms.

ADD USA/1.25/3

5.MSS1 In the band 7 145-7 235 MHz, Resolution [SRS-MSS] shall apply. In this band, earth stations in the mobile-satellite service shall not claim protection from current and future earth stations in the space research service.

Reason: To address sharing between MSS earth stations and SRS earth stations. Given the limited number and known locations of SRS earth stations, such an approach would still allow for feasible sharing with receiving GSO MSS earth stations.

*** * * * ***

MOD USA/1.25/4

7 250-8 500 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
*** * * ****		
8 400-8 500	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-Earth) 5.465 5.466 MOBILE-SATELLITE (Earth-to-space) 5.MSS3	
*** * * ****		

ADD USA/1.25/5

5.MSS3 Use of the bands 8 400-8 500 MHz by the mobile-satellite service is limited to geostationary satellite systems and is subject to application of No. **9.21**. Resolution [SRS-MSS2] shall apply.

Reason: To allocate 8400-8500 MHz to MSS in the uplink direction limited to geostationary satellite systems and to apply coordination mechanisms.

*** * * ****

MOD USA/1.25/6

10-11.7 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
* * * * *		
10.5-10.55 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation 5.MSS4	**10.5-10.55** FIXED MOBILE RADIOLOCATION MOBILE-SATELLITE (space-to-Earth) 5.MSS4	
10.55-10.6	FIXED MOBILE except aeronautical mobile Radiolocation	
* * * * *		

ADD USA/1.25/7

5.MSS4 Use of the band 10.5-10.55 GHz by the mobile-satellite service is limited to geostationary satellite systems and is subject to application of the provisions of No. **9.14**.

Reason: To allocate 10.5-10.55 GHz to MSS in the downlink direction limited to geostationary satellite systems and to apply coordination mechanisms.

* * * * *

MOD USA/1.25/8

11.7-14 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
* * * * *		
12.75-13.25	FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)	
13.25-13.4	EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active) MOBILE-SATELLITE (space-to-Earth) 5.498A 5.499 5.MSS5	
13.4-13.75	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B	
* * * * *		

ADD USA/1.25/9

5.MSS5 Use of the band 13.25-13.4 GHz by the mobile-satellite service is limited to geostationary satellite systems and is subject to application of No. **9.21**. In order to protect systems in the Earth Exploration-Satellite Service (active), Space Research Service (active) and Aeronautical Radionavigation Service, the power flux density at the surface of the Earth from MSS space stations shall not exceed -115 dBW/m²/MHz for all angles of arrival.

Reason: To allocate 13.25-13.4 GHz to MSS in the downlink direction limited to geostationary satellite systems and to apply coordination mechanisms and pfd limits to ensure compatibility with existing services in the 13 GHz band.

*** * * * ***

MOD USA/1.25/10

5.498A The Earth Exploration-satellite (active), ~~and~~ space research (active) and mobile-satellite services operating in the band 13.24-13.4 GHz shall not cause harmful interference to, or constrain the use and development of, the aeronautical radionavigation service (No. **4.10** applies).

Reason: To apply a mechanism for providing protection to the aeronautical radionavigation service, by extending provisions that already exist.

*** * * * ***

ARTICLE 22

Space services[1]

*** * * * ***

ADD USA/1.25/11

Section VII – Control of interference to space research service space stations

22.40 In the frequency band 7 145-7 190 MHz, the maximum power flux-density produced at any point in deep space (space at distances from the Earth equal to, or greater than, 2×10^6 km) by a geostationary-satellite system in the mobile-satellite service shall not exceed –199.5 dB(W/m^2) in any 20 Hz band.

Reason: To apply provisions to ensure compatibility with SRS space stations operating in deep space.

*** * * * ***

[1] **A.22.1** In applying the provisions of this Article, the level of accepted interference (see No. **1.168**) shall be fixed by agreement between the administrations concerned, using the relevant ITU-R Recommendations as a guide.

APPENDIX 5 (REV.WRC-07)

Identification of administrations with which coordination is to be effected or agreement sought under the provisions of Article 9

* * * * *

MOD USA/1.25/12

TABLE 5-1 (*CONTINUED*) (WRC-07~~12~~)

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
No. **9.13** GSO/ non-GSO	A station in a GSO satellite network in the frequency bands for which a footnote refers to No. **9.11A** or No. **9.13**, in respect of any other non-GSO satellite network, with the exception of coordination between earth stations operating in the opposite direction of transmission	Frequency bands for which a footnote refers to No. **9.11A** or No. **9.13**	1) Bandwidths overlap 2) For the band 1 668-1 668.4 MHz with respect to MSS network coordination with **SRS** (passive) networks, in addition to bandwidth overlap, the e.i.r.p. spectral density of mobile earth stations in a GSO network of the mobile-satellite service operating in this band exceeds −2.5 dB(W/4 kHz) or the power spectral density delivered to the mobile earth station antenna exceeds −10 dB(W/4 kHz)	1) Check by using the assigned frequencies and bandwidths 2) Check by using MSS network Appendix **4** data	
No. **9.14** Non-GSO/ terrestrial, GSO/ terrestrial	A space station in a satellite network in the frequency bands for which a footnote refers to No. **9.11A** or to No. **9.14**, in respect of stations of terrestrial services where threshold(s) is (are) exceeded	1) Frequency bands for which a footnote refers to No. **9.11A**; or 2) 11.7-12.2 GHz (Region 2 GSO FSS)	1) See § 1 of Annex 1 to this Appendix; In the bands specified in No. **5.414A**, the detailed conditions for the application of No. **9.14** are provided in No. **5.414A** for MSS networks or 2) In the band 11.7-12.2 GHz (Region 2 GSO FSS): -124 dB(W/(m^2 · MHz)) for $0° \le \theta \le 5°$ $-124 + 0.5\ (\theta - 5)$ dB(W/(m^2 · MHz)) for $5° < \theta \le 25°$ -114 dB(W/(m^2 · MHz)) for $\theta > 25°$ where θ is the angle of arrival of the incident wave above the horizontal	1) See § 1 of Annex 1 to this Appendix	

			plane (degrees)		
		3) 7 125-7250 MHz (GSO MSS)	3) In the band 7 125-7 250 MHz (GSO MSS): -140 dB(W/(m^2 · MHz)) for $0° \le \theta \le 5°$ $-140 + 5/3*(\theta - 5)$ dB(W/(m^2 · MHz)) for $5° < \theta \le 20°$ -115 dB(W/(m^2 · MHz)) for $\theta > 20°$ where θ is the angle of arrival of the incident wave above the horizontal plane (degrees)		
		4) 10.5-10.55 GHz (GSO MSS)	4) In the band 10.5-10.55 GHz (GSO MSS): -140 dB(W/(m^2 · MHz)) for $0° \le \theta \le 5°$ $-140 + 5/3*(\theta - 5)$ dB(W/(m^2 · MHz)) for $5° < \theta \le 20°$ -115 dB(W/(m^2 · MHz)) for $\theta > 20°$ where θ is the angle of arrival of the incident wave above the horizontal plane (degrees)		

Reason: To apply provisions to protect terrestrial services operating in the 7125-7250 MHz band and the 10.5-10.55 GHz band.

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APPENDIX 7 (Rev.WRC-07)

* * * * *

MOD USA/1.25/13

TABLE 7B (WRC-07)

Parameters required for the determination of coordination distance for a transmitting earth station

Transmitting space radiocommunication service designation		**Fixed-satellite, mobile-satellite, meteorological-satellite**		**Mobile-Satellite**	
Frequency bands (GHz)		7.900-8.400		8.400-8.500	
Receiving terrestrial service designations		Fixed, mobile		Fixed, mobile	
Method to be used		§ 2.1		§ 1.4.6	
Modulation at terrestrial station [1]		A	N	A	N
Terrestrial station interference parameters and criteria	$p0$ (%)	0.01	0.005	0.01	0.005
	n	2	2	1	1
	p (%)	0.005	0.0025	0.01	0.005
	N_L (dB)	0	0	0	0
	M_S (dB)	33	37	33	37
	W (dB)	0	0	0	0
Terrestrial station parameters	G_X (dBi) [4]	46	46	46	49
	T_e (K)	750	750	750	575
Reference bandwidth	B (Hz)	4×10^3	10^6	4×10^3	10^6
Permissible interference power	$P_r(p)$ (dBW) in B	–131	–103	-131	-141

Reason: To apply provisions to allow administrations to coordinate stations located on their territory in order to ensure compatibility.

* * * * *

MOD USA/1.25/14

TABLE 8C

Parameters required for the determination of coordination distance for a receiving earth station

Receiving space radiocommunication service designation			**Fixed-satellite**	**Mobile-satellite**	**Fixed-satellite**		**Mobile-satellite**	**Mobile-satellite**	**Fixed-satellite**		**Mobile-satellite**
Frequency bands (GHz)			6.700-7.075	7.125-7.250	7.250-7.750		10.5-10.55	10.5-10.55	10.7-12.75		13.25-13.4
Transmitting terrestrial service designations			Fixed, mobile	Fixed, mobile	Fixed, mobile		Fixed, mobile	Radiolocation	Fixed, mobile		Fixed
Method to be used			§ 2.2	§ 1.4.6	§ 2.1		§ 1.4.6	§ 1.4.6	§ 2.1, § 2.2		§ 1.4.6
Modulation at earth station [1]			N	N	A	N	N	N	A	N	N
Earth station interference parameters and criteria	p_0 (%)		0.005	20	0.03	0.005	20	20	0.03	0.003	20
	n		3	1	3	3	1	1	2	2	1
	p (%)		0.0017	20	0.01	0.0017	20	20	0.015	0.0015	20
	N_L (dB)		1	1	1	1	1	1	1	1	1
	M_s (dB)		2	0.254	7	2	0.254	0.254	7	4	0.254
	W (dB)		0	0	4	0	0	0	4	0	0
Terrestrial station parameters	E (dBW) in B [2]	A	55	45	55	55	37	44	40	40	30
		N	42	32	42	42	33	-	43	43	33
	P_t (dBW) in B	A	13	3	13	13	-4	4	-5	-5	-15
		N	0	-10	0	0	-12	-	–2	–2	-13
	G_x (dBi)		42	42	42	42		40	45	45	45
Reference band-width [6]	B (Hz)		10^6	10^5	10^6	10^6	10^5	10^5	10^6	10^6	10^5
Permissible interference power	$P_r(p)$ (dBW) in B		-151.2	-163.8			-163.8	-163.8			-163.8

Reason: To apply provisions to allow administrations to coordinate stations located on their territory in order to ensure compatibility.

* * * * *

TABLE 10 (WRC-07)

PREDETERMINED COORDINATION DISTANCES

MOD USA/1.25/15

Frequency sharing situation		Coordination distance (in sharing situations involving services allocated with equal rights) (km)
Type of earth station	**Type of terrestrial station**	
Ground-based in the bands below 1 GHz to which No. **9.11A** applies. Ground-based mobile in the bands within the range 1-3 GHz to which No. **9.11A** applies	Mobile (aircraft)	500
Aircraft (mobile) (all bands)	Ground-based	500
Aircraft (mobile) (all bands)	Mobile (aircraft)	1 000
Ground-based in the bands: 400.15-401 MHz 1 668.4-1 675 MHz	Station in the meteorological aids service (radiosonde)	580
Aircraft (mobile) in the bands: 400.15-401 MHz 1 668.4-1 675 MHz	Station in the meteorological aids service (radiosonde)	1 080
Ground-based in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	100
Airborne earth station in the radiodetermination-satellite service (RDSS) in the bands: 1 610-1 626.5 MHz 2 483.5-2 500 MHz 2 500-2 516.5 MHz	Ground-based	400
Receiving earth stations in the meteorological-satellite service	Station in the meteorological aids service	The coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming 4/3 Earth radius (see Note 1)
Non-GSO MSS feeder-link earth stations (all bands)	Mobile (aircraft)	500
Ground-based in the bands in which the frequency sharing situation is not covered in the rows above	Mobile (aircraft)	500
Ground-based MSS in 13.25-13.4 GHz	Mobile (~~aircraft~~ARNS)	500

NOTE 1 – The coordination distance, d (km), for fixed earth stations in the meteorological-satellite service vis-à-vis stations in the meteorological aids service assumes a radiosonde altitude of 20 km and is determined as a function of the physical horizon elevation angle ε_h (degrees) for each azimuth, as follows:

$$d = 100 \quad \text{for} \quad \varepsilon_h \geq 11°$$

$$d = 582 \left(\sqrt{1 + (0.254\ \varepsilon_h)^2} - 0.254\ \varepsilon_h \right) \quad \text{for} \quad 0° < \varepsilon_h < 11°$$

$$d = 582 \quad \text{for} \quad \varepsilon_h \leq 0°$$

The minimum and maximum coordination distances are 100 km and 582 km, and correspond to physical horizon angles greater than 11° and less than 0°. (WRC-2000)

Reason: To apply provisions to allow administrations to coordinate stations located on their territory in order to ensure compatibility.

*** * * * ***

ADD USA/1.25/16

RESOLUTION [SRS-MSS] (WRC-12)

Provisions for operational coordination of mobile-satellite service space stations with space research service space stations during periods of operation at less than 2 x 10^6 km from the Earth in the band 7 145-7 235 MHz

The World Radiocommunication Conference (Geneva) 2012,

considering

a) that the band 7 145-7 235 MHz is allocated to the space research service (Earth-to-space), the fixed service and the mobile service;

b) that WRC-12 added an allocation in the band 7 145-7 235 MHz to the mobile-satellite service (MSS) in the space-to-Earth direction limited to geostationary satellite orbit systems (GSO);

c) that No. **5.460** provides that use of the band 7 145-7 190 MHz by the space research service (Earth-to-space) is restricted to deep space;

d) that deep space missions include critical near Earth phases such as launch and early operation phases, Earth fly-bys or sample returns where the mission operates at less than 2 x 10^6 km from the Earth and thus it may suffer harmful interference from the transmissions of GSO MSS space stations;

e) that these near earth phases of deep space missions occur infrequently and for limited durations of time;

f) that deep space transmissions in the band 7 145-7 190 MHz during near Earth phases occur in predetermined frequencies at predictable times, except in cases of spacecraft emergency or anomaly;

g) that the MSS operator can control the timing of its transmissions in the space-to-Earth direction in particular frequencies;

h) that the 7 190-7 235 MHz band is used by near Earth SRS systems, which operate at less than 2 x 10^6 km from the Earth;

i) that the near Earth SRS space stations could employ orbits where harmful interference could be received from GSO MSS space stations;

j) that the near Earth SRS space stations in the 7 190-7 235 MHz band have predictable orbits and transmit in predetermined channels;

k) that there are likely to be a limited number of operational GSO MSS satellite systems due to necessary orbital separations to avoid interference to small MSS earth stations;

l) that the launch phases of SRS missions are often affected by weather conditions or technical factors and can change on very short notice,

recognizing

a) that Article 9 has provisions applicable to coordination between satellite systems and networks operating in the same band;

b) that the provisions in Article 9 are not sufficient for addressing the relatively short term and infrequent nature of the interference situations described in *considerings d), e) and i)* above,

resolves

1) that under the provisions of Annex 1 to this Resolution, notifying administrations for MSS networks shall ensure that the operator of a MSS network shall coordinate its operations in the 7 145-7 190 MHz band with the operators of deep space SRS systems and shall coordinate its operations in the 7 190-7 235 MHz band with the operators of near earth SRS systems;

2) that when, as a result of *resolves 1),* information of anticipated deep space SRS transmissions are provided to the operators of MSS networks in accordance with Annex 1, notifying administrations for MSS networks shall ensure that the MSS network operators will effect the cessation of MSS space station transmissions during the time and in the frequency range, as determined by the SRS mission operators, where harmful interference could be caused to the SRS mission.

3) that MSS space stations planned to operate in the 7145-7235 MHz band shall be designed so that their operation on a subset of frequencies within the band can be shut off by ground command when required to comply with this Resolution.

Annex 1 to Resolution [SRS-MSS]

Procedures for operational coordination of mobile-satellite service space stations with space research service space stations during periods of operation at less than 2 x 10^6 km from the Earth in the band 7 145-7 235 MHz

1) The notifying administration for MSS systems in this band shall ensure that such systems follow the provisions of this Annex in order to protect from harmful interference SRS space stations of potentially concerned administrations.

2) The potentially concerned administrations referred to in the previous item 1) are those who have submitted advance publication information for systems in the space research service in the band 7 145-7 235 MHz.

3) Administrations who have submitted the advance publication information in previous item 2) shall maintain a list of contact points for operational coordination of their SRS systems under this Resolution.

4) Administrations referred to in previous item 3) shall provide this contact information to the Bureau for maintenance in a list of SRS contact points under this Resolution. The contact information shall include names, addresses, email addresses and telephone numbers. The Bureau shall maintain the list of contact information on its website.

5) [One year] prior to launch of an MSS system, the MSS system operator shall provide the name, address, email address and telephone number for its contact point for operational coordination to the SRS contact points on the Bureau's website.

6) [One year] prior to launch of an MSS system, the MSS system operator shall provide information on the frequency plan, coverage area and other relevant technical details on its satellite system to the list of SRS contact points. This information may be supplied by referencing the associated coordination request publication, or by providing additional information, as deemed most appropriate by the MSS system operator.

7) The SRS system operators shall analyze this information and use it to determine when one of their near Earth operations as described in *considerings d) and h)* of this Resolution might receive harmful interference from MSS downlink transmissions.

8) With respect to near Earth phase operations of a deep space mission as described in *considering d)*:

a) As early as possible but not less than [60] days prior to a planned near Earth phase operation of a deep space mission, the SRS system operator shall provide the details as described in Annex 2 of the requirement for MSS interruption of transmissions including dates, times and frequencies to be avoided by the MSS system.

b) The MSS system operator, having received this information, shall not operate on the affected frequency range during the requested time period.

c) Changes in launch plans or flight plans may occur on shorter notice than envisioned in *a)* and *b)* above. Both parties agree to react quickly and responsively in the case of such changes. The parties shall work together to define a process to accommodate a change in the timing of the required MSS shut off period.

9) With respect to near Earth satellite network as described in *considerings h) and i)* of this Resolution:

a) For SRS networks not yet in operation

As early as possible but not less than [180] days prior to the anticipated beginning of operation of a near Earth satellite network that the SRS operator believes may receive harmful interference from MSS satellite networks based on its analysis under previous item 7), the SRS system operator shall provide the details as described in Annex of its analysis to the MSS system operators using the contact information provided under previous item 5). The two operators shall work together to reach a solution where the MSS system does not cause harmful interference to the SRS near Earth satellite network. Until successful coordination is reached, the MSS system operator shall not operate simultaneously with the potentially affected SRS satellite network on any of the frequencies identified by the SRS system operator.

b) For operational SRS networks

If the SRS operator believes its network may receive harmful interference from MSS satellite networks based on its analysis under previous item 7), the SRS system operator shall provide as early as possible the details as described in Annex 2 of its analysis. The two operators shall work together to reach a solution where the MSS system does not cause harmful interference to the SRS near Earth satellite network. Until successful coordination is reached, the MSS system operator shall not operate simultaneously with the potentially affected SRS satellite network on any of the frequencies identified by the SRS system operator.

10) The parties involved in a near Earth coordination under this Resolution shall cooperate to the maximum extent possible to minimize the constraints on both parties.

Annex 2 to Resolution [SRS-MSS]

Information on near Earth phases of deep space missions or near Earth missions to be provided to MSS operators

<u>Information related to near Earth phases of deep space SRS missions</u>

If the SRS operator determines that a MSS satellite network may cause harmful interference to a near Earth phase of a deep space mission, the SRS operator shall provide to the operator of the MSS satellite network the following information:

a) The beginning and end of the duration of the time slots during which the affecting MSS transmissions should be discontinued. The dates and times defining these time slots shall be referred to GMT;

b) The respective lower and upper frequency boundaries of the frequency slots where the transmissions referred to above should be discontinued; and

c) The basis for the foreseen interference.

Information related to near Earth SRS satellite networks

When responding under item 8) of Annex 1 to this Resolution, the following information shall be provided to the MSS operator by the SRS operator:

a) orbit characteristics of the SRS satellite network;

b) 360° gain pattern of the SRS space station receive antenna(s);

c) assumed interference e.i.r.p. density allowed at the SRS space station receiver input;

d) frequency plan of the SRS satellite network; and

e) if not yet in operation, date and time when the affected SRS operations will begin.

Reason: To provide provisions for operational coordination of GSO MSS systems with SRS systems for the limited periods in time when SRS space stations will operate near the Earth.

*** * * * ***

ADD USA/1.25/17

RESOLUTION [SRS-MSS2] (WRC-12)

Provisions for coordination of stations in the mobile-satellite service with space research systems in the band 8 400-8 500 MHz

The World Radiocommunication Conference (Geneva 2012),

considering

a) that the band 8 400-8 500 MHz is allocated to the space research service (space-to-Earth), the fixed service and the mobile service;

b) that No. **5.465** provides that use of the band 8 400-8 450 MHz by the space research service (space-to-Earth) is limited to deep space;

c) that WRC-12 added an allocation in the band 8 400-8 500 MHz to the mobile-satellite service (MSS) in the Earth-to-space direction limited to geostationary satellite orbit systems (GSO);

d) that deep space missions include very critical near Earth phases such as launch and early operation phases, Earth fly-bys or sample returns, where the mission's orbit may be such that it may cause harmful interference to GSO MSS space stations;

e) that these near earth phases of deep space missions occur infrequently and for limited durations of time;

f) that deep space transmissions in the band 8 400-8 450 MHz occur in predetermined frequencies at predetermined times, except in cases of spacecraft emergency or anomaly;

g) that the 8 450-8 500 MHz band is used by near Earth SRS systems, which operate at less than 2×10^6 km from the Earth;

h) that the near Earth SRS space stations could employ orbits where interference could be caused to receiving MSS space stations;

i) that the near Earth SRS space stations in the 8 450-8 500 MHz band have predictable orbits and transmit in predetermined channels;

j) that there are likely to be a limited number of GSO MSS satellite networks due to necessary orbital separations to avoid interference to small MSS earth stations;

k) that the information on channel, launch, orbit and transmissions of SRS operating in the 8 400-8 500 MHz band is predictable;

l) that the launch phases of SRS missions are often affected by weather conditions or technical factors and can change on very short notice,

m) that SRS earth stations require protection in the band 8 400-8 500 MHz, and that such protection can be achieved through requiring that MSS earth stations observe certain separation distances;

n) that the GSO MSS earth station separation distances referenced in *considering l)* depend on the azimuth angles in the direction of the SRS station, as well as the antenna pointing accuracy, antenna patterns and resolution of terrain data;

o) that technology exists for MSS earth stations to implement such separation distances, for example, by using the geo-location facility that already exists in most MSS earth stations to determine the earth station's location and signal this information to the MSS control facility, which will prohibit the MSS earth station from transmitting on the necessary frequencies if the MES is located in an exclusion area;

recognizing

a) that Article 9 has provisions applicable to coordination between satellite systems and networks operating in the same band;

b) that the provisions in Article 9 are not sufficient for addressing the relatively short term and infrequent nature of the interference situations described in *considerings d), e) and h)* above,

c) that, without establishment of enforceable exclusion zones, MSS earth stations could place an extra burden on SRS systems in the band 8 400-8 500 MHz;

resolves

1) that the notifying administration of an MSS network shall ensure that the operator of a MSS network shall coordinate its operations in the 8 400-8 500 MHz band with the operators of SRS systems under the provisions of Annex 1 to this Resolution;

2) [that MSS earth stations operating in the band 8 400-8 500 MHz shall track the MSS satellite to facilitate protection of SRS earth stations regardless of location;]

3) that the notifying administration of an MSS network shall ensure that MSS network operators shall ensure that MSS earth stations communicating with its network observe the exclusion zones established in accordance with Annex through the incorporation of software in the MSS system that will ensure cessation of transmissions in the exclusion zones near SRS earth stations;

Annex 1 to Resolution [SRS-MSS2]

Procedures for operational coordination of mobile-satellite service space stations with space research service space stations in the band 8 400-8 500 MHz

1) The notifying administration for MSS systems in this band shall ensure that such systems follow the provisions of this Annex.

2) The potentially concerned SRS administrations are those submitting advance publication information for systems in the space research service in the band 8 400-8 500 MHz.

3) Administrations submitting the advance publication information in previous item 2) shall maintain a list of contact points for operational coordination of its SRS systems under this Resolution.

4) Administrations referred to in previous item 3) shall provide this contact information to the Bureau for maintenance in a list of SRS contact points under this Resolution. The contact information shall include names, addresses, email addresses and telephone numbers. The Bureau shall maintain the list of contact information on its website.

5) [One year] prior to launch of an MSS system, the MSS system operator shall provide the name, address, email address and telephone number for its contact point for operation coordination to the SRS contact points on the Bureau's website.

6) [One year] prior to launch of an MSS system, the MSS system operator shall provide information on the frequency plan, coverage area and other relevant technical details on its satellite system to the list of SRS contact points. This information may be supplied by referencing the associated coordination request publication, or by providing additional information.

7) With respect to near Earth phase operations of a deep space mission:

a) As early as possible but not less than [60] days prior to a planned near Earth phase operation of a deep space mission, the SRS system operator shall provide the details of its planned operations (as described in Annex 2) to the corresponding MSS system operators using the contact information provided under previous item 5).

b) The MSS system operator, having received this information, will determine if further consultation is required in order for the MSS satellite operator to have sufficient information to take measures to protect itself from interference. Should any consultation be required, the MSS system operator shall inform the SRS system operator as soon as possible but at least within [30] days of receiving the notification.

c) Changes in launch plans or flight plans may occur on shorter notice than envisioned in *a)* and *b)* above. Both parties agree to react quickly and responsively in the case of such changes. The parties shall work together to define a process to accommodate a change in the timing of potential interference to the MSS system.

8) With respect to near Earth satellite networks:

a) At the request of the MSS operator, the SRS system operators shall provide, within 30 days of such request, information on actual space-to-Earth transmission characteristics of their near-Earth satellite networks. The list of characteristics to be provided is defined in Annex 2.

b) The MSS system operator, having received this information, will determine if further consultation is required in order for the MSS satellite operator to have sufficient information to take measures to protect itself from interference. Should any consultation be required, the MSS system operator shall inform the SRS system operator as soon as possible but at least within [30] days of receiving the notification.

9) The parties involved in a near Earth coordination (i.e., coordination of a near Earth phase of a deep space mission or coordination of a near Earth satellite system) shall cooperate to the maximum extent possible to minimize the constraints on both parties.

Annex 2 to Resolution [SRS-MSS2]

Information on near Earth phases of deep space missions to be provided to MSS operators

Information related to near Earth phases of deep space SRS missions

The SRS system operators shall provide to the potentially affected MSS operator the following information:

a) The beginning and end of the duration of the time slots during which the MSS space station may receive interference. The dates and times defining these time slots shall be referred to GMT; and

b) The respective lower and upper frequency boundaries of the frequency slots where the transmissions referred to above will take place;

Information related to near Earth SRS satellite networks

SRS system operators shall provide to the MSS operators, upon request, the following information:

a) orbit characteristics of the SRS satellite network;

b) 360° gain pattern of the SRS space station transmit antenna(s);

c) power density levels delivered to the SRS space station transmit antenna(s);

d) frequency plan of the SRS satellite network; and

e) if not yet in operation, date and time when the SRS operations will begin.

Annex 3 to Resolution [SRS-MSS2]

Definition of and implementation of exclusion zones where operation of MSS earth stations is not permitted around SRS earth stations

Exclusion zones wherein transmissions from MSS Earth stations in the 8 400 – 8 500 MHz frequency band are not allowed shall be established around existing and/or planned SRS Earth stations for each potentially affecting MSS satellite network.

a) Exlusion zones for protection of SRS Earth stations operating in the 8 400 – 8 450 MHz band

Exclusion zones to protect SRS Earth stations operating with deep space missions shal be astablished for each MSS satellite network in accordance with the following procedure:

For each azimuth in [X]° steps around an SRS Earth station registered with the ITU for operations in the frequency band 8 400 – 8450 MHz, the minimum angle between the direction of an MSS Earth station transmit antenna main beam, assumed to be pointing towards the MSS satellite with which it is communicating, and the direction of the SRS Earth station, shall be determined, taking into account the MSS satellite orbital location and station keeping tolerance, and the MSS antenna worst case pointing accuracy.

For each type of MSS Earth station, the sum of the maximum possible power density delivered to its transmit antenna and the respective transmit antenna gain calculated for the minimum off-axis angle determined above shall be determined. This is the value of the maximum off-axis e.i.r.p. density that may be radiated towards the SRS Earth station for that azimuth and for that type of Earth station of that specific MSS satellite network.

The maximum of all values of off-axis e.i.r.p. density that may be radiated towards the SRS Earth station for each azimuth around the SRS Earth station and for all types of Earth stations of that specific MSS satellite network shall then be determined.

The required separation distance for each azimuth around the SRS Earth station shall be the distance required to reduce the maximum e.i.r.p. density that may be radiated towards the SRS Earth station, determined by the above procedure, to -173.5 dBW/MHz for all but 0.001% of the time, using the procedure indicated in Recommendation ITU-R P. 452.

b) Exlusion zones for protection of SRS Earth stations operating in the 8 450 – 8 500 MHz band

Exclusion zones to protect SRS Earth stations operating with near Earth missions shal be astablished for each MSS satellite network in accordance with the following procedure:

For each azimuth in [X]° steps around an SRS Earth station registered with the ITU for operations in the frequency band 8 450 – 8500 MHz, the minimum angle between the direction of an MSS Earth station transmit antenna main beam, assumed to be pointing towards the MSS satellite with which it is communicating, and the direction of the SRS Earth station, shall be determined, taking into account the MSS satellite orbital location and station keeping tolerance, and the MSS antenna worst case pointing accuracy.

For each type of MSS Earth station, the sum of the maximum possible power density delivered to its transmit antenna and the respective transmit antenna gain calculated for the minimum off-axis angle determined above shall be determined. This is the value of the maximum off-axis e.i.r.p. density that may be radiated towards the SRS Earth station for that azimuth and for that type of Earth station of that specific MSS satellite network.

The maximum of all values of off-axis e.i.r.p. density that may be radiated towards the SRS Earth station for each azimuth around the SRS Earth station and for all types of Earth stations of that specific MSS satellite network shall then be determined.

The required separation distance for each azimuth around the SRS Earth station shall be the distance required to reduce the maximum e.i.r.p. density that may be radiated towards the SRS Earth station, determined by the above procedure, to -170.5 dBW/MHz for all but 0.1% of the time, using the procedure indicated in Recommendation ITU-R P. 452.

No MSS transmissions shall be allowed within the exclusion zones established according to a) and b) above for that particular MSS satellite network around the potentially affected SRS Earth stations as long as the SRS Earth stations remain operational.

Whenever additional SRS Earth stations which may be affected by the MSS satellite networks operating in the 8 400 – 8 500 MHz frequency band are registered with the ITU, the relevant exclusion zones shall be developed by the affecting MSS operators. Any potentially affecting MSS transmission within the respective exclusion zone shall cease as soon as the new SRS Earth station becomes operational, and shall not be allowed as long as the potentially affected SRS Earth stations remain operational.

Reason: To provide provisions for coordination of GSO MSS stations with SRS stations, including application of exclusion zones around receiving SRS earth stations.

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DOCUMENT WAC/119(08.03.11)

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.25: *to consider possible additional allocations to the mobile-satellite service in accordance with Resolution **231 (WRC-07)**;*

Background

Working Party 4C was the lead ITU-R Working Party for developing information related to Agenda Item 1.25 (WRC-12). It initiated this activity through a set of Liaison statements to other Working Parties requesting information on certain spectrum allocations of interest. The bands of interest were those which were potential candidates for additional mobile-satellite service (MSS) allocations.

Working Parties to which the liaisons were sent were those with services/bands that were of potential interest. The return Liaison Statements from the Working Parties included reference to various protection criteria and related ITU-R Recommendations. These were developed to provide for the sharing of the allocations by the services in the band whether of the same service or other services. Based on the responses from other Working Parties, WP 4C undertook sharing studies to determine if compatibility with the services already using the allocations could be achieved.

The Executive Summary of the draft CPM text for this agenda item indicates that studies of possible bands for new allocations to the MSS were developed in the (Earth-to-space) and (space-to-Earth) directions, with particular focus on the range 4-16 GHz, taking into account sharing and compatibility, without placing undue constraints on existing services in this band. Based on the results of studies, an appropriate amount of spectrum may be made available to the MSS systems in the 4-16 GHz range to overcome the shortfall of spectrum for the present and future MSS systems. The total requirements for the MSS in the 4-16 GHz range for the year 2020 are estimated to be between 240 and 335 MHz in each direction, and are contained in PDNRep ITU-R M.[MSS-REQS].

The Draft CPM text sets forth several Methods for each of the bands under consideration. The bands under consideration are indicated in the Table below. In general, the Methods of interest to the MSS proponents: Method A2, B2, C2, D2, E, F2, which provide for sharing with the incumbent services, are reflected in the proposals below.

FREQUENCY BAND	MSS DIRECTION (DL = DOWNLINK) (UL = UPLINK)
5150-5250 MHZ	DL
7055-7250 MHZ	DL
8400-8500 MHZ	UL
10.5 - 10.6 GHZ	DL
13.25-13.4 GHZ	DL
15,43-15.63 GHZ	UL

This document addresses a sub-set of the above frequency bands —10.55-10.6 GHz. The other bands are the subject of separate proposals.

Proposals:

ARTICLE 5

Frequency allocations

* * * * *

Section IV – Table of Frequency Allocations
(See No. 2.1**)**

*** * * ****

MOD USA/1.25/18

*** * * ****

10-11.7 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
*** * * * ***		
10.5-10.55 FIXED MOBILE Radiolocation	**10.5-10.55** FIXED MOBILE RADIOLOCATION	
10.55-10.6	FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) Radiolocation 5.MSS	
*** * * * ***		

ADD USA/1.25/19

5.MSS Use of the band 10.55-10.6 GHz by the mobile-satellite service is limited to geostationary satellite systems. Earth stations in the mobile-satellite service shall not claim protection from stations in the fixed service operating in accordance with the Radio Regulations.

Reason: To allocate 10.55-10.6 GHz to MSS in the downlink direction limited to geostationary satellite systems.

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ARTICLE 21

Terrestrial and space services sharing frequency bands above 1 GHz

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Section V – Limits of power flux-density from space stations

21.16 § 6 1) The power flux-density at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and for all methods of modulation, shall not exceed the limit given in Table **21-4**. The limit relates to the power flux-density which would be obtained under assumed free-space propagation conditions and applies to emissions by a space station of the service indicated where the frequency bands are shared with equal rights with the fixed or mobile service, unless otherwise stated.

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MOD USA/1.25/20

TABLE **21-4** (*CONTINUED*) (REV.WRC-07)

Frequency band	**Service***	**Limit in dB(W/m^2) for angles of arrival (δ) above the horizontal plane**			**Reference bandwidth**
		0°-5°	**5°-25°**	**25°-90°**	
* * * * *					
10.55-10.6 GHz	Mobile-satellite (space-to-Earth) (geostationary-satellite orbit)	–126	–126 + 0.5(δ – 5)	–116	1 MHz
10.7-11.7 GHz	Fixed-satellite (space-to-Earth) (geostationary-satellite orbit)	–150	–150 + 0.5(δ – 5)	–140	4 kHz
10.7-11.7 GHz	Fixed-satellite (space-to-Earth) (non-geostationary-satellite orbit) [20]	–126	–126 + 0.5(δ – 5)	–116	1 MHz
* * * * *					

Reason: To apply provisions to protect the fixed service, taking into account the need for regulatory certainty and enabling MSS systems to operate.

DOCUMENT WAC/120(08.03.11)

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 1.25: *to consider possible additional allocations to the mobile-satellite service in accordance with Resolution **231 (WRC-07)**;*

Note: This revised proposal represents a compromise approach between agenda items 1.21 and 1.25 within IWG-1 and IWG-3 and assumes that a companion proposal under agenda item 1.21 in Document IWG-1/aaa that provides for a radiolocation service allocation in the 15.4-15.7 GHz band is also adopted.

If this document and the companion proposal under Agenda Item 1.21 are both adopted, the authors of this proposal withdraw document IWG-3/49.

Background

The Executive Summary of the CPM text for this agenda item indicates that studies of possible bands for new allocations to the mobile-satellite service (MSS) were developed in the (Earth-to-space) and (space-to-Earth) directions, with particular focus on the range 4-16 GHz, taking into account sharing and compatibility, without placing undue constraints on existing services in this band. Based on the results of studies, an appropriate amount of spectrum may be made available to the MSS systems in the 4-16 GHz range to overcome the shortfall of spectrum for the present and future MSS systems. The total requirements for the MSS in the 4-16 GHz range for the year 2020 are estimated to be between 240 and 335 MHz in each direction, and are contained in PDNRep ITU-R M.[MSS-REQS].

The CPM text sets forth several Methods for each of the bands under consideration. With respect to the 15 GHz band, the Method of interest to the MSS proponents, Method F2, provides for sharing with the incumbent services, and is reflected in the proposals below for this band.

Introduction of a MSS primary uplink allocation in the band 15.4-15.6 GHz in RR Article **5** is proposed, together with additional provisions in the RR to ensure necessary protection of existing services, developed based on the studies conducted in the Working Document towards a Preliminary Draft New Report ITU-R M.[MSS-SHARING], subject to the further development of the studies anticipated before WRC-12. The band allocated to MSS would take into account the need for an allocation in the range 15.4-15.7 GHz to address the requirements of radiolocation systems (WRC-12 Agenda item 1.21). In this proposal, an allocation to MSS is made with a separate, complimentary proposal under agenda 1.21 making the allocation to the radiolocation service in the range 15.4-15.7 GHz.

This method entails the following provisions:

- Footnote in RR Article **5** limiting use of the MSS allocation to GSO systems.
- Regulatory measures to address sharing between MSS and ARNS (RR No. **4.10** applies); and between MSS and FSS (limited to non-GSO MSS feeder links).

– Measures for protection of the radio astronomy service in the nearby band, 15.35-15.4 GHz.
– Resolution providing mechanism for providing detailed information from administrations operating MSS to administrations operating RLS systems
– Protection of MSS space station receivers at the geostationary orbit

Recognizing that additional studies are being conducted in the ITU-R, these provisions may be modified or additional provisions may be developed based on review of those additional studies.

PROPOSALS:

ARTICLE 5

Frequency allocations

* * * * *

Section IV – Table of Frequency Allocations
(See No. 2.1**)**

* * * * *

MOD USA/1.25/21

15.4-18.4 GHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
15.4-15.43	AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) 5.A125 5.511D 5.B125 5.C125 5.D125	
15.43-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) 5.A125 5.511C 5.B125 5.C125 5.D125	
15.6-15.63	FIXED-SATELLITE (Earth-to-space) 5.511A AERONAUTICAL RADIONAVIGATION 5.511C	
15.63-15.7	AERONAUTICAL RADIONAVIGATION 5.511D	
*** * * * ***		

Reason: These allocations indicate the shared and compatible use of these frequencies and can provide support to several services.

ADD USA/1.25/22

5.A125 The use of the band 15.4-15.6 GHz by the mobile-satellite service is limited to geostationary satellite networks, and is subject to coordination under No. 9.11A with non-GSO systems in the FSS in the band 15.43-15.6 GHz.

Reason: provides a better basis for the shared use of the allocation by multiple services

ADD USA/1.25/23

5.B125 In order to protect the radio astronomy service in the band 15.35-15.4 GHz, mobile satellite service stations operating in the 15.4-15.6 GHz band shall not exceed the power flux density level of -156 dB(W/m^2) in the band 15.35-15.4 GHz, at any radio astronomy observatory site for more than 2% of the time.

Reason: Minimizes the impact on the Radio Astronomy Service

ADD USA/1.25/24

5.C125 In the band 15.4-15.6 GHz stations operating in mobile-satellite service shall not cause harmful interference to, nor claim protection from, stations operating in the aeronautical radionavigation service in [Sweden, Norway, Finland, United States….]

Reason: Preserves the regulatory status and minimizes the impact on an incumbent service.

ADD USA/1.25/25

5.D125 Resolution [RLS-MSS] applies to stations in the radiolocation service and in the mobile-satellite service in the band 15.4-15.6 GHz. Stations in the radiolocation service shall not exceed a pfd level of XX dB(W/m^2/MHz) at the satellite receiver antenna for MSS satellite networks in the geostationary arc that have been brought into use and/or notified under the Radio Regulations.

Reason: Ensures compatibility between the mobile-satellite service and radiolocation.

ADD USA/1.25/26

RESOLUTION [RLS-MSS] (WRC-12)

Radiolocation and mobile satellite service sharing and compatibility in the frequency band 15.4-15.6 GHz

The World Radiocommunication Conference (Geneva, 2012),

considering

a) the band 15.4-15.7 GHz was allocated to the radiolocation service (RLS) on a primary basis by World Radiocommunication Conference -2012;

b) the band 15.4-15.6 GHz was allocated to the mobile-satellite service (MSS) on a primary basis by World Radiocommunication Conference -2012;

recognizing

a) that ITU-R studies have shown the potential for interference between the radiolocation and mobile-satellite service when they are co-frequency;

b) the need for RLS and MSS stations and networks to operate without causing harmful interference to each other in the band 15.4-15.6 GHz;

resolves

1 that, upon receiving a request from an administration operating or planning to operate RLS stations in the 15.4-15.6 GHz band, administrations who are operating MSS earth stations in the band 15.4-15.6 GHz shall provide the following information to the requesting administration within 60 days of receiving the request:

– MSS earth station (MES) operational locations or service area, such that RLS station operators are able to avoid receiving interference from MESs;

– Operational MSS satellite receiver locations, such that RLS station operators are able to avoid interfering with MSS satellite receivers;

2 to invite ITU-R as a priority, to conduct sharing and compatibility studies between RLS stations and MSS networks with a view towards defining operational and technical sharing recommendations that provide mutually adequate access to the band 15.4-15.6 GHz;

invites administrations

to contribute to these sharing and compatibility studies;

invites ITU-R

to complete the necessary studies and create recommendations as a matter of urgency.

Reasons: This resolution provides a method for radiolocation service and mobile satellite service sharing of the band 15.4-15.6 GHz and guidance to the ITU-R on conducting studies to produce final recommendations.

Regulatory Issues

DOCUMENT WAC/124(08.03.11)

WAC Informal Working Group (IWG)-4

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 4

Agenda Item 4: *In accordance with Resolution **95 (Rev. WRC-07)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation*

Issue: To review the resolutions and recommendations in the Radio Regulations and to identify potential modifications or suppressions.

Background: This is a standing item on every WRC agenda and its purpose is to examine the WRC resolutions and recommendations for editorial corrections as well as suppressions due to completion of work or material being superseded by other work. This includes consequential suppression or modification of resolutions associated with WRC-12 agenda items.

Emergency telecommunications has been identified as a top priority for all ITU Member States. Since WRC-07, the United States has actively supported the work of the ITU in all three sectors related to use of telecommunications/ICTs for disaster prediction, mitigation, relief, response and recovery. In order to take account of developments since 2007 and to reinforce the importance of ongoing work in the ITU Radiocommunication Sector in support of emergency telecommunications, the United States proposes modification of Resolution 644 (Rev. WRC-07) 'Radiocommunication resources for early warning, disaster mitigation and relief operations' and Resolution 647 (WRC-07) 'Spectrum management guidelines for emergency and disaster relief radiocommunication.'

Proposals:

Resolution 644 (Rev. WRC-07)

MOD

RESOLUTION 644 (REV.WRC-12~~07~~)

Radiocommunication resources for early warning, disaster mitigation and relief operations

The World Radiocommunication Conference (Rev. Geneva, 2012~~07~~),

considering

a) that administrations have been urged to take all practical steps to facilitate the rapid deployment and effective use of telecommunication resources for early warning, disaster mitigation and disaster relief operations by reducing and, where possible, removing regulatory barriers and strengthening global, regional and transborder cooperation between States;

b) that ~~e potential of~~ modern telecommunication technologies are~~s~~ an essential tool for disaster mitigation and relief operations and the vital role of telecommunications and ICT for the safety and security of relief workers in the field;

c) the particular needs of developing countries and the special requirements of the inhabitants living in high risk areas exposed to disasters, as well as those living in remote areas;

d) the work carried out by the Telecommunication Standardization Sector in standardizing the common alerting protocol (CAP), through the approval of the relevant CAP Recommendation;

e) that, under the Strategic Plan of the Union 2012-2015~~08-2011~~, "the need for effective use of telecommunications/ICTs and modern technologies during critical emergencies, as a crucial part of disaster prediction, detection, early-warning, mitigation, management and relief strategies" ~~encouraging the effective use of telecommunications/ICTs and modern technologies during critical emergencies, as a crucial part of disaster early warning, mitigation, management and relief strategies, in light of the accelerating pace of change in the global environment and of the action lines of WSIS",~~ is considered a priority~~one of the three major priorities~~ for the ITU in this period;

f) that the majority of terrestrial networks in affected areas were damaged during recent disasters,

recognizing

a) Article 40 of the Constitution, on priority of telecommunications concerning safety of life;

b) Article 46 of the Constitution, on distress calls and messages;

c) No. 91 of the Tunis Agenda for the Information Society adopted by the second phase of the World Summit on the Information Society and in particular provision c): "Working expeditiously towards the establishment of standards-based monitoring and worldwide early-warning systems linked to national and regional networks and facilitating emergency disaster response all over the world, particularly in high-risk regions";

d) Resolution 34 (Rev. Hyderabad~~Doha~~, 20100~~6~~) of the World Telecommunication Development Conference on the role of telecommunications/information and communication technologies in disaster preparedness, early warning, rescue, mitigation, relief and response~~ICT in early warning and mitigation of disasters and humanitarian assistance~~, as well as ITU-D Question 22/2 "Utilization of telecommunications/ICT for disaster preparedness, mitigation and response~~management, resources and active and passive space-based sensing systems as they apply to disaster and emergency relief situations~~";

e) Resolution 36 (Rev. Guadalajara~~Antalya~~, 20100~~6~~) of the Plenipotentiary Conference on telecommunications/information and communication technology in the service of humanitarian assistance;

f) Resolution 136 (Guadalajara~~Antalya~~, 20100~~6~~) of the Plenipotentiary Conference on the use of telecommunications/information and communication technologies for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief;

g) Resolution ITU-R 53 of the Radiocommunication Assembly (Geneva, 2007), on the use of radiocommunications in disaster response and relief;

h) Resolution ITU-R 55 of the Radiocommunication Assembly (Geneva, 2007), on the ITU-R studies of disaster prediction, detection, mitigation and relief,

noting

the close relation of this Resolution with Resolution **646 (WRC-03)** on public protection and disaster relief and Resolution 647[~~COM6/2~~] [(Rev. WRC-12~~07~~)] on spectrum management guidelines for emergency and disaster relief radiocommunication, and the need to coordinate activities under these Resolutions in order to prevent any possible overlap,

resolves

1 that the ITU Radiocommunication Sector (ITU-R) continue to study, as a matter of urgency, those aspects of radiocommunications/ICT that are relevant to early warning, disaster mitigation and relief operations, such as decentralized means of telecommunications that are appropriate and generally available, including amateur terrestrial and satellite radio facilities, mobile and portable satellite terminals, as well as the use of passive space-based sensing systems;

2 to urge the ITU-R Study Groups, taking into account the scope of ongoing studies/activities appended to Resolution ITU-R 55 of the Radiocommunication Assembly [(Rev. Geneva, 20120~~7~~)], to accelerate their work, particularly in the areas of disaster prediction, detection, mitigation and relief,

instructs the Director of the Radiocommunication Bureau

1 to support administrations in their work towards the implementation of both Resolutions 36 (Rev. GuadalajaraAntalya, 2010~~06~~) and 136 (GuadalajaraAntalya, 2010~~06~~), as well as the Tampere Convention;

2 to collaborate, as appropriate, with the United Nations Working Group on Emergency Telecommunications (WGET);

~~3 to participate actively in, and contribute to, the ITU Global Forum on Effective Use of Telecommunications/ICT for Disaster Management: Saving Lives (Geneva, 10-12 December 2007);~~

4 to participate in, and contribute to, Telecommunications for Disaster Relief and Mitigation – Partnership Coordination Panel (PCP-TDR);

5 to synchronize activities between this Resolution, Resolution **646 (WRC-03)** and Resolution 647~~[COM6/2]~~ [(Rev. WRC-12~~07~~)] to prevent a possible overlap.

_____

Resolution 647 (WRC-07)

MOD

Resolution 647 (Rev. WRC-12~~07~~)

Spectrum management guidelines for emergency and disaster relief radiocommunication[1]

The World Radiocommunication Conference (Rev. Geneva, 2012~~07~~),

considering

~~*a)*~~

[1] The term "emergency and disaster relief radiocommunication" refers to radiocommunications used by agencies and organizations dealing with a serious disruption of the functioning of society, posing a significant widespread threat to human life, health, property or the environment, whether caused by accident, natural phenomena or human activity, and whether occurring suddenly or as a result of complex, long-term processes.

a) the Tampere Convention on the Provision of Telecommunications Resources for Disaster Mitigation and Relief Operations (Tampere, 1998)[2], an international treaty deposited with the United Nations Secretary-General, calls on the States Parties, when possible, and in conformity with their national law, to develop and implement measures to facilitate the availability of telecommunication resources for such operations;

b) that some administrations may have different operational needs and spectrum requirements for emergency and disaster-relief applications, depending on the circumstances;

c) that the immediate availability of pre-identified and pre-coordinated frequencies, and/or spectrum-flexible technologies to allow near-instantaneous decisions to make use of available spectrum, are important for successful telecommunications in the very early stages of humanitarian assistance intervention for disaster relief,

recognizing

a) Resolution 36 (Rev. Guadalajara~~Antalya~~, 2010~~06~~) of the Plenipotentiary Conference on telecommunications/information and communication technologies (ICTs) in the service of humanitarian assistance;

b) Resolution 136 (Rev. Guadalajara~~Antalya~~, 2010~~06~~) of the Plenipotentiary Conference on the use of telecommunications/information and communication technologies for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief;

c) Resolution 34 (Rev. Hyderabad~~Doha~~, 2010~~06~~) of the World Telecommunication Development Conference (WTDC) on the role of telecommunications/information and communication technologies in disaster preparedness, early warning, rescue, mitigation, relief and response,~~ICT in early warning and mitigation of disasters and humanitarian assistance~~, as well as ITU-D Question 22/1-2 "Utilization of telecommunications/ICT for disaster~~ management, resources, and active and passive space based sensing systems as they apply to disaster and emergency relief situations~~ preparedness, mitigation and response";

d) Resolution 48 (Rev. Hyderabad~~Doha~~, 2010~~06~~) of WTDC on strengthening cooperation among telecommunication regulators;

e) Resolution **644 [(Rev.WRC-12~~07~~)]** on radiocommunication resources for early warning, disaster mitigation and relief operations;

f) Programme 5~~6~~ (Least developed countries, countries in special need, ~~and small island developing states, and~~ emergency telecommunications, and climate change adaptation), a revised version of which was adopted by WTDC (Hyderabad,~~Doha,~~ 2010~~06~~);

g) Resolution **646 (WRC-03)** on public protection and disaster relief;

h) Recommendation ITU-R M.1637, which offers guidance to facilitate the global circulation of radiocommunication equipment in emergency and disaster relief situations;

[2] However, a number of countries have not ratified the Tampere Convention.

i) Recommendation ITU-R M.1854, "Use of mobile satellite service (MSS) in disaster response and relief", and Recommendation ITU-R S.1001-2, "Use of systems in the fixed-satellite service in the event of natural disasters and similar emergencies for warning and relief operations, which provide information on the range of radio-frequencies that can be used by MSS and FSS systems for emergency and disaster relief operations,

j~~i~~*i)* Report ITU-R M.2033, which contains information on some bands or parts thereof which have been designated for disaster relief operations,

aware

of the progress made in regional organizations around the world, and in particular in regional telecommunication organizations, on matters related to emergency communications planning and response,

recognizing further

a) Resolution ITU-R 55 of the Radiocommunication Assembly [(Rev. Geneva, 2012~~07~~)], which invites the ITU-R Study Groups to take into consideration the scope of ongoing studies/activities outlined in the annex to the Resolution, and to develop guidelines related to the management of radiocommunications in disaster prediction, detection, mitigation and relief, collaboratively and cooperatively, within ITU and with organizations external to the Union, in order to avoid duplication of effort;

b) Resolution ITU-R 53 of the Radiocommunication Assembly [(Rev. Geneva, 2012~~07~~)], which instructs the Director of the Radiocommunication Bureau to assist Member States with their emergency radiocommunication preparedness activities such as the listing of currently available frequencies for use in emergency situations for inclusion in a database maintained by the Bureau,

noting

a) that when a disaster occurs, the disaster relief agencies are usually the first on the scene using their day-to-day communication systems, but that in most cases other agencies and organizations may also be involved in disaster relief operations;

b) that there is a critical requirement to perform immediate spectrum management actions, including frequency coordination, sharing and spectrum reuse, within a disaster area;

c) that national spectrum planning for emergency and disaster relief should take into account the need for cooperation and bilateral consultation with other concerned administrations, which can be facilitated by spectrum harmonization and/or spectrum-flexible technology, as well as agreed spectrum management guidelines pertaining to disaster relief and emergency planning;

d) that in times of disasters, radiocommunication facilities may be destroyed or impaired and the national regulatory authorities may not be able to provide the necessary spectrum management services for the deployment of radio systems for relief operations;

e) that the identification of frequency availability within individual administrations within which equipment could operate, or the use of spectrum-flexible equipment that allows for operation in various spectrum-access scenarios, may ease the interoperability and/or interworking, with mutual cooperation and consultation, especially in national, regional and cross-border emergency situations and disaster relief activities,

noting further

a) that flexibility must be afforded to disaster relief agencies and organizations to use current and future radiocommunications, so as to facilitate their humanitarian operations;

b) that it is in the interest of administrations and disaster relief agencies and organizations to have access to updated information on national spectrum planning for emergency and disaster relief,

resolves

1 to encourage administrations to consider global and/or regional frequency bands/ranges for emergency and disaster relief when undertaking their national planning and to communicate this information to the Bureau;

2 to encourage administrations to maintain available frequencies for use in the very early stages of humanitarian assistance intervention for disaster relief,

instructs the Director of the Radiocommunication Bureau

1 to assist Member States with their emergency communication preparedness activities by establishing a database of currently available frequencies for use in emergency situations, which are not limited to those listed in Resolution **646 (WRC-03)**, and by issuing an appropriate listing, taking into account Resolution ITU-R 53 of the Radiocommunication Assembly [(Rev. Geneva, 2012~~07~~)];

2 to maintain the database and facilitate online access thereto by administrations, national regulatory authorities, disaster relief agencies and organizations, in particular the United Nations Emergency Relief Coordinator, in accordance with the operating procedures developed for disaster situations;

3 to collaborate with the United Nations Office for the Coordination of Humanitarian Affairs and other organizations, as appropriate, in the development and dissemination of standard operating procedures and relevant spectrum management practices for use in the event of a disaster situation;

4 to take into consideration all relevant activities in ITU's other two Sectors and General Secretariat;

5 to report on the progress on this Resolution to subsequent World Radiocommunication Conferences,

invites ITU-R

to conduct studies as necessary, and as a matter of urgency, in support of the establishment of appropriate spectrum management guidelines applicable in emergency and disaster relief operations,

urges administrations

1 to participate in the emergency communication preparedness activities described above and to provide the relevant information to the Bureau concerning their national frequency allocations and spectrum management practices for emergency and disaster relief radiocommunications, taking into account Resolution ITU-R 53 of the Radiocommunication Assembly [(Rev. Geneva, 2012~~07~~)];

2 to assist in keeping the database up to date by advising the Bureau on an ongoing basis of any modifications to the information requested above.

DOCUMENT WAC/125(08.03.11)

Draft IWG-4 modifications to NTIA Proposal on Agenda item 7 (No. 11.41A/Issue 3B)

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 7: *to consider possible changes in response to Resolution **86** (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: "Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks", in accordance with Resolution **86 (Rev. WRC-07)***

Issue 3B: **Status of frequency assignments initially recorded under RR No. 11.41 in cases where the required coordinations are completed after the assignments are recorded in the MIFR**~~The status of frequency assignments initially recorded under No. **11.41** in cases where the required coordinations are completed with the networks which were the basis for the unfavorable findings after the assignments are recorded in the Master International Frequency Register (MIFR).~~

Background Information: The Radiocommunication Bureau (BR) considered issues concerning definitive and provisional recordings of frequency assignments and related articles of the Radio Regulations.[1] The BR considers an assignment receiving an unfavorable finding for not completing coordination and filing under No. **11.41** as "provisional." If no interference has occurred between the provisional assignment and any assignment, which was the basis for the unfavorable finding during the four month period of simultaneous operation, then the BR changes the provisional recording to "definitive." The BR considers an assignment recorded under No. **11.41**, even if the status changes from provisional to definitive, as having a lower status to the assignment for which the BR based the unfavorable finding on No. **11.32A**.[2] The BR should record an assignment as definitive if the BR initially recorded it under No. **11.41** and the assignment subsequently completes all of the requirements for coordination and successfully operates simultaneously for the four-month period with the assignment which was the basis for the initial unfavorable finding. This assignment should also receive the same status as the existing assignment. Therefore, the BR should consider an assignment that it initially recorded under No. **11.41** equally with respect to an existing assignment which was the basis for the unfavorable findings under No. **11.32A** if coordination with the latter is completed and should not be seen as "always lower." Continuing to consider the provisional assignment as having a lower status could be a disincentive to complete coordination**.**

This proposal modifies No. **11.41A** to ensure that **t**he BR consider the status of an assignment initially recorded under No. **11.41** as equal to the status of the existing assignment, which was the basis for the unfavorable findings under No. **11.32A** if coordination is completed with respect to that existing assignment after the BR initially recorded the assignment in the MIFR**.**

[1] BR Report to the 2007 World Radiocommunication Conference (Document 4, Addendum 2, Section 3.1.3.3).
[2] BR Report to the 2007 World Radiocommunication Conference (Document 4, Addendum 2, Section 3.1.3.3.4).

Proposal:

ARTICLE 11

Notification and recording of frequency assignments[1, 2, 3, 4, 5, 6, 7] (WRC-07)

Section II – Examination of notices and recording of frequency assignments in the Master Register

MOD USA/7/1

11.41A Should the assignments that were the basis of the unfavourable finding under Nos. **11.32A** or **11.33** not be brought into use within the period specified in Nos. **11.24**, **11.25** or **11.44**~~, as appropriate~~, then the finding of the assignments resubmitted under No. **11.41** shall be reviewed accordingly. Should the coordination procedures specified in No.**11.32** be completed with administration(s) whose assignments were the basis of the recording under No. **11.41**~~with respect to assignments recorded under No. **11.41**~~, then any conditions related to the initial recording of assignments under No. **11.41** shall be removed.

Reasons: The proposed modification to No. **11.41A** will ensure that **t**he BR consider the status of an assignment initially recorded under No. **11.41** as equal to the status of the existing assignment, which was the basis for the unfavorable findings under No. **11.32A**, if coordination is completed with respect to that existing assignment after the BR initially recorded the assignment in the MIFR**.**

DOCUMENT WAC/126(08.03.11)

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 7: *to consider possible changes in response to Resolution **86** (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: "Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks", in accordance with Resolution **86 (Rev. WRC-07)***

Issue 3A: Application of RR Nos. 11.41 and 11.42 in respect of satellite networks (Provisional / definitive recording of frequency assignments)

Background Information: In its report to the 2007 World Radiocommunications Conference (Document 4, Addendum 2, Section 3.1.3.3), the Radiocommunications Bureau (BR) considered the case of recording provisional assignments under No. **11.41**. The BR indicated that there were insufficient "indications as what would be the course of action, by the Bureau, if harmful interference is reported, during the four-month period of simultaneous operation."

The BR's initial proposal suggested that: "[i]f the interference is not eliminated by the end of the four-month period envisaged for simultaneous operation, the Bureau cancels the "incoming" assignment (i.e. the one recorded under No. **11.41**) and informs the concerned administration accordingly."

The BR proposal may provide excessive control to the administration claiming interference, since there is no requirement for that administration to present proof of harmful interference. In the case of actual harmful interference, it may take considerable time to establish the source of interference which could result in automatic cancellation of particular frequency assignments without definitively establishing that those frequency assignments were the cause of the unresolved interference complaint. However, removing any type of "penalty" for a provisional assignment causing harmful interference to the assignment which was the basis of the unfavourable finding under No. **11.32A** could lead to administrations purposefully not completing difficult coordinations with networks having date priority and already recorded in the MIFR.

For the case where complaints of interference are received after the four-month period, the BR's initial proposal suggested that: "For a complaint received beyond the four month period indicated in No. **11.41**, it requests the administration responsible for the "incoming" assignment (i.e. the one recorded under No. **11.41**) to eliminate the harmful interference immediately under No. **11.42**. The matter is thereafter dealt with in accordance with the procedures set forth in Article **15** of the Radio Regulations."

So, summarizing the BR proposal, if an interference complaint is received against a new assignment within the first four months of operations of the new assignment and the interference is not eliminated within the 4 months, the BR would cancel the new assignment. If an interference complaint is received after the first four months, the BR would ask the administration responsible for the provisionally recorded assignments to eliminate the

interference immediately and then apply the procedures of Article **15**. It would seem that there should be no difference in treatment applied to situations where the interference complaints occur within or outside the four-month period. However, if the harmful interference is not resolved, then the provisional assignment should be cancelled by the BR and the concerned administration informed accordingly.

Proposal:

ARTICLE 11

Notification and recording of frequency assignments[1, 2, 3, 4, 5, 6, 7] (WRC-07)

Section II – Examination of notices and recording of frequency assignments in the Master Register

NOC
11.41

Reasons: Changes are not required to this provision.

11.42 Should harmful interference be caused by an assignment recorded under No. **11.41** to any recorded assignment which was the basis of the unfavourable finding, the station using the frequency assignment recorded under No. **11.41** shall, upon receipt of a detailed report of harmful interference using to the maximum extent possible the format prescribed in Appendix **10** of the Radio Regulations, ~~advice thereof~~ immediately eliminate this harmful interference. Administrations involved shall cooperate in the resolution of the harmful interference and may request assistance from the Bureau, as necessary.

Reasons: Changes clarify that complaints of harmful interference should be based on a detailed report of the interference event.

ADD
11.42*bis* In respect of satellite networks, if the Bureau is informed that the harmful interference reported under No. **11.41** is resolved and the two assignments have been in use for at least four months without any complaint of harmful interference, the Bureau shall change the provisional entry recorded under No. **11.41** to definitive. If, after cooperation between the concerned administrations and the assistance of the Bureau, the harmful interference is not resolved, the Bureau shall cancel the provisional entry recorded under No. **11.41**, subject to confirmation by the Board, and shall inform the administrations concerned. Until the cancellation is confirmed by the Board, the Bureau shall maintain the provisional assignment in the MIFR.

Reasons: New provision explicitly states that if harmful interference is not resolved the BR shall cancel the provisional entry. However, cancellation depends on confirmation by the Board and does not go into force until such confirmation occurs.

DOCUMENT WAC/127(08.03.11)

UNITED STATES OF AMERICA

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 8.1.1: *on activities of the Radiocommunication Sector since WRC-07*

Background Information: This proposal addresses Issue C and Resolution **673 (WRC-07)** on radiocommunications use for Earth observation applications. Resolution **673 (WRC-07)** called for studies by the ITU-R on possible means to improve the recognition of the essential role and global importance of Earth observation radiocommunications applications and the knowledge and understanding of administrations regarding the utilization and benefits of these applications. This resolution also instructed the Director of the Radiocommunication Bureau to include the results of these studies in his report to WRC-12 for the purposes of considering adequate actions in response to these ITU-R studies. The objectives of these studies do not include new allocations or additional protection.

The ITU-R completed several studies resulting in Recommendation ITU-R RS.1859 on the use of remote sensing systems for data collection for guidance in the event of natural disasters and similar emergencies and Recommendation ITU-R RS.[CLIMATE] on the use of remote sensing systems in the study of climate change and the effects thereof. The ITU-R also completed Report ITU-R RS.2178 on the essential role and global importance of radio spectrum use for Earth observations and for related applications. The work under Resolution 673 (WRC-07) is complete.

In order to improve the recognition of the importance of Earth observation systems within the Radio Regulations, this proposal seek to replace ~~s to modify~~ Resolution **673 (WRC-07)** with a Recommendation to reflect the conclusions of the ITU-R studies.

Proposal:

ARTICLE 4
Assignment and use of frequencies

NOC USA/8.1.1.C/1

Reasons: Resolution **673 (WRC-07)** notes that the ITU-R studies under this resolution should not result in additional protection or regulatory status of Earth observation systems and applications.

ARTICLE 5
Frequency allocations

NOC USA/8.1.1.C/2

Reasons: Resolution **673 (WRC-07)** notes that the ITU-R studies under this resolution should not result in new allocations or additional protection of Earth observation systems and applications.

MOD USA/8.1.1.C/3

RECOMMENDATION~~SOLUTION~~ [673] (~~Rev.~~ WRC-~~07~~12)

~~Radiocommunications~~ The use of the radio spectrum for Earth observation applications

The World Radiocommunication Conference (Geneva, ~~2007~~2012),

considering

a) that *in situ* and remote Earth observation capabilities depend on the availability of radio frequencies under a number of radio services, allowing for a wide range of passive and active applications on satellite- or ground-based platforms;

b) that the collection and exchange of Earth observation data are essential for maintaining and improving the accuracy of weather forecasts that contribute to the protection of life, preservation of property and sustainable development throughout the world;

c) that Earth observation data are also essential for monitoring and predicting climate changes, for disaster prediction, monitoring and mitigation, for increasing the understanding, modelling and verification of all aspects of climate change, and for related policy-making;

d) that Earth observations are also used to obtain pertinent data regarding natural resources, this being particularly crucial for the benefit of developing countries;

e) that Earth observations are performed for the benefit of the whole international community and all mankind, are shared among all countries and are generally available at no cost,

recognizing

a) that § 20 c) of the Plan of Action of the World Summit on Information Society (Geneva, 2003), on e-environment, calls for the establishment of monitoring systems, using information and communication technologies (ICT), to forecast and monitor the impact of natural and man-made disasters, particularly in developing countries, least developed countries and small economies;

b) Resolution 34 (Rev. Doha, 2006) of the World Telecommunication Development Conference, on the role of telecommunications/ICT in early warning and mitigation of disasters and humanitarian assistance;

c) that ITU-D Question 22/2 ~~"Utilization of ICT for disaster management, resources and active and passive space-based sensing systems as they apply to disaster and emergency relief situations"~~ studies resulted in ITU-D Report "Utilization of ICT for disaster management, resources and active and passive space-based sensing systems as they apply to disaster and emergency relief situations~~,~~";

d) that ITU-R studies resulted in Report ITU-R RS.2178 "The essential role and global importance of radio spectrum use for Earth observations and for related applications";

noting

a) that Earth observation applications are conducted under the Earth exploration-satellite (active and passive), meteorological satellite, meteorological aids and radiolocation services;

b) that some essential passive frequency bands are covered by No. **5.340**~~,~~;

c) that certain frequency bands used by Earth observation applications have specific physical characteristics (e.g., spectral lines, propagation) that do not allow a migration to a different frequency,

noting further

a) that the importance of Earth observation radiocommunications applications has been stressed by a number of international bodies such as the Group on Earth Observation (GEO), the World Meteorological Organization (WMO) and the Intergovernmental Panel on Climate Change (IPCC) and that collaboration of ITU-R with these bodies ~~could be~~is important;

b) that, in particular, GEO is leading a worldwide effort to build a Global Earth Observation System of Systems (GEOSS) to provide comprehensive and coordinated Earth observations from thousands of instruments worldwide, transforming the collected data into vital information for society and mankind;

~~*c)* that GEOSS provides a broad range of societal benefits, including disaster management and aspects related to human health, energy, climate, water, weather, ecosystems, agriculture and biodiversity;~~

~~*d*~~*c)* that more than 90 per cent of natural disasters are climate- or weather-related;

~~*e*~~*d)* that some essential passive Earth observation operations currently suffer radio interference resulting in erroneous data or even complete loss of data;

~~*f*~~*e)* that, although meteorological and Earth observation satellites are currently only operated by a limited number of countries, the data and/or related analyses resulting from their operation are distributed and used globally, in particular by national weather services in developed and developing countries and by climate-change-related organizations,

recommends administrations~~*resolve*~~*s* ~~*to invite ITU-R*~~

1 to~~-~~ recognize that Earth observation applications have economic and societal benefits as most of the data retrieved by these observations are used for applications to meteorology, climatology, environmental monitoring, agriculture, civil security and the protection of life and property;

2 to e~~ncourage Member States to~~ take into account the radio-frequency requirements of Earth observation systems and, in particular, the protection and long-term availability of related frequency bands;

3 ~~to urge Member States~~ to consider the use of certain frequency bands by Earth observation applications prior to any decision potentially affecting these applications;

4 to recall~~remind Member States of~~ their obligations under No. **5.340** of the Radio Regulations, which prohibits all emissions in the frequency bands listed in No. **5.340**.

~~to carry out studies on possible means to improve the recognition of the essential role and global~~

~~importance of Earth observation radiocommunications applications and the knowledge and understanding of administrations regarding the utilization and benefits of these applications,~~

~~instructs the Director of the Radiocommunication Bureau~~

~~to include the results of these studies in his Report to WRC-11 for the purposes of considering adequate actions in response to *resolves to invite ITU-R* above, noting that neither new allocations nor additional protection would be objectives of such studies,~~

~~invites administrations~~

~~to participate actively in the studies by submitting contributions to ITU-R.~~

Reasons: Noting the results of the ITU-R studies and related work completed in ITU-D, which led to approval of relevant recommendations and reports, the ~~modifications~~ proposed recommendation~~to this resolution~~ complete~~s~~ the goal of increasing the recognition of the importance of radio spectrum use by Earth observation applications.

DOCUMENT WAC/128(08.03.11)

IWG-4 Recommendations Regarding Proposals on Integrated MSS Systems in L-Band Agenda Items 7 and 8.2

IWG-4 has discussed the topic of Integrated MSS Systems and associated Complementary Ground Components since March 2009. Unfortunately, it was not possible to achieve consensus despite the best and repeated efforts of many participants to address this matter under different agenda items of WRC-12.

This document replaces Document WAC/102(26.10.10).

The alternative recommendations are presented in the Annexes to this document.

Annex A includes two draft proposals submitted and supported by LightSquared. These proposals replace the three LightSquared draft proposals contained in WAC/102(26.10.10). These draft replacement proposals refer to Agenda Items 7 and 8.2.

Annex B contains the recommendations submitted and supported by Inmarsat with respect to LightSquared's replacement draft proposals.
Annex C contains the comments of the U.S. GPS Industry Council with respect to LightSquared's proposal for Agenda Item 8.2.

ANNEX A

IWG 4-98

03/01/11

United States of America
DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 7: *To consider possible changes in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: "advance publication, coordination, notification and recording procedures of the Radio Regulations for frequency assignments pertaining to space services,"[1] in accordance with Resolution 86 (Rev. WRC 07).*

Background

Integrated MSS Systems[2] use technology to integrate mobile-satellite components with terrestrial components (Complementary Ground Component, or "CGC") within a single system.These systems will operate in the bands 1525- 1559 MHz and 1626.5-1660.5 MHz, and will begin in 2011.
Currently, the Radio Regulations do not have regulatory and technical provisions to address the unique architectural, technical, and operational aspects of CGC stations of Integrated MSS Systems.

Because the CGC is a terrestrial deployment that must be authorized by individual administrations, it is imperative to have a harmonized framework for global CGC deployment.
Thus, until a future WRC is able to address the allocation status of CGC within Integrated MSS Systems, it is necessary to adopt provisions that provide a mechanism for administrations to notify and record its CGC stations in accordance with the requirements of Nos. 11.2 and 11.3 of the Radio Regulations, and to associate CGC stations with their corresponding MSS networks. This is particularly important as some CGC deployments may be within the territory of an administration that is not the notifying administration of the corresponding MSS network.
Thus, it is important that WRC-12 adopt provisions that provide a mechanism to notify and record CGC stations, thereby informing administrations that CGC stations are being implemented, and also to

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1 Int'l Telecomm. Union [ITU], *Implementation of Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference*, at *resolves to invite future world radiocommunication conferences* ¶ 1, Resolution 86 (Rev. WRC-07) (2007).

2 The ITU-R Coordination Committee for Vocabulary ("CCV") is considering the definition of Integrated MSS System given below. This is also the working definition used in ITU-R Working Parties 4C, 4B, and 4A. *See, SUMMARY RECORD OF THE CCV/1-10 MEETING OF THE COORDINATION COMMITTEEFOR VOCABULARY (CCV),* Document CCV/29, 22 March 2010 (Geneva). Within the ITU-R, the working definition for Integrated MSS Systems is:

> An integrated MSS system is a system employing a satellite component and ground component where the ground component is complementary to the satellite component and operates as and is an integral part of the MSS system. In such systems the ground component is controlled by the satellite resource and network management system. Further, the ground component uses the same portions of MSS frequency bands as the associated operational mobile-satellite system.

associate CGC stations with their corresponding MSS network operating in the bands 1525-1544MHz, 1545- 1559 MHz ,1626.5-1645.5 MHz and 1646.5-1660.5 MHz bands.

Proposal

Modifications to Recommendation 206 (WRC-07) are proposed to:

a) define integrated MSS systems,

b) expedite studies in ITU-R on the compatibility of Integrated MSS systems and other radio services allocated in the bands 1525-1544 MHz, 1545-1559 MHz , 1626.5-1645.5 MHz and 1646.5-1660.5 MHz and in adjacent bands in time for consideration by WRC-15,

c) invite administrations to notify CGC stations and to associate CGC stations with specific MSS networks through the use of the remarks field of the Appendix 4 Annex 1 notice,

d) invite administrations to use these notified CGC stations and system characteristics in bilateral and multilateral consultations with administrations.

USA/AI 7/01

MOD

RECOMMENDATION 206 (Rev.WRC-12~~07~~)

~~Consideration on the possible~~ Use of Integrated Mobile-s~~S~~atellite s~~S~~ervice Systems ~~and complementary ground component systems~~ in some frequency bands identified for the satellite component of International Mobile Telecommunications

The World Radiocommunication Conference (Geneva, 2012~~07~~),

considering

a) that mobile-satellite service (MSS) systems may provide service to a wide area;

b) that MSS systems may have a limited ~~capacity~~ capability for providing ~~reliable~~ radiocommunication services in urban areas due to ~~on account of~~ natural or man-made obstacles and that the ground component of an Integrated MSS System can mitigate blockage areas, as well as allow for indoor service coverage;

c) that MSS systems can improve coverage of rural areas, thus being one element that can bridge the digital divide in terms of geography;

d) that MSS systems are suitable for public protection and disaster relief communications, as stated in Resolution **646 (WRC-03)**;

e) that ~~the~~ certain frequency bands ~~1 525-1 544 MHz, 1 545-1 559 MHz, 1 610-1 626.5 MHz, 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz and 2 483.5-2 500 MHz~~ are ~~among those~~ identified in Resolution **225 (Rev.WRC-07)** for administrations wishing to implement the satellite component of International Mobile Telecommunications (IMT);

f) that the bands mentioned in *considering e)* are allocated on a primary basis to the mobile-satellite services and other services and that not all of them are allocated to the mobile service;

g) that the bands 1 980-2 010 MHz and 2 170-2 200 MHz are identified for use by the satellite component of IMT-2000 in accordance with Resolution **212 (Rev.WRC-07)**;

h) that within their territories in some or parts of the bands identified in *considering e)* and *g)* and in parts of the band 2 010-2 025 MHz in some countries in Region 2, some administrations have authorized or plan to authorize MSS system operators to establish an integrated ground component to their MSS systems ("Integrated MSS System") and under certain conditions determined at the national level such as:

i) the ground component is complementary to, and operates as an integral part, of the MSS system and, together with the satellite component, provides an integrated service offering;

ii) the ground component is controlled by the satellite resource and network management system;

iii) the ground component uses the same designated portions of the frequency band as the associated operational MSS system;

i) that ITU-R has performed frequency sharing studies and has determined that the coexistence between independent systems in the MSS and systems in the mobile services in the same spectrum without harmful interference is not feasible in the same or adjacent geographical area,

recognizing

a) that ITU-R has not performed studies on sharing, technical or regulatory issues with regard to integrated MSS and complementary ground component systems, but that some administrations have performed such studies;

b) that the radionavigation-satellite service in the 1 559-1 610 MHz band and the radio astronomy service in the bands 1 610.6-1 613.8 MHz and 1 660-1 670 MHz need to be protected from harmful interference;

c) that the MSS needs to be protected from harmful interference that may be caused by the introduction of the ground component of Integrated MSS Systems;

d) that Nos. **5.353A** and **5.357A** are applicable to MSS systems in different portions of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz with respect to the spectrum requirements and prioritization of communications for the Global Maritime Distress and Safety System and the aeronautical mobile-satellite (R) service;

e) that the provisions of *recognizing d)* need to be taken into account in the operation of the Integrated MSS Systems;

noting

a) that the combined wide-area and urban coverage capabilities of Integrated MSS Systems may contribute to meeting the particular needs of developing countries such as is noted in Resolution **212 (Rev.WRC-07)**;

b) that some administrations that are planning to implement or are implementing Integrated MSS Systems within their national territories have imposed limitations, in rules and authorization actions, on the e.i.r.p. density that the ground component of such systems may produce into bands allocated to the radionavigation-satellite service;

c) that there are a limited number of frequency bands allocated to the MSS, that these bands are already congested, and that the introduction of integrated ground components may in some instances make spectrum access for other MSS systems more difficult;

d) that administrations implementing Integrated MSS Systems may provide, in bilateral or multilateral consultations among administrations, information on system characteristics of the complementary ground component,

e) that administrations implementing CGC stations within their territory may

a) notify these CGC stations in accordance with Nos. 11.2 and 11.3 and

b) associate these CGC stations with the mobile satellite service network with which it operates as an Integrated MSS System.

recommends

~~to invite ITU-R to conduct studies , as appropriate, taking into account existing systems and those proposed to be used soon and the above *considering*, *recognizing* and *noting*,~~

~~1)~~a) that, in the bands 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz, and 1 646.5-1 660.5 MHz, Integrated MSS Systems be defined as mobile-satellite service (MSS) systems employing a satellite component and ground component where the ground component is:

– complementary to the satellite component and operates as and is an integral part of the MSS system;

– controlled by the satellite resource and network management system; and

– uses the same portions of MSS frequency bands as the associated operational mobile-satellite system,

invites ITU-R

1 to study, as a matter of urgency, compatibility between Integrated MSS Systems in frequency bands identified in the above *recommends* and radio services in the same and adjacent bands, taking into account existing systems and those proposed to be used soon, and the above *considerings*, *recognizings*, and *notings;*

2 to include the results of the studies referred to in *invites ITU-R* 1 in ITU-R Reports or Recommendations, as appropriate;

3 to complete these studies in time for consideration by WRC-15,

invites administrations

1 to participate as necessary in the ITU-R studies taking into account *recognizing a)* and *noting b)* ~~-~~;

2 to notify CGC stations implemented within their territory using Appendix 4 Annex 1 and indicate, in accordance with this Recommendation in the remarks field (13.1) of the Annex 1 notice, that the CGC stations are associated with the MSS network of an Integrated MSS System and specify the MSS network identification number;

3 to include CGC stations and system characteristics, notified in accordance with invites administrations 2 above, within bilateral or multilateral consultations among administrations with respect to associated MSS Systems in the 1 525-1 544 MHz, 1 545-1 559 MHz, 1 626.5-1 645.5 MHz and 1 646.5-1 660.5 MHz bands.

Reason: To define Integrated MSS Systems; to provide a mechanism to notify and record CGC stations, thereby informing administrations that CGC stations are being implemented; and to associate CGC stations with their corresponding MSS network operating in the bands 1525-1544MHz, 1545- 1559 MHz ,1626.5-1645.5 MHz and 1646.5-1660.5 MHz bands.

United States of America
Draft US proposal for WRC -12
Proposed Agenda Item for Integrated MSS Systems

AGENDA ITEM 8.2

Agenda Item 8.2: *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution* ***806 (WRC-07)****,*

Background

Integrated MSS Systems[1] use technology to integrate mobile-satellite and terrestrial components (Complementary round Component, or "CGC") within a single system. These systems will operate in the 1525- 1559 MHz and 1626.5-1660.5 MHz bands and will begin integrated MSS/CGC operations in 2011.

Currently, the Radio Regulations do not have regulatory and technical provisions to address the unique architectural and operational aspects of the Complementary Ground Component ("CGC") of Integrated MSS Systems, nor is the allocation status of CGC addressed in the Radio Regulations in these frequency bands.

Consequently, the USA is of the view that WRC- 12 should adopt an agenda item for the World Radiocommunication Conference in 2015 to consider allocations matters for CGC, as well as regulatory provisions to associate CGC with MSS networks in the bands 1525-1544MHZ, 1545-1559 MHz, 1626.5- 1645.5MHZ and 1646.5-1660.5MHz. Further, because CGC is a terrestrial deployment that must be authorized by individual administrations, it is imperative to have a harmonized framework for global CGC deployment, and for notifying CGC stations and associating those stations with their corresponding MSS networks.

Proposal

A WRC-15 Agenda Item with an attendant Resolution [CGC.Agenda (WRC-12)] is proposed for consideration at WRC-12. This proposed Agenda Item would address the allocation, regulatory, technical considerations, relating to CGC stations intended to operate with MSS systems in the bands 1525-1544 MHz, 1545-1559 MHz , 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz.

Attachment: 1

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[1] The ITU-R Coordination Committee for Vocabulary ("CCV") is considering the definition of Integrated MSS System given below. This is also the working definition used in ITU-R Working Parties 4C, 4B, and 4A. *See, SUMMARY RECORD OF THE CCV/1-10 MEETING OF THE COORDINATION COMMITTEEFOR VOCABULARY (CCV),* Document CCV/29, 22 March 2010 (Geneva). Within the ITU-R, the working definition for Integrated MSS Systems is:

> An integrated MSS system is a system employing a satellite component and ground component where the ground component is complementary to the satellite component and operates as and is an integral part of the MSS system. In such systems the ground component is controlled by the satellite resource and network management system. Further, the ground component uses the same portions of MSS frequency bands as the associated operational mobile-satellite system.

Proposals:
MOD

Agenda Item 8.2
RESOLUTION 807 (WRC-07)
Preliminary agenda for the 2015 World Radiocommunication Conference

ADD USA/AI 8.2 /01

• X.X **Complementary Ground Component of Integrated MSS Systems** to consider, based on ITU-R studies, possible regulatory, technical and allocation provisions in the Radio Regulations to support the implementation and operation of Complementary Ground Component ("CGC") stations of a mobile-satellite service (MSS) systems operating in the bands 1525-1544 MHz, 1545 -1559 MHz, 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz taking into account MOD Recommendation 206 (WRC-12) and Resolution [CGC.Agenda (WRC-12)] and the results of compatibility and sharing studies with other radio services.

Reason: Integrated MSS Systems are deploying in the bands 1525-1544 MHz, 1545 -1559 MHz, 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz in 2011. These deployments will be both regional and global. This agenda item will allow WRC -15 to consider possible regulatory, technical and allocation actions to support the deployment of complementary ground component stations of Integrated MSS Systems.

ADD USA/ AI 8.2/02

Resolution [CGC.Agenda] [(WRC-12)]

Consideration of Regulatory, Technical and Allocation Actions for Integrated MSS Systems [2]in the Bands 1525-1544 MHz, 1545 -1559 MHz, 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz

The World Radiocommunication Conference (Geneva, 2012),

considering

a) that mobile-satellite service (MSS) systems may provide service to a wide area;

[2] An Integrated MSS System is a system employing a satellite component and complementary ground component ("CGC") where the ground component is complementary to the satellite component and operates as and is an integral part of the MSS system. In such systems the ground component is controlled by the satellite resource and network management systems. Further, the ground component uses the same portions of MSS frequency bands as the associated operational mobile-satellite system.

b) that MSS systems can have limited capability for providing radiocommunication services in urban areas due to natural or man-made obstacles;

c) that a complementary ground component of an integrated MSS system can mitigate blockage areas, as well as allow for indoor service coverage;

d) that MSS systems can improve coverage of rural areas, thus being one element that can bridge the digital divide in terms of geographical coverage;

e) that MSS systems are suitable for public protection and disaster relief communications, as stated in Resolution **646 (WRC-03)**;

f) that an MSS system with an integrated Complementary Ground Component (CGC) system will extend and improve the availability of radiocommunications services in areas where reliable current and next generation communications are not otherwise provided with one or more space stations or cannot otherwise be assured, and in this way increase spectrum efficiency in bands allocated to the Mobile-Satellite service;

g) that the bands 1 525-1 544 MHz, 1 545-1 559 MHz, and 1 626.5-1 645.5 MHz, 1 646.5-1 660.5 MHz are allocated on a co primary basis to the mobile-satellite service and other services;

h) that within their territories in the bands identified in *considering f)*, some administrations have authorized or plan to authorize MSS system operators to establish an integrated complementary ground component to their MSS systems ("Integrated MSS System");

i) that Integrated MSS Systems meet certain conditions such as:

i) the ground component is complementary to, and operates as an integral part, of the MSS system and, together with the satellite component, provides an integrated MSS service offering;
ii) the ground component is controlled by the satellite resource and network management system; and
iii) the ground component reuses the MSS frequencies of the associated mobile-satellite system;

j) that ITU-R has performed frequency sharing studies and has determined that the coexistence between independent systems in the MSS and systems in the mobile services in the same spectrum without harmful interference is not feasible in the same or adjacent geographical area;

recognizing

a) that within the ITU-R, studies are underway regarding the compatibility of the CGC element of Integrated MSS Systems with other services in the bands 1525-1544

MHz, 1545 -1559 MHz, 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz;

b) that some administrations have already performed such studies;

c) that in the bands 1545-1555 MHz, 1646.5- 1656.5 MHz complementary terrestrial networks are already permitted for use in conjunction with AMS(R)S systems;

d) that in providing radiocommunication services there is continuing need to exploit technological developments to increase the efficiency of use of finite radiocommunication spectrum resources as technology permits; and

e) that some administrations have deployed Integrated MSS Systems beginning in 2011.

noting

a) that the combined wide-area and urban coverage capabilities of Integrated MSS Systems may contribute to meeting the particular needs of developing countries such as is noted in Resolution 212 (Rev.WRC-07);

b) that the radionavigation-satellite service in the 1 559-1 610 MHz band and the radio astronomy service in the bands 1 610.6-1 613.8 MHz and 1 660-1 670 MHz need to be protected from harmful interference;

c) that there are a limited number of frequency bands allocated to the MSS, and that Integrated MSS Systems can coexist with MSS systems without CGC;

resolves

1. that WRC-15 consider, based on the result of ITU-R studies, possible regulatory, technical and allocation provisions, to support the implementation and operation of the Complementary Ground Component ("CGC") stations with their corresponding MSS systems operating in the bands 1525- 1544 MHz,1545-1559 MHz,1626.5- 1645.5MHz and 1646.5-1660.5 MHz.

2. that, subject to confirmation by WRC-15, in the bands 1525-1544 MHz, 1545-1559 MHz, 1626.5-1645.5 MHz and 1646.5-1660.5 MHz, Integrated MSS Systems be defined as mobile-satellite service (MSS) systems employing a satellite component and ground component where the ground component is:

- complementary to the satellite component and operates as and is an integral part of the MSS system;
- controlled by the satellite resource and network management system;
- and uses the same portions of MSS frequency bands as the associated operational mobile-satellite system,

invites ITU-R

1. taking into account MOD Recommendation 206 (WRC-12), to conduct in time for WRC-15 the necessary studies to determine technical, regulatory, operational and allocation actions to support the operation of complementary ground component stations of Integrated MSS Systems;

2. that the studies referred to in *invites ITU-R* 1 include:

a) the results of sharing and compatibility studies with services already having allocations in the specified bands in resolves 1; and

b) the development of necessary regulatory mechanisms to enable coordination, notification and recording in the Master International Frequency Register of the CGC of a mobile-satellite network operating in the bands in the specified bands of resolves 1.

Reason: This Resolution serves as a vehicle to place on the agenda of WRC-15 consideration of possible regulatory, technical and allocation actions to support Integrated MSS Systems and their associated Complementary Ground Components.

Annex

Subject: 2012 World Radiocommunication Conference Agenda Item 8.2 Proposal to consider adopting technical regulatory and allocation provisions to enable the Complementary Ground Component of Integrated MSS Systems to operate on a co primary basis with the MSS allocation in certain frequency bands.

Origin: United States of America

Proposal:

to consider adopting regulatory, technical and allocation provisions in the Radio Regulations to enable the Complementary Ground Component ("CGC") of a mobile-satellite service (MSS) system to operate on a co- primary basis with the MSS allocation in the bands 1525-1544 MHz,1545 -1559 MHz, 1626.5- 1645.5 MHz and 1646.5- 1660.5 MHz taking into account MOD Recommendation 206 (WRC-12) and Resolution [CGC.Agenda (WRC-12)] and the results of any compatibility and sharing studies with other radio services.

Background/reason:

Radiocommunication services concerned: Mobile Satellite, Mobile, Aeronautical Mobile Satellite (R) Service, GMDSS, Radio Astronomy and other services allocated in the bands

Indication of possible difficulties: TBD

Previous/ongoing studies on the issue:

be carried out by: ITU-R Study Group 4, Working Party 4B and 4C	***with the participation of:*** ICAO, IMO

ITU-R Study Groups concerned: Study Groups 4, 5 and 7

ITU resource implications, including financial implications (refer to CV126): -- Minimal.

Common regional proposal: No

Multicountry proposal: **No**

Number of countries:

Remarks None

ANNEX B

Inmarsat's Recommendation on LightSquared's Draft Proposals for WRC-12 on Integrated MSS Systems

Inmarsat's Recommendation on LightSquared's Draft Proposals for WRC-12 on Integrated MSS Systems

Inmarsat takes note of LightSquared's two proposals introduced at the March 3, 2011 meeting of IWG-4 in Documents IWG-4 -098 and -099 as follows:

1) Agenda Item 7 to modify Recommendation 206; and

2) Agenda Item 8.2 to propose a WRC-15 Agenda Item and an accompanying Resolution.

Inmarsat appreciates the intent of LightSquared's proposals. In fact, Inmarsat has cooperated with LightSquared to enable deployment of Ancillary Terrestrial Components, also known as Complementary Ground Component (ATC/CGC) base stations, including significant modifications to permit higher power operations to provide advanced mobile wireless services in North America. This process has worked well for both operators, notifying Administrations, and consumers. Inmarsat believes that the model that was used for coordination of ATC/CGC base stations in North America and other regions can serve as a framework for deployment of ATC/CGC in other regions as well.

Disadvantages of the LightSquared Proposals

In large part because the process followed in North America has worked so well, Inmarsat disagrees with the need for and desirability of proposing new ITU procedures for coordination and notification of ATC/CGC base stations. Inmarsat does not share the view that it is necessary to take the significant step of proposing to modify the ITU Radio Regulations (RRs) to accommodate ATC/CGC base stations. Inmarsat believes that the current RRs provide adequate flexibility to accommodate ATC/CGC base stations in the current ITU procedures.

Any ITU action would have to be preceded by detailed studies at the national and international levels to determine the conditions for ATC/CGC use. ITU studies would tend to be based on worst case assumptions and will delay the implementation of ATC/CGC in other countries and regions while they are pending. It is Inmarsat's belief that such studies are best carried out on a national and system specific basis to take into account actual conditions and concrete systems. Adding ITU studies to the process would create unnecessary duplication and require significant additional resources for all the necessary participants. In short, we believe that it is preferable to have the introduction of ATC/CGC as an industry-driven process.

The proposed studies and implementation of additional procedures will also increase the administrative burden on the Radiocommunication Bureau (BR) as there could be many thousands of requests to notify terrestrial base stations, further taxing the BR's limited resources for processing satellite and other network filings.

Finally, as has been the case in the past, proposing and advocating for these proposed procedures nationally, regionally and at the upcoming World Radiocommunication Conference (WRC-12) will be contentious and will be enormously resource-intensive for the ITU, Administrations, and operators. Inmarsat, therefore, cannot support the proposals to include ATC/CGC into the ITU coordination process.

Alternative Path

Inmarsat believes that there is a better approach, based on the successful U.S. precedent, to achieving the goals that LightSquared is trying to obtain without the need to develop interim procedures or permanently modify the Radio Regulations and without the disadvantages of LightSquared's proposals identified above. Inmarsat submits the following alternative roadmap for consideration by the IWG-4 as a path forward for international deployment of ATC/CGC. This approach is intended to demonstrate that the goals that LightSquared is trying to achieve can be obtained more quickly and potentially result in greater flexibility with minimal impact on limited ITU and Administration resources.

There is a well-established international MSS coordination process covered by Article 9 of the RRs. It is Inmarsat's belief that that process can accommodate the goals that LightSquared is trying to achieve. Specifically, proponents of ATC/CGC networks should undertake a review of the current L-band coordination environment for each of the countries where ATC/CGC deployment is contemplated and conduct satellite coordination, if required.
If satellite coordination is necessary and complete or well underway, the ATC/CGC proponents can commence discussions with other satellite operators to develop technical solutions to the coordination of ATC/CGC under existing ITU procedures.

Once agreements between the affected operators are in place, the MSS operator can approach regulators to endorse ATC/CGC operation. To facilitate this process, ATC/CGC proponents can educate regulators on already existing regulatory models in other countries, such as that in the United States.[1]

The advantage of the above approach compared to pursuing Recommendations or Resolutions at WRC-12 is that it avoids the potential development of interference rules with unnecessarily conservative or restrictive requirements. Instead, it allows for maximum deployment/operational flexibility based on operator-to-operator agreements under the auspices of notifying Administrations. In addition, the process proposed by Inmarsat would speed deployments by avoiding years of unnecessary study and save resources for the Bureau, Member States, Sector Members and operators.

Inmarsat believes that there is a valid role for regional and ITU organizations to play in facilitating the international deployment of ATC/CGC. For example, regional and ITU

[1] *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, Report and Order and Notice of Proposed Rulemaking*, FCC 03-15, 18 FCC Rcd 1962 (2003), modified by Order on Reconsideration, 18 FCC Rcd 13590 (2003), reconsidered in part in *Memorandum Opinion and Order and Second Order on Reconsideration*, FCC 05-30, 20 FCC Rcd 4616 (2005), further reconsideration pending.

organizations could facilitate sharing of information papers on ATC/CGC deployment and hold forums and workshops on the benefits of ATC/CGC and regulatory best practices. Specifically, these fora could be valuable for detailing what ATC/CGC is and how it works, the potential benefits for spectrum efficiency, the potential public interest benefits (e.g., disaster recovery), and how ATC has been implemented from a regulatory and coordination perspective in other countries and regions. In addition, these fora could be a place for regulators to describe recommended procedures or best practices on how to coordinate ATC/CGC networks as part of MSS coordination procedures. We note that such an information paper was prepared prior to the last WRC, but much has happened since then and an update would be appropriate.

Conclusion

Inmarsat respectfully requests that the IWG-4 and the WAC consider these factors in evaluating the necessity of proceeding with LightSquared's risky, complex and unnecessary approach to international deployment of ATC/CGC through modification of the ITU Radio Regulations. Inmarsat also requests that this document be forwarded to the WRC Advisory Committee (WAC) if the IWG-4 decides to send LightSquared's proposals to the WAC without consensus.

Annex C

Comments of the U.S. GPS Industry Council on the Proposal of LightSquared Subsidiary LLC for a new future agenda item for WRC-15 in Document IWG-4/99

The U.S. GPS Industry Council ("Council") expressed its opposition during the 3 March 2011 meeting of IWG-4 to the inclusion in any U.S. proposal for a future WRC agenda item of the consideration of a possible change to the mobile-satellite service ("MSS") allocations at 1525-1559 MHz and/or 1626.5-1660.5 MHz to accommodate the MSS ancillary terrestrial component (known in ITU terms as Complementary Ground Component or "CGC"). At that point, the LightSquared proposal called for WRC consideration of CGC on "a co-primary basis" with the MSS; a subsequent revision to the agenda item proposal and associated resolution removed specific reference to the possibility of a "co-primary" allocation, but retains reference to the possibility of future allocations to support implementation of CGC in the L-band frequencies authorized for LightSquared's MSS system.

The Council maintains that the agenda item proposed in Document IWG-4/99r1 should not go forward as a U.S. proposal. There is no basis for changing the allocation tables in the L-band MSS frequencies (either for a primary or a secondary mobile allocation) to accommodate CGC. LightSquared's license is for a domestic MSS system, and its authorization to operate ATC is limited to the United States. This is a domestic licensing matter that has been/is being addressed by the FCC without the need for changes to ITU regulations. There are serious unresolved technical questions about whether non-integrated mobile stations can operate in the LightSquared MSS spectrum without causing harmful interference to MSS in the same band or to radionavigation satellite-service systems operating in the 1559-1610 MHz band. Until these questions are answered objectively, the U.S. cannot put forward to the international community the notion that a mobile allocation of any kind is acceptable in the LightSquared MSS bands.