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Suite 300
Washington, DC 20036

EX PARTE

October 24, 2003

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

Re: In the Matter of Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations: IB Docket No. 97-95

Dear Ms. Dortch,

On October 23, 2003 Joseph M. Sandri Jr., Gene Rappoport, Vishnu Sahay and the undersigned from Winstar Communications, LLC ("Winstar") met with Ron Netro from the Wireless Telecommunications Bureau and Paul Locke, Breck Blalock and David Strickland from the International Bureau. The meeting was scheduled to follow up on issues addressed in the August 7, 2003 letter from Winstar to staff members in the Wireless Telecommunications and International Bureaus. In addition, the attached documents were handed out during the meeting. The document in Attachment One is a list of issues discussed at the meeting. The document in Attachment two is a Question that Winstar entered into the International Telecommunications Union Working Party 3M.

Finally, the FCC staff in attendance asked that Winstar forward for their review the documents in Attachments Three through Five. The document in Attachment Three is the agreement between Fixed Service and Fixed Satellite providers from the FCC's Informal Working Group 4 to its WRC Advisory Committee regarding "Typical Stations" for coordination purposes. Attachment Four contains the US Proposal to the WRC '03 Conference Preparatory Meeting regarding "Typical Stations" for coordination purposes. Attachment Five contains the CITEL Interamerican Proposal regarding "Typical Stations" that the US signed on to.

Please feel free to contact me with any questions regarding this filing. I may be reached at (202) 367-7610.

Very Truly Yours,

Lynne Hewitt Engledow
Winstar Communications, LLC

cc: Breck Blalock, International Bureau
Paul Locke, International Bureau
David Strickland, International Bureau
Ron Netro, Wireless Telecommunications Bureau

Attachments

Attachment One

Winstar Communications, LLC October 23, 2003 meeting with International Bureau and Wireless
Telecommunications Bureau Staff

Winstar Communications, LLC October, 23 2003 meeting with International Bureau and Wireless Telecommunications Bureau Staff

Follow up from August 7, 2003

We hope that our August 7, 2003 response to your questions from our previous meeting provided the answers you sought. If there are any additional questions we would certainly like to answer them.

Status

We are interested in the status of the pending rulemaking. We understand it will be issued by the end of the year. Can more specific information be provided regarding when it might be considered?

Pending Satellite Applications

Our analysis indicates that the only satellite system that still has an application pending that includes the 38.6-40.0 GHz band is Northrop-Grumman, formerly TRW. Is that accurate?

Main Concern

As you know our prime concern is the potential for significant interference into our receivers resulting in unacceptable degradation of service to our customers during period when the space station may increase its power to overcome rain attenuation.

Differential Attenuation

We have discussed in great detail with you, in U.S. preparatory meetings and in international meetings our concern regarding the effect of differential attenuation between the satellite to Earth station path and the satellite to HDFS receiver path within the spot beam of the satellite. Simulations have shown that with a 12 dB increase in power and uncorrelated fading up to 15% of HDFS stations could experience unacceptable interference. Even TRW's own simulation analysis has shown that during period of fading up to 8.5% of HDFS stations within 50 km of the antenna boresight will experience I/N of greater than -10dB.

We have further pursued the question of probability of differential attenuation in WP 4-9/S and currently have a proposed draft new question for SG3 in the USNC review process for the upcoming meeting in November. We realize that this is coming late in the process, but liaison exchange between WP 4-9/S and SG 3 have not resulted in the complete answer that was sought. We brought copies of the question.

Interference Avoidance Techniques

As we have previously stated, there are a number of techniques that could be used to reduce or eliminate the potential problem. The use of lower order modulation and adaptive coding can reduce the necessity for increased power. We believe that gateway stations should be required to have space diversity so that rain attenuation can be dealt with without having to increase power.

If space diversity is not required then the gateway stations should be sited in arid areas where the spotbeam footprint does not overlap metropolitan areas.

Coordination on an Area-Wide Basis

An additional concern is the need to be able to coordinate on an area wide basis, rather than with individual deployed FS stations. Coordinating hundreds or thousands of individual FS stations within a licensed area is overly regulatory, time consuming, costly, and greatly diminishes the planning and expansion ability, and rights, of companies who operate on auction-won spectrum.

Border Power Limits

Additionally requiring new FS stations to protect an FSS gateway will severely constrain additional deployment and customer growth. A power limit at the border of the licensed area should be sufficient to permit the growth of the HDFS and the deployment of FSS gateway Earth stations without unnecessary burden on either.

Commercial Arrangements

Numerous creative commercial solutions remain available for reaching an accommodation.

Conclusion

If you have any questions please contact Gene Rappoport at (202) 367-7603 or grappoport@winstar.com.

Attachment Two

Draft New Study Question – Characterization of Differential Rain Attenuation around 40 GHz

Radiocommunication Study Group
Fact Sheet

Group: WP 3M	Document No. 3M/1 Rev. 5
Reference:	Date: October 15, 2003
Document Title:	Draft New Study Question – Characterization of Differential Rain Attenuation around 40 GHz
Author: Gene. Rappoport Vishnu Sahay Joe Sandri	Phone: 202 367-7603 Email: grappoport@winstar.com Phone: 202 367-7607 Email: vsahay@winstar.com Phone: 202 3677643 Email: jsandri@winstar.com
Purpose/Objective This contribution proposes a new study question to address the issue of differential rain attenuation within the area of an antenna spot beam with a diameter of approximately 250 km	
Abstract: This Draft New Study question is proposed to determine the statistical probability of the correlation of fading as a result of rain attenuation on a desired-signal path between a Space Station and its Gateway Earth Station and the potential interfering-signal path from the Space Station to a fixed service station within its spot beam, for the evaluation of interference. This study question is proposed as a result of ongoing correspondence between working groups of SG 9 and working groups of SG3 and is further supported by a liaison from WP 4-9/S to the current meeting of WP's 3M and 3J.	



Received:
Subject:

UNITED STATES OF AMERICA

PROPOSED DRAFT NEW QUESTION

CHARACTERIZATION OF DIFFERENTIAL RAIN ATTENUATION STATISTICS BETWEEN WANTED AND UNWANTED PATHS IN THE 37.5-40 GHz AND 42.0-42.5 GHz BANDS

Working Party 4-9/S has exchanged liaison statements with Working Parties 3M and 3J on issues regarding the potential additional interference, due to differential path attenuation, from a fixed satellite service (FSS) transmitter to a fixed service (FS) receiver during fading conditions when the satellite transmitter increases its transmitted power flux density to overcome downlink fading. The bands 37.5-40.0 GHz and 42.0-42.5 GHz are allocated to the fixed service and fixed satellite service on a co-primary basis. However, in Region 2, the power flux density of satellite systems operating in these bands would not exceed the values shown in Table 21-4 minus 12 dB under clear sky conditions, and the satellite can operate up to the values shown in Table 21-4 during fading conditions.

During the WRC-00 to WRC-03 study cycle, Working Party 3M recommended a methodology to Working Party 4-9/S that provides an upper bound on the differential rain attenuation between the path from an FSS GSO satellite to a FS station and the path from an FSS GSO satellite to its gateway earth station. The method provided by Working Party 3M can compute the $\Pr\{a \leq A_1 \leq b, A_2 \leq A_1 - c\}$, where $c = 0$. This method is an upper bound to $\Pr\{a \leq A_1 \leq b, A_2 \leq A_1 - c\}$, where $c > 0$. A_1 and A_2 are the rain attenuations on the wanted and interference paths (see Figure 1). The method is based upon long-term annual rainfall statistics.

In April 2003, Working Party 4-9/S sent a liaison statement to Working Party 3M requesting that the method be extended to non-zero values of c and worst-month statistics.

It would be beneficial to the ongoing work of the ITU-R if one or more methods characterizing differential rain attenuation were available for use in the analysis of potential interference. A draft new Question defining the requirements for such a method or methods is attached in Annex 1.

It is proposed that a new Question, as given in Annex 1, be added to the Study Group's work program. It may be possible that the method or methods could be developed with data already available to Working Party 3M, however, it may be necessary to develop or gather additional data, if needed.

ANNEX 1

DRAFT NEW QUESTION ITU-R (XXX)

CHARACTERIZATION OF DIFFERENTIAL RAIN ATTENUATION STATISTICS BETWEEN WANTED AND UNWANTED PATHS IN THE 37.5-40 GHz AND 42.0-42.5 GHz BANDS

The ITU Radiocommunication Assembly,

considering

- a) that the characteristics of a radio channel depend on a variety of meteorological parameters;
- b) that statistical predictions of atmospheric propagation effects are required for the understanding of potential interference scenarios between systems operating in one or more radio services sharing certain bands;
- c) that knowledge of the spatial variations in atmospheric attenuation between multiple propagation paths is required when planning the sharing of frequency channels in Radiocommunication systems;
- d) that in the calculation of interference between systems, more detailed consideration of the contribution of various propagation mechanisms is required;
- e) that the bands 37.5-40.0 GHz and 42.0-42.5 GHz are allocated to the fixed service and the fixed satellite service on a co-primary basis;
- f) that in Region 2, the power flux density of satellite systems operating in these bands would not exceed the values shown in Table 21-4 minus 12 dB under clear sky conditions, and the satellite can operate up to the values shown in Table 21-4 during fading conditions;
- g) that there is an identified need to determine the probability of differential rain attenuation between a wanted path from a GSO satellite to its intended earth station and an unwanted path from a GSO satellite to a fixed service station located elsewhere within the satellite beam during fading conditions when the satellite increases its transmit power flux density to overcome fading conditions;
- h) that worst-month statistics as well as annual average statistics are of interest in assessing interference;
- j) that a method that would allow computation of differential rain attenuation statistics is desired;

decides that the following Question should be studied:

1. What method best describes the probability of differential rain attenuation between a wanted path from a GSO satellite to its intended earth station and an unwanted path from the GSO satellite to a fixed service station located elsewhere within the satellite beam during fading conditions when the satellite increases its transmit power flux density to overcome fading conditions. Specifically, for the following set of input conditions:

Scenario: see Figure 1

Applicability: Any specified latitude and longitude

Frequency range: 37.5 to 40.0 GHz and 42.0 to 42.5 GHz

Elevation angle: 10 to 75 deg

Site separation: 0 to 250 km

what method or methods best describe the following probabilities:

- a) $\Pr\{a \leq A_1 \leq b, A_2 \leq A_1 - c\}$,
where the ranges of a, b, and c are $3 \text{ dB} \leq a \leq b \leq 15 \text{ dB}$, and $c \geq 0 \text{ dB}$; and
- b) $\Pr\{d \leq A_1 \leq e, A_2 \leq f\}$,
where the ranges of d, e, and f are $e - d \leq 3 \text{ dB}$, and $f \geq 0 \text{ dB}$;

and the desired probability $\Pr\{..\}$ is:

- i) the long-term annual average time percentage, and
- ii) the average annual worst-month time percentage;

further decides

1. that the method or methods should be included in (a) Recommendation(s);
2. that the above studies should be completed by [2006.]

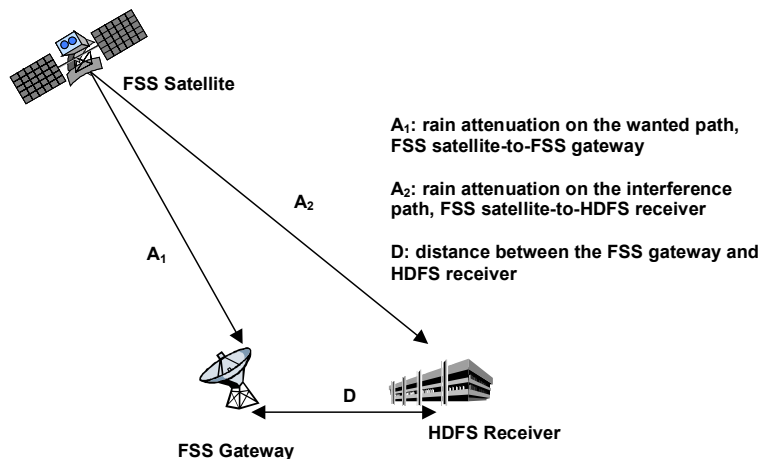


Figure 1. Scenario Definition

Attachment Three

WAC/145 Recommendation of Informal Working Group 4

IWG-7

Draft Proposal for the Work of the Conference

Background

Even where agreement between concerned administrations is reached, the existing Radio Regulations have no provisions that allow for the notification of typical earth stations in the fixed satellite service (FSS) and typical stations in the fixed (FS) service for bands allocated above 100 MHz with equal rights to the FSS and the FS services.

Both these services are implementing large numbers of stations under single authorizations and they would both benefit from regulations that would facilitate the introduction of such stations through the elimination of the need for specific site coordination and notification of every station in such a group.

Fixed-Satellite Service Stations

A large number of Fixed Satellite Service (FSS) earth stations are frequently authorized by an administration as a group under a single license. Such authorizations may encompass hundreds or even thousands of such stations to be used in the area of a particular administration. Under the current Radio Regulations, to be recorded in the International Frequency List, each and every one of these stations would require individual site notification in bands where the FSS is co-primary with the FS. Such a situation would be triggered under No. 9.17, in relation to 9.6 and 9.27 (ref. to Appendix 5).

No. 9.17 states inter alia; that coordination is required: "for any specific earth station or typical mobile earth station in frequency bands above 100 MHz allocated with equal rights to space and terrestrial services in the territory of another country, with the exception of the coordination under 9.15."

Coordination under this regulation for a large group of FSS earth stations would be a long and cumbersome process, as it would require coordination to be carried out on a site-by-site basis. Under the current regulations, if such coordination were not carried out:

- Receiving FSS earth stations would not be protected from harmful interference from terrestrial stations or earth stations operating in the opposite direction of transmissions;
- Transmitting FSS earth stations would have to take steps to eliminate harmful interference caused to existing and future terrestrial stations, or earth stations operating in the opposite direction of transmission;
- FSS receive/transmit earth stations would not be required to coordinate if their coordination area does not overlap with the territory of another country.

Fixed Service Stations

A large group of fixed stations can similarly be authorized as a group under a single license in bands shared with space services. These stations may be low density or high density systems, or a hybrid of low density and high density configurations. Such fixed systems may be implemented under a geographic area authorization within which the operator is permitted to manage interference margins and deploy links with minimal coordination requirements. In addition, operators may be authorized to add, remove or relocate facilities within the geographic area without prior authorization. Maintaining this minimal requirement for coordination is critical to allow the operator the necessary flexibility to meet the ever changing user needs characteristic of these high density networks which are premises located. These types of fixed service networks have characteristics similar to temporary fixed and mobile uses. Recommendation ITU-R F.1498 states that in service areas where there is dense deployment of fixed service stations, coordination with and by fixed satellite service earth stations should be carried out on an area basis rather than a station to station basis. Such system deployments can undergo substantial deployment changes, even in short periods of time due to additional network link deployments, their shut down, or movement during day-to-day operations. Accordingly, these systems are substantially similar to area-wide mobile service systems when subjected to coordination requirements, especially if those coordination requirements include coordinating with other services whose systems require multi-year deployment planning.

Under the current Radio Regulations, each and every fixed station would require individual site coordination with Earth stations in bands where the FSS is co-primary with the FS. Such a situation would be triggered under RR 9.18 which states that coordination is required for any transmitting station of a service, in the bands referred to in No. 9.17, within the coordination area of an Earth station. RR 11.17 states "Frequency assignments relating to a number of stations or earth stations may be notified in the form of characteristics of a typical station or typical earth station and the intended geographical area of operation. Except for mobile earth stations, individual notices of frequency assignments are however necessary in the following cases:". One of the cases listed is RR 11.20, terrestrial stations within the coordination area of an Earth station.

This case would require typical fixed stations which may have been in operation for many years to now be notified with specific site characteristics and for the operator to project what changes and additions may occur, either within three months under RR 9.52, if the administration does not agree to the request for coordination or three years under RR 9.52B, if there is an agreement on coordination.

This is a difficult and onerous requirement that should be addressed through modifications in the Radio Regulations for the particular bands where there is the deployment of a high density of Fixed Service stations.

Approaches to Regulation of Groups of FS/FSS Stations

Below are descriptions of concepts on how to facilitate the coordination of FSS earth stations and FS stations that have similar technical characteristics, and are authorized in large groups under a single license.

There are several approaches that could be used, some of which were identified in WP 4-9S CPM text for agenda 1.30. These are described below:

A. No change to the Radio Regulations

This method would keep the current relation of sharing between FSS and terrestrial services, allowing to take due account of the actual and expected (within the next 3 years) terrestrial deployment and of the geographical situation. However, applying the procedure for specific earth stations to a large group of FSS earth stations would be a long process.

It was noted that this long process could be alleviated at the coordination stage, by the use of any new or existing methodology in bilateral discussions between the administrations concerned. This methodology could be made available through an ITU-R Recommendation. This methodology would rely on the availability of a database where terrestrial stations and earth stations would be recorded. This database, to serve its purpose, would need to contain accurate updated information. Moreover, its availability for neighboring countries would need to be ensured.

The usefulness of this approach is highly dependent on availability of the referenced new methods and an accurate database.

B. Changes affecting the coordination and notification of Typical Stations

Typical Earth Stations

This approach would entail modification of the Radio Regulations to provide for typical FSS earth stations in specific frequency bands through regulations which provide for the coordination and notification of such stations as a consequence of agreements between administrations concerned. On this basis, the coordination area around these types of earth stations would be incorporated into Appendix 7.

This would address the need to provide protection to FSS earth stations deployed in large groups, and avoid the situation where such stations would have to be coordinated and/or notified as specific earth stations or operate on a "non-interference" or "non-protected" basis.

Typical Fixed Stations

A similar modification of the Radio Regulations could be made to provide for typical fixed stations to be notified within a specific geographic area and within certain frequency bands without the further requirement for specific site notification and coordination when there is a future request for coordination with an FSS Earth station, where the frequency bands of the Earth Station and the terrestrial station overlap and the coordination area of the Earth station covers the territory of another administration.

Such regulations would address the need to avoid the

situation where such stations would have to be coordinated and/or notified as specific stations or operate on a "non-interference" or "non-protected" basis.

Proposals

USA/1.30/TES-1

MOD 9.17 l) for any specific earth station or typical mobile earth station in frequency bands above 100 MHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **9.15**. In the following specific frequency bands allocated to the fixed and fixed-satellite services: 17.7-18.8 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical earth stations in the fixed-satellite service may also be coordinated under this provision with stations of the fixed service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

USA/1.30/TES-2

MOD 9.17A m) for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the coordination under No. **9.19**. In the bi-directional FSS frequency bands 17.7-18.4 GHz and 19.3-19.7 GHz typical earth stations may also be coordinated under this provision based on agreements between concerned administrations and the agreements notified to the Radiocommunications Bureau.

USA/1.30/TES-3

MOD 9.18 n) for any transmitting station of a terrestrial service in the bands referred to in No. **9.17** within the coordination area of an earth station, in respect of this earth station, with the exception of the coordination under Nos. **9.16** and **9.19**. In the following specific frequency bands allocated to the fixed and fixed-satellite services: 27.5-28.35 (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical stations in the fixed service may also be coordinated under this provision with earth stations in the fixed-satellite service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

USA/1.30/TES-4

MOD 11.20.1, 11.21.1, 11.21A.1, 11.22.1 and 11.23.1 In such cases, individual notices of frequency assignments are required

for frequency bands allocated with equal rights to terrestrial and space services where coordination is required under Appendix 5, Table 5-1; however, in the frequency bands mentioned in Nos. 9.17 and 9.18, notifications for typical earth stations in the fixed-satellite service and typical stations in the fixed service may include indication of coordination agreements under Nos. 9.17 and 9.18 based on agreements between concerned administrations.

USA/1.30 TES-5

MOD 11.22.2 In such cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to space services, in the opposite direction of transmission, where coordination is required under Appendix 5, Table 5-1; however, in the frequency bands mentioned in No. 9.17A, notifications for typical earth stations in the fixed-satellite service may include indication of coordination agreements under No. 9.17A based on agreements between concerned administrations.

USA/1.30/TES-6

ADD Section 1.4.8 in Appendix 7

1.4.8 Typical FSS Earth Stations

For a group of FSS earth stations under a single authorization, the coordination area is determined by extending the periphery of the specified service area within which such earth stations are operating by the coordination distance of 100 Km (pre-determined).

Reason: The modifications to the RR proposed in USA/1.30/TES1-6 will provide a basis for typical earth station and fixed stations to be coordinated and notified in identified allocations where the space and fixed services have equal status, and will not upset the balance between the services.

There will be enormous benefit to such stations when they are part of a large group of such stations authorized under a single license as they will be relieved of the regulatory burden of having to coordinate and notify each station in such a group on the basis of individual sites.

Attachment Four

Coordination and Notification of Typical Earth and Terrestrial Stations



INTERNATIONAL TELECOMMUNICATION UNION
RADIOCOMMUNICATION SECTOR
CONFERENCE PREPARATORY MEETING
FOR WRC-03

GENEVA, 18-29 NOVEMBER 2002

Delayed Contribution
Document CPM02-2/144-E
11 November 2002
English only

Received: 11 November 2002

United States of America

**COORDINATION AND NOTIFICATION OF
TYPICAL EARTH AND TERRESTRIAL STATIONS**

Section 3.4.3 of Chapter 3 of the Draft CPM Report concerns FSS earth stations deployed in large numbers. The situation of such earth stations with respect to the Radio Regulations is further described in the Analyses of Results of Studies section (3.4.3.2) and Methods to Satisfy the Agenda

(3.4.3.3). However, there is no mention of the topic under Regulatory and Procedural Considerations (3.4.4.4).

In addition, it should be noted that a similar situation applies to fixed stations which may be deployed in large numbers under a single authorization. This is sometimes referred to as area licensing.

Section 3.4.3.2.4 of the Draft CPM text indicates the regulatory difficulties for large groups of earth stations. For large groups of fixed stations the situation is equally difficult. As with earth stations under the current RR each and every one of a large number of typical fixed stations would require individual site coordination with Earth stations in bands where the FSS is co-primary with terrestrial service.

The proposed text is intended to address these difficulties, in a way to maintain the balance between space and terrestrial services, and to give regulatory relief to these type of earth stations.

This contribution proposes to modify the Draft CPM text to provide text for section 3.4.4.4 and some example regulatory text. The proposed modifications are in the attachment.

ATTACHMENT

Modify Section 3.4.4.4. as indicated below.

3.4.4.4 Regulatory and procedural considerations

...

ADD

The existing Radio Regulations have no provisions that allow for the notification of typical earth stations in the Fixed Satellite Service (FSS) and typical stations in the Fixed Service (FS) for bands allocated above 100 MHz with equal rights to the FSS and FS.

Both of these services are implementing large numbers of stations under single authorizations and they would both benefit from regulations that would facilitate the introduction of such stations by providing an option for the coordination and notification of typical stations in addition to specific site coordination and notification of every station in such a group.

Example regulatory text to address this problem may be found in the Annex.

Under the concept envisioned in the example text, countries implementing high density applications of the FSS and FS in the allocations indicated could conduct coordination discussions when they are contiguous to each other and in the service area of a particular satellite network. Countries involved in such coordinations would send notices to the BR for annotating with the satellite network notification with which the satellite earth terminals would operate. Such notifications would be the responsibility of the administrations on whose territory the terminals are located and which were involved in the coordination.

Band identification in these examples don't imply that all of these bands are subject to blanket/area licensing in any administration.

ANNEX

MOD 9.17 l) for any specific earth station or typical mobile earth station in frequency bands above 100 MHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. 9.15; (WRC-2000). In the following specific frequency bands allocated to the fixed and fixed-satellite services: 18.58-18.8 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical earth stations in the fixed-satellite service may also be coordinated under this provision with stations of the fixed service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

MOD 9.17A m) for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the coordination under No. 9.19; (WRC-2000). In the bi-directional FSS frequency bands 17.7-18.4 GHz and 19.3-19.7 GHz typical earth stations may also be coordinated under this provision based on agreements between concerned administrations and the agreements notified to the Radiocommunications Bureau.

MOD 9.18 n) for any transmitting station of a terrestrial service in the bands referred to in No. 9.17 within the coordination area of an earth station, in respect of this earth station, with the exception of the coordination under Nos. 9.16 and 9.19; (WRC-2000). In the following specific frequency bands allocated to the fixed and fixed-satellite services: 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical stations in the fixed service may also be coordinated under this provision with earth stations in the fixed-satellite service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

MOD 11.20.1, 11.21.1, 11.21A.1, 11.22.1 and 11.23.1 In such cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to terrestrial and space services where coordination is required under Appendix 5, Table 5-1, however, in the frequency bands mentioned in Nos. 9.17 and 9.18, notifications for typical earth stations in the fixed-satellite service and typical stations in the fixed service may include indication of coordination agreements under Nos. 9.17 and 9.18 based on agreements between concerned administrations.

MOD 11.22.2 In such cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to space services, in the opposite direction of transmission, where coordination is required under Appendix 5, Table 5-1, however, in the frequency bands mentioned in No. 9.17A, notifications for typical earth stations in the fixed-satellite service may include indication of coordination agreements under No. 9.17A based on agreements between concerned administrations.

MOD

Appendix 5

In Table 5-1 of Appendix 5 MODIFY the entries for Nos. 9.17, 9.17A, and 9.18 as follows:

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
...					
No. 9.17 GSO, non-GSO/ terrestrial	A specific earth station or a typical mobile earth station in frequency bands above 100 MHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. 9.15; (WRC-2000). <u>In the following specific frequency bands allocated to the fixed and fixed-satellite services: 18.58-18.8 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical earth stations in the fixed-satellite service may also be coordinated under this provision with stations of the fixed service based on agreements between the</u>	Any frequency band allocated to a space service <u>18.58-18.8 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz</u>	The coordination area of the earth station covers the territory of another administration	Appendix 7 <u>See section 1.4.8 of Appendix 7</u>	

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
	<u>concerned administrations and the agreements notified to the Radiocommunication Bureau.</u>				
No. 9.17A GSO, non-GSO/ GSO, non-GSO	A specific earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission, where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of a coordinated earth station, with the exception of coordination under No. 9.19; (WRC-2000). <u>In the bi-directional FSS frequency bands 17.7-18.4 GHz and 19.3-19.7 GHz typical earth stations may also be coordinated under this provision based on agreements between concerned administrations and the agreements notified</u>	Any frequency band allocated to a space service <u>17.7-18.4 GHz and 19.3-19.7 GHz</u>	The coordination area of the earth station covers the territory of another administration or the earth station is located within the coordination area of an earth station	Appendix 7 <u>See section 1.4.8 of Appendix 7</u>	

Reference of Article 9	Case	Frequency bands (and Region) of the service for which coordination is sought	Threshold/condition	Calculation method	Remarks
	to the Radiocommunication Bureau.				
No. 9.18 Terrestrial/ GSO, non-GSO	Any transmitting station of a terrestrial service in the bands referred to in No. 9.17 within the coordination area of an earth station, in respect of this earth station, with the exception of the coordination under Nos. 9.16 and 9.19; (WRC-2000). In the following specific frequency bands allocated to the fixed and fixed-satellite services: 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical stations in the fixed service may also be coordinated under this provision with earth stations in the fixed-satellite service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunication Bureau.	Any frequency band allocated to a space service 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth)	Transmitting terrestrial station is situated within the coordination area of a receiving earth station	See Remarks column See section 1.4.8 of Appendix 7	The coordination area of the affected earth station has already been determined using the calculation method of No. 9.17
...					

ADD

Section 1.4.8 in Appendix 7

1.4.8 Typical FSS Earth Stations

For a group of FSS earth stations under a single authorization, the coordination area is determined by extending the boundary of the specified service area within which such earth stations are operating by the coordination distance of 100 Km (pre-determined).

Reason: Given that both types of services depend on line-of-sight paths to subscriber premises it is in their best self-interest to engineer station deployment for maximally practicable frequency reuse including earth station high elevation angles. Calculations performed using App.7 earth station and fixed station characteristics, and Langley-Rice propagation model, indicate that the required coordination distances will not exceed the current minimum coordination distance of 100 km specified in Section 5 of Appendix 7. This corresponds approximately to the radio-horizon distance between two stations, each at a height of 150 m above plane earth.

Attachment Five

CITEL Interamerican Proposal

ADD IAP/5/214

^{15A} **9.17.1, 9.17A.1 and 9.18.1.**

Typical stations in the fixed satellite and fixed services may be coordinated by administrations under this provision, taking into account No. **9.50.1.**

3 IAPs on the extension of the coordination arc concept

The CPM-02 Report contains several detailed examples on possible modifications to Appendix 5 of the Radio Regulations in order to extend the coordination arc concept adopted by WRC-2000 for the FSS in certain frequency bands. After reviewing the material contained in Section 3.4.1 of the CPM Report, CITELE concluded that the basic proposals were acceptable in that they would greatly simplify the workload of the Bureau and alleviate the difficulties due to the backlog. However, the CPM Report suggests the adoption of the $\pm 8^\circ$ coordination arc that is currently applicable to the FSS in the 17.7-20.2 GHz and 27.5-30 GHz bands to all bands above 17.3 GHz and to the BSS. CITELE believes that this is acceptable for the FSS as an interim coordination arc until further studies are completed. However, a more conservative value is proposed for the BSS.

Proposals

APPENDIX 5