



# PUBLIC NOTICE

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## THE FCC'S ADVISORY COMMITTEE FOR THE 2003 WORLD RADIOCOMMUNICATION CONFERENCE APPROVES DRAFT PROPOSALS

On January 8, 2003, the World Radiocommunication Conference Advisory Committee (WRC-03 Advisory Committee) adopted recommendations to the Commission on 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 has forwarded the recommendations it has developed since the beginning of 2001 to the Commission for consideration. We have attached to this Public Notice the WRC-03 Advisory Committee's recommendations, which are in the form of recommended draft proposals to the WRC-03. 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 these recommendations.

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 the proposals recommended by the WRC-03 Advisory Committee. We seek comment on the recommendations that appear in the WRC-03 Advisory Committee documents and on our tentative conclusions.

In addition, the National Telecommunications and Information Administration (NTIA) has submitted letters to the Commission containing draft proposals that have been developed by the Executive Branch Agencies. We also request comment on these draft proposals, which are attached hereto as well.

The FCC will consider the draft proposals and comments provided in its upcoming consultations with the U.S. Department of State and NTIA in the development of U.S. proposals to WRC-03. Once agreed by these agencies of the U.S. Government, proposals will be used by U.S. delegations at bilateral, regional and international meetings. The draft proposals attached to this Public Notice may evolve as we approach WRC-03 and during the course of interagency discussions. Therefore, they do not constitute the final national position on these issues.

The complete texts of these draft proposals are also available in the FCC's Reference Information 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 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 Alex Roytblat, FCC WRC-03 Director, Room 6-A738. When possible, these comments should also be forwarded to the Commission via the Internet at: [wrc03@fcc.gov](mailto:wrc03@fcc.gov). Comments should refer to specific proposals by document number. The deadline for comments on the draft proposals and NTIA letters is **January 31, 2003**.

# **I. Informal Working Group 3: Fixed-Satellite Service/Broadcasting-Satellite Service**

## **DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

**Doc. WAC/177(08.01.03)**

**WRC-03 Agenda Item 1.35:** to consider the report of the Director of the Radiocommunication Bureau on the results of the analysis in accordance with Resolution **53 (Rev.WRC-2000)** and take appropriate action

**Issue:** Updating of the "Remarks" columns in the tables of Article 9A of Appendix 30A and Article 11 of Appendix 30 to the radio regulations;

### **Background:**

Resolution 53 of WRC-00 mandates the Radiocommunication Bureau (BR) to carry out compatibility studies between the Regions 1 and 3 BSS Plan adopted by WRC-00 and other services having primary allocations in the Plan bands, for consideration by WRC-03 under agenda item 1.35. The Circular letter CR/183 dated 7 October 2002 contains the initial report of these studies using the criteria and methodology in Article 11 of Appendix 30 and 9A and of Appendix 30A, as mandated in Resolution 53. This Circular letter also includes an indication of those FSS satellite networks affecting or affected by BSS Plan assignments and for which the Rules of Procedure on the suspension of examination under No. 9.35 have been applied. This report is still to be updated to reflect comments from Administrations and include expected impact from terrestrial services as well as other relevant matters. When finalized, this report will serve as a basis for updating the "Remarks" columns in Appendices 30 and 30A and identifying assignments that shall be subject to a coordination process before they may be brought into service.

FSS networks have been identified in Annex 1 of CR/183 as potentially affecting or affected by the Regions 1 and 3 BSS Plan assignments, and will thus require to be coordinated in accordance with Resolution 53. Given the impact this will have on the co-ordination or notification status of these FSS networks, and considering that some of these FSS networks are required to be brought into use prior to 2007, it is important that final decisions on the identification of networks requiring co-ordination be made at WRC-03.

Some Administrations at the November 2002 CPM meeting expressed the view that networks processed under the Rules of Procedures suspending examinations under No. 9.35 of the Radio Regulations not be taken into account in the compatibility study. However in its re-planning, WRC-00 fully recognized the need to preserve the integrity of other services sharing the planned bands, and in adopting Resolution 53 clearly specified those FSS networks involved, irrespective of the manner in which they were going to be processed under Article 9 of the Radio Regulations. Moreover it would be unprecedented and unfair not to take into account FSS networks as suggested by some administrations just because these administrations are discontented with this Rule of Procedure, which was adopted by the RRB. WRC-03 should not penalize administrations whose FSS networks were processed under this Rule of Procedure, as these administrations are

not responsible for the adoption of these rules. It is thus important that all FSS networks specified in Resolution 53 continue to be fully taken into account at WRC-03 under agenda item 1.35, for the purpose of updating the "Remarks" columns in the tables of Article 9A of Appendix 30A and Article 11 of Appendix 30. This includes those processed under the Rules of Procedures on No. 9.35 of the Radio Regulations.

Finally a preliminary evaluation of the initial BR results reported in CR/183 highlights several unrealistic cases on incompatibility between BSS Region 1 and 3 Plan assignments and FSS networks, leading to unnecessary co-ordination requirements for the FSS and BSS assignments involved which in many cases have more than 100° orbital separation. It will therefore be necessary that WRC-03 also consider readily available technical means of streamlining such cases of incompatibilities. These technical means would reduce the number of instances where BSS Plan assignments and FSS have unnecessary coordination requirements. Examples of possible means for reducing the cases of undue co-ordination constraints are addressed below.

- Use of coverage areas for the FSS networks that reflect Regional boundaries: the BR assumed a global service area for the steerable spot beams of the FSS networks in conducting the compatibility analyses. For example, in the 11.7-12.2 GHz band, rather than limiting the FSS coverage area to Region 2, a global beam covering Regions 1 and 2 is assumed, thus overestimating the interference into the BSS in Region 1. Limiting the assumed coverage area for the steerable beams to Region 2 in the 11.7-12.2 GHz band and to Region 3 in the 12.2-12.12.7 GHz band (and not the entire visible Earth) will allow for more realistic results and reduce the unrealistic cases of incompatibility.
- Use of updated sharing criteria: Tables 3.2-1 and 3.2-2 of the final CPM report to WRC-03 indicate that use of either of the pfd masks for interregional sharing given in Section 3.2.2.3 of the CPM report would greatly alleviate the interregional incompatibilities. Notwithstanding the use of the above referenced sharing criteria, inclusion of guidance in Article 11 of Appendix 30 to be considered in detailed discussion between administrations would help addressing many of the outstanding cases where co-ordination is still required. If the criteria in Annex 4 and in Section 6 of Annex 1 of Appendix 30 are revised at WRC-03 and if the BR can undertake the necessary compatibility analyses consistent with Resolution 53 at WRC-03, the results should be reflected in the relevant Notes and Remarks of Article 11 of Appendix 30.

The proposals contained herein reflect the points made above with respect to Agenda item 1.35 of WRC-03. The US may update these proposals as necessary based on further studies.

## **PROPOSALS**

### **USA/1.35/1**

**MOD** the Table (in pages AP30-66 to AP30-72 of Appendix 30) on Basic characteristic of the Regions 1 and 3 Plan (sorted by Administrations) by updating Column 16 of this table as appropriate.

### **USA/1.35/2**

**ADD** New TABLE 2 (from Table 2 of Annex 1 in circular letter CR/183) and New TABLE 3 (from Table 3 of Annex 1 in circular letter CR/183)

Reason: WRC-03 should proceed with the updating of the "Remarks" columns in the Table of Article 11 of Appendix 30 to the Radio Regulations. In so doing, the BR report in response to Resolution 53 should be taken into consideration, along with contributions from Administrations addressing technical means to eliminate unrealistic co-ordination requirements between Regions 1 and 3 BSS Plan assignments and other co-primary services. Moreover all relevant FSS networks, including those processed under the Rules of Procedures on No. 9.35, should continue to be fully taken into account for the purpose of updating the "Remarks" columns in the tables of Article 9A of Appendix 30A and Article 11 of Appendix 30. WRC-03 should not unduly penalize administrations whose FSS networks were processed under these Rules of Procedure.

### **USA/1.35/3**

**ADD** New Note 5bis to Article 11 of Appendix 30

**5bis** This assignment shall be brought into use with the agreement of the administrations having assignments in the Fixed-Satellite Service identified as affected in Table 2.

Reason: To make reference to Table 2 specifying the networks, beams or Plan assignments and the corresponding administrations involved in the "agreement seeking" process specified in Note 5 of Article 11 of appendix 30.

### **USA/1.35/4**

**ADD** New Note 7bis to Article 11 of Appendix 30

**7bis** This assignment shall not claim protection from administrations having assignments in the Fixed-Satellite Service identified as affecting in Table 3.

Reason: To make reference to Table 3 specifying the administrations networks, beams and Plan assignments and the corresponding administrations involved in the "no protection claim" process specified in Note 7 of Article 11 of Appendix 30.

## II. Informal Working Group 7: Regulatory Issues and Future Agendas

### DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Doc. WAC/175(08.01.03)

**WRC-03 Agenda Item 7.1:** to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000, including on any difficulties or inconsistencies encountered in the application of the Radio Regulations, and action in response to Resolution **80 (Rev.WRC-2000)**;

**Issue:** Clarification of Resolution **77 (WRC-2000)**

#### **Background:**

WRC-2000 removed certain regulatory limitations (e.g., national or subregional systems only) on the operation of geostationary-satellite networks in the fixed-satellite service in Region 2 in the band 11.7-12.2 GHz. WRC-2000 also recognized the need to protect stations in the co-primary fixed service (FS) allocation in part of this band and adopted provisions to establish a technical basis for determining whether an Administration's FS stations may be affected by a GSO FSS network. These provisions are contained in Resolution 77 (WRC-2000). Specifically, Resolution 77 contains pfd thresholds to determine if coordination may be needed with terrestrial stations in Regions 1, 2 and 3 from GSO FSS systems providing service in Region 2. However, it has been highlighted by the BR that Resolution 77 may need clarification with respect to the process in Articles 9 and 11 to be applied with respect to the pfd thresholds in Resolution 77. In this regard, Section 3.1.2 of the Preliminary Report of the BR to WRC-03 (Document CPM02-2/6), addressing the application of No. **5.488** in relation to Resolution 77, states that "The conference may wish to consider the wording of Resolution 77 and to introduce appropriate clarification so as to indicate the coordination mechanism to be applied in an unambiguous manner".

The solution to clarify Resolution 77 ultimately identified should maintain the balance sought at WRC-2000—applying coordination thresholds to protect terrestrial services while not unduly constraining FSS. At WRC-2000, pfd thresholds were ultimately adopted because they provide the required flexibility for implementing GSO FSS systems, while still affording protection to fixed service systems. With the pfd thresholds adopted in Resolution 77, the BR notifies an Administration if the threshold levels are exceeded on their territory, providing the terrestrial Administration with a red flag that allows the administration to carry out additional analysis, if necessary, to determine if the level of exceedance is enough to warrant a coordination with the satellite network. This examination by the BR significantly reduces the burden of the terrestrial administration as they do not have to examine each Special Section in detail and determine if their terrestrial services may be affected by a proposed FSS network. Additionally the pfd examination by the BR provides the GSO FSS network administration a specific list of countries that may be affected by the proposed network.

In response to this issue raised in the Director's Report, Section 6.4.3 of the CPM Report identifies two regulatory mechanisms that could be used to clarify the application of the threshold pfd levels in Resolution 77 (WRC-2000). The proposal contained herein supports the second approach, which foresees application of No. 9.14 and the provisions associated with it in Articles 9 and 11. This approach still has the BR identify which terrestrial stations of administrations may be affected, yet gives some flexibility to the notifying administration in the coordination process.

USA/7.1/xxx

MOD

RESOLUTION 77 (WRC-~~2000~~2003)

**Protection of terrestrial services in all Regions from geostationary-satellite networks in the fixed-satellite service in Region 2 using the frequency band 11.7-12.2 GHz**

The World Radiocommunication Conference (~~Istanbul, 2000~~Geneva, 2003),

*considering*

- a) that, in Regions 1 and 3, the band 11.7-12.2 GHz is allocated on a co-primary basis to terrestrial services and to the broadcasting-satellite service (BSS);
- b) that, in Region 2, the band 11.7-12.1 GHz is allocated on a co-primary basis to terrestrial services (except in the countries listed in No. 5.486) and to the fixed-satellite service (FSS);
- c) that, in Region 2, the band 12.1-12.2 GHz is allocated on a co-primary basis to terrestrial services in Peru (see No. 5.489) and to the FSS;
- d) that protection of the BSS in Regions 1 and 3 from the FSS in Region 2 is assured by Article 7 and Annex 4 of Appendix 30;
- e) that protection of the FSS in Region 2 from the FSS in that Region is assured either by Article 9 (Nos. 9.7 or 9.12) or Article 22;
- f) that protection of terrestrial services in Regions 1, 2 and 3 from non-geostationary-satellite (non-GSO) systems in the FSS in Region 2 is assured by Article 21;
- g) that there is a need to protect terrestrial services in Regions 1, 2 and 3 from GSO networks in the FSS in Region 2;
- h) that this Conference has modified No. 5.488 by revising the regulatory limitations on the operation of GSO networks in the FSS in Region 2 in the band 11.7-12.2 GHz,

*recognizing*

that ITU-R has developed Recommendation ITU-R SF.674-1, dealing with sharing between the FSS and the fixed service in the band 11.7-12.2 GHz in Region 2,

*resolves*

that, before an administration notifies to the Radiocommunication Bureau or brings into use, in Region 2, a frequency assignment for a GSO network in the FSS in the 11.7-12.2 GHz band, it shall ~~seek the agreement of using the procedures in Articles 9 and 11 associated with No. 9.14.~~ coordinate with any administration of Regions 1, 2, and 3 having a primary allocation to terrestrial services in the same frequency band if the power flux-density (pfd) produced on its territory exceeds the following thresholds:

-124	dB(W/(m <sup>2</sup> · MHz))	for	0° ≤ θ ≤ 5°
-124 + 0.5 (θ - 5)	dB(W/(m <sup>2</sup> · MHz))	for	5° < θ ≤ 25°
-114	dB(W/(m <sup>2</sup> · MHz))	for	θ > 25°

where θ is the angle of arrival of the incident wave above the horizontal plane (degrees),<sup>1</sup>

*instructs the Radiocommunication Bureau*

in its examination of requests for coordination for any geostationary space station in the FSS operating in the band 11.7-12.2 GHz in Region 2, to determine if the pfd thresholds under *resolves* above are exceeded on the territory of any administration, other than the notifying administration, having a primary allocation to terrestrial services and, if so, to so notify both the notifying and the affected administrations.

Reason:

To clarify any ambiguities in the Resolution as to which procedures should be followed in coordinating with affected administrations.

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<sup>1</sup> These values relate to the pfd and angles of arrival which would be obtained under free-space propagation conditions.

## DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

### Doc. WAC/176(08.01.03)

**WRC-03 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)**,

**Background:** WRC-03 agenda item 7.2 and Resolution 801 include Agenda Item 2.16, pertaining to requirements for the future development of IMT-2000 and systems beyond IMT-2000.

In Resolution 228 (WRC-2000), the ITU-R was invited to continue studies on overall objectives, applications and technical and operational implementation for the future development of IMT-2000 and systems beyond. ITU-R studies on the vision for the future development of IMT-2000 and systems beyond IMT-2000 have concluded and are documented in the Vision DNR [Doc. 8/110]. To fulfill the ITU vision for future development of IMT-2000 and systems beyond IMT-2000, it is envisaged that further spectrum may be needed, in addition to that identified for IMT-2000 at WARC-92 and WRC-2000. Work on this matter continues to be carried out by ITU-R and a work plan has been developed by ITU-R Working Party 8F that prepares for the potential identification of spectrum at WRC-07. This work will take into account relevant IMT-2000 and other experience, the frequency bands already identified and used for IMT-2000, and potential spectrum for the future development of IMT-2000 and systems beyond IMT-2000 using spectrum already allocated to various services. In reference to Resolution 228, ITU-R is studying the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT-2000, and in what time-frame such spectrum would be needed. ITU-R is also developing a framework of services for the future development of IMT-2000 and systems beyond IMT-2000, which will be used to refine these spectrum requirements. Because the work continues on spectrum and regulatory issues relating to the future development of IMT-2000 and systems beyond IMT-2000, it is appropriate for WRC-07 to consider these issues and take appropriate action deemed necessary at the conference.

**Proposal:**

**MOD**

**RESOLUTION 801 (Rev. WRC-2003)**

**~~Preliminary~~ Agenda for the 2007~~5~~/2006 World  
Radiocommunication Conference**

**Agenda Item 2.16.**

**USA/7.2/ZZZ**

**MOD**

**2.16 To consider the results of ITU-R studies and to review the requirements and frequency matters related to for the future development of IMT-2000 and systems beyond IMT-2000, taking into account in accordance with Resolution 228 (WRC-2000)(Rev. WRC-03), and to take appropriate action.**

**Reason:**

Consequential change to reflect modifications to Resolution 228 proposed by the United States.

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### **III. Draft Proposals Approved by the National Telecommunications and Information Administration (NTIA)**

#### **DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

##### **Doc. WAC/173(08.01.03)**

*(This is an NTIA revision of a joint draft proposal from Informal Working Groups 2 and 3 that appeared in Public Notice DA 02-1415, Released June 17, 2002.)*

**WRC-03 Agenda Item 1.8.2:** consideration of the results of studies, and proposal of any regulatory measures regarding the protection of passive services from unwanted emissions, in particular from space service transmissions, in response to *recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)**;

**Background Information:** Agenda item **1.8.2** references *recommends* 5 and 6 of Recommendation **66** which state:

- 5** study those frequency bands and instances where, for technical or operational reasons, more stringent spurious emission limits than the general limits in Appendix **3** may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;
- 6** study those frequency bands and instances where, for technical or operational reasons, out-of-band limits may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits.

Following the completion of a general Recommendation by Task Group 1/5 on the protection of passive services from unwanted emissions, Study Group 1 charged Task Group 1/7 with studying protection of radio astronomy and satellite remote sensing on a band-by-band basis, using a list of frequency bands prepared by Task Group 1/5. Task Group 1/7 developed a methodology for the band-by-band studies and studied pairs of active and passive service bands thought most likely to require regulatory measures. The radio astronomy and remote sensing protection issues were considered separately because of the differences in protection criteria, operational characteristics and likely interference mitigation solutions.

Representatives of the active and passive services came together in Task Group 1/7 to address problems that had defied solutions going back as far as WARC-79. Through cooperative efforts, participants identified measures that would provide protection to the passive services in some bands and considered the impact of these measures on the active services. The studies, documented in PDNR ITU-R SM.[BbB], found that a few of the band pairs could be eliminated from consideration, because interference from unwanted emissions was not a significant problem. In some other cases, significant interference can be eliminated if the active and passive service systems adhere to certain restrictions. A number of other cases will require further study to identify solutions.

*Recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)** require that the studies consider the impact of limits on all concerned services. For this reason, it is necessary that representatives of the active and passive services reach agreement on restrictions that may affect their services. Although Task Group 1/7 made progress on identifying solutions that would protect the passive services, further studies are necessary to fully consider the impact on the active services and to refine the solutions to yield interference mitigation measures acceptable to all. Because of pressure to limit the size of the WRC agendas, and the extraordinary difficulty of reaching agreement on general regulatory solutions to passive service protection, future Conference agendas should not include review of these studies.

Recognizing the difficulty of resolving adjacent or near band interference problems between certain types of active and passive service allocations, future Conferences should avoid, to the extent practicable, new allocations that would make these troublesome situations more widespread.

The proposals below suppress Recommendation **66 (Rev. WRC–2000)** in favor of a new Resolution that addresses the problem of adjacent or nearby active and passive service allocations, and that calls for completion of studies on the protection of passive services from unwanted emissions.

**Proposals:**

USA/ 1                      SUP

RECOMMENDATION 66 (REV.WRC-2000)

**Studies of the maximum permitted levels of unwanted emissions**

**Reasons:** Recommendation **66 (Rev. WRC–2000)** is suppressed in favor of two new Resolutions that will address the unfinished work.

USA/ 12                      ADD

RESOLUTION [RAS/EESS] (WRC-2003)

**Studies of the protection of the radio astronomy and Earth exploration-satellite (passive) services from unwanted emissions from active services**

The World Radiocommunication Conference (Geneva, 2003),

*considering*

- a) that excessive levels of unwanted emissions may give rise to harmful interference;
- b) that unwanted emissions from space-to-Earth links may cause harmful interference to stations in the radio astronomy service, particularly emissions from wideband amplifiers which cannot be adjusted after launch;

- c) that unwanted emissions from terrestrial services, especially those with stations transmitting at high elevation angles, may cause harmful interference to passive sensors in the Earth exploration-satellite (passive) service;
- d) that Appendix 3 specifies the maximum permitted levels of spurious emissions;
- e) that while out-of-band emissions can also give rise to harmful interference, the Radio Regulations do not provide general limits for these emissions;
- f) that, for technical or operational reasons, more stringent spurious emission limits than the general limits in Appendix 3 may be required to protect the radio astronomy and Earth exploration-satellite (passive) services in specific bands or situations;
- g) that broadband digital modulation may cause unwanted emissions at frequencies far from the carrier frequency,

*noting*

- a) that space services space-to-Earth links have in some cases been allocated to frequencies adjacent to or close to those allocated to the radio astronomy service;
- b) that active services with stations transmitting at high elevation angles have in some cases been allocated to frequencies adjacent to or close to those allocated to the Earth exploration-satellite (passive) service;
- c) that some administrations have adopted more stringent limits for spurious emissions than those specified in Appendix 3;
- d) that in response to *resolves* 2.3.2 of Resolution **722 (WRC-97)**, ITU-R decided to recommend not including general out-of-band limits in the Radio Regulations;
- e) that measures taken to protect receivers in the radio astronomy and Earth exploration-satellite (passive) services from interference may result in additional costs or reduced capabilities for the active services affected;
- f) that conversely, not taking such measures may result in additional costs or reduced capabilities or operational efficiencies for the radio astronomy and Earth exploration-satellite (passive) services,

*resolves to request WRC-07 and subsequent WRCs*

1 to avoid, to the extent practicable, allocation of frequency bands for space-to-Earth links in the space services when those frequency bands are adjacent to or nearby frequency bands allocated to the radio astronomy service, unless adequate consideration is given to protecting the radio astronomy service;

2 to avoid, to the extent practicable, allocation of frequency bands to active services with stations transmitting at high elevation angles when those frequency bands are adjacent to or nearby frequency bands allocated to the Earth exploration-satellite (passive) service, unless adequate consideration is given to protecting the Earth exploration-satellite (passive) service,

*resolves*

1 that further studies are urgently required to identify methods of protecting radio astronomy receivers from harmful interference from unwanted emissions of space-to-Earth links in specific frequency bands, with a view to the development of one or more Recommendations providing guidance on the protection of the radio astronomy service from such interference;

2 that further studies are also urgently required to identify methods of protecting passive sensors in the Earth exploration-satellite (passive) service from harmful interference from unwanted emissions from stations in the active services in specific frequency bands, with a view to the development of one or more Recommendations providing guidance on the protection of the Earth exploration-satellite (passive) service from such interference;

3 that these studies would consider the impact of implementing or not implementing such protection methods, including costs and reduced system capabilities or operational efficiencies, on the active and passive services affected,

*urges administrations*

to participate actively in these studies, with the involvement of both active and passive service interests,

*invites ITU-R*

to complete studies to provide guidance on the protection of the radio astronomy and Earth exploration-satellite (passive) services from unwanted emissions from stations in the active services.

**Reasons:** This proposed Resolution would draw attention to the ongoing problem of adjacent and nearby allocations to the active and passive services, while also calling for completion of the unfinished work under Recommendation 66 (Rev. WRC-2000).

## DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

### Doc. WAC/172(08.01.03)

*(NTIA proposes modification of the Draft Proposal from Informal Working Group 4 that appeared in Public Notice DA-02-2361, Released September 24, 2002.)*

**WRC-03 Agenda Item 1.13:** to consider regulatory provisions and possible identification of existing frequency allocations for services which may be used by high altitude platform stations, taking into account No. **5.543A** and the results of the ITU-R studies conducted in accordance with Resolutions **122 (Rev.WRC-2000)** and **734 (WRC-2000)**;

**Background Information:** At WRC-97, the bands 47.2-47.5 GHz and 47.9-48.2 GHz (which were already allocated for the fixed service) were designated within the fixed service (FS) for High-Altitude Radio-Relay Platform Stations (HAPS). WRC-2000 confirmed this designation and under Resolution **122 (Rev.WRC-2000)** requested that studies continue on regulatory and sharing issues in these bands. While this designation does not limit the use of a band by types of services for which it is already allocated, it does give guidance to administrations wishing to implement specific service types.

WRC-2000, through Resolution **122**, requested that the ITU-R conduct studies, taking into account the requirements of other ~~f~~Fixed ~~s~~Service systems and other services, on the feasibility of identifying suitable frequencies for the use of HAPS in the ~~FS~~Fixed Service in the range 18 – 32 GHz in Region 3. These studies were requested by several Region 3 countries specifically because the previously identified 47 GHz band is highly susceptible to rain attenuation, and therefore a suitable 2x300 MHz identification in a lower band was needed for HAPS in those countries. The studies are to focus particularly, but not exclusively, on the bands 27.5 – 28.35 GHz and 31.0 – 31.3 GHz. In addition, country footnote **5.537A** was adopted to permit the use of HAPS (HAPS-to-ground) in the ~~FS~~fixed service allocation in the band 27.5-28.35 GHz on a non-interference, non-protected basis in certain Region 3 countries and one Region 1 country. This band, by country footnote **5.543A**, was paired with the 31-31.3 GHz band for use by HAPS (ground-to-HAPS), also on a non-interference, non-protected basis. Additionally, use of the 31 – 31.3 GHz band is subject to not causing harmful interference to Earth exploration satellite service (EESS) (passive) and radio astronomy service (RAS) services operating in the 31.3-31.8 GHz band. The footnote urged the identified administrations to utilize only the 31.0-31.15 GHz band until studies were completed.

### **47 GHz Band**

With regard to the bands 47.2-47.5 GHz and 47.9-48.2 GHz, Resolution **122 (Rev. WRC-2000)** indicated that sharing studies remain to be completed between the fixed-satellite service (FSS) and HAPS operations in the ~~fixed-service~~-FS. Pending the completion of studies, Resolution **122** instructs the Radiocommunication Bureau “that from 22 November 1997, and pending review of the sharing studies in considering h) and review of the notification process by WRC-99, the Bureau shall accept notices in the bands 47.2-47.5 GHz and 47.9-48.2 GHz only for high altitude platform stations in the ~~FS~~fixed-service and for feeder links for the broadcasting-satellite service (BSS), shall continue to process notices for ~~FSS~~fixed-satellite-service networks (except for feeder links for the broadcasting-

satellite service) for which complete information for advance publication has been received prior to 27 October 1997, and shall inform the notifying administrations accordingly." In other words, notices received after 22 November, 1997 from non-BSS feeder link FSS networks in the 47.2-47.5 GHz and 47.9-48.2 GHz bands have not been accepted.

The studies in this band have been completed and the results are contained in Recommendation ITU-R SF.1481. With the exception of interference to and from FSS spacecraft, and border area coordination matters in the FS, the deployment of HAPS is a national issue. The issue of interference between the FSS satellite and HAPS networks – in particular, if HAPS networks in this band are not used to provide ubiquitous service and if FSS earth stations utilize antennas with diameters of at least 2.4 m or other types of antennas with similar performance – can be addressed through coordination using Articles 9 and 11 of the Radio Regulations. As a result, all portions of Resolution 122 dealing with the 47 GHz band can be suppressed, provided that reference to the use of Article 9 for HAPS is included in the Radio Regulations.

### **27 and 31 GHz Bands**

To date, all sharing studies in the 18-32 GHz range under Resolution 122 within the ITU-R have focused exclusively on the bands 27.5-28.35 GHz and 31.0-31.3 GHz.

No. 5.543A of the Radio Regulations provides that the allocation to the ~~FSfixed-service~~ in the band 31.0-31.3 GHz may also be used by HAPS in the ground-to-HAPS direction in certain countries. In such cases, HAPS uplinks in the band 31.0-31.3 GHz shall not cause harmful interference to, nor claim protection from, other ~~FSfixed-service~~ systems or other co-primary services, as indicated in No. 5.543A. In addition, the use of HAPS in the band 31.0-31.3 GHz shall not cause harmful interference to the passive services having a primary allocation in the band 31.3-31.8 GHz. The ITU-R has not yet developed Recommendations regarding the compatibility between HAPS and the EESS (passive) and RAS.

No. 5.537A of the Radio Regulations provides that the allocation to the ~~FSfixed-service~~ in the band 27.5-28.35 GHz may also be used by HAPS in certain countries listed in No. 5.537A. The use of the ~~FSfixed-service~~ allocation at 27.5-28.35 GHz by HAPS is limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of ~~FSfixed-service~~ systems or other co-primary services. The ITU-R has adopted a new Recommendation [Doc. 4/89-9/148] containing a methodology for evaluating interference from HAPS-to-ground transmissions to FSS earth-to-space transmissions; however, specific protection criteria have not yet been agreed.

The same concerns expressed at WRC-2000 by many Administrations, including the U.S., with respect to identifying HAPS use in the ~~FSfixed-service~~ in the 18 – 32 GHz band are still valid today. Internationally the FSS is allocated on a global basis in the 17.7 – 21.2 GHz and 27.5 – 31.0 GHz bands and the FSS community has invested large amounts of resources and time in the development of global FSS systems that operate or are planned to operate in these bands. The FSS community remains very concerned about their ability to deploy already planned global FSS satellite systems in these bands without hindrance from HAPS deployment in the same bands. Additionally, there is concern regarding compatibility of HAPS with existing global FSS systems that operate in these bands. Given that the original intent of these studies was to find a suitable alternative to the 2x300 MHz of spectrum identified for FS HAPS at 47 GHz in Region 3, and the fact that the 27.5-28.35 GHz range is the only

range that has been considered for the HAPS-to-ground direction for this alternative, narrowing the frequency range of consideration for potential HAPS services to a specific and common 300 MHz band within the 27.5-28.35 GHz range in all of the countries listed in No. **5.537A** would help to ease the concerns of the FSS in this regard and would bring any final allocation decision in line with the original intent of WRC-2000. Identification of a specific and common 300 MHz band within this frequency range would also facilitate the design and implementation of HAPS systems in this band.

The EESS (passive) and RAS service communities are also very concerned about the possibility of interference from HAPS FS stations in the 31–31.3 GHz band, which is adjacent to the 31.3-31.5 GHz passive band allocated on a primary basis to the ~~EESSEarth-exploration-satellite~~ (passive) and ~~SRSspace-research~~ (passive) services for passive-remote sensing of the Earth. This passive sensing band is of vital importance in Earth observation and weather forecasting because it is the reference band used in conjunction with the unique oxygen absorption bands from 50.2–59.3 GHz. Unwanted interference in this band from out-of-band emissions from HAPS would be particularly harmful to the remote sensing use of the band. The 31.3-31.8 GHz band is also allocated to the RAS on a primary basis, and is extensively used, e.g. for studies of the Cosmic Microwave Background.

For the case of HAPS compatibility with passive services (both passive sensing and radio astronomy service), studies have indicated that certain types of HAPS systems may be compatible with these passive services. HAPS uplinks may have to operate with certain constraints in order to limit unwanted emissions; however, experimental hardware has been developed to demonstrate the feasibility of such operation. The results of these studies leading to compatible operation between HAPS and passive services should be incorporated in an ITU-R Recommendation(s). Unlike the situation presented in some cases by possible interference from unwanted emissions from satellites, problems presented by of HAPS stations can be resolved in the operational phase. Therefore the interference criteria themselves need not be part of the Radio Regulations.

#### **Proposal:**

**USA/ /1      MOD**

**5.537A** In Bhutan, Indonesia, Iran (Islamic Republic of), Japan, Maldives, Mongolia, Myanmar, Pakistan, the Dem. People’s Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.5-28.35 GHz may also be used by high altitude platform stations (HAPS). The use of HAPS within the band 27.5-28.35 GHz by HAPS is limited within the territory of each Administration to a single 300 MHz sub-band. Such use of 300 MHz of the fixed service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. See Resolution **HAPS 28-31 (WRC-03)**. (WRC-2003<sup>40</sup>)

**Reasons:** The identification of 300 MHz of spectrum within the band 27.5-28.35 GHz, along with the 300 MHz at 31-31.3 GHz, is intended to be an alternative for the 2x300 MHz that is problematic in the specified countries due to excessive rain attenuation at 47 GHz. This proposal implements that intent by limiting use of HAPS in the named Administrations to 300 MHz within the identified 850 MHz frequency range identified at WRC-2000. The second 300 MHz band is found at 31-31.3 GHz (see proposal **USA/ /2** below). This proposal also incorporates the provisions of new Resolution **HAPS 28-31 (WRC-03)** into the Radio Regulations.

USA/ 12      MOD

**5.543A** In Bhutan, Indonesia, Iran (Islamic Republic of), Japan, Maldives, Mongolia, Myanmar, Pakistan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31-31.3 GHz may also be used by high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31-31.3 GHz by systems using HAPS shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services, taking into account No. **5.545**. The use of HAPS in the band 31-31.3 GHz shall not cause harmful interference to the passive services having a primary allocation in the band 31.3-31.8 GHz, taking into account the ~~interference criteria~~ emission limits given in Recommendations ITU-R F.[1570], SA.1029 and ITU-R RA.769. ~~The administrations of the countries listed above are urged to limit the deployment of HAPS in the band 31-31.3 GHz to the lower half of this band (31-31.15 GHz) until WRC-03.~~ See Resolution **HAPS 28-31 (WRC-03)**. (WRC-2003a)

**Reasons:** ITU-R studies conducted to date have demonstrated that certain HAPS system designs, operating with certain constraints, could operate on a non-interference basis and appropriately protect other systems and services. In addition, these studies have shown that HAPS can operate without the need for claiming protection. Given that HAPS applications in the FS and the adjacent services are of different status and operate in different bands, the results of studies should remain within the ITU-R and not result in specific limits within No. **5.543A**. There is, however, a need to modify No. **5.543A** to incorporate new Resolution **HAPS 28-31 (WRC-03)** into the Radio Regulations. ITU-R has agreed to the required protection levels for passive services in the referenced Recommendation.

USA/ 13      SUP

RESOLUTION 122 (Rev.WRC-2000)

**Use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz by high altitude platform stations (HAPS) in the fixed service and by other services and the potential use of bands in the range 18-32 GHz by HAPS in the fixed service**

**Reasons:** Studies called for in relation to HAPS at 47 GHz have been completed. The Resolution **122** application of the provisions of Article 9 is proposed for incorporation into the Radio Regulations (see USA/ 15 below). All Resolution **122** issues relating to HAPS operation in the 18-32 GHz range would be addressed in a new WRC Resolution (see USA/ 17 below).

USA/ 14      MOD

**5.552A** The allocation to the fixed service in the bands 47.2-47.5 GHz and 47.9-48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2-47.5 GHz and 47.9-48.2 GHz by high altitude platforms in the fixed service is subject to the provisions of Nos. **9.15**, and **9.16**, and **9.22** of the Radio Regulations. ~~Resolution **122 (WRC-97)**.~~ See Resolution **HAPS 28-31 (WRC-03)**.

**Reasons:** Consequential to the ~~SUP~~suppression of Resolution 122. While studies have been completed, HAPS systems still need to be subject to the provisions of Article 9 to ensure coordination with the FSS at 47 GHz. The reference to Resolution HAPS 28-31 reflects the intent of WRC-2000 that the identification of 2 x 300 MHz of FS spectrum at 27.5-28.35 GHz and 31-31.3 GHz in certain countries is intended as an alternative for the HAPS designation at 47 GHz which is problematic in those countries due to excessive rain attenuation. Nos. 9.15 and 9.16, which apply to coordinations regarding non-GSO FSS earth stations and terrestrial stations (including HAPS) need to be called out specifically in Article 5 in order to be applicable. Nos. 9.17 and 9.18, which apply to the same cases for all but non-GSO FSS earth stations, are currently applicable without having to be called out in the Radio Regulations. No. 9.22 is a new provision (see USA/ 15 below) that is intended to address the previously unaddressed coordination case of HAPS ground-based stations appearing in the coverage area of a satellite network.

USA/ 15      **MOD**

**9.22**      ~~Not used. g)~~ for a transmitting station which is part of a high altitude platform station network in a terrestrial service, for which the requirement to coordinate is included in a footnote to the Table of Frequency Allocations referring to this provision, in respect of a satellite network or system having overlapping service areas with the high altitude platform station network and for which the coordination or notification information, as appropriate, for the satellite network or system was received by the Bureau prior to the date on which notice relating to assignments of the HAPS network was received by the Bureau.

**Reasons:** Addresses a coordination scenario (for HAPS terrestrial stations appearing in the coverage area of a satellite network) that is not currently addressed.

USA/ 16      **MOD**

<sup>9</sup>      **9.5B.1** The only terrestrial stations to be taken into account are those for which the requirement to coordinate is under Nos. 9.11, 9.11A, ~~and 9.21, and 9.22.~~

**Reasons:** Consequential to the addition of No. 9.22 (see USA/ 15 above).

USA/ 17      **ADD**

## RESOLUTION HAPS 28-31 (WRC-03)

### **Potential use of 300 MHz of spectrum within the band 27.5-28.35 GHz and 300 MHz of spectrum at 31.0-31.3 GHz by high altitude platform stations (HAPS) in the fixed service**

The World Radiocommunication Conference (Geneva, 2003),

*considering*

a) that WRC-97 made provision for operation of HAPS, also known as stratospheric repeaters, within a 2x300 MHz portion of the fixed service allocation in the bands 47.2-47.5 GHz and 47.9-48.2 GHz;

- b) that WRC-97 adopted No. **4.15A** specifying that transmissions to or from high altitude platform stations shall be limited to bands specifically identified in Article **5**;
- c) that at WRC-2000, several countries in Region 3 and one country in Region 1 expressed a need for an alternative band pairing for HAPS in a lower frequency range due to the excessive rain attenuation that occurs at 47 GHz in these countries;
- d) that, in order to accommodate the need expressed by the countries referred to in *considering c)*, WRC-03 adopted Nos. **5.537A** and **5.543A** to permit the use of HAPS in the fixed service within 300 MHz of spectrum in the band 27.5-28.35 GHz and/or in the band 31.0-31.3 GHz in certain Region 3 countries and in one Region 1 country on a non-interference, non-protection basis;
- e) that the bands 27.5-28.35 GHz and 31.0-31.3 GHz are already heavily used or planned to be used by a number of different services and a number of other types of applications in the fixed service;
- f) that the 31.3-31.8 GHz band is allocated to the radio astronomy, Earth exploration-satellite (passive) and space research (passive) services, and the 31.8-32.3 GHz band is allocated to the space research (deep space) service, and that there is a need to appropriately protect these services from unwanted emissions, taking into account No. **5.340** and the interference criteria given in Recommendations ITU-R SA.1029 and ITU-R RA.769,
- g) that technical, sharing and regulatory issues should continue to be studied in order to determine appropriate criteria for the operation of HAPS on a non-interference, non-protection basis in or within the bands referred to in *considering d)* above;
- h) that pending the completion of studies, it may be appropriate for other administrations that wish to consider deployment of HAPS systems in the fixed service within 300 MHz of spectrum at 27.5-28.35 GHz and/or in 300 MHz of spectrum at 31-31.3 GHz to have some provisional means by which to authorize such use of HAPS in their territories without being in derogation of the Radio Regulations,

*resolves*

1 to invite WRC-06~~7~~ to review the results of the studies specified below with a view to considering appropriate revisions of the regulations affecting high altitude platform systems, within 300 MHz of spectrum within the bands 27.5-28.35 GHz and/or 300 MHz of spectrum at 31.0-31.3 GHz;

2 notwithstanding No. **4.15A**, in countries not identified in Nos. **5.537A** and **5.543A**, the use of HAPS within the fixed service allocations within the 27.5-28.35 GHz and 31-31.3 GHz bands shall be limited, pending the completion of the studies specified in *requests ITU-R 1* below, to 300 MHz in each band; such use shall not cause harmful interference to, nor claim protection from, other stations of services operating in accordance with the Table of Frequency Allocations of Article **5**; and further, the development of these other services shall proceed unencumbered by HAPS operating pursuant to this Resolution;

3 that any use by HAPS of the fixed service allocation at 27.5-28.35 GHz pursuant to *resolves 2* above shall be limited to operation in the HAPS-to-ground direction, and that any use by HAPS of the

fixed service allocation at 31-31.3 GHz pursuant to *resolves 2* above shall be limited to operation in the ground-to-HAPS direction,

*requests ITU-R*

1 to continue to conduct studies, as a matter of urgency, and taking into account the requirements of other fixed-service systems and other services, on the feasibility of identifying a suitable and common 300 MHz segment of the band 27.5-28.35 GHz, in addition to the 300 MHz band at 31-31.3 GHz, as an alternative to the 2x300 MHz paired band at 47 GHz, for the use by HAPS in the countries listed in Nos. **5.537A** and **5.543A**;

2 to develop in an ITU-R Recommendation(s) technical sharing criteria or HAPS system design constraints that are necessary to ensure that HAPS applications in the fixed service are able to be operated successfully on a non-interference, non-~~protection~~-protected basis.

*invites*

Administrations planning to implement HAPS systems within the band 27.5-28.35 GHz and/or in the band 31.0-31.3 GHz, whether in countries listed in Nos. **5.537A** and **5.543A** or not, to advise the Radiocommunication Bureau as soon as practicable of their intention to do so and of what specific frequencies (up to 300 MHz each within the 27.5-28.35 GHz and 31-31.3 GHz bands) are intended to be used for such systems;

*requests the Radiocommunication Bureau*

to publish within 90 days after the end of WRC-03 a list of administrations who have so advised, and thereafter to publish within 90 days updates containing the names of administrations who advise subsequently.

**Reasons:** ITU-R studies conducted to date have demonstrated that certain HAPS system designs, operating with certain constraints, could operate on a non-interference basis in the bands identified by WRC-2000 and appropriately protect other systems and services. Appropriate interference allowances would have to be developed and agreed within the ITU-R for such cases. In addition, these studies have shown that HAPS can operate without the need for claiming protection. The technical details and constraints of such systems would need to be incorporated in ITU-R Recommendations(s) to ensure that other systems and services are protected. Pending completion of the studies, it would be acceptable to allow additional provisional operation of HAPS on a non-interference, non-protected basis in 300 MHz of the 27.5-28.35 GHz band and/or in the 31-31.3 GHz band. Finally, a specific 300 MHz portion of the 27.5-28.35 GHz band needs to be identified for pairing with 31.0-31.3 GHz.

## DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

### Doc. WAC/170(08.01.03)

**Agenda Item 1.20:** to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz, in accordance with Resolution **214 (Rev.WRC-2000)**;

**Background Information:** A total of 1.525 MHz (space-to-Earth) and 1.9 MHz (Earth-to-space) are presently allocated on a worldwide primary basis to the mobile satellite service (MSS) below 1 GHz and 300 kHz (Earth-to-space) is allocated for land MSS on a worldwide primary basis. An additional 151.5 MHz may be used subject to the agreement obtained under No. **9.21**. In addition, 2 MHz (Earth-to-space) in Region 2 is allocated to the MSS below 1 GHz. Some individual countries have additional allocations (Earth-to-space) for the MSS below 1 GHz, appearing in footnotes. These allocations are for both the MSS service links and feeder links.

During WRC-03 preparation, no evidence of spectrum congestion of MSS service links below 1 GHz was provided to the ITU-R. The 7-10 MHz requirement identified in the CPM-95 Report assumed six million users of the little LEO service by the year 2000. In actuality, the service did not have 100,000 users in 2002. That report has been overtaken by events and it should not be relied-upon.

Finally, the study done for CPM-95 indicated 500,000 users could be served in one MHz of spectrum. In a study for CPM-97, it was assumed that 3.2 million users could be served in the same one MHz. With 1.9 MHz of uplink spectrum, this means that 6.08 million users could be supported in the current allocations. The downlink calculation is 6.1 million users per MHz with 1.525 MHz of allocated spectrum can support 9.3 million customers.

Regarding Resolution **214**, requirements studies to show current need have not been done. Resolves 2 of Resolution **214** states, "that WRC-03 be invited to consider, on the basis of the results of the studies conducted within ITU-R and the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO MSS below 1 GHz." There are no studies for additional allocations for WRC-03 to consider. Retaining the Resolution is not warranted given the status of the LEO below 1 GHz market.

#### **Proposal:**

USA/ /1      NOC

### Article 5

#### **Frequency Allocations**

**Reasons:** Given the demonstrated slow growth of subscribers of MSS below 1 GHz, the future growth of traffic could be accommodated in the existing frequency bands without a requirement for an additional allocation.

USA/ 12 SUP

RESOLUTION 214 (WRC-2000)

**Reasons:** Requirements studies to show the existing or future need exceeds the current allocations have not been done and with no new allocations needed, the Resolution should be suppressed.

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## DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

**Doc. WAC/171(08.01.03)**

*(This contains formatting and editorial changes proposed by NTIA to draft proposals from Informal Working Group 1 that appeared in Public Notices DA 02-2361, Released September 24, 2002 and DA 02-3071, Released November 8, 2002.)*

**Agenda Item 1.22:** to consider progress of ITU-R studies concerning future development of IMT-2000 and systems beyond IMT-2000, in accordance with Resolution **228 (WRC-2000)**;

**Background Information:** WRC-2000 considered issues related to IMT-2000, resulting in the identification of additional spectrum for the terrestrial component of IMT-2000 in the Radio Regulations **5.317A** and **5.384A**. This spectrum was identified in addition to that initially identified for IMT-2000 at WARC-92 in footnote **5.388**. WRC-2000 also identified existing global MSS allocations as being available for use by the satellite component of IMT-2000, in accordance with Resolution **225**.

Resolution **228 (WRC-2000)**, which is related to agenda item 1.22, invites ITU-R to continue studies on overall objectives, applications and technical and operational implementation for the future development of IMT-2000 and systems beyond. ITU-R Working Party 8F has developed a Draft New Recommendation on the vision, framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000 [DNR-VIS], which is expected to be approved at the ITU-R Study Group 8 meeting in February 2003. Studies will continue to be carried out in WP 8F, and are scheduled to be completed before WRC-07. The results of these studies will indicate which requirements should be reviewed by WRC-07.

**Proposal:**

USA/ /1      **NOC**

### Article 5

### **Frequency Allocations**

**Reason:** ITU-R has not completed the studies on spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT-2000.

RESOLUTION 228 (Rev. WRC-2000)

**Studies to consider requirements and frequency matters related to for the future development of IMT-2000 and systems beyond IMT-2000 as defined by ITU-R**

The World Radiocommunication Conference (~~Istanbul, 2000~~)(Geneva, 2003),

*considering*

- a) that International Mobile Telecommunications-2000 (IMT-2000) systems have started operation in some countries in is scheduled to start service around the year 2000, subject to market and other considerations;
- b) ~~that Question ITU-R 229/8 addresses the future development of IMT-2000 and systems beyond IMT-2000;~~
- e/b) that the technical characteristics of IMT-2000 are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457 which contains the detailed specifications of the radio interfaces of IMT-2000;
- c) that Question ITU-R 229/8 addresses the future development of IMT-2000 and systems beyond IMT-2000;
- d) that the ITU-R has adopted [Draft New] Recommendation ITU-R M.[DNR-VIS], which addresses the vision, framework, and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000;
- e) that [Draft New] Recommendation ITU-R M.[DNR-VIS] has identified the new elements of systems beyond IMT-2000 that are to be developed, and has stated that such systems will closely inter-work with the currently operating IMT-2000 and with future developments of IMT-2000;
- f) that the technical characteristics of systems beyond IMT-2000 have not been specified in an ITU-R Recommendation, but remain under study within the ITU-R;
- g) that it was eight years ahead of the IMT-2000 initial deployment that WARC-92 identified the spectrum for IMT-2000 in No. 5.388 and under the provisions of Resolution 212 (WARC-92);
- a/h) that telecommunication and information technologies evolve rapidly;

~~e)l)~~ that, as it is with many other service and systems, adequate spectrum availability is a prerequisite for the technological and economic success of the future development of IMT-2000 and systems beyond IMT-2000;

~~f)l)~~ that the demand for the provision of multimedia applications such as high-speed data, IP-packet and video by mobile communication systems will continue to increase;

~~g)k)~~ that the future development of IMT-2000 and systems beyond IMT-2000 is foreseen to address the need for higher data rates than those of currently deployed ~~planned for~~ IMT-2000 systems;

~~h)l)~~ that, for global operation and economy of scale, it is desirable to agree on common technical, operational and spectrum-related parameters of systems;;

~~i)m)~~ that it is therefore timely to study technical, spectrum and regulatory issues pertinent to the future development of IMT-2000 and systems beyond IMT-2000;;

n) that Question ITU-R 77-4/8 addresses adaptation of mobile radiocommunications technology to the needs of developing countries, including the optimum arrangements and technical characteristics needed to use mobile technology/equipment in urban, rural or remote areas;

o) that all existing services, some of which are also evolving to permit the use of higher data rates and throughput within their allocations in order to meet increasing user demands and requirements, should be taken into account in any studies evaluating potential spectrum for systems beyond IMT-2000.

*noting*

a) that the IMT-2000 radio interfaces as defined in Recommendation ITU-R M.1457 are expected to evolve within the framework of the ITU-R beyond those initially specified, to provide enhanced services and services beyond those envisaged in the initial implementation;

b) that the use of the spectrum identified for IMT-2000 does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations.

*recognizing*

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

b) that service functionalities in fixed and mobile networks are increasingly converging;

c) that future mobile systems will ~~require the adoption of~~ employ more spectrum-efficient techniques than those used by current mobile systems;

d) the needs of developing countries for the cost-effective implementation of advanced mobile communication technologies and the propagation characteristics of lower frequency bands that result in larger cell sizes;

e) that the review of IMT-2000 spectrum requirements at WRC-2000 concentrated on the bands below 3 GHz and that these bands remain technically desirable for both IMT-2000 and systems beyond IMT-2000;

f) that, to the extent that they may not be the same, it would be preferable for the location in the radiofrequency spectrum of bands that support systems beyond IMT-2000 to be reasonably close to the location of bands already identified for IMT-2000 and predecessor services,

g) that many countries have not yet made available spectrum already identified for IMT-2000, due to various reasons, including the use of these bands by existing services;

h) that studies may show that the identification of certain bands for use by the future development of IMT-2000 and systems beyond IMT-2000 may be precluded by the use of these bands by existing services,

*resolves*

1 to invite ITU-R to further study, and develop Recommendations on, continue studies on overall objectives, applications and technical and operational issues relating to implementation, as necessary, for the future development of IMT-2000 and systems beyond IMT-2000;

2 to invite ITU-R to complete studies, in time for WRC-[07], on study the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT-2000, taking into consideration the bands currently identified for IMT-2000 and the evolution of IMT-2000 and pre-IMT-2000 systems therein through advances in technology and in what time frame such spectrum would be needed;

3 that, taking into account the recognizing above, the studies in resolves 1 and 2:

a) examine the compatibility of the future development of IMT-2000 and systems beyond IMT-2000 with existing services, including their future development;

b) indicate the extent to which the existing services and their future development would be affected and how they can be protected from interference from the future development of IMT-2000 and systems beyond IMT-2000,

34 that WRC-[07] consider, as a matter of urgency, the results of ITU-R studies and review the requirements and frequency related matters related to for the future development of IMT-2000 and systems beyond IMT-2000, be reviewed by WRC-05/06, taking into consideration the results of ITU-R studies presented to WRC-03 in accordance with this Resolution;

5. that the studies contemplated in resolves 1-3 above take into consideration the needs of developing countries.

*urges administrations*

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

**Reasons:** Appropriately modify Resolution **228 (WRC-2000)** for further studies to consider detailed requirements and ensure that the interests of existing services are taken into consideration in these studies, and to enable WRC-07 to review these requirements. The United States is still considering what action should be taken concerning this issue as related to agenda item 7.2.

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## DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

### Doc. WAC/168(08.01.03)

*(This is an NTIA revision of a draft proposal from Informal Working Group 6 that appeared in Public Notice DA 02-1779, Released July 25, 2002.)*

**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;

**Background Information:** Since prior to HFBC WARC-84 it was recognized that there was inadequate spectrum worldwide for the Broadcasting Service, and especially in the band 4-10 MHz. Broadcasting service proposals submitted to WARC-92 identified the need for 700 kHz of additional spectrum below 10 MHz. However, WARC-92 only allocated 200 kHz, specifically,

5900-5950 kHz	=	50 kHz
7300-7350 kHz	=	50 kHz
<u>9400-9500 kHz</u>	=	<u>100 kHz</u>
Total	=	200 kHz

In addition, RR **5.134** limits these frequencies to single sideband (SSB) emissions or any other spectrum efficient methods recommended by ITU-R. RR **5.136** allocates these bands to other services until 1 April 2007. Resolution **537(WRC-97)** called for a survey of HF broadcasting transmitters and receivers with emphasis on the worldwide distribution of SSB transmitters and receivers. ITU-R completed this survey in 1999 and submitted its report at WRC-2000, concluding that the limited availability of SSB transmitters and receivers did not justify the mandated conversion from double sideband (DSB) to SSB.

ITU-R Working Party 6E, in drafting the CPM text for agenda item 1.36, provided further evidence that there is a serious shortage of spectrum available to the HF Broadcasters. The CPM text shows the need for some 800 kHz of additional spectrum to eliminate the current situation of co-channel and adjacent channel collisions now taking place worldwide in the 6, 7, and 9 MHz broadcasting bands. This is based on actual data for the year 2000, collected at the regional high frequency coordinating conferences (introduced by WRC-97 as part of Article **12**).

Additionally, there is the data from the FCC-licensed broadcasters. These HF Broadcasters are currently using, on a non-interference basis, some 80 frequency hours in the WARC-92 bands and another 350-plus hours of "Out of Band" use elsewhere in the spectrum not allocated to the broadcasting service. Figures on a worldwide basis may be deduced from the seasonal schedules required by Article **12**, and administered by the High Frequency Co-ordination Conference (HFCC).

The results of the previously referred to studies on HF Broadcasting spectrum requirements confirm that the following proposed additional spectrum below 10 MHz would reduce considerably the present spectrum deficiencies for this service:

4500-4650 kHz	=	150 kHz
5060-5250 kHz	=	90 kHz

5840-5900 kHz = 60 kHz (\*)  
 7350-7650 kHz = 300 kHz (\*)(\*\*)  
 9290-9400 kHz = 110 kHz (\*)  
 9900-9940 kHz = 40 kHz (\*)

**850 kHz**

\* Band adjacent to the HF broadcasting bands governed by Article 12.

\*\* Band location may need to be revised in light of actions decided with respect to WRC-03 agenda item 1.23.

**Requirements of Other Services in the 4 to 10 MHz Bands**

All of these bands identified by ITU-R Working Party 6E to accommodate new broadcasting allocations are currently allocated to the fixed and/or mobile services and are extensively used. Sharing between the fixed, mobile and broadcasting services is not practical. Therefore, no additional allocations can be made to broadcasting service in the 4 to 10 MHz bands.

**Proposal:**

USA/ /1 NOC

**4 438-9 400 kHz**

Allocation to services		
Region 1	Region 2	Region 3
<b>4 438-4 650</b> FIXED MOBILE except aeronautical mobile (R)		<b>4 438-4 650</b> FIXED MOBILE except aeronautical mobile
<b>4 650-4 700</b>	AERONAUTICAL MOBILE (R)	
<b>4 700-4 750</b>	AERONAUTICAL MOBILE (OR)	
<b>4 750-4 850</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	<b>4 750-4 850</b> FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	<b>4 750-4 850</b> FIXED BROADCASTING 5.113 Land mobile
<b>4 850-4 995</b>	FIXED LAND MOBILE BROADCASTING 5.113	
<b>4 995-5 003</b>	STANDARD FREQUENCY AND TIME SIGNAL (5 000 kHz)	
<b>5 003-5 005</b>	STANDARD FREQUENCY AND TIME SIGNAL Space research	
<b>5 005-5 060</b>	FIXED BROADCASTING 5.113	
<b>5 060-5 250</b>	FIXED Mobile except aeronautical mobile <b>5.133</b>	

<b>5 250-5 450</b>	FIXED MOBILE except aeronautical mobile	
<b>5 450-5 480</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	<b>5 450-5 480</b> AERONAUTICAL MOBILE (R)	<b>5 450-5 480</b> FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE
<b>5 480-5 680</b>	AERONAUTICAL MOBILE (R) 5.111 5.115	
<b>5 680-5 730</b>	AERONAUTICAL MOBILE (OR) 5.111 5.115	
<b>5 730-5 900</b> FIXED LAND MOBILE	<b>5 730-5 900</b> FIXED MOBILE except aeronautical mobile (R)	<b>5 730-5 900</b> FIXED Mobile except aeronautical mobile (R)
<b>5 900-5 950</b>	BROADCASTING 5.134 5.136	
<b>5 950-6 200</b>	BROADCASTING	
<b>6 200-6 525</b>	MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137	
<b>6 525-6 685</b>	AERONAUTICAL MOBILE (R)	
<b>6 685-6 765</b>	AERONAUTICAL MOBILE (OR)	
<b>6 765-7 000</b>	FIXED Land mobile 5.139 5.138	
<b>7 000-7 100</b>	AMATEUR AMATEUR-SATELLITE 5.140 5.141	
<b>7 100-7 300</b> BROADCASTING	<b>7 100-7 300</b> AMATEUR 5.142	<b>7 100-7 300</b> BROADCASTING
<b>7 300-7 350</b>	BROADCASTING 5.134 5.143	
<b>7 350-8 100</b>	FIXED Land mobile 5.144	
<b>8 100-8 195</b>	FIXED MARITIME MOBILE	
<b>8 195-8 815</b>	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	
<b>8 815-8 965</b>	AERONAUTICAL MOBILE (R)	
<b>8 965-9 040</b>	AERONAUTICAL MOBILE (OR)	
<b>9 040-9 400</b>	FIXED	

**Reasons:** The requirements of existing services preclude the allocation of additional spectrum to the broadcasting service.

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