

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, on behalf of the Executive Branch Agencies, has approved the release of two additional Draft Executive Branch (NTIA) proposals considering federal agency inputs toward the development of U.S. Proposals for WRC-03. These two proposals address WRC-03 agenda item 1.32, which states, “to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz, in accordance with Resolutions **128 (Rev.WRC-2000)** and **84 (WRC-2000)**”.

The proposal concerned with Resolution **84** was drafted by your WRC Advisory Committee (WAC) and is contained in Public Notice DA 02-1415. Enclosed is a revision of the WAC proposal for Resolution 84. A proposal concerned with Resolution **128** was also drafted by the WAC and is contained in Public Notice DA 02-1415. A counter proposal is submitted for Resolution **128**.

These proposals are forwarded for your consideration and review by your WRC-03 Advisory Committee. Jim Vorhies from my staff will contact Alexander Roytblat and reconcile any differences.

Sincerely,

(Signed July 24, 2002)
Fredrick R. Wentland
Acting Associate Administrator
Office of Spectrum Management

Enclosure

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

~~Doc. WAC/113(04.06.02)~~

WRC Agenda Item 1.32(Resolution 84): to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz, in accordance with Resolutions **128 (Rev.WRC-2000)** and **84 (WRC-2000)**;

Background Information: Various segments of the 37.5 - 43.5 GHz band are allocated to the FS, FSS, BSS and MSS on a co-primary basis. Segments of this band are being used or planned for high-density applications in the FS (“HDFS”), and other segments of the band are planned for deployment of high-density applications in the FSS (“HDFSS”). Co-frequency sharing is not feasible between HDFS and HDFSS systems, but sharing situations where only one of the services operates with ubiquitously deployed small terminals may be practicable.

Significant actions were taken at WRC-2000 with respect to the 37.5 - 43.5 GHz band. Among other things, WRC-2000 adopted provisional power flux-density (pfd) limits for geostationary and non-geostationary satellites in the fixed-satellite service (FSS), in the broadcasting-satellite service (BSS), and in the mobile-satellite service (MSS) in this frequency range. WRC-2000 also called for study of the criteria and techniques to address interference from transmitters of FS into earth station receivers in high-density applications in the FSS in the bands 39.5 - 40.0 GHz and 40.5 – 42.0 GHz intended to operate in the same geographic area.

The ITU-R has now completed its study of the provisional pfd limits adopted for satellites of the FSS, BSS, and MSS in the 37.5-42.5 GHz range, and has concluded that in the 37.5 - 42.0 GHz range the provisional pfd limits can be confirmed at their current values. In so doing, the ITU-R noted the position of some Region 2 administrations that, to protect certain sensitive FS links in the 37.5-40 GHz band, it would be necessary for a GSO FSS satellite providing service on their territory to reduce the pfd levels that are produced during clear-sky operation by 12 dB from the respective levels in Table 21-4 of Article 21. The ITU-R also acknowledged that these pfd may constrain the FSS to the use of only large coordinated earth stations in this band. Nevertheless, for both GSO and non-GSO FSS satellites, the ITU-R concluded that it was appropriate to maintain the pfd values in Table 21-4 of Article 21, with the exception of the 42.0 - 42.5 GHz band. The ITU-R concluded that, based on current technology, it may not be possible for NGSO FSS systems operating in the 42.0 - 42.5 GHz band to limit their unwanted emissions to the detrimental interference level needed to protect single dish radio astronomy observations in the in the 42.5 - 43.5 GHz band [-137 dB (W/m²/1GHz) for continuum observation and -153 dB(W/m²/500 kHz) for spectral line observations]. It is proposed to remove the FSS and BSS allocations in the 42.0 - 42.5 GHz band, as shown in Table 21-4. It is expected that a combination of the 500 MHz guard band (42.0 - 42.5 GHz) and some restrictions on the number of FSS antenna beams incident on the Earth’s surface in the 41.5 - 42.0 GHz band will be sufficient to protect the radio astronomy service in the 42.5 - 43.5 GHz band, as called for in Resolution **128**. The confirmation of the provisional pfd limits would provide satisfactory closure to a complex and difficult set of issues that has been intensively studied within the ITU-R for more than five years.

The ITU-R, however, did not complete its study of the criteria and techniques for addressing interference from transmitters of the fixed service into earth station receivers in high-density applications in the bands 39.5-42 GHz and intended for operation in the same geographic area. This aspect of Resolution **84 (WRC-2000)** formed an essential part of the overall arrangement between the FSS and the FS in the 37.5-42.5 GHz range. Although study of the pfd-related elements of sharing in

the 37.5-42.5 GHz range has been completed and regulations on the subject are able to be finalized at WRC-03, the ITU-R should continue the studies called for in “*Invites 6*” of Resolution **84** regarding means of addressing interference from transmitters of the FS into earth station receivers in high-density applications in the 40-42 GHz portion of the 39.5-42 GHz band.

Proposals¹ of the United States to implement the conclusions reached by the ITU-R in its studies under Resolution **84**, as well to reflect the ITU-R’s identification of the area where further study still is needed, are provided below:

¹ The RCS revised the FCC WAC version of this proposal, the following is a summary of the changes:

In background information, paragraph 3, 10th sentence, text was added after the words “Article 21”

In USA 1 Table 21-4 –The two rows that contain data for 42-42.5 and 42-42.5 GHz were suppressed

In USA 5 the band 42-42.5 GHz was modified to read 40.5-42 GHz

In USA 7 the following changes were made

The site for the conference was changes to Geneva

Under considering

a) The band 40.5-42.5 was modified to read 40.5-42 GHz

d) The band 40-41.2 was modified to read 40-41.5 GHz

Under resolves to invite the ITU-R

1. The band 37.5-42.5 GHz was modified to read 37.5-42.0 GHz

In the *Reasons* for USA/ /7, the reference to band 37.5-42.5 was modified to read 37.5-42 GHz.

In USA/ /8 the strike through lines were removed from the text. The strike through lines are not required when a complete document is being suppressed. In the *Reasons*, the band 37.5-42.5 was modified to read 37.5-42 GHz.

Proposals

USA/ /1 MOD

TABLE 21-4 (CONTINUED)

Frequency band	Service*	Limit in dB(W/m ²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth				
		0°-5°	5°-25°	25°-90°					
37.5-40 GHz	Fixed-satellite (non-geostationary-satellite orbit) Mobile-satellite (non-geostationary-satellite orbit)	-120 ^{10, 16, 17}	-120 + 0.75(δ - 5) ^{10, 16, 17}	-105 ^{10, 16, 17}	1 MHz				
37.5-40 GHz	Fixed-satellite (geostationary-satellite orbit) Mobile-satellite (geostationary-satellite orbit)	-127 ^{16, 17}	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">5°-20°</td> <td style="width: 50%; text-align: center;">20°-25°</td> </tr> <tr> <td style="text-align: center;">-127 + (4/3)(δ - 5) ^{16, 17}</td> <td style="text-align: center;">-107 + 0.4(δ - 20) ^{16, 17}</td> </tr> </table>	5°-20°	20°-25°	-127 + (4/3)(δ - 5) ^{16, 17}	-107 + 0.4(δ - 20) ^{16, 17}	-105 ^{16, 17}	1 MHz
5°-20°	20°-25°								
-127 + (4/3)(δ - 5) ^{16, 17}	-107 + 0.4(δ - 20) ^{16, 17}								
40-40.5 GHz	Fixed-satellite	-115	-115 + 0.5(δ - 5)	-105	1 MHz				
40.5-42 GHz	Fixed-satellite (non-geostationary-satellite orbit) Broadcasting-satellite (non-geostationary-satellite orbit)	-115 ^{10, 16, 17, 18}	-115 + 0.5(δ - 5) ^{10, 16, 17, 18}	-105 ^{10, 16, 17, 18}	1 MHz				
40.5-42 GHz	Fixed-satellite (geostationary-satellite orbit) Broadcasting-satellite (geostationary-satellite orbit)	-120 ^{16, 17, 18}	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">5°-15°</td> <td style="width: 50%; text-align: center;">15°-25°</td> </tr> <tr> <td style="text-align: center;">-120 + (δ - 5) ^{16, 17, 18}</td> <td style="text-align: center;">-110 + 0.5(δ - 15) ^{16, 17, 18}</td> </tr> </table>	5°-15°	15°-25°	-120 + (δ - 5) ^{16, 17, 18}	-110 + 0.5(δ - 15) ^{16, 17, 18}	-105 ^{16, 17, 18}	1 MHz
5°-15°	15°-25°								
-120 + (δ - 5) ^{16, 17, 18}	-110 + 0.5(δ - 15) ^{16, 17, 18}								
42-42.5 GHz	Fixed-satellite (non-geostationary-satellite orbit) Broadcasting-satellite (non-geostationary-satellite orbit)	-120 ^{10, 16, 17, 18}	-120 + 0.75(δ - 5) ^{10, 16, 17, 18}	-105 ^{10, 16, 17, 18}	1 MHz				
42-42.5 GHz	Fixed-satellite (geostationary-satellite orbit) Broadcasting-satellite (geostationary-satellite orbit)	-127 ^{16, 17, 18}	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">5°-20°</td> <td style="width: 50%; text-align: center;">20°-25°</td> </tr> <tr> <td style="text-align: center;">-127 + (4/3)(δ - 5) ^{16, 17, 18}</td> <td style="text-align: center;">-107 + 0.4(δ - 20) ^{16, 17, 18}</td> </tr> </table>	5°-20°	20°-25°	-127 + (4/3)(δ - 5) ^{16, 17, 18}	-107 + 0.4(δ - 20) ^{16, 17, 18}	-105 ^{16, 17, 18}	1 MHz
5°-20°	20°-25°								
-127 + (4/3)(δ - 5) ^{16, 17, 18}	-107 + 0.4(δ - 20) ^{16, 17, 18}								

Reasons: On the basis of its studies under Resolution **84 (WRC-2000)**, the ITU-R has confirmed the pfd values for FSS, MSS, and BSS satellites in the 37.5-42.05 GHz range. As a result, it is appropriate to remove the provisional status that was placed on these limits by WRC-2000. It is proposed to remove the FSS and BSS allocations in the 42.0- 42.5 GHz band. A combination of the 500 MHz guard band (42.0 - 42.5 GHz) and some restrictions on the number of FSS antenna beams incident on the Earth's surface in the 41.5 - 42.0 GHz band is expected to be sufficient to protect the radio astronomy service in the 42.5 - 43.5 GHz band, called for in Resolution 128.

USA/ /2 SUP

¹⁶—~~21.16.11~~ Except to the extent provided in No. ~~21.16.12~~, these values are provisional and shall be applied subject to Resolution ~~84 (WRC-2000)~~. (WRC-2000)

Reasons: Consequential to proposal USA/ /1.

USA/ /3 SUP

¹⁷—~~21.16.12~~ In the bands 37.5-40 and 40.5-42.5 GHz, notwithstanding any further studies, the power flux density limits in this table shall be applied to stations in the fixed-satellite service for which complete coordination (geostationary-satellite orbit) or notification information (non-geostationary satellite orbit), as appropriate, has been received by the Bureau after 2 June 2000 and before the end of WRC-03. (WRC-2000)

Reasons: Consequential to proposal USA/ /1.

USA/ /4 SUP

¹⁸—~~21.16.13~~ The values given for the broadcasting satellite service are provisional and need review by a future conference. (WRC-2000)

Reasons: Consequential to proposal USA/ /1.

USA/ /5 MOD

~~5.551AA In the bands 37.5-40 GHz and 42-42.5 GHz, non-geostationary satellite systems in the fixed-satellite service should employ power control or other methods of downlink fade compensation of the order of 10 dB, such that the satellite transmissions are at power levels required to meet the desired link performance while reducing the level of interference to the fixed service. The use of downlink fade compensation methods are under study by the ITU-R (see Resolution 84 (WRC-2000)). (WRC-2000)~~ In the bands 37.5-40 GHz and 40.5-42 GHz, the power flux-density at the Earth's surface from any FSS space station should be at the level(s) required to meet the FSS link availability and performance objectives of the subject applications, but no greater than the relevant power flux-density limits in Table 21-4, while addressing the sharing conditions with the fixed service. (WRC-03)

Reasons: Even with the confirmation of the provisional pfd levels pursuant to ITU-R studies under Resolution **84 (WRC-2000)**, it is important to the sharing conditions with the FS that the satellite pfd's be only at the level required to meet link availability and performance objectives.

USA/ 16 MOD

40.5-51.4 GHz

Allocation to services		
Region 1	Region 2	Region 3
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) MOD 5.551AA BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) MOD 5.551AA BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) MOD 5.551AA BROADCASTING BROADCASTING-SATELLITE Mobile 5.547

Reasons: Consequential to inclusion of 40.5-42 GHz band in No. **5.551AA**, as proposed to be modified in Proposal No. USA/ 15 above.

USA/ 17 ADD

RESOLUTION BSA (WRC-2003)

Means to address interference from transmitters of the fixed service into earth station receivers in high-density applications in the FSS having allocations in the band 40-42 GHz and intended for operation in the same geographic area

The World Radiocommunication Conference (~~Caracas, 2003~~)(Geneva, 2003),

considering

- a) that this Conference has established power flux-density (pfd) limits for the fixed-satellite service (FSS) (space-to-Earth) in the bands 37.5-40.0 GHz and 40.5-42.05 GHz, and the mobile-satellite service (MSS) (space-to-Earth) in the band 39.5-40 GHz;
- b) that, in the band 37.5-42.5 GHz, Recommendation ITU-R SF.1484-1 recommends maximum pfd levels for non-geostationary (non-GSO) FSS satellites and Recommendation ITU-R SF.[4-9S/BL/3] recommends maximum pfd levels for geostationary (GSO) FSS satellites;
- c) that, although sharing is feasible between FSS earth stations and terrestrial stations provided that appropriate coordination procedures and/or operational techniques are employed, sharing may in practice become difficult when high geographic densities of such stations are deployed in bands heavily used by either service;
- d) that, within the range 40-41.52 GHz, many administrations plan to deploy FSS systems using ubiquitous very small aperture terminals;

e) that WRC-2000 invited the ITU-R to undertake, as a matter of urgency, studies on the appropriate criteria and techniques for addressing interference from transmitters of the fixed service into earth station receivers in high-density applications in the FSS having allocations in the bands 39.5-40 GHz and 40.5-42 GHz and intended for operation in the same geographic area;

f) that the ITU-R has not yet completed the studies described in *considering e)* above;

resolves to invite the ITU-R

1 to undertake, as a matter of urgency, studies on the appropriate criteria and techniques for addressing interference from transmitters of the fixed service into earth station receivers in high-density applications in the FSS having allocations in the band 40-41.52 GHz and intended for operation in the same geographic area;

2 to report on the results of these studies in time for WRC-06,

recommends

that WRC-06 take appropriate action based on the results of these studies.

Reasons: Work was not completed on *invites 6* from WRC-2000 Resolution **84**. This is important work in the overall sharing arrangements for FSS and FS in the 37.5-42.05 GHz frequency range, and should be completed within the interval between WRC-03 and WRC-06. The band under consideration for these studies should be concentrated on the 40-42 GHz band.

USA/ /8 SUP

RESOLUTION 84 (WRC-2000)

Power flux-density limits in the bands 37.5-42.5 GHz for the fixed-satellite service, broadcasting-satellite service and mobile-satellite service

Reasons: Consequential to the confirmation of the power flux-density levels within the 37.5-42.05 GHz band pursuant to ITU-R study, and the capture in new Resolution BSA of the holdover point from *invites 6* of Resolution **84 (WRC-2000)**.

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.32a (Resolution 128): to consider technical and regulatory provisions concerning the band 37.5-43.5 GHz, in accordance with Resolutions **128 (Rev.WRC-2000)** and **84 (WRC-2000)**;

Background Information: The band 42.5 - 43.5 GHz is allocated to the Radio Astronomy (RA) service on a co-primary basis, while the frequency bands immediately below 42.5 GHz are allocated to the FSS and BSS (both space-to-Earth) on a co-primary basis with each other and with terrestrial services. Prior to WRC-2000, Resolution 128 prevented administrations from implementing the fixed-satellite service in the 41.5–42.5 GHz band until the Radiocommunication Bureau could identify and agree to technical and operational measures to protect radio astronomy operations in the 42.5–43.5 GHz. WRC-2000 modified Resolution 128 and added a footnote to the Table of Frequency Allocations (No. 5.551G) to protect radio astronomy stations. The footnote contains a provisional PFD limit - not to exceed $-167 \text{ dB(W/m}^2\text{)}$ in any 1 MHz band at the site of a radio astronomy station for more than 2% of the time - on emissions produced into the 42.5 - 43.5 GHz band by non-GSO FSS or BSS systems operating in the 41.5 - 42.5 GHz band. A similar limit was imposed on emissions that GSO FSS or BSS satellites operating in the 42.0 - 42.5 GHz band may produce at the sites of RA stations operating in the 42.5 - 43.5 GHz band.

Pursuant to Resolution **128 (Rev. WRC-2000)**, the ITU-R was to conduct studies to review these provisional PFD limits; to identify technical and operational measures in the band 41.5 – 42.5 GHz, including possible mitigation techniques to protect RA operations; and to propose measures that may be implemented to reduce the susceptibility of stations in the RA to harmful interference. Issues to be addressed included:

- Adequacy of provisional limits on power flux-density (PFD) produced into the sites of radio astronomy service (RAS) stations operating in the band 42.5 - 43.5 GHz by non-GSO satellites operating in the space-to-Earth direction in the fixed-satellite service (FSS) or broadcasting-satellite service (BSS) in the band 41.5 - 42.5 GHz, and by GSO FSS or BSS satellites operating in the space-to-Earth direction in the band 42.0 - 42.5 GHz.
- Identification of technical and operational measures that FSS/BSS satellite networks can take to protect RA operations in the 42.5 - 43.5 GHz band, including geographical separation and out-of-band emission limits to be applied to BSS and FSS space stations, and of measures that may be implemented by RA service users to reduce the susceptibility of stations in the RA service to harmful interference.

Results of studies indicate that the unwanted emission levels of the GSO FSS and BSS systems operating in the 42.0-42.5 GHz band meet the detrimental interference threshold for VLBI RAS stations operating in the 42.5-43.5 GHz band. As a rule, VLBI observations are conducted at most single dish telescopes for a fraction of the time, except for one dedicated VLBI instrument worldwide. The detrimental interference threshold for a single dish telescope, $-137 \text{ dB (W/m}^2\text{/1GHz)}$ for continuum observation and $-153 \text{ dB(W/m}^2\text{/500 kHz)}$ for spectral line observation, may not be met by

a GSO FSS or BSS system by implementing transmit filters, because based on current technology, it is difficult to design and implement such filter.

It is expected that a combination of a 500 MHz guard band (42.0 - 42.5 GHz) between the space services and radio astronomy allocations along with some restrictions on the number of satellite antenna beams incident on the Earth’s surface for the fixed-satellite service allocation in the 41.5 - 42.0 GHz band will be sufficient to protect the radio astronomy service in the 42.5 - 43.5 GHz band.

The proposal described herein removes the fixed-satellite service (space-to-Earth) and broadcasting-satellite service allocations from the 42–42.5 GHz frequency band. The limits on the power flux-density of space services emissions in the radio astronomy band, have been relaxed somewhat, by adopting as detrimental threshold level, the spectral line power flux density in the 500 kHz reference bandwidth used for spectral line observations in this band (see Table 2 of Recommendation ITU-R RA.769). Footnote RR 5.551G, as provisionally adopted by WRC-2000 combined the more restrictive continuum pfd threshold level with a 1 MHz reference bandwidth. The proposal also limits the fixed-satellite service use of the 41.5–42 GHz band to [gateway] links and subjects geostationary systems to the relaxed PFD limits in that sub-band.

ARTICLE 5

Frequency allocations

USA/ /1 **MOD**

41-42.5 GHz

Allocation to services		
Region 1	Region 2	Region 3
41-42.5	FIXED FIXED-SATELLITE (space-to-Earth) MOD 5.551AA ADD 5.551x BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F MOD 5.551G	
42-42.5 FIXED	FIXED-SATELLITE (space-to-Earth) 5.551AA BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551G	

Reasons: The proposal establishes a 500 MHz guard band between the space services and radio astronomy allocations. The guard band should contribute significantly towards the meeting the detrimental interference level to reduce the level of unwanted space services emissions in the radio astronomy band.

USA/ /2 MOD

~~5.551AA In the bands 37.5-40 GHz and 42-42.5 GHz, non-geostationary satellite systems in the fixed-satellite service should employ power control or other methods of downlink fade compensation of the order of 10 dB, such that the satellite transmissions are at power levels required to meet the desired link performance while reducing the level of interference to the fixed service. The use of downlink fade compensation methods are under study by the ITU-R (see Resolution 84 (WRC-2000)). (WRC-2000)~~
In the bands 37.5-40 GHz and 40.5-42 GHz, the power flux-density at the Earth's surface from any FSS space station should be at the level(s) required to meet the FSS link availability and performance objectives of the subject applications, but no greater than the relevant power flux-density limits in Table 21-4, while addressing the sharing conditions with the fixed service. (WRC-03)

Reasons: This modification is consequential to the allocation change.

USA/ /3 MOD

~~5.551G In order to protect the radio astronomy service in the band 42.5-43.5 GHz, the aggregate power flux-density in the 42.5-43.5 GHz band produced by all the space stations in any non-geostationary-satellite system in the fixed-satellite service (space-to-Earth) or in the broadcasting-satellite service (space-to-Earth) system operating in the 41.5-42.5 GHz band shall not exceed -137 dB(W/m²) in the 42.5-43.5 GHz band and -167-153 dB(W/m²) in any 1-MHz-500 kHz subband at the site of a radio astronomy station for more than 2% of the time. The power flux-density in the band 42.5-43.5 GHz produced by any geostationary station in the fixed-satellite service (space-to-Earth) or in the broadcasting-satellite service (space-to-Earth) operating in the band 41.5-42-42.5 GHz shall not exceed -137 dB(W/m²) in the 42.5-43.5 GHz band and -153-167 dB(W/m²) in any 1-MHz-500 kHz subband at the site of a radio astronomy station. These limits are provisional and will be reviewed in accordance with Resolution 128 (Rev.WRC-2000). (WRC-2003)~~

Reasons: This modification reflects the deletion of the FSS and BSS from the 42.0 - 42.5 GHz band. The limits on the power flux-density of unwanted emissions by space services emissions operating in the 41.5 - 42.0 GHz band into the 42.5 - 43.5 GHz radio astronomy band have been relaxed somewhat, by adopting as detrimental threshold levels the continuum detrimental threshold level in the full 1 GHz band and the spectral line power flux density in the 500 kHz reference bandwidth used for spectral line observations in this band (see Table 2 of Recommendation ITU-R RA.769). Footnote RR 5.551G, as provisionally adopted by WRC-2000 combined the more restrictive continuum pfd threshold level with a 1 MHz reference bandwidth. The proposal also subjects geostationary systems operating in that sub-band to the same relaxed PFD limit.

USA/ /4 ADD

5.551x The band 41.5-42 GHz is not available for HDFSS applications. Use of the band by the fixed-satellite service (space-to-Earth) is limited to [gateway] links.

Reasons: Limiting this part of the allocation to gateway links will limit the number of satellite antenna beams that could cause interference to radio astronomy receiver locations.

TABLE 21-4 (END)

Frequency band	Service*	Limit in dB(W/m ²) for angle of arrival (δ) above the horizontal plane			Reference bandwidth	
		0°-5°	5°-25°	25°-90°		
42-42.5 GHz	Fixed satellite (non-geostationary-satellite orbit) Broadcasting satellite (non-geostationary-satellite orbit)	-120^{+10, 16, 17, 18}	$-120 + 0.75(\delta - 5)$^{+10, 16, 17, 18}	-105^{+10, 16, 17, 18}	1 MHz	
42-42.5 GHz	Fixed satellite (geostationary-satellite orbit) Broadcasting-satellite (geostationary-satellite orbit)	-127^{+16, 17, 18}	5°-20° $-127 + (4/3)(\delta - 5)$^{+16, 17, 18}	20°-25° $-107 + 0.4(\delta - 20)$^{+16, 17, 18}	-105^{+16, 17, 18}	1 MHz

Reasons: As a result of the allocation change, power flux density limits for this band are moot and these rows of the table should be removed.

¹⁷ ~~**21.16.12** In the bands 37.5-40 and 40.5-42.5 GHz, notwithstanding any further studies, the power flux density limits in this table shall be applied to stations in the fixed satellite service for which complete coordination (geostationary satellite orbit) or notification information (non-geostationary satellite orbit), as appropriate, has been received by the Bureau after 2 June 2000 and before the end of WRC-03. (WRC-2000)~~

Reasons: This suppression is consequential to the allocation change.

RESOLUTION 128 (Rev.WRC-2000)

Reasons: Consequential to the conclusion that RAS operations in the 42.5 - 43.5 GHz band can be adequately protected from unwanted emissions from FSS and BSS satellite systems operating in the 41.5 - 42 GHz band by a combination of a 500 MHz guard band (42 - 42.5 GHz) and the application of footnotes 5.551G and 5.551x.