PUBLIC NOTICE

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THE FCC'S ADVISORY COMMITTEE FOR THE 2003 WORLD RADIOCOMMUNICATION CONFERENCE APPROVES PRELIMINARY VIEWS AND DRAFT PROPOSALS ON WRC-03 ISSUES

On August 28, 2001, the World Radiocommunication Conference Advisory Committee (WRC-03 Advisory Committee) adopted preliminary views and draft proposals on numerous issues that the 2003 World Radiocommunication Conference (WRC-03) will address. The WRC-03 Advisory Committee was established by the Commission in January 2001 to assist it in the development of proposals for WRC-03. To that end, the WRC-03 Advisory Committee established a procedure of forwarding the recommendations it develops in the form of preliminary views and draft proposals to the Commission for consideration. The Commission received the preliminary views and draft proposals attached to this public notice on August 28, 2001. We appreciate the substantial amount of work that the WRC-03 Advisory Committee has put into developing its recommendations. This Public Notice requests comments on all of these preliminary views and draft proposals.

Based upon our initial review of the recommendations forwarded to the Commission, the International Bureau in coordination with other Commission Bureaus and Offices tentatively concludes that we can generally support all of the preliminary views and draft proposals recommended by the WRC-03 Advisory Committee.

The National Telecommunications and Information Administration (NTIA) has submitted to the Commission additional preliminary views and draft proposals that have been developed by the Executive Branch Agencies. NTIA's draft proposal for conference Agenda Item 1.8.1 was approved by Informal Working Groups (IWG) 2 and 3 of the WRC-03 Advisory Committee. Agenda Item 1.8.1 concerns the inclusion of the boundary between spurious and out-of-band emissions in Appendix S3 of the Radio Regulations of the International Telecommunication Union (ITU). After IWG 2 and 3 approved the draft proposal for Agenda Item 1.8.1, U.S. Working Party 1A noted that proposed changes to Appendix S3 will require changes to certain related provisions of the Radio Regulations of the ITU. Accordingly, we have included additional proposals for amending these provisions. We seek comment on all of these proposals.

The comments provided will assist the FCC in its upcoming consultations with the U.S. Department of State and NTIA in the development of U.S. preliminary views and proposals. Once agreed by these agencies of the U.S. Government, preliminary views and proposals will be used by U.S. delegations at bilateral, regional, and international meetings to stimulate discussion and to attempt to achieve common proposals with other countries on these issues. The preliminary views and proposals that are attached to this Public Notice may evolve as we approach WRC-03 and during the course of inter-agency

discussions. Therefore, they do not constitute the final national position on these WRC-03 issues.

The complete texts of these preliminary views and draft proposals are also available in the FCC's Information Reference Center, Room CY-A257, 445 12th Street, SW, Washington, DC 20554 and by accessing the FCC's WRC-03 world wide web site at http://www.fcc.gov/wrc-03. To comment on the preliminary views and proposals, please submit an original and one copy of your comments to the Office of the Secretary, Federal Communications Commission, 445 12th Street, SW, Washington, DC 20554 and provide a courtesy copy to Julie Garcia, FCC WRC-03 Director, Room 6-B554. Comments should refer to specific preliminary views by document number. The deadline for comments on the preliminary views, draft proposals and NTIA letters is September 28, 2001.

I. Informal Working Group 5: 5GHz, 13.75-14 GHz and Maritime Issues

DRAFT PRELIMINARY VIEW ON WRC-03

Doc. WAC/060(28.08.01)

WRC-2003 Agenda Item 1.5: To consider, in accordance with Resolution 736 (WRC-2000), regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5150-5725 MHz with a view to upgrading it, taking into account the results of ITU-R studies

ISSUE: The technical feasibility of accommodating all of the requests for new and additional allocations for the mobile, fixed (Region 3), Earth exploration-satellite (EESS) and space research (SRS) services and also the upgrade of the radiolocation allocation in a limited amount of spectrum.

BACKGROUND: At WRC-2000 there were several proposals for items to be placed on the WRC-03 Agenda dealing with spectrum in the 5 GHz range. These items included new and additional allocations to the mobile (for Radio Local Area Networks (RLAN)), fixed (for Fixed Wireless Access (FWA) in Region 3), Earth exploration-satellite and (active) and space research (active) services. Also, an upgrade of the radiolocation allocation in 5350-5650 MHz was proposed. These were combined into one agenda item, since the possible allocation to any one of these services would affect the potential allocation of one or more of the other services within this frequency range.

Technology has evolved to the point where wireless networks can be readily and inexpensively deployed to support the businessman or student that is in a campus environment. These devices are becoming widely used in some parts of the world, particularly in North America and Europe. The U.S. domestic allocation table already allows for the use of Radio LAN and FWA devices on an unlicensed, non-interference basis in the 5150-5350 and 5725-5825 MHz bands. These devices have power level and antenna gain restrictions on them to protect the existing services. Europe has also implemented these devices in similar spectrum, also with significant usage

restrictions. Initial analysis by the CEPT shows that RLAN devices cannot share with radars in the subject bands without Dynamic Frequency Selection (DFS) or like mitigation techniques. However, testing is expected to be performed to ensure that DFS can detect and avoid all types of radars in the subject bands. It is also expected that similar restrictions on FWA systems will be necessary to protect the existing services. For, example, studies show that presence of outdoor wireless access system transmitters can cause significant interference to spaceborne active sensors that operate in the EESS and SRS. In addition, the ITU-R has concluded that restrictions are also necessary to protect the MSS feederlinks in the5150-5250 MHz band. Lastly, preliminary ITU-R studies of radiolocation sharing with FWA have shown that large separation distances or other mitigation techniques such as receiver standards or error-correction coding are required to prevent mutual interference.

Active microwave sensors on board spacecraft are an increasingly important tool for monitoring the Earth's environment and oceans through the determination of wave height and oceanic currents as well as for radar imaging of the Earth's surface. The need for an additional 110 MHz of spectrum adjacent to the current international allocation from 5250–5460 MHz is well documented within the ITU-R. The member space agencies of the Space Frequency Coordination Group (SFCG) have reviewed requirements for the various active sensor measurements, including TOPEX/POSEIDON and JASON. They have recognized the requirement for an extension of the existing allocated primary band (5250 - 5460 MHz) for enhanced vertical resolution for spaceborne altimeters and enhanced horizontal resolution for synthetic aperture radars (SARs). Previous studies and past operational experience has shown that operation in bands allocated to the radiolocation, radionavigation and aeronautical radionavigation services has proven to be feasible. Although further study is needed to confirm that this true in the 5 460 – 5 570 MHz band, ITU-R preliminary studies indicate that this is the case.

WRC-97 first considered the possibility of an allocation upgrade for the radiolocation service in the 2.9-3.4 GHz and 5.35-5.65 GHz bands by placing this matter on the draft WRC-2001 Agenda. A need of 600 MHz of additional primary radiolocation spectrum for radiolocation systems has been determined. Changes in technology are driving the need for larger bandwidth in order to be able to pick smaller and less reflective radar targets out of background clutter. Experience has shown that the radiolocation service can successfully share the band 5350-5650 MHz with radionavigation and EESS/SRS active systems. In fact studies of sharing between radiolocation and active space borne sensors carried out for CPM-97 by JWP-7-8R generally support such sharing.

PRELIMINARY VIEW: Based upon the long history of successful co-band operations and the JWP 7-8R studies, it should be possible to achieve the upgrade for radiolocation with the incumbent services. By the same reasoning, the EESS extension in the 5460-5570 MHz band is also feasible. It is possible for radiolocation, EESS/SRS and MSS feederlinks to share with communications systems such as RLANs in the mobile service or FWA in the fixed service, but that restrictions consistent with US rules will need to be placed upon the RLAN and FWA systems to protect the other services. The US does not support a generic allocation for the mobile service. However, provision for RLANs could be supported if interference mitigation techniques

have been demonstrated to be effective. The US also does not support an allocation for FWA in the 5250-5350 MHz band until testing shows that mitigation techniques will protect existing services.

II. Informal Working Group 6: Public Protection and Other Issues

DRAFT PRELIMINARY VIEW ON WRC-03

Doc. WAC/053rev1(28.08.01)

WRC-2003 Agenda Item 1.2: *to review and take action, as required, on No.* ***S5.134*** *and related Resolutions* ***517 (Rev.WRC-97)*** *and* ***537 (WRC-97)*** *and Recommendations* ***515 (REV.WRC-97), 517 (Rev. WRC-2000), 519 (WARC-92)*** *and Appendix* ***S11,*** *in the light of the studies and actions set out therein, having particular regard to the advancement of new modulation techniques, including digital techniques, capable of providing an optimum balance between sound quality, bandwidth and circuit reliability in the use of the HF bands allocated to the broadcasting service;*

ISSUE: To support the introduction of digital modulation techniques in the HF bands allocated to the broadcasting service and to prepare the regulatory way for this introduction.

BACKGROUND:

RESOLUTION 517 (Rev.WRC-97) and its ANNEX

considering b) states: that single-sideband (SSB) techniques allow more efficient utilization of the frequency spectrum than double-sideband (DSB) techniques;

invites ITU-R states: to continue its studies on digital techniques in HF broadcasting as a matter of urgency with a view to the development of this technology for future use.

ANNEX, ITEM 2 states: All DSB emissions shall cease not later than 31 December 2015, at 2359 hours UTC.

RESOLUTION 537 (WRC-97) called for a survey of HF broadcasting transmitters and receivers with emphasis on the worldwide distribution SSB transmitters and receivers. This survey was completed in 1999 showing the results that although some countries had or could easily convert to SSB, there were few SSB receivers at a reasonable cost available anywhere in the world to justify the conversion from DSB to SSB. However, it is recognized that digital modulation design and development for HF is under way.

RECOMMENDATION 517 (HFBC-87) deals with relative protection ratio values for SSB emissions. ITU-R TG 6/7 is currently developing protection ratios for digital transmission techniques and is expected to be completed by the next meeting of SG 6 in September 2001.

RECOMMENDATION 519 (WARC-92) deals with the introduction of SSB emissions and the possible advancement of the date for cessation of the use of DSB emissions.

considering d) states: that the new extension bands allocated by WARC-92 for HF broadcasting are reserved only for SSB emissions;

Starting around 1995, active design and experimentation is being done on the use of digital modulation techniques for use in all the broadcasting bands below 30 MHz. Because of the special international broadcasting role at HF, documentation of an essentially regulatory nature began to be introduced within the ITU-R, initially through SG 10 (now SG 6).

WRC-97, in response to the development up to that time of digital modulation for HF broadcasting, modified some of the articles, resolutions and recommendations pertinent to HF broadcasting. However, there was no agenda item at WRC-2000 associated with HF broadcasting to deal with these issues.

Since WARC-92 digital modulations technologies have developed to the field-testing stage. Digital emission systems currently under development will be compatible with present 9 -10 kHz channels.

PRELIMINARY VIEW: The U.S. supports developing the necessary changes to the resolutions, recommendations, and radio regulations cited in this agenda item to accommodate the introduction of digital modulation techniques for those HF bands allocated to the broadcasting service in accordance with Article S5. (July 11, 2001)

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Doc. WAC/061(28.08.01)

WRC-2003 Agenda Item 1.7: to consider issues concerning the amateur and amateur-satellite services:

1.7.2 review of the provisions of Article **S19** concerning the formation of call signs in the amateur services in order to provide flexibility for administrations;

Background information:

Agenda item 1.7.2 was the result of an administration proposal, endorsed by CEPT, to provide more flexibility in amateur station call sign structure, especially to commemorate special events or for special situations. There is some demand in the United States for amateur station call signs that do not conform to Article **S19**. For example, in 1997 the FCC authorized the use of call sign NN50CIA to commemorate the 50th anniversary of the Central Intelligence Agency. At other times the FCC has granted permission for amateur stations to use call signs that are at variance

with Article **S19** to commemorate, for example, US hosting of the Olympics and the bicentennial of the Constitution of the United States.

Proposal:

USA/XX/X

MOD

S19.68 - one character (see No. **S19.50.1**) and a single digit (other than 0 and 1), followed by a group of not more than ~~three letters~~ four characters, the last of which shall be a letter, *or*

Reasons:

Greater flexibility would be afforded.

SUP

S19.49 ~~c) for amateur stations, combinations commencing with a digit when the second character is the letter O or the letter I.~~

Reasons:

This paragraph prohibits amateur station call signs commencing with a digit when the second character is the letter O or the letter I. This unnecessarily limits the call selections of administrations that are allocated such international call sign series. In the case of Yemen, which has been allocated only the international call sign series 7OA-7OZ, no amateur call sign can be formed that conforms to No. **S19.49**.

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Doc. WAC/062(28.08.01)

WRC-2003 Agenda Item 1.7*: to consider issues concerning the amateur and amateur-satellite services:*

1.7.3 review of the terms and definitions of Article **S1** to the extent required as a consequence of changes made in Article **S25**.

Background information:

One administration, with CEPT backing, was the basis for this issue at WRC-2000. The U.S. attempted to have this item withdrawn and succeeded in adding the provision "to the extent required as a consequence of changes made in Article **S25**."

Proposal:

USA/XX/X

NOC
S1.56 *amateur service:* A *radiocommunication service* for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

S1.57 *amateur-satellite service:* A *radiocommunication service* using *space stations* on earth *satellites* for the same purpose as those of the *amateur service*.

Reasons:

At this time the United States does not support changes in Article **S25** that would require consequential changes in the terms and definitions in Article **S1**.

DRAFT PRELIMINARY VIEW ON WRC-03

Doc. WAC/040/rev1(28.08.01)

WRC-2003 Agenda Item 1.23: *to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation* ***718 (WARC-92)****;*

ISSUE: The need for a worldwide exclusive spectrum allocation for the amateur and amateur-satellite services in the three ITU Regions.

BACKGROUND:

Before 1938 the amateur service was allocated 300 kHz, 7000-7300 kHz, on a worldwide basis. At the 1938 Cairo Conference, the 300 kHz was reduced to 150 kHz for Regions 1 and 3 by the insistence of the Europeans. The allocation was further reduced to 100 kHz for Regions 1 and 3 at the 1947 Atlantic City Conference. The 200 kHz from 7100-7300 kHz was reallocated to the broadcasting service on a primary basis for Regions 1 and 3 for broadcasting within those regions.

Although the amateurs in Region 2 retained a 300 kHz exclusive allocation, 7000-7300 kHz, they have to protect the broadcasting service in Regions 1 and 3 that were broadcasting to areas within Regions 1 and 3 (RR Footnote S5.142). In addition, certain national footnotes further limited the amateurs' allocation by assigning 7000-7050 kHz to the fixed service on a primary basis (RR Footnotes S5.140 & S5.141).

At WARC-92, the United States proposed a worldwide amateur allocation in band 6900-7200 kHz as a consequence of proposed additional allocations for the broadcasting service above 7 MHz. That proposal failed because the modification of broadcasting service allocations was insufficient to cause a consequential change in the amateur allocation. WARC-92 agreed to Recommendation 718 (WARC-92) to consider realignment of the bands around 7 MHz at a future conference. A CEPT position was presented at WRC-97 that supported action at WRC-99 to carry out a realignment of the bands around 7 MHz and set out a number of facts and principles on which the re-alignment should be based. The proposed agenda item was eventually agreed to for inclusion on the provisional agenda for WRC-03.

As the only primary allocation to the amateur service between 4 and 14 MHz, the 7 MHz band is in heavy use 24 hours each day. During daylight hours, the band carries the bulk of amateur sky wave communication over distances of less than 1300 km. During the winter and during periods of low solar activity, and at other times when the maximum usable frequency (MUF) falls below 10 MHz, it must support the bulk of amateur intercontinental communication during the hours of darkness. As such, the Amateur Service is heavily dependent upon the 7 MHz band during natural disasters, when communications provided by radio amateurs may be the only means of maintaining critical communications links.

The requirement for at least a 300 kHz allocation is even greater today than in the past, owing to the increasing number of amateur stations and the expanding diversity of modes of emission used

in the amateur service. However, the requirement is being met only in Region 2 and in certain countries in Regions 1 and 3 that permit their amateur stations to operate in the band 7100-7300 kHz under the provisions of Radio Regulation S4.4, and then only at those times (mostly during daylight hours) when broadcasting interference does not preclude full use of the band by amateur stations. In most countries in Regions 1 and 3, amateurs are limited to the portion of the band that is exclusively amateur, worldwide: 7000-7100 kHz.

Congestion in the amateur service is a significant problem and a return to the previous allocation of 300 kHz, worldwide, in the vicinity of 7 MHz is *strongly* indicated (RES 641, Rev.HFBC-87).

PRELIMINARY VIEW:

The U.S. supports the alignment of the bands around 7 MHz to eliminate the Regional differences between the allocations to the broadcasting service and the amateur services. The U.S. supports the allocation of a contiguous 300 kHz of spectrum around 7 MHz on a worldwide primary basis to the amateur services. The spectrum allocated on an exclusive basis to the maritime mobile, aeronautical mobile (OR), and aeronautical mobile (R) services should not be considered for any reallocation (July 11, 2001)

DRAFT PRELIMINARY VIEW ON WRC-03

Doc. WAC/054rev2(04.09.01)

WRC-2003 Agenda item 1.36: *to examine the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz taking into account the seasonal planning procedures adopted by WRC-97.*

ISSUE: To determine the amount of additional spectrum required by the broadcasting service in the lower portion of the HF spectrum and likely bands within the 4–10 MHz band where an allocation might be made.

BACKGROUND: 790 kHz of additional frequency bands were allocated at WARC-92 to the HF broadcasting service. Of this amount, only 200 kHz were allocated in frequencies below 10 MHz. Frequencies below 10 MHz are the most desirable, for propagation reasons, for many circuit applications, particularly during the several years of low sunspot activity. This is encountered during the seasonal planning coordination meetings that precede every 6-month HF broadcasting schedule development. Further, it is manifest in actual broadcasting where interference is a severe problem at these lower frequencies and there also results lower service levels for those broadcasts that have to accept poorer propagation conditions at the higher frequencies because of limited capacity below 10 MHz.

Therefore, after WARC-92, broadcasters proposed an agenda item to deal with this problem. Agenda item 1.36 for WRC-03 is the final, approved version of this attempt.

Any additional allocation for HF broadcasting will impact on the fixed service, either by removing the allocation over a period of time or permitting some level of sharing between the services. This assumes that the studies on capacity vs. demand, etc. that will be completed for inclusion in the CPM-02 report show a clear inadequacy of the existing HF broadcasting service allocations in the HF bands below 10 MHz.

Parenthetically, agenda item 1.23, on alignment of the amateur/amateur-satellite and broadcasting services around 7 MHz, might be considered to be a "subset" of this agenda item.

PRELIMINARY VIEW:

1. The US recognizes that there is a concern among HF broadcasters that they are prevented from providing a good quality service under many propagation conditions because there is an undersupply of spectrum for the Broadcasting Service in the bands below 10 MHz. Thus, the US agrees with the need for a thorough study of the consequences of the current situation, augmented with projections of future use of HF bands for broadcasting. There should be a clear set of findings from this study of the maximum amount of spectrum desired, as well as what can be accomplished with lesser amounts, including the consequence if no new spectrum.

2. Concomitantly, the US believes that study work is required on the current situation and projections of the use of the 4–10 MHz spectral region for the other Services that have allocations there.

3. Furthermore, the US believes that the bands allocated on an exclusive basis to the maritime mobile, aeronautical mobile (OR), and aeronautical mobile (R) services should not be considered for any reallocation. (September 4, 2001)

III. Informal Working Group 7: Regulatory Issues and Future Agendas

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Doc. WAC/063(28.08.01)

Ref: WRC-2003 Agenda Item 1.27.

MOD **S5.491** *Additional allocation:* in Region 3, the band 12.2-12.5 GHz is also allocated to the fixed-satellite (space-to-Earth) service on a primary basis. The power flux-density limits in Article **S21**, Table **S21-4** shall apply to this frequency band. The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall

follow the procedures specified in Article 7 of Appendix **S30**~~, with the applicable frequency band extended to cover 12.2-12.5 GHz~~.

Reason: WRC-2000 updated Article 7 of Appendix S30 so that it now specifically includes 12.2-12.5 GHz FSS in Region 3 vis a vis BSS in Region 1 and Region 2 in the same range. Consequently, the above deleted phrase is no longer needed.

DRAFT PRELIMINARY VIEW ON WRC-03

Doc. WAC/064(28.08.01)

WRC-2003 Agenda Item 7.2. *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 **801 (WRC-2000)***

ISSUE. To review studies and consider allocations in the frequency bands above 275 GHz **(Res. 801 (WRC-2000), Agenda Item 2.3)**

BACKGROUND. Communications, space research, and radio astronomy technologies are developing at an accelerated rate in the frequency bands above 275 GHz. Currently there is no ITU allocation of the frequency spectrum above 275 GHz. Although several application and technical research studies are being conducted that will lead to the development of systems that would make use of frequency spectrum up into the THz region, spectrum allocations are required to encourage the research, development, and protection of new technologies and systems.

PRELIMINARY VIEW. The U.S. supports retaining WRC-05/06 tentative Agenda Item 2.3 in Res.801 (WRC-2000). It further supports continued studies that will lead to frequency spectrum allocations above 275 GHz at the next WRC (2005/2006) following WRC-2003 for the development of technologies and systems. (August 21, 2001)

IV. NTIA Draft Preliminary Views and Proposals

A. Preliminary views approved by NTIA:

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.7: To consider issues concerning the amateur and amateur satellite services;

ISSUE: Issues concerning Amateur Radio - 1.7.1 possible revision of Article **S25**

BACKGROUND: This item was prompted by a proposal at WRC-95 to delete the requirement for amateurs to demonstrate Morse code capability to be licensed to operate on amateur bands below 30 MHz. At that WRC, the International Amateur Radio Union (IARU) requested a delay because it needed to consult its three regional organizations, which meet in turn over a three-year period. This consultation has taken place and IARU provided an input document to Working Party 8A at its 1999 meeting and made a further input at WP 8A's 2000 meeting. The inputs resulted in a Draft New Recommendation adopted at SG 8. The DNR establishes minimum qualifications for amateur operators and provides for knowledge of various methods of radiocommunication including radiotelegraphy but does not specify Morse code. The draft CPM text generated by WP 8A in November 2000 says that the Morse code provision could be suppressed by WRC-2003 and the DNR could be considered for possible incorporation by reference.

Other provisions of Article **S25** that are to be addressed under this agenda item are provisions concerning third party traffic and reciprocal operating agreements.

U.S. VIEW: The U.S. supports the suppression of Morse code requirement for amateurs. (April 10, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.7: To consider issues concerning the amateur and amateur satellite services;

ISSUE: Issues concerning Amateur Radio - 1.7.3 review the terms and definitions of Article **S1** to the extent required as a consequence of changes made in Article **S25**.

BACKGROUND: This item originated at WRC-2000. If changes or modifications are made to either **Article S1** or **Article S25**, then each Article will need to be reviewed. The U.S. wanted this item removed, but was not successful but succeeded in adding the provision "to the extent required as a consequence of changes made in **Article S25**."

U.S. VIEW: The U.S. believes there is no need to modify Article **S25,** except under agenda item 1.7.1 (Article **S25.5**). (April 10, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.10.1: to consider the results of studies, and take necessary actions, relating to exhaustion of the maritime mobile service identity numbering resource (Resolution **344 (WRC-97))**;

ISSUE: Resolution **344** is on the agenda so that WRC-2003 may assess the status of MMSI assignments to administrations and determine whether there is an impending exhaustion of the MMSI numbering resource.

BACKGROUND: Presently Maritime mobile service identities (MMSIs) are required for many shipboard communications equipment (e.g., DSC, mobile earth stations). The MMSI (Article **S19**) is a 9-digit number to uniquely identify ship stations, group ship stations, coast stations, and group coast stations. The first three of the nine MMSI digits are the Maritime Identification Digits (MIDs). MIDs represent a territory or geographical area of administrations and are assigned by the ITU. Thus within each MID area there are 6 digits available to identify the stations. The total possible number of MMSIs is reduced by a requirement to assign MMSIs ending in 3-zeros to vessels requiring access to certain satellite services. Therefore, for each MID (administrations can be assigned more than one MID), there are only 1000 numbers available for use by ships with INMARSAT satellite systems. As the number of vessels carrying INMARSAT satellite systems increase, so has the demand for MMSIs with three trailing zeros. Early on the ITU-R recognized this limitation of MMSIs for these satellite systems within each MID. Additional MIDs are now assigned by the ITU to administrations when they have used 80% of the MMSIs with three trailing zeros. The ITU uses the notification requirements of Article S19 as evidence of use of the numbers with the three trailing zeros. Normally, these are notified and entered into the ITU maritime database and published in List VII A, List of Call Signs and Numerical Identities. The ITU, following established procedures, will not provide additional MIDs until administrations provide the ITU with evidence that 80% of their 1000 allotted MMSIs with three trailing zeros have been assigned. Although the resource of specifically these MMSIs is limited, it is anticipated to be sufficient to meet the needs of the maritime community for the foreseeable future. The present concern stemming from the INMARSAT numbering scheme may be ameliorated by the end of the useful life of certain existing INMARSAT ship earth stations. The ITU will report on the status of the resource and if exhaustion is anticipated, urgent studies can be initiated between ITU-T Study Group 2 and ITU-R Study Group 8 to agree on necessary changes in their respective guidance to obtain some additional resources.

U.S. VIEW: Depending on the results from the Director of the Radiocommunication Bureau on the impending exhaustion of the MMSI resource for certain MIDs, the ITU-R and ITU-T may need to address consequential changes to their respective recommendations affecting the assignment and use of MMSIs and the MID numbering resource.

If the report of the Bureau indicates no pending exhaustion of the resource within the next few years, the U.S. will support revising Resolution **334** (WRC-97), to instruct the Bureau to provide an updated report at a future WRC. (April 17, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.10.2: to consider the results of studies, and take necessary actions, relating to shore-to-ship communication priorities (Resolution **348** (WRC-97));

ISSUE: A shore-based search and rescue authority has no means to interrupt or preempt the satellite communications to a vessel in a distress or safety situation. This communications inability may increase the probability of lost of life and property.

BACKGROUND: At present, when vessels are using their ship earth stations, it is not possible to send them a distress or safety message without extremely complex and time-consuming manual intervention at a land earth station to remove all other shipboard traffic. Although this is technically possible, it is not practical. In a recent distress case, the shore-based search and rescue authorities were unable to contact a vessel because of on-going routine traffic to the vessel. This inability to preempt lower priority traffic hindered the overall search and rescue operation. A shore-based search and rescue authority must have the means to interrupt or preempt the satellite communications to a vessel in a distress or safety situation, without using extremely complex and time-consuming manual intervention.

The International Maritime Organization considered this problem and decided that provisions are necessary for giving priority to shore-originated distress communications. INMARSAT is aware of this requirement and has been studying how to provide such priority arrangements.

U.S. VIEW: For any GMDSS system, including future generations of mobile satellite systems intended for use aboard ships as part of its distress and safety communications, shore-originated search and rescue communications must be given priority. If practicable, this capability should be incorporated in existing GMDSS systems. If not, specific manual procedures should be standardized. Future generations of GMDSS systems must include this capability.

The U.S. will consider IMO and INMARSAT findings and their proposed methods to provide priority for shore-originated distress communications, with a view to modifying provisions of the Radio Regulations. The U.S. supports development of appropriate Resolutions or ITU-R Recommendations to ensure priority access is secured for shore-originated distress communications. (April 16, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.15c: to review the results of studies concerning the radionavigation-satellite service in accordance with Resolutions **604/[COM5/16] (WRC-2000), 605/[COM5/19] (WRC-2000) and 606/[COM5/20] (WRC-2000);**

ISSUE: Protection of microwave landing systems (MLS) from emissions of systems operating under the new radionavigation-satellite service (RNSS) (Earth-to-space).

BACKGROUND: At the 2000 World Radiocommunication Conference, an allocation for the RNSS (Earth-to-space) was adopted in the band 5000-5010 MHz. There is concern that microwave landing systems (MLS) that operate in the band 5030-5091 MHz my receive interference from the RNSS earth stations. The U.S. has proposed a new draft recommendation in U.S. Working Party 8D that contains a coordination trigger distance and a means to calculate it. (April 10, 2001)

U.S. VIEW:

[*To be developed*]

DRAFT PRELIMINARY VIEWS ON WRC-03

WRC-2003 Agenda Item 1.16: to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution **127 (Rev.WRC-2000)**, provided that due recognition is given to the passive services, taking into account No. **S5.340**;

ISSUE: Additional allocations for feeder links for little LEO's in the neighborhood of 1.4 GHz, in particular in the bands 1 390-1 393 MHz and 1 429-1 432 MHz for non-GSO MSS feeder uplink and downlink, respectively, while sharing with the services now operating in the band, and with no impact on the passive services (radio astronomy and remote sensing) operating in the neighboring 1 400-1 427 MHz band.

BACKGROUND: Service allocations to the little LEO MSS were first made at WARC-92. Since 1995, additional allocations were sought by the little LEOs for feeder links, but to date this requirement has not been satisfied. **Resolution 127** (**WRC-97**) identified the bands 1 390-1 400 MHz and 1427-1432 MHz for studies to accommodate the up and downlinks, respectively, provided sharing with services using these bands was feasible and that the passive services operating in the 1 400-1 427 MHz band can be fully protected. Subsequent to WRC-97, little LEO requirements have been restricted to the 1 390-1 393 MHz and 1 429-1 432 MHz bands, for up and downlinks, respectively, and this is reflected in **Resolution 127 (Rev. WRC-00)**. Work in SG 7 started, towards showing that under certain conditions the planned little LEO feeder links could meet the unwanted emission level required in the band 1 400-1 427 MHz for no impact on the operation of the passive services in the 1 400-1 427 MHz band. This work has not yet been concluded.

The 1 400-1 427 MHz band is allocated on a primary, exclusive basis to the passive services, worldwide. This is arguably the most important, and certainly the most frequently and extensively observed radio astronomy band below 70 GHz. Observations in the band are conducted at a large number of sites in the U.S. and worldwide, to study the distribution, kinematics and dynamics of neutral hydrogen (the most commonly occurring element in the Universe) in our own as well as in other galaxies. Ocean and soil salinity and other measurements are conducted in the band under the EESS allocation. Full retention and unconstrained access to the 1 400-1 427 MHz band is considered essential by both the radio astronomy and EESS communities. The radio astronomy and remote sensing communities are worried about the possible impact that unwanted emissions from satellite and terrestrial stations may have on observations carried out in the 1 400-1 427 MHz passive band.

U.S. VIEW: The U.S. cannot support 1.4 GHz non-GSO FSS uplink and downlink allocations unless it is conclusively demonstrated, including measurement of emissions that would be employed in operational systems, that unwanted emissions into the 1 400-1 427 MHz band can be kept below the detrimental interference levels in **ITU-R RA.769-1** (mainly with respect to

space-to-Earth links) and in **ITU-R SA.1029-1** (mainly with respect to Earth-to-space links) for this band. Studies are now going on in the ITU-R to that effect. U.S. support for allocations to non-GSO MSS feeder links in the 1 390-1 393 MHz and 1 429-1 432 MHz band is contingent upon: 1) successful conclusion of the ITU-R studies, and 2) fully assured regulatory protection of the passive services in the 1 400-1 427 MHz from out-of-band emissions of non-GSO uplinks that may operate in the 1 390-1 393 MHz band and downlinks that may operate in 1 429-1 432 MHz band. (March 15, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.23: to consider realignment of the allocations to the amateur, amateur-satellite and broadcasting services around 7 MHz on a worldwide basis, taking into account Recommendation **718 (WARC-92)**.

ISSUE: to have the same spectrum allocation for the amateur/amateur-satellite services in all three ITU Regions.

BACKGROUND: As part of a long standing historical situation, the amateur/amateur satellite exclusive allocation in Region 2 goes from 7000 to 7300 kHz, while it goes only from 7000 to 7100 kHz in Regions 1 and 3. The other 200 kHz for Regions 1 and 3 are allocated exclusively to the broadcasting service. The amateur radio community has been trying to "realign" this "imbalance" for decades. WRC-2000 for the first time specified that the agenda item be on the agenda for the next WRC, in this case WRC-03.

Although the term "realign" invokes a feeling of ease of accommodation, this agenda item is liable to be very controversial. It all depends on the way of looking at how much spectrum to "realign". Through Working Party 8A, for example, the amateur/amateur-satellite representatives have documented two alternatives: (a) from 6900 to 7200 kHz for the amateur/amateur-satellite service and (b) from 7000 to 7300 kHz. It is unlikely that the broadcasting service community will wish to relinquish any spectrum, particularly since this spectral region is within the 4 to 10 MHz spectral region, where under WRC-03 agenda item 1.36 the broadcasters are in effect asking for more spectrum.

It is equally unlikely that the amateur/amateur-satellite service proponents will propose reducing the amateur/amateur-satellite allocation in Region 2 so that the "realignment" would take away spectrum just to have equal amounts for each Region.

Because of the potential impact of such realignment, the agenda item will most likely become an allocation item involving the other allocated services.

U.S. VIEW: To accommodate the desire to have the same spectrum allocation in all three Regions for the amateur/amateur satellite services in the frequency spectrum range around 7 MHz, the U.S. believes that careful consideration will need to be given to the needs of the fixed service and the broadcasting service in this part of the frequency spectrum. The common amount of spectrum and its specific location for any adjustments of the amateur/amateur satellite services allocation will need to be determined at WRC-03 to the satisfaction of all these services. The spectrum allocated on an exclusive basis to the maritime mobile, aeronautical mobile (OR) and aeronautical mobile (R) services should not be considered for any reallocation. (April 10, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.25: to consider, with a view to global harmonization to the greatest extent possible, having due regard to not constraining the development of other services, and in particular of the fixed service and the broadcasting-satellite service, regulatory provisions and possible identification of spectrum for high-density systems in the fixed-satellite service above 17.3 GHz, focusing particularly on frequency bands above 19.7 GHz

ISSUES:

- Possible identification of spectrum for high-density systems in the fixed-satellite service (HD-FSS) above 17.3 GHz
- Advantages and disadvantages associated with focusing particularly on frequency bands above 19.7 GHz
- Sharing between HD-FSS systems and existing and planned services and systems
- Regulatory provisions associated with identification of spectrum for HD-FSS

BACKGROUND: WRC-97 and WRC-2000 identified fixed service (FS) bands in the 31 GHz, 37.0-43.5 GHz and 55 GHz range for high-density applications. No bands have been specifically identified for HD-FSS, which is characterized by the use of small, ubiquitously deployed user terminals. The CPM Report for WRC-2000 noted that sharing between the FS and the FSS has been shown to be technically feasible, particularly where the FS and/or the FSS would not rely on ubiquitous deployment of terminals. Sharing between HD-FS and HD-FSS would be difficult since it is not practical to coordinate ubiquitous use of HD-FS and HD-FSS terminals in the same coverage area on a station-to-station basis.

WP 4-9S, the lead ITU-R study group for this agenda item, is examining issues related to possible identification of FSS frequency bands for HD-FSS from 17.3 GHz through 86 GHz. Among the frequency bands under consideration in WP 4-9S are the 18.8-19.3 GHz, 19.7-20.2 GHz and 40-42 GHz (space-to-Earth) and 28.35-29.1 GHz, 29.25-30.0 GHz and 48.2-50.2 GHz (Earth-to-space) bands. Many administrations have submitted notices to the ITU for FSS systems in these bands. Some systems propose using portions of these bands for global FSS systems using both the geostationary orbit (GSO) and non-GSO that will provide service to small, ubiquitously deployed user terminals. A number of GSO and non-GSO FSS systems with other types of earth stations and characteristics have already been brought into use or are planned to be brought into use throughout the 17.8-21.2 GHz (space-to-Earth) frequency band. Technical compatibility between HD-FSS satellite systems and other space networks would be achieved through inter-system coordination or other existing mechanisms currently applied by the ITU Radio Regulations. Some of the frequency bands being considered for HD-FSS are also shared with other services, including the FS and the broadcasting-satellite service.

U.S. VIEW:

- Identification of FSS spectrum for HD-FSS does not preclude use of these bands by other services to which they are allocated.
- The U.S. opposes changes to the allocations in the current International Table of Frequency Allocations (WRC-2000) under this agenda item.
- Identification of spectrum for HD-FSS does not obviate the need for satellite network coordination or require the imposition of additional regulatory constraints such as power flux-density limits.
- The current rights of GSO and non-GSO FSS systems should be maintained. (April 13, 2001).

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEW FOR WRC-03

WRC-2003 Agenda Item 1.30[c]: to consider possible changes to the procedures for the advance publication, coordination and notification of satellite networks in response to Resolution **86** (Minneapolis, 1998)

ISSUE [c]: **Reduction of Data Requirements -** Potential modifications to Articles **S9** and **S11** of the Radio Regulations (RR) and associated appendices to the RR (e.g., Appendix **S4**) with respect to the amount and type of information submitted to the Radiocommunication Bureau for coordination and notification.

BACKGROUND: Resolution **86** (Minneapolis, 1998) resolves to request WRC-2000 and subsequent WRCs to continually review and update the advance publication, coordination and notification procedures, including the associated technical characteristics, and the related Appendices of the Radio Regulations, so as to ensure that they reflect the latest technologies, as well as to achieve additional simplification and cost savings for the Radiocommunication Bureau and administrations.

There is still a 32-month backlog for ITU publication of coordination special sections for satellite networks. WRC-2003 may see proposals to simplify Appendix **S4** to speed up processing of coordination requests. There has been a proposal within WP4A such that a minimum amount of information would be sent to the BR for coordination. The WP4A proposal may proceed successfully through the Study Group process and become a proposal to WRC-2003.

The idea of the WP4A proposal is to submit to the Bureau only the data for the most interfering links and the most sensitive links to interference. This minimum amount of information is all that is needed by the BR to determine affected administrations or for other administrations to determine whether they need to be brought into the coordination procedure. However, in practice administrations require information in greater detail to effect coordination. Furthermore, it may be difficult to identify the most interfering and most sensitive carriers since the carrier parameters of the satellite to which interference is caused or from which interference is received, the modulation type, and channel plan may need to be taken into account.

Some satellite operators have found it difficult to obtain clarification on network characteristics prior to coordinations. Reductions in the mandatory Appendix **S4** coordination/notification information (Ap**S4/II**) would make it even more difficult to perform the necessary interference analysis resulting in operators not being fully prepared for coordination discussions/meetings.

There are other means to simplify the data solely by eliminating redundant information. Information in the current Appendix S4 filings is essentially repeated for many networks (e.g., for each polarization and for each beam), even if it is identical. Significantly reformatting the Appendix **S4** data to reduce repetition could lead to a need to modify the ITU software for

capturing, validating, and storing the data.

U.S. VIEW: Any reduction in mandatory Appendix **S4** coordination/notification information (ApS4/II) should be approached cautiously so that information essential to interference analyses is not eliminated. Additionally, any reduction in the **ApS4/II** data should not inadvertently eliminate administrations or networks for which coordination would be required under the existing Radio Regulations and Appendix **S4**. The benefits from simplifying or reformatting the Appendix **S4** data to reduce repetition should be carefully weighed against the cost of consequential modifications to the Bureau software for capturing, validating, and storing the data. Elimination of redundant information could be acceptable with appropriate cross-references. (April 27, 2001)

Radio Conference Subcommittee (RCS)

Preparation for ITU Radiocommunication Conferences

DRAFT PRELIMINARY VIEWS ON WRC-03

WRC-2003 Agenda Item 1.36: to examine the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz taking into account the seasonal planning procedures adopted by WRC-97.

ISSUE: To determine the amount of additional spectrum required by the broadcasting service in the lower portion of the HF spectrum and likely bands within the 4 – 10 MHz band where an allocation accommodation might be made.

BACKGROUND: 790 kHz of additional frequency bands were allocated at WARC-92 to the HF broadcasting service. Of this amount, only 200 kHz were allocated in frequencies below 10 MHz. Frequencies below 10 MHz are the most desirable ones, for propagation reasons, for many circuit applications, particularly during the several years of low sunspot activity. This is encountered during the seasonal planning coordination meetings that precede every six-month HF broadcasting schedule development. Further, it is manifest in actual broadcasting where interference is a severe problem at these lower frequencies and there also results lower service levels for those broadcasts that have to accept poorer propagation conditions at the higher frequencies because of limited capacity below 10 MHz.

Therefore, after WARC-92 broadcasters proposed an agenda item to deal with this problem. Agenda item 1.36 for WRC-03 is the final, approved version of this attempt.

Any additional allocation for HF broadcasting will impact on the fixed service, either by removing the allocation over a period of time or permitting some level of sharing between the services. This assumes that the studies on capacity vs. demand, etc. that will be completed for inclusion in the CPM-02 report show a clear inadequacy of the existing HF broadcasting service allocations in the HF bands below 10 MHz.

Parenthetically, agenda item 1.23, on alignment of the amateur/amateur-satellite and broadcasting services around 7 MHz, might be considered to be a “subset” of this agenda item.

U.S. VIEW:

1. The U.S. recognizes that there is a belief among HF broadcasters that they are prevented from providing a good quality service under many propagation conditions because there is an undersupply of spectrum for the Broadcasting Service in the bands below 10 MHz. Thus, the U.S. agrees with the need for a thorough study of the consequences of the current situation, augmented with projections of future use of HF bands for broadcasting. There should be a clear set of findings from this study of the maximum amount of spectrum needed, as well as what can be accomplished with lesser amounts, including the consequence if no new spectrum.

2. Concomitantly, the U.S. believes that study work is required on the current situation and projections of the use of the 4 – 10 MHz spectral region for the other Services that have allocations there.

3. Furthermore, the U.S. believes that the bands allocated on an exclusive basis to the maritime mobile, aeronautical mobile (OR), and aeronautical mobile (R) services should not be considered for any reallocation. (August 2001)

B. Draft proposals approved by NTIA:

United States of America

DRAFT PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.1: requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, in accordance with Resolution **26 (rev.WRC-97);**

Background Information: WRC-95 added footnote **S5.389D** to the Table of Allocations in the simplified Radio Regulations adopted by that Conference. Since the date specified in the footnote has come and gone, the United States is of the view that its name can be deleted from this provision in accordance with Resolution **26 (WRC-97)**.

Proposal:

ARTICLE S5

Frequency allocations

USA/ /1
MOD

S5.389D In Canada ~~and the United States~~ the use of the bands 2 010-2 025 MHz and 2 160-2 170 MHz by the mobile-satellite service shall not commence before 1 January 2000.

Reasons: Footnote is overcome by date and is no longer needed.

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.8.1: consideration of the results of studies regarding the boundary between spurious and out-of-band emissions, with a view to including the boundary in Appendix **S3**;

Background Information: The proposal herein amends Article **S1** and Appendix **S3** to take into account the most recent studies identifying the unwanted emissions to which the limits of Appendix **S3** Section II apply. These studies define the out-of-band and spurious domains of an emission and determine the boundary between them.

In developing proposed text for Section II of Appendix **S3** of the *Radio Regulations*, WRC–97, following guidance from Task Group 1/3, used an assumption that all unwanted emissions of a transmitter separated from the center frequency by more than 250% of the necessary bandwidth ($2.5B_n$) would generally be considered spurious emissions, for the purpose of applying spurious emission limits. Realizing, however, that $2.5B_n$ was not an appropriate threshold for all emissions, the WRC included exceptions for certain modulation types, bit rates, transmitter types, and coordination factors.

From 1997 through 2000, Task Group 1/5 continued the studies as to what frequencies the spurious emission limits of Appendix **S3**, Section II should apply. While maintaining the $2.5B_n$ boundary for most systems, the group developed guidance for narrowband and wideband emissions in various frequency ranges to avoid excessive variations in the boundary. The guidance, eventually promulgated in Recommendation ITU–R SM.[BOUNDARY], also addressed exceptions for certain radio systems, radio services, and frequency bands.

Recognizing a conflict in terminology, since no "boundary" exists in the frequency domain between out-of-band and spurious emissions, Task Group 1/5 adopted definitions for the out-of-band and spurious "domains" of an emission that would be disjoint in frequency, and thus have the intended boundary.

Proposal:

CHAPTER SI

Article S1

Terms and definitions

Section VI – Characteristics of emissions and radio equipment

USA/ /2
ADD

S1.146*bis out-of-band domain* (of an emission): The frequency range, immediately outside the

necessary bandwidth but excluding the *spurious domain*, in which *out-of-band emissions* generally predominate.

Out-of-band *emissions*, defined based on their source, occur in the out-of-band domain and, to a lesser extent, in the spurious domain. Spurious emissions likewise may occur in the out-of-band domain as well as in the spurious domain.

S1.146*ter* *spurious domain* (of an emission): The frequency range beyond the *out-of-band domain* in which *spurious emissions* generally predominate.

Reasons: Adoption of these two definitions will provide a means to distinguish between frequency ranges within which the emission limits of Appendix S3, Section II either apply or do not apply.

USA/ /3
MOD

APPENDIX S3

Table of maximum permitted ~~spurious~~ ~~emission~~ power levels for certain unwanted emissions

(See Article **S3**)

Reasons: Section I of this Appendix applies to spurious emissions, while Section II applies to unwanted emissions in the spurious domain. The proposed title encompasses both types of emission limits.

USA/ /4
MOD

1 The following sections indicate the maximum permitted levels of ~~spurious~~ certain unwanted emissions, in terms of power as indicated in the tables, of ~~any spurious~~ components supplied by a transmitter to the antenna transmission line. Section I, which provides spurious emissions limits, is applicable until 1 January 2012 to transmitters installed on or before 1 January 2003; Section II, which limits emissions in the spurious domain, is applicable to transmitters installed after 1 January 2003 and to all transmitters after 1 January 2012. ~~This Appendix does not cover out-of-band emissions. Out-of-band emissions are dealt with in~~The provisions of No. **S4.5** apply to unwanted emissions not covered in Sections I and II.

2 Spurious and spurious domain emissions (covered by Sections I and II) from any part of the installation, other than the antenna and its transmission line, shall not have an effect greater than would occur if this antenna system were supplied with the maximum permitted power at ~~that spurious emission~~the frequency of that emission.

3 These levels shall not, however, apply to emergency position-indicating radiobeacon (EPIRB) stations, emergency locator transmitters, ships' emergency transmitters, lifeboat transmitters, survival craft stations or maritime transmitters when used in emergency situations.

4 For technical or operational reasons, more stringent levels than those specified may be applied to protect specific services in certain frequency bands. The levels applied to protect these services, such as safety and passive services, shall be those agreed upon by the appropriate world radiocommunication conference. More stringent levels may also be fixed by specific agreement between the administrations concerned. Additionally, special consideration of transmitter spurious or spurious domain emissions may be required for the protection of safety services, radio astronomy and space services using passive sensors. Information on the levels of interference detrimental to radio astronomy, Earth exploration satellites and meteorological passive sensing is given in the most recent version of Recommendation ITU-R SM.329.

5 Spurious or spurious domain emission limits (covered by Sections I and II) for combined radiocommunication and information technology equipment are those for the radiocommunication transmitters.

Reason: The revised paragraphs reflect the distinction between the types of emissions to which the limits of Sections I and II apply.

USA/ /5
NOC

Section I – Spurious emission limits for transmitters installed on or before 1 January 2003 (valid until 1 January 2012)

R**easons:** The provisions of Section I apply to spurious emissions and are not affected by this Agenda Item.

USA/ /6
MOD

Section II – Spurious domain emission limits for transmitters installed after 1 January 2003 and for all transmitters after 1 January 2012

Application of these limits

7 The frequency range of the measurement of spurious domain emissions is from 9 kHz to 110 GHz or the second harmonic if higher.

8 Guidance regarding the methods of measuring spurious domain emissions is given in the most recent version of Recommendation ITU-R SM.329. The e.i.r.p. method specified in that Recommendation should be used when it is not possible to accurately measure the power supplied to the antenna transmission line (for example, radars), or for specific applications where the antenna is designed to provide significant attenuation ~~at~~ in the spurious ~~frequencies~~domain. Additionally, the e.i.r.p. method may need some modification for special cases, e.g. beam forming radars.

9 Guidance regarding the methods of measuring spurious domain emissions from radar systems is given in the most recent version of Recommendation ITU-R M.1177. The reference bandwidths required for proper measurement of radar spurious domain emissions should be calculated for each particular radar system. Thus, for the three general types of radar pulse modulation utilized for radio-navigation, radiolocation, acquisition, tracking and other radiodetermination functions, the reference bandwidth values should be:

– for fixed-frequency, non-pulse-coded radar, one divided by the radar pulse length, in seconds (e.g. if the radar pulse length is 1 μs, then the reference bandwidth is 1/1 μs = 1 MHz);

– for fixed-frequency, phase coded pulsed radar, one divided by the phase chip length, in seconds (e.g. if the phase coded chip is 2 μs long, then the reference bandwidth is 1/2 μs = 500 kHz);

– for frequency modulated (FM) or chirped radar, the square root of the quantity obtained by dividing the radar bandwidth in MHz by the pulse length, in seconds (e.g. if the FM is from 1 250 MHz to 1 280 MHz or 30 MHz during the pulse of 10 μs, then the reference bandwidth is $(30 \text{ MHz}/10\ \mu\text{s})^{1/2} = 1.73$ MHz).

For those radar systems for which acceptable methods of measurement do not exist, the lowest practicable power of spurious domain emission should be achieved.

10 The spurious domain emission levels are specified in the following reference bandwidths:

– 1 kHz between 9 kHz and 150 kHz

– 10 kHz between 150 kHz and 30 MHz

– 100 kHz between 30 MHz and 1 GHz

– 1 MHz above 1 GHz.

As a special case, the reference bandwidth of all space service spurious domain emissions should be 4 kHz.

Reasons: The provisions of this Section apply to unwanted emissions in the spurious domain, here called “spurious domain emissions,” as opposed to the spurious emissions addressed in Section I.

USA/ /7
MOD

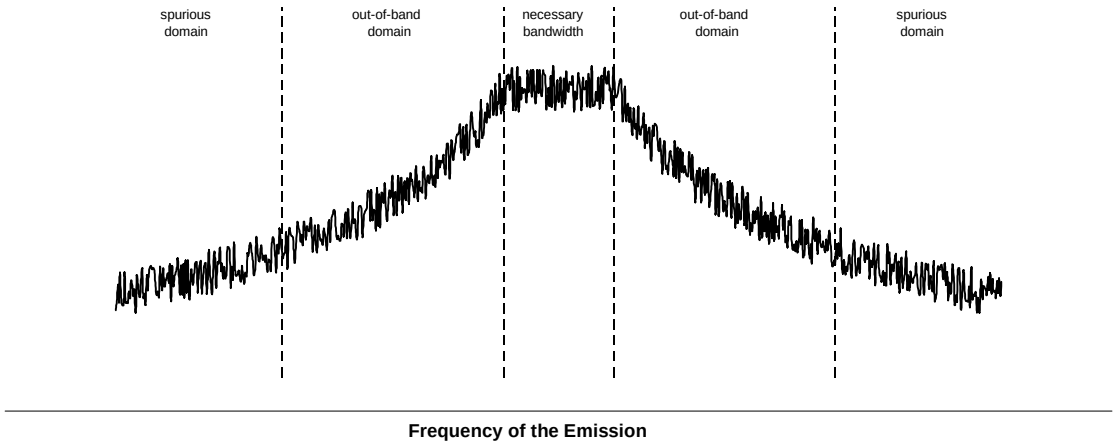
11 ~~For the purpose of setting limits,~~ The emission limits of this section apply to all emissions, including harmonic emissions, intermodulation products, frequency conversion products and parasitic emissions, at frequencies in the spurious domain (see Figure 1). The upper and lower parts of the spurious domain extend outward from a boundary determined using Annex I.~~which fall at frequencies separated from the centre frequency of the emission by ±250%, or more, of the necessary bandwidth of the emission will generally be considered as spurious emissions. However, this frequency separation may be dependent on the type of modulation used, the maximum bit rate in the case of digital modulation, the type of transmitter and frequency coordination factors. For example, in the case of digital (including digital broadcasting) modulation systems, broadband systems, pulsed modulation systems and narrow-band high power transmitters, the frequency separation may need to differ from the ±250% factor. For multichannel or multicarrier transmitters/transponders, where several carriers may be transmitted simultaneously from a final output amplifier or an active antenna, the centre frequency of the emission is taken to be the centre of the –3 dB bandwidth of the transmitter or transponder and the necessary bandwidth is taken to be the transmitter or transponder bandwidth.~~

Reasons: Since the boundary between the out-of-band and spurious domains is determined using Annex I, the information is no longer needed here.

USA/ /8

ADD

FIGURE 1



Out-of-band and spurious domains

Reasons: The figure illustrates the text description of the locations of the out-of-band and spurious domains from the previous paragraph.

USA/ /9
SUP

11*bis*

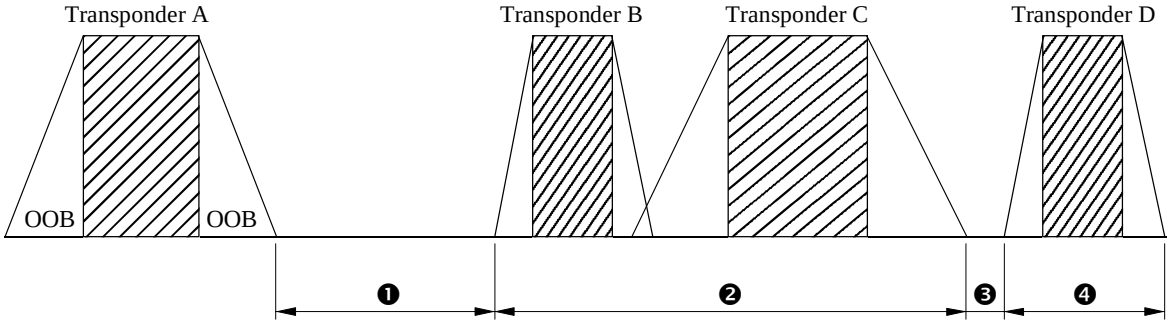
Reasons: The information used to determine the boundary between the out-of-band and spurious domains is now found in Annex I.

USA/ /10
MOD

11*ter* For the case of a single satellite operating with more than one transponder in the same service area, and when considering the limits for spurious domain emissions as indicated in § 11 of this Appendix, spurious domain emissions from one transponder may fall on a frequency at which a second, companion transponder is transmitting. In these situations, the level of spurious domain emissions from the first transponder is well exceeded by the fundamental or out-of-band domain emissions of the second transponder. Therefore, the limits of this Appendix should not apply to those ~~spurious~~ emissions of a satellite that fall within either the necessary bandwidth or the out-of-band ~~region~~ domain of another transponder on the same satellite, in the same service area (see Fig. ~~1~~2).

FIGURE ~~1~~2

Example of the applicability of spurious domain emission limits to a satellite transponder



Transponders A, B, C and D are operating on the same satellite in the same service area. Transponder A is not required to meet spurious domain emission limits in frequency ranges ❷ and ❹, but is required to meet them in frequency ranges ❶ and ❸.

12 Examples of applying 43 + 10 log (*P*) to calculate attenuation requirements

Where specified in relation to mean power, spurious domain emissions are to be at least *x* dB below the total mean power *P*, i.e. – *x* dBc. The power *P* (W) is to be measured in a bandwidth wide enough to include the total mean power. The spurious domain emissions are to be measured in the reference bandwidths given in the Recommendation. The measurement of the spurious domain emission power is independent of the value of necessary bandwidth. Because the absolute emission power limit, derived from 43 + 10 log (*P*), can become too stringent for high-power transmitters, alternative relative powers are also provided in Table II.

Example 1

A land mobile transmitter, with any value of necessary bandwidth, must meet a spurious domain emission attenuation of 43 + 10 log (*P*), or 70 dBc, whichever is less stringent. To measure spurious domain emissions in the frequency range between 30 MHz and 1 GHz, Recommendation ITU-R SM.329-~~7~~8 *recommends* 4.1 indicates the use of a reference bandwidth of 100 kHz. For other frequency ranges, the measurement must use the appropriate reference bandwidths given in *recommends* 4.1.

With a measured total mean power of 10 W:

– Attenuation relative to total mean power = 43 + 10 log (10) = 53 dBc.

– The 53 dBc value is less stringent than the 70 dBc, so the 53 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 53 dBc in a 100 kHz bandwidth, or converting to an absolute level, ~~spurious emissions~~ they must not exceed 10 dBW – 53 dBc = – 43 dBW in a 100 kHz reference bandwidth.

With a measured total mean power of 1 000 W:

– Attenuation relative to total mean power = 43 + 10 log (1 000) = 73 dBc.

– The 73 dBc value is more stringent than the 70 dBc limit, so the 70 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 70 dBc in a 100 kHz bandwidth, or converting to an absolute level, ~~spurious emissions~~ they must not exceed 30 dBW – 70 dBc = – 40 dBW in a 100 kHz reference bandwidth.

Example 2

A space service transmitter with any value of necessary bandwidth must meet a spurious domain emission attenuation of 43 + 10 log (*P*), or 60 dBc, whichever is less stringent. To measure spurious domain emissions at any frequency, Note 10 to Table II indicates using a reference bandwidth of 4 kHz.

With a measured total mean power of 20 W:

– Attenuation relative to total mean power = 43 + 10 log (20) = 56 dBc.

– The 56 dBc value is less stringent than the 60 dBc limit, so the 56 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 56 dBc in a 4 kHz reference bandwidth, or converting to an absolute level, ~~spurious emissions~~ they must not exceed 13 dBW – 56 dBc = – 43 dBW in a 4 kHz reference bandwidth.

TABLE II

Attenuation values used to calculate maximum permitted spurious domain emission power levels for use with radio equipment

Service category in accordance with Article S1, or equipment type[15]	**Attenuation (dB) below the power supplied to the antenna transmission line**
All services except those services quoted below:	43 + 10 log (*P*), or 70 dBc, whichever is less stringent
Space services (earth stations) [10, 16]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Space services (space stations) [10, 17]	43 + 10 log (*P*), or 60 dBc, whichever is less stringent
Radiodetermination[14]	43 + 10 log (*PEP*), or 60 dB, whichever is less stringent
Broadcast television[11]	46 + 10 log (*P*), or 60 dBc, whichever is less stringent, without exceeding the absolute mean power level of 1 mW for VHF stations or 12 mW for UHF stations. However, greater attenuation may be necessary on a case by case basis.
Broadcast FM	46 + 10 log (*P*), or 70 dBc, whichever is less stringent; the absolute mean power level of 1 mW should not be exceeded
Broadcasting at MF/HF	50 dBc; the absolute mean power level of 50 mW should not be exceeded
SSB from mobile stations[12]	43 dB below *PEP*
Amateur services operating below 30 MHz (including those using SSB)[16]	43 + 10 log (*PEP*), or 50 dB, whichever is less stringent
Services operating below 30 MHz, except space, radiodetermination, broadcast, those using SSB from mobile stations, and amateur[12]	43 + 10 log (*X*), or 60 dBc, whichever is less stringent, where $X = PEP$ for SSB modulation, and $X = P$ for other modulation
Low-power device radio equipment[13]	56 + 10 log (*P*), or 40 dBc, whichever is less stringent
Emergency transmitters[18]	No limit

TABLE II (*end*)

P: mean power in watts supplied to the antenna transmission line, in accordance with No. **S1.158**. When burst transmission is used, the mean power *P* and the mean power of any spurious domain emissions are measured using power averaging over the burst duration.

PEP: peak envelope power in watts supplied to the antenna transmission line, in accordance with No. **S1.157**.

dBc: decibels relative to the unmodulated carrier power of the emission. In the cases which do not have a carrier, for example in some digital modulation schemes where the carrier is not accessible for measurement, the reference level equivalent to dBc is decibels relative to the mean power *P*.

[10] Spurious domain emission limits for all space services are stated in a 4 kHz reference bandwidth.

[11] For analogue television transmissions, the mean power level is defined with a specified video signal modulation. This video signal has to be chosen in such a way that the maximum mean power level (e.g. at the video signal blanking level for negatively modulated television systems) is supplied to the antenna transmission line.

[12] All classes of emission using SSB are included in the category "SSB".

[13] Low-power radio devices having a maximum output power of less than 100 mW and intended for short-range communication or control purposes; such equipment is in general exempt from individual licensing.

[14] For radiodetermination systems (radar as defined by No. **S1.100**), spurious domain emission attenuation (dB) shall be determined for radiated emission levels, and not at the antenna transmission line. The measurement methods for determining the radiated spurious domain emission levels from radar systems should be guided by Recommendation ITU-R M.1177.

[15] In some cases of digital modulation (including digital broadcasting), broadband systems, pulsed modulation and narrow-band high-power transmitters for all categories of services, there may be difficulties in meeting limits close to $\pm 250\%$ of the necessary bandwidth.

[16] Earth stations in the amateur-satellite service operating below 30 MHz are in the service category "Amateur services operating below 30 MHz (including those using SSB)".

[17] Space stations in the space research service intended for operation in deep space as defined by No. **S1.177** are exempt from spurious domain emission limits.

[18] Emergency position-indicating radio beacon, emergency locator transmitters, personal location beacons, search and rescue transponders, ship emergency, lifeboat and survival craft transmitters and emergency land, aeronautical or maritime transmitters.

Reasons: These revisions again reflect the change in terminology from "spurious emissions" to "spurious domain emissions."

USA/ /11
ADD

ANNEX I

Determination of the boundary between the out-of-band and spurious domains

1 Except as provided below, the boundary between the out-of-band and spurious domains occurs at frequencies that are separated from the centre frequency of the emission by the values shown in Table 1. For most systems, the centre frequency of the emission is the centre of the necessary bandwidth. For multichannel or multicarrier transmitters/transponders, where several carriers may be transmitted simultaneously from a final output amplifier or an active antenna, the centre frequency of the emission is taken to be the centre of the 3 dB bandwidth of the transmitter or transponder and the transmitter or transponder bandwidth is used in place of the necessary bandwidth for determining the boundary. Some systems specify unwanted emissions relative to channel bandwidth, or channel spacing. These may be used as a substitute for the necessary bandwidth in Table 1, provided they are found in ITU–R Recommendations.

TABLE 1

Values for frequency separation between the centre frequency and the boundary of the spurious domain

Frequency range	**Narrow-band case**		**Normal separation**	**Wideband case**	
	for B_n <	**Separation**		**for B_n >**	**Separation**
9 kHz < f_c < 150 kHz	250 Hz	625 Hz	2.5 B_n	10 kHz	1.5 B_n + 10 kHz
150 kHz < f_c < 30 MHz	4 kHz	10 kHz	2.5 B_n	100 kHz	1.5 B_n + 100 kHz
30 MHz < f_c < 1 GHz	25 kHz	62.5 kHz	2.5 B_n	10 MHz	1.5 B_n + 10 MHz
1 GHz < f_c < 3 GHz	100 kHz	250 kHz	2.5 B_n	50 MHz	1.5 B_n + 50 MHz
3 GHz < f_c < 10 GHz	100 kHz	250 kHz	2.5 B_n	100 MHz	1.5 B_n + 100 MHz
10 GHz < f_c < 15 GHz	300 kHz	750 kHz	2.5 B_n	250 MHz	1.5 B_n + 250 MHz
15 GHz < f_c < 26 GHz	500 kHz	1.25 MHz	2.5 B_n	500 MHz	1.5 B_n + 500 MHz
f_c > 26 GHz	1 MHz	2.5 MHz	2.5 B_n	500 MHz	1.5 B_n + 500 MHz
NOTE—In Table 1, f_c is the centre frequency of the emission and B_n is the necessary bandwidth. If the assigned frequency band of the emissions extends across two frequency ranges, then the values corresponding to the higher frequency range shall be used for determining the boundary.					

Example 1: The necessary bandwidth of an emission at 26 MHz is 1.8 kHz. Since 2.5B_n is only 4.5 kHz, the minimum separation applies. The spurious domain begins 10 kHz each side of the centre of the necessary bandwidth.

Example 2: The necessary bandwidth of an emission at 8 GHz is 200 MHz. Since the wideband case applies for B_n > 100 MHz at that frequency, the spurious domain begins 400 MHz each side of the centre of the necessary bandwidth. Using the general separation formula, the out-of-band domain would have extended to 2.5 × 200 MHz = 500 MHz either side of the centre frequency.

2 Tables 2 and 3 show exceptions to Table 1 for narrow-band and wideband cases, respectively, applicable to particular systems or services and frequency bands.

TABLE 2

Narrow-band variations for systems or services and frequency bands

System or service	Frequency range	Narrow-band case	
		for B_n <	Separation
FS	14 kHz - 1.5 MHz	20 kHz[1]	50 kHz
FS	1.5-30 MHz	80 kHz[2]	200 kHz

[1] This is based on an assumption that the maximum value of the necessary bandwidth is about 3 kHz for the frequency range 14 kHz - 1.5 MHz. The value of 50 kHz separation is extremely large as compared with the necessary bandwidth. It is because unwanted emissions of high power transmitters under modulated conditions have to be below the spurious limit (70 dBc) at the boundary between the out-of-band and spurious domains.

[2] This is based on an assumption that the maximum value of the necessary bandwidth is about 12 kHz for the frequency range 1.5-30 MHz. The value of 200 kHz separation is extremely large as compared with the necessary bandwidth. It is because unwanted emissions of high power transmitters under modulated conditions have to be below the spurious limit (70 dBc) at the boundary between the out-of-band and spurious domains. Also, if future systems in the fixed service operating in this frequency range require a necessary bandwidth larger than 12 kHz, it may become necessary to review the 200 kHz separation. It should be noted that for medium or low power transmitters (e.g. below 1 kW), a smaller value may be appropriate as the minimum separation. This matter requires further study.

TABLE 3

Wideband variations for systems or services and frequency bands

System or service	Frequency range	Wideband case	
		for B_n >	Separation
FS	14-150 kHz	20 kHz	1.5 B_n + 20 kHz
FSS	3.4-4.2 GHz	250 MHz	1.5 B_n + 250 MHz
FSS	5.725-6.725 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	7.25-7.75 GHz and 7.9-8.4 GHz	250 MHz	1.5 B_n + 250 MHz
FSS	10.7-12.75 GHz	500 MHz	1.5 B_n + 500 MHz
BSS	11.7-12.75 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	12.75-13.25 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	13.75-14.8 GHz	500 MHz	1.5 B_n + 500 MHz

3 For primary radar stations, the boundary between the out-of-band and spurious domains is the frequency at which the out-of-band limits specified in applicable ITU–R Recommendations are equal

to the spurious limit defined in Table II of Appendix **S3**. Further studies need to be conducted within the ITU–R to determine the appropriate spurious domain boundary for these systems.

Reasons: Annex I is added for the following reasons;

- Section II of this Appendix states that the emission limits apply to unwanted emissions in the spurious domain. This Annex is needed to determine the boundary between the out-of-band and spurious domains, and thus the frequencies to which the emission limits of Section II apply.
- Table 1, taken from Recommendation ITU–R SM.[BOUNDARY], shows the normal boundary of $2.5B_n$, along with the narrowband and wideband exception. The information in the Recommendation, along with the text of existing paragraphs 11 and 11*bis*, have been included, though they have been shortened to bring them in line with the form of other Appendices.
- Tables 2 and 3 are also taken from Recommendation ITU–R SM. [BOUNDARY].
- Studies regarding the frequencies to which the Section II limits for primary radar apply will not be completed in time for WRC–2003. This text is similar to that of Annex 8, § 5 of Recommendation ITU–R SM.[OOB].

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.12 (b): to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev. WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730(WRC-2000)**;

Background Information: The 7 145-7 235 MHz band is allocated by footnote **S5.460** on a primary basis to the space research service (Earth-to-space), subject to agreement under No. **S9.21**. The companion downlink band, 8 400-8 500 MHz, is allocated on a primary basis in the Table of Frequency Allocations. These bands are used on a worldwide basis for cross-support in accordance with international agreements concluded between a number of space agencies. The footnote calling for agreement under No. **S9.21** was originally applied at **WARC-ST-71** because the coordination parameters necessary for Earth station coordination were not agreed at that time. Currently, Appendix **S7** contains these coordination parameters for transmitting Earth stations for the space research service in the 7 145-7 235 MHz band. Therefore, the premise behind requiring agreement under No. **S9.21** no longer exists.

Proposal:

ARTICLE S5
Frequency Allocations

7 075-7 250 MHz

	Allocation to Services		
	Region 1	**Region 2**	**Region 3**
USA/ /12 **MOD**	**7 075-7 145~~7250~~**	FIXED MOBILE S5.458 S5.459 ~~S5.460~~	
USA/ /13 **MOD**	**7 145-7 235**	FIXED MOBILE SPACE RESEARCH (Earth-to-space) **MOD** S5.460 S5.458 S5.459 ~~S5.460~~	
USA/ /14 **MOD**	**7 235-7 250**	FIXED MOBILE S5.458 S5.459 ~~S5.460~~	

Reasons: To incorporate in the Table of Frequency Allocations the existing primary allocation to the space research service in the band 7 145-7 235 MHz under No. **S5.460**.

USA/ /15
MOD

S5.460 ~~*Additional allocation:* the band 7 145-7 235 MHz is also allocated to the space research (Earth-to-space) service on a primary basis, subject to agreement obtained under Article 14/No. **S9.21**.~~ The use of the band 7 145-7 190 MHz by the space research service is restricted to deep space; no emissions to deep space shall be effected in the band 7 190-7 235 MHz.

Reasons: These changes are consequential to the table amendments offered above.

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.12 (d): to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev. WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730 (WRC-2000)**;

Background Information: Signals received on Earth from spacecraft in deep space are extremely weak and highly susceptible to interference of all kinds. In particular, the presence of near-Earth airborne and spaceborne interference sources can easily overwhelm the desired (but extremely weak) signal from deep space. Geographic isolation is not possible in the case of near-Earth orbiting spacecraft sharing the same band with space research (deep space). To satisfy present and future science deep space data return requirements, heavy reliance is being placed on space-to-Earth links in the 31.8-32.3 GHz band. The lack of compatibility between the inter-satellite service and the space research service (deep space) has been demonstrated within ITU-R Studies and is documented in Recommendation ITU-R SA.1016.

Proposal:

ARTICLE S5
Frequency Allocations

29.9-34.2 GHz

	Allocation to services		
	Region 1	**Region 2**	**Region 3**
USA/ /16 **MOD**	**31.8-32**	FIXED S5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) S5.547 S5.547B **MOD** S5.548	
USA/ /17 **MOD**	**32-32.3**	FIXED S5.547A ~~INTER-SATELLITE~~ RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth)	

		S5.547 **MOD** S5.547C **MOD** S5.548
USA/ /18 **MOD**	**32.3-33**	FIXED S5.547A INTER-SATELLITE RADIONAVIGATION S5.547 S5.547D **MOD** S5.548

Reasons: To protect the reception of deep-space space research service communications signals from harmful interference.

USA/ /19
MOD

S5.547C *Alternative allocation*: in the United States, the band 32-32.3 GHz is allocated to the ~~inter-satellite,~~ radionavigation and space research (deep space) (space-to-Earth) services on a primary basis. (WRC-97)

Reasons: This change is consequential to the table amendment offered above.

USA/ /20
MOD

S5.548 In designing systems for the inter-satellite service in the band 32.3-33 GHz, ~~and~~ for the radionavigation service~~s~~ in the band 32 - 33 GHz, and for the space research service (deep space) in the band 31.8-32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation **707**).

Reasons: This change is consequential to the table amendment offered above.

United States of America

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda Item 1.12 (e): to consider allocations and regulatory issues related to the space science services in accordance with Resolution **723 (Rev. WRC-2000)** and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account Resolution **730 (WRC-2000)**;

Background Information: Resolution **730 (WRC-2000)**, resolves

1 to invite ITU-R to study sharing between spaceborne precipitation radars and other services in the band 35.5-35.6 GHz;

2 to recommend that WRC-03 review the results of those studies and consider the removal of the restriction currently contained in No. **S5.551A** on spaceborne precipitation radars operating in the Earth exploration-satellite service in the band 35.5-35.6 GHz.

The frequency band 35.5 – 36 GHz is allocated to the Earth exploration-satellite (active) service on a primary basis limited by footnote **S5.551A** and is also allocated to the meteorological aids and radiolocation services on a primary basis. Prior to WRC-97, operation by radars located on spacecraft on a primary basis was permitted in the band 35.5 – 35.6 GHz by footnote **S5.551 (SUP WRC-97)**. This 100 MHz band is used by precipitation radars located on spacecraft. Furthermore, studies have shown that sharing between spaceborne active sensors and radiolocation systems in the band 35.5 – 36 GHz is feasible, as indicated in § 5.7.2.1 of Chapter 5 of the CPM-97 Report. ITU-R Joint Working Party 7-8R, which studied compatibility between spaceborne active sensors and other services prior to WRC-97, noted that in the band 33.4 – 36 GHz, compatibility analysis between spaceborne altimeters and scatterometers and terrestrial radars in the radiolocation service indicated that interference from these spaceborne active sensors into the radiolocation systems would not exceed the interference criteria for terrestrial radiolocation systems that are in normal use. JWP 7-8R also examined the compatibility of active sensors with radiolocation systems from the aspect of potential interference from these radiolocation systems into altimeters and scatterometers and concluded that interference into these sensors would not exceed their interference criteria. JWP 7-8R and subsequently CPM-97 concluded that compatibility between known spaceborne active sensors and radiolocation systems in the 33.4 – 36 GHz band existed and that an allocation of 500 MHz in this frequency range should be made. Therefore, there was no technical reason to apply the footnote **S5.551A** to the table allocation for the Earth exploration-satellite (active) and space research (active) services in the 35.5 - 36 GHz band.

With respect to the EESS (passive) and SRS (passive) allocations in the band 36 – 37 GHz and the space research service allocation in the band 37 – 38 GHz, there have been no changes in the requirements for these allocations, nor have there been changes in the sharing conditions in these bands that would warrant any changes.

Proposal:

ARTICLE S5

Frequency Allocations

35.5-36 GHz

	Allocation to services		
	Region 1	**Region 2**	**Region 3**
USA/ / 21 **MOD**	**35.5-36**	EARTH EXPLORATION-SATELLITE (active) METEOROLOGICAL AIDS RADIOLOCATION SPACE RESEARCH (active) S5.549 ~~S5.551A~~	

USA/ / 22
SUP

~~**S5.551A**~~

Reasons: Based on demonstrated compatibility between active sensors in the earth exploration-satellite and space research services and the other services allocated on a primary basis in the 35.5 - 36 GHz band, the restrictions in this footnote are not necessary and the footnote should be suppressed.

36-38 GHz

	Allocation to services		
	Region 1	**Region 2**	**Region 3**
USA/ / 23 **NOC**	**36-37**	EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) S5.149	
USA/ / 24 **NOC**	**37-37.5**	FIXED MOBILE SPACE RESEARCH (space-to-Earth) S5.547	
USA/ / 25 **NOC**	**37.5-38**	FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) S5.551AA S5.547	

Reasons: There have been no changes in the requirements for these allocations, nor have there been changes in the sharing conditions in these bands that would warrant any changes.

V. Proposed Consequential Changes to the Radio Regulations

NTIA's Radio Conference Subcommittee has proposed changes to Appendix **S3** of the international Radio Regulations under conference Agenda Item 1.8.1 as presented in Section IV of this public notice. Subsequently, U.S. Working Party 1A noted that there would be related changes required to certain provisions in Article **S3** of the Radio Regulations as a consequence to the proposed changes to Appendix **S3**. A proposal to make these consequential changes is set forth below:

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Article S3

Technical characteristics of stations

USA/ /
MOD

S3.6 Transmitting stations shall conform to the maximum permitted ~~spurious~~ unwanted emission power levels specified in Appendix **S3**.

Reason: Section I of Appendix **S3** pertains to spurious emissions, while Section II, as a consequence of the revisions proposed herein, will pertain to emissions in the spurious domain. The term "unwanted emission" covers both cases.

USA/ /
MOD

S3.7 Transmitting stations shall conform to the maximum permitted power levels for out-of-band emissions, or unwanted emissions in the out-of-band domain, specified for certain services and classes of emission in the present Regulations. In the absence of such specified maximum permitted power levels transmitting stations should, to the maximum extent possible, satisfy the requirements relating to the limitation of the out-of-band emissions, or unwanted emissions in the out-of-band domain, specified in the most recent ITU-R Recommendations (see Resolution **27 (Rev. WRC-97)**).

Reasons: As a result of recent revisions, some ITU-R Recommendations, including Recommendation ITU-R SM.1541, now address unwanted emissions in the out-of-band domain instead of out-of-band emissions as before. Other provisions and Recommendations still address out-of-band emissions.