

Mr. Donald Abelson  
Chief of the International Bureau  
Federal Communications Commission  
445 12th Street SW  
Washington, D.C. 20554

Dear Mr. Abelson:

The National Telecommunications and Information Administration (NTIA), on behalf of the Executive Branch Agencies, have approved the release of an additional draft Executive Branch proposal for WRC-07. This proposal considers the federal agency inputs toward the development of U.S. Proposals for WRC-07.

The enclosed document contains a draft proposal that addresses agenda item 1.12, Appendix 4. Active and Passive Sensors. This proposal is forwarded for your consideration and review by your WRC-07 Advisory Committee. Jim Vorhies of my staff is the primary contact for NTIA.

Sincerely,

(Original signed by Karl Nebbia February 17, 2006)  
Fredrick R. Wentland  
Associate Administrator  
Office of Spectrum Management

Enclosure

**United States of America**  
**DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE**

**Agenda Item 1.12:** to consider possible changes in response to Resolution **86** (Rev. Marrakesh, 2002) of the Plenipotentiary Conference: “Advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks” in accordance with Resolution **86 (WRC-03)**;

**Background information:** In response to a request by the scientific and research community responsible for operation of active and passive sensors on satellites (as defined in Nos. **1.182** and **1.183**), and in coordination with that community, a set of technical data relating to these sensors was established for use by all administrations for registration purposes. The Director of the Radiocommunication Bureau (BR) published Circular Letter CR/137 of 14 February 2000, which requests administrations, when submitting advance publication information to the Bureau on planned Earth exploration-satellite service (EESS)/space research service (SRS) satellite networks in which active and/or passive sensors are to be deployed, to kindly also submit specific information as attached to that Circular Letter.

Following CR/137, the Director of the BR in his Report to the World Radiocommunication Conference 2003 (WRC-03)\* indicated that there were additional data requirements for the EESS/SRS contained in CR/137 and suggested that the conference might wish to consider reviewing Appendix 4 to include the additional information. However, no proposals were submitted to the conference.

Currently, the additional information submitted to BR in accordance with Circular Letter CR/137 is being scanned and published in the International Frequency Information Circular (IFIC) (Space services) as an attachment to the Special Section related to the relevant advanced publication (API) only. It is not reproduced in the IFIC at the time of notification. The scanned documents are being published once on IFIC CD-ROM. These data are neither stored in the Space Network System (SNS) database nor published on Space Radiocommunication Station on CD-ROM.† Therefore, the information concerning EESS and SRS satellite networks where active and passive sensor systems are to be deployed is not easily available after publication of the API on the relevant IFIC. This information is useful in analyzing the compatibility of these sensors with systems operating in other services and facilitates their advance publication, notification and the subsequent entry in the Master International Frequency Register (MIFR).

To address the need, the data elements contained in Appendix 4 were reviewed to determine which existing elements should be required to best facilitate the advance publication and notification of active and passive sensors on satellites. Based on the review, the addition of two new columns to account for the advance publication and notification of active and passive sensors are proposed. The inclusion of the new columns would consequentially require modifications to the BR software and revisions to the Preface to the IFIC, *inter alia*, the inclusion of new station classes.

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\* See Document 4 (Add.3) at: [http://www.itu.int/md/choice\\_md.asp?id=R03-WRC03-C-0004!A3!MSW-E&lang=e&type=sitems](http://www.itu.int/md/choice_md.asp?id=R03-WRC03-C-0004!A3!MSW-E&lang=e&type=sitems)

† SRS-on-CD – see at: <http://www.itu.int/ITU-R/software/srscdrom/index.html>

Proposal

USA/ /01

MOD

## APPENDIX 4

**Table of characteristics to be submitted for space and radio astronomy services (WRC-03)**

Items in Appendix	<p align="center"><b>A – GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION</b></p>	<p><b>Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a non-geostationary satellite network</b></p> <p><b>Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a geostationary satellite network</b></p>	
A.1	<b>IDENTITY OF THE SATELLITE NETWORK, EARTH STATION OR RADIOASTRONOMY STATION</b>		
A.1.a	the identity of the satellite network	<b>X</b>	<b>X</b>
A.1.f.1	the symbol of the notifying administration (see the Preface)	<b>X</b>	<b>X</b>
A.1.f.2	if the notice is submitted on behalf of a group of administrations, the symbols of each of the administrations in the group, submitting the information on the satellite network (see the Preface)	<b>+</b>	<b>+</b>
A.1.f.3	if the notice is submitted on behalf of an intergovernmental satellite organization, the symbol of that organization (see the Preface)	<b>+</b>	<b>+</b>
A.2	<b>DATE OF BRINGING INTO USE</b>		

A.2.a	<p>the date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use</p> <p>The date of bringing into use denotes the date at which the frequency assignment is brought into regular operation* to provide the published radiocommunication service with the technical parameters within the technical characteristics notified to the Bureau</p> <p>Whenever the assignment is changed in any of its basic characteristics (except in the case of a change under A.1.a, the date to be given shall be that of the latest change (actual or foreseen, as appropriate)</p> <p>* Pending further studies by ITU-R on the applicability of the term "regular operation" to non-geostationary satellite networks, the condition of regular operation shall be limited to geostationary satellite networks</p>	<u>X</u>	<u>X</u>
A.2.b	for a space station, the period of validity of the frequency assignments (see Resolution 4 (Rev. WRC-03))	<u>X</u>	<u>X</u>
<b>A.3</b>	<b>OPERATING ADMINISTRATION OR AGENCY</b>		
A.3.a	<p>the symbol for the operating administration or agency (see the Preface) that is in operational control of the space station, earth station or radio astronomy station</p> <p>In the case of Appendix 30B, required only for notification under Article 8</p>	<u>X</u>	<u>X</u>
A.3.b	<p>the symbol for the address of the administration (see the Preface) to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the network or station (see Article 15)</p> <p>In the case of Appendix 30B, required only for notification under Article 8</p>	<u>X</u>	<u>X</u>
<b>A.4</b>	<b>ORBITAL INFORMATION</b>		
A.4.a.1	the nominal geographical longitude on the geostationary-satellite orbit (GSO)		<u>X</u>
A.4.a.2.a	the planned longitudinal tolerance easterly limit		<u>X</u>
A.4.a.2.b	the planned longitudinal tolerance westerly limit		<u>X</u>
A.4.a.2.c	the planned inclination excursion		<u>X</u>
A.4.b.1	the number of orbital planes	<u>X</u>	
A.4.b.2	the reference body code	<u>X</u>	
A.4.b.4.a	the angle of inclination ( $i_j$ ) of the orbital plane with respect to the Earth's equatorial plane ( $0^\circ \leq i_j < 180^\circ$ )	<u>X</u>	
A.4.b.4.b	the number of satellites in the orbital plane	<u>X</u>	
A.4.b.4.c	the period	<u>X</u>	
A.4.b.4.d	the altitude, in kilometres, of the apogee of the space station	<u>X</u>	
A.4.b.4.e	the altitude, in kilometres, of the perigee of the space station	<u>X</u>	

A.5	<b>COORDINATIONS</b>		
A.6	<b>AGREEMENTS</b>		
A.7	<b>SPECIFIC EARTH STATION OR RADIO ASTRONOMY STATION SITE CHARACTERISTICS</b>		
A.8	Not used		
A.9	Not used		
A.10	<b>EARTH STATION COORDINATION AREA DIAGRAMS</b>		
A.11	<b>REGULAR HOURS OF OPERATION</b>		
A.12	<b>RANGE OF AUTOMATIC GAIN CONTROL, in dB</b>		
A.13	<b>REFERENCES TO THE PUBLISHED SPECIAL SECTIONS OF THE BUREAU'S INTERNATIONAL FREQUENCY INFORMATION CIRCULAR (see the Preface)</b>		
A.13.a	the reference and number of the advance publication information in accordance with No. 9.1	<u>X</u> <sup>3</sup>	<u>X</u> <sup>3</sup>
A.14	<b>FOR STATIONS OPERATING IN A FREQUENCY BAND SUBJECT TO Nos. 22.5C, 22.5D OR 22.5F: SPECTRUM MASKS</b>		
A.15	<b>COMMITMENT REGARDING COMPLIANCE WITH ADDITIONAL OPERATIONAL EQUIVALENT POWER FLUX DENSITY, <math>epfd_{\downarrow}</math>, LIMITS</b>		
A.16	<b>COMMITMENT REGARDING COMPLIANCE WITH OFF-AXIS POWER LIMITATIONS OR POWER FLUX-DENSITY, <math>pdf</math>, LIMITS</b>		
A.17	<b>COMPLIANCE WITH POWER FLUX-DENSITY, <math>pdf</math>, LIMITS</b>		
A.17.d	the mean power flux-density produced at the Earth's surface by any spaceborne sensor, as defined in No. 5.549A  Required only for satellite systems operating in the Earth exploration-satellite service (active) or space research service (active) in the band 35.5-36 GHz	+	+
Items in Appendix	<b>B – CHARACTERISTICS TO BE PROVIDED FOR EACH SATELLITE ANTENNA BEAM OR EACH EARTH STATION OR RADIO ASTRONOMY ANTENNA</b>	Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a non-geostationary satellite network	Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a geostationary satellite network

<b>B.1</b>	<b>IDENTIFICATION AND DIRECTION OF THE SATELLITE ANTENNA BEAM</b>		
B.1.a	the designation of the satellite antenna beam For an earth station, the designation of the satellite antenna beam of the associated space station	<u>X</u>	<u>X</u>
B.1.b	an indicator showing whether the antenna beam, under B.1.a, is fixed or whether it is steerable and / or reconfigurable	<u>X</u>	<u>X</u>
<b>B.2</b>	<b>TRANSMISSION / RECEPTION INDICATOR FOR THE BEAM OF THE SPACE STATION OR THE ASSOCIATED SPACE STATION</b>		
<b>B.3</b>	<b>SPACE STATION ANTENNA CHARACTERISTICS</b>		
B.3.a.1	the maximum co-polar isotropic gain, in dBi Where a steerable beam (see No. 1.191) is used, if the effective boresight area (see No. 1.175) is identical with the global service area, the maximum antenna gain, in dBi, is applicable to all points on the Earth's visible surface	<u>X</u>	<u>X</u>
B.3.c.1	the co-polar antenna radiation pattern, in the case of: – non-geostationary space stations – geostationary or non-geostationary space stations where the antenna radiation beam is directed towards another satellite – elliptical antenna beams for Appendix 30, 30A or 30B	<u>X</u>	<u>X</u>
<b>B.4</b>	<b>ADDITIONAL CHARACTERISTICS FOR NON-GEOSTATIONARY SPACE STATION ANTENNA</b>		
B.4.b.1.a	the orientation angle alpha, in degrees, (see most recent version of Recommendation ITU-R SM.1413)	<u>X</u>	<u>X</u>
B.4.b.1.b	the orientation angle beta, in degrees, (see most recent version of Recommendation ITU-R SM.1413)	<u>X</u>	<u>X</u>
Items in Appendix	<b>C – CHARACTERISTICS TO BE PROVIDED FOR EACH GROUP OF FREQUENCY ASSIGNMENTS FOR A SATELLITE ANTENNA BEAM OR AN EARTH STATION OR RADIO ASTRONOMY ANTENNA</b>	Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a non-geostationary satellite network	Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a geostationary satellite network

<b>C.1</b>	<b>FREQUENCY RANGE</b>		
<b>C.2</b>	<b>ASSIGNED FREQUENCY (FREQUENCIES)</b>		
C.2.a.1	the assigned frequency (frequencies), as defined in No. <b>1.148</b> - in kHz up to 28 000 kHz inclusive - in MHz above 28 000 kHz to 10 500 MHz inclusive - in GHz above 10 500 MHz If the basic characteristics are identical, with the exception of the assigned frequency, a list of frequency assignments may be provided In the case of Appendix <b>30B</b> , required only for notification under Article 8	<u>X</u> <sup>4</sup>	<u>X</u> <sup>4</sup>
C.2.b	the centre of the frequency band observed - in kHz up to 28 000 kHz inclusive - in MHz above 28 000 kHz to 10 500 MHz inclusive - in GHz above 10 500 MHz	<u>X</u> <sup>5</sup>	<u>X</u> <sup>5</sup>
C.2.c	if the frequency assignment is to be filed under No. <b>4.4</b> , an indication to that effect	<u>±</u>	<u>±</u>
<b>C.3</b>	<b>ASSIGNED FREQUENCY BAND</b>		
C.3.a	the bandwidth of the assigned frequency band, in kHz (see No. <b>1.147</b> ) In the case of Appendix <b>30B</b> , required only for notification under Article 8	<u>X</u> <sup>4</sup>	<u>X</u> <sup>4</sup>
C.3.b	the bandwidth of the frequency band, in kHz, observed by the station	<u>X</u> <sup>5</sup>	<u>X</u> <sup>5</sup>
<b>C.4</b>	<b>CLASS OF STATION AND NATURE OF SERVICE</b>		
C.4.a	the class of station, using the symbols from the Preface	<u>X</u>	<u>X</u>
C.4.b	the nature of service performed, using the symbols from the Preface	<u>X</u>	<u>X</u>
<b>C.5</b>	<b>RECEIVING SYSTEM NOISE TEMPERATURE</b>		
<b>C.6</b>	<b>POLARIZATION</b>		
C.6.a	the type of polarization (see the Preface) In the case of circular polarization, this includes the sense of polarization (see Nos. <b>1.154</b> and <b>1.155</b> ) In the case of a space station submitted in accordance with Appendix <b>30</b> or <b>30A</b> , see § 3.2 of Annex 5 to Appendix <b>30</b>	<u>X</u> <sup>3</sup>	<u>X</u> <sup>3</sup>
C.6.b	if linear polarization is used, the angle, in degrees, measured counter-clockwise in a plane normal to the beam axis from the equatorial plane to the electric vector of the waves as seen from the satellite In the case of a space station submitted in accordance with Appendix <b>30</b> or <b>30A</b> , see § 3.2 of Annex 5 to Appendix <b>30</b>	<u>±</u> <sup>3</sup>	<u>±</u> <sup>3</sup>

<b>C.7</b>	<b>NECESSARY BANDWIDTH AND CLASS OF EMISSION</b> (in accordance with Article 2 and Appendix 1)		
<b>C.8</b>	<b>POWER CHARACTERISTICS OF THE TRANSMISSION</b>		
C.8.b.1	the total peak envelope power, in dBW, supplied to the input of the antenna For coordination or notification of an Appendix 30A earth station the values shall include the maximum range of power control <u>For notification of active sensors the values shall include the average power, in dBW.</u> Required if C.8.a.1 is not provided	<u>X<sup>4</sup></u>	<u>X<sup>4</sup></u>
<b>C.9</b>	<b>INFORMATION ON MODULATION CHARACTERISTICS</b>		
<b>C.10</b>	<b>TYPE AND IDENTITY OF THE ASSOCIATED STATION(S)</b> (the associated station may be another space station, a typical earth station of the network or a specific earth station)		
<b>C.11</b>	<b>SERVICE AREA(S)</b>		
<b>C.12</b>	<b>REQUIRED PROTECTION RATIO</b>		
<b>C.13</b>	<b>CHARACTERISTICS OF OBSERVATIONS FOR RADIO ASTRONOMY STATIONS</b>		
<b>C.14</b>	Not used		
<b>C.15</b>	<b>DESCRIPTION OF THE GROUP(S) REQUIRED IN THE CASE OF NON-SIMULTANEOUS EMISSIONS</b>		
Items in Appendix	<b>D – OVERALL LINK CHARACTERISTICS</b>	<u>Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a non-geostationary satellite network</u>	<u>Advance publication or notification of a spaceborne active or passive sensor as defined in Nos. 1.182 and 1.183 on board a geostationary satellite network</u>

**Reasons:** To modify Appendix 4 in order to facilitate the filing of active and passive sensors as defined in Nos. 1.182 and 1.183 respectively.

USA/ /02 MOD

## ANNEX 2

### **Characteristics of satellite networks, earth stations or radio astronomy stations<sup>2</sup> (WRC-03)**

#### **Footnotes to Tables A, B, C and D**

1 Not required for coordination under No. **9.7A**.

2 The most recent version of Recommendation ITU-R SF.675 should be used to the extent applicable in calculating the maximum power density per Hz. For carriers below 15 GHz, the power density is averaged over the worst 4 kHz band. For carriers at or above 15 GHz, the power density is averaged over the worst 1 MHz band. In the case of assignments with a bandwidth less than the stated averaging bandwidth, the maximum density is calculated as if the assignment occupied the averaging bandwidth.

3 Required at notification only.

4 Required only for active sensors, as defined in No. **1.182**, at notification.

5 Required only for passive sensors, as defined in No. **1.183**, at notification.

**Reasons:** Consequential. Definition of footnotes inserted into the spaceborne active and passive sensor column proposed in USA/ /01 is required. Due to the fact that active sensors are emitters and passive sensors are not, certain data elements are applicable only to one type of sensor.

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<sup>2</sup> See footnote 1.

USA/ /03 MOD

## APPENDIX 4

**Table of characteristics to be submitted for space and radio astronomy services** (WRC-03)

Items in Appendix	<b>A - GENERAL CHARACTERISTICS OF THE SATELLITE NETWORK, EARTH STATION OR RADIO ASTRONOMY STATION</b>	Notification or coordination of a geostationary-satellite network (including space operation functions under Article 2A of Appendices 30 or 30A)	Notification or coordination of a non-geostationary-satellite network
A.17.d	<p>the mean power flux-density produced at the Earth's surface by any spaceborne sensor, as defined in No. <b>5.549A</b></p> <p>Required only for satellite systems operating in the Earth exploration-satellite service (active) or space research service (active) in the band 35.5-36 GHz</p>	+	+

**Reasons:** Consequential. The addition in Appendix 4 of data element A.17.d in the columns for spaceborne active and passive sensors as proposed in USA/ /01 makes its inclusion in the coordination and notification of satellite networks columns redundant. Therefore, it may be deleted from the two columns shown.