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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of the Petition of	)	
	)	
DIRECTV ENTERPRISES, INC.	)	RM No. 9118
	)	
To Amend Parts 2, 25 and 100 of the Commission's Rules To Allocate Spectrum for the Fixed-Satellite Service and the Broadcasting-Satellite Service	)	

PETITION FOR RULEMAKING

DIRECTV ENTERPRISES, INC.

Gary M. Epstein
John P. Janka
James H. Barker
LATHAM & WATKINS
1001 Pennsylvania Avenue, N.W.
Suite 1300
Washington, D.C. 20004-2505

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DIRECTV ENTERPRISES, INC.	)	RM No.
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PETITION FOR RULEMAKING

Pursuant to Section 1.401 of the Commission's Rules, DIRECTV Enterprises, Inc. ("DIRECTV")[1] hereby petitions the Commission to institute a rulemaking proceeding to amend Part 2 of its Rules to allocate spectrum for the fixed-satellite service ("FSS") and the broadcasting-satellite service ("BSS"), and to make conforming changes to the satellite service rules contained in Parts 25 and 100. DIRECTV has an interest in this proceeding as the operator of the premier BSS satellite system in the U.S., which currently serves more than 2.5 million subscribers nationwide, using small, eighteen-inch antennas, and as an applicant for an expansion BSS satellite system that will use the frequency bands that are the subject of this petition.

[1] DIRECTV is a majority-owned subsidiary of HE Holdings, Inc., a Delaware corporation.

I. Introduction and Summary.

DIRECTV requests that the Commission (i) amend the Table of Frequency Allocations contained in Section 2.106 of the Commission's Rules; (ii) amend the service rules contained in Sections 25.202(a), 100.1(b), and 100.21 to provide for use of the 24.75-25.25 GHz band for FSS in the earth-to-space direction for "feeder links" for the BSS, and also to provide for use of the 17.3-17.8 GHz band in the space-to-earth direction for BSS; and (iii) adopt a 4.5° orbital spacing policy for the use of these bands in these directions to provide BSS service. The proposals that DIRECTV is making here are consistent with the Region 2 WARC-92 allocations for these bands that the U.S., Canada and other Region 2 countries supported internationally only 5 years ago. Significantly, by increasing the potential capacity of BSS systems, these allocation changes will benefit the U.S. consumer by allowing U.S. licensed BSS operators an ability to offer a wider variety of programming and service offerings, and thereby facilitating greater competition with the cable television industry.

For the reasons set forth below, the Commission should grant DIRECTV's petition. The proposed amendments to the Commission's Rules will alleviate a current shortage of BSS capacity in the U.S., will implement the International Telecommunication Union's Final Acts of WARC-92, and will serve the public interest by maximizing the efficient use of orbital spectrum resources and furthering the competitiveness of United States industry in the provision of direct-to-home satellite services.

II. Existing Shortage of BSS Capacity and Need for Additional Spectrum.

The Commission should institute the requested rulemaking and amend its Rules to allocate the 24.75-25.25 GHz band for FSS uplinks and the 17.3-17.8 GHz band for BSS downlinks in order to correct a recognized shortage in the spectrum that is available for BSS service in the U.S. It is widely recognized that there is a inadequate amount of spectrum available for the provision of BSS service. Due to the inherent limitations in the ITU's BSS Plan for Region 2, only three orbital locations are available to the U.S. in the 12.2-12.7 GHz band (the "Planned BSS Band") for BSS service that provide the optimal antenna elevation angles from all 48 contiguous states ("CONUS"). All of the available channels at those three locations are already licensed by the Commission, and U.S.-licensed BSS systems are now operating in two of the three locations[2].

There simply is no more full-CONUS capacity in the Planned BSS Band available to the U.S. to support the expansion of existing BSS businesses. This growing demand for additional BSS capacity is being fueled by a number of factors. First, the amount and variety of available video programming increases dramatically every year. Second, the trend toward higher technical quality, further fueled by the transition of terrestrial broadcast television to digital technology, demands more and more satellite transmission capacity. Third, BSS service providers, such as DIRECTV, increasingly are tailoring their programming offerings to serve multiple demographic groups. Fourth, as business and educational needs begin to require digital services, increased capacity will be needed to support a variety of

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[2] DIRECTV is the licensee of 27 of the 32 channels at 101° W.L.; United States Satellite Broadcasting Co., Inc. ("USSB") is the licensee of the remaining 5 channels there. Echostar and its affiliates are operating from 119° W.L.

business information and distance-learning applications. Fifth, an entirely new programming category of Internet-like "multimedia" has become an important part of BSS delivery plans in the U.S. that will strain the capacity of today's bandwidth-limited BSS systems.

The 17.3-17.8 GHz downlink band, and the corresponding 24.75-25.25 GHz uplink band, provide a unique opportunity to meet the growing needs for BSS capacity with new, economically practical technology that is available today to provide this service.[3]

III. International and Domestic Allocations at 24.75-25.25 and 17.3-17.8 GHz.

In preparing for WARC-92, the U.S. recognized that additional bandwidth might be needed in the future for HDTV, or "next generation," BSS satellite services whose needs could not be met in the Planned BSS Band at 12.2-12.7 GHz.[4] The U.S. considered a number of different bands that might be able to accommodate these additional needs, and ultimately proposed at WARC-92 to accommodate at 24.65-25.25 GHz any next generation BSS needs that could not be met at 12 GHz.[5] As an alternative, Mexico, Canada, Brazil and Venezuela proposed to make the 17.3-17.8 GHz band available as an additional BSS

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3 Use of the 17.3-17.8 GHz band for BSS is not constrained by the orbital spacing provisions of the ITU's Region 2 plan. DIRECTV believes that it will be possible to use orbital spacing in this band as close as 4.5 degrees and still provide service to antennas 18 inches in diameter without the need for breakthroughs in ground antenna technology. *See infra* pp. 7-8. The FCC's policy of two degree spacing for satellites in the FSS service effectively limits receive FSS antennas in the 17.7-20.2 GHz band to 26 inches in diameter.

4 *Preparation for the International Telecommunication Union World Administrative Radio Conference*, 6 FCC Rcd 3900, 3910, ¶¶ 75-77 (1991) ("*WARC-92 Report*"). It was not clear then whether HDTV BSS service could be provided in the existing 12 GHz band, or whether a separate band was required for HDTV BSS. Now that the 12 GHz band is becoming congested, the 17 GHz band provides a means to accommodate the additional digital BSS needs that cannot be met at 12 GHz.

5 *Id.*

allocation. As a compromise, the U.S. agreed to the 17.3-17.8 GHz solution, which was endorsed for all of Region 2. The 24.75-25.25 GHz band (which the U.S. originally proposed for downlinks) was allocated as the corresponding uplink (or "feeder link") band for the new BSS downlink allocation at 17.3-17.8 GHz.[6] The following is a description of the current ITU and U.S. allocation status of these bands.

The 24.75-25.25 GHz band is allocated in Region 2 (the Americas) solely to the fixed-satellite service (Earth-to-space).[7] International footnote 882G (now S5.542) provides that feeder links to stations of the broadcasting satellite service have priority in this band over all other users in the fixed-satellite service.[8] There is no international allocation for terrestrial use of this band in Region 2.[9] The U.S. has not yet implemented any commercial allocations in this band, other than a non-conforming allocation (that has not yet become effective) to DEMS, a terrestrial fixed service.[10] Although the U.S. also has allocated this band for use on a primary basis by government radionavigation services, that use is extremely limited, and is in the process of being phased out.[11]

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6 To provide for the possibility that bi-directional use of the 17.3-17.8 GHz band proved infeasible, WARC-92 also allocated the 17.8-18.4 GHz band for the possible migration from 17.3-17.8 GHz of feeder links for 12 GHz BSS systems. As noted below, DIRECTV does not anticipate significant problems with a bi-directional use of the 17.3-17.8 GHz band that would warrant such a relocation. In any event, the system characteristics and downlink spectrum needs of GSO FSS systems that are licensed by the Commission in the Ka band would severely constrain use of the 17.8-18.4 GHz band for BSS feeder links.

7 47 C.F.R. § 2.106 (1996), at 427.

8 *Id.* at 470-71.

9 *See id.* at 427.

10 *See Amendment of the Commission's Rules to Relocate the Digital Electronic Message Service*, FCC 97-95 (released March 14, 1997) ("*DEMS* Order").

11 *Id.* at ¶ 15.

In Region 2, the 17.3-17.7 GHz band is allocated internationally on a co-primary basis to the FSS (Earth-to-space) for feeder links to BSS systems,[12] and also for the provision of BSS to end users.[13] There is a secondary allocation to the radiolocation service.[14] The U.S. has implemented the FSS and the secondary radiolocation allocations.[15] The BSS allocation has not yet been implemented in the U.S.

Internationally, the 17.7-17.8 GHz band is allocated in Region 2, on a co-primary basis, to the FSS (Earth-to-space) for feeder links to BSS systems, the FSS (space-to Earth), the BSS, the terrestrial fixed service, and, until March 31, 2007, the terrestrial mobile service.[16] The U.S. has implemented domestically all of these Region 2 allocations, except for the BSS allocation.[17] In addition, the FCC has designated the 17.7-17.8 band for licensing to GSO FSS systems on a primary basis, and NGSO FSS systems on a secondary basis.[18] U.S. footnote 334, which governs the relationship between commercial FSS systems and U.S. government systems, does not apply in this part of the frequency band.

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12 47 C.F.R. § 2.106 (1996), at 423 and 482 n.US 271.

13 *See* International Telecommunication Union, Final Acts of the World Radiocommunication Conference (WRC-95) ("*WRC-95 Final Acts*"), Part 1 at 180.

14 47 C.F.R. § 2.106 (1996), at 423.

15 *Id.*

16 *WRC-95 Final Acts*, Part 1 at 183.

17 47 C.F.R. § 2.106 (1996), at 423. The U.S. has not yet adopted the provision that makes the mobile service secondary in 2007.

18 *See Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules*, 3 C.R. 857 (P&F), ¶¶ 75-80 (1996) ("*28 GHz First Report*")

IV. Requested Changes.

A. Rule Changes.

In order to implement the Final Acts of WARC-92, the Commission should amend its existing Table of Frequency Allocations and its Rules to permit the use of the 24.75-25.25 GHz band for FSS uplinks to BSS systems, and the use of the 17.3-17.8 GHz band by the BSS. Attached as Exhibits A and B are proposed amendments to Sections 2.106, 25.202, 100.1(b), and 100.21 of the Commission's Rules that would implement the recommendations of WARC-92 with respect to these bands. Exhibit A proposes amendments to the U.S. Table of Frequency Allocations and includes the requisite footnotes. Exhibit B proposes conforming amendments to the Part 25 and Part 100 service rules and also proposes applying the Part 25 power flux density limit to BSS transmissions at 17.7 to 17.8 GHz in the space-to-Earth direction, in order to protect terrestrial services in this band.

B. Orbital Spacing Policy.

DIRECTV respectfully requests that the Commission adopt a 4.5 degree orbital spacing policy in licensing BSS space stations to operate in the 17.3-17.8 GHz (downlink) and 24.75-25.25 GHz (uplink) bands. Moreover, orbital assignments in this band should be, where possible, coincident with the U.S.'s BSS orbital assignments under the ITU's Region 2 BSS plan.[19]

Adopting a 4.5 degree orbital spacing policy with respect to these "expansion" BSS bands will provide a number of significant public interest benefits. First, using 4.5

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[19] The Commission has authorized BSS systems at the following orbital locations: 61.5° W.L., 101° W.L., 110° W.L., 119° W.L., 157° W.L., 166° W.L. and 175° W.L.

degree spacing, instead of 9 degree spacing,[20] will at least double the spectrum resource that is available for U.S. service in these bands, as compared to the amount of spectrum that is available for U.S. service under the Planned BSS Band. U.S. orbit assignments will be possible not only at the existing U.S. BSS assignments, but also at many other locations. Second it will support the provision of an increased variety of programming to the consumer. Third, due to the characteristics of this higher frequency band and the absence of constraints under the ITU's BSS plan, this reduced orbital spacing can be implemented and still allow consumers to receive the same quality of service to 18-inch receive antennas as they receive today with 9 degree spacing under the ITU's Region 2 Plan.

V. Compatibility of Proposed Changes With Existing Services.

DIRECTV believes that these proposed changes to the allocation table are fully consistent with existing uses of the 24.75-25.25 GHz and 17.3-17.8 GHz bands.

The 17.3-17.8 GHz band currently is used in the Earth-to-space direction for feeder links to BSS space stations, such as DIRECTV's system at 101 W.L. Use in the reverse direction (space-to-Earth) will not result in interference into existing BSS space stations, as long as all BSS systems at the same orbital location coordinate the implementation of the "reverse band" system. There will be very limited areas around BSS feeder link earth stations where reception in the 17.3-17.8 GHz band will be impaired. This is a well understood consequence of "reverse band" operation and a small price to pay for the inherent efficiencies of this type of bi-directional band use. DIRECTV anticipates that BSS operators

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20 The Commission has authorized BSS satellite systems in the Planned BSS Band to operate in a 9° orbital separation environment. That orbital separation requirement results from the limitations imposed on the U.S.'s assignments under the ITU's Appendix 30 and 30A plans for the BSS for Region 2.

will cooperate in mitigating these interference issues in the areas surrounding the relatively small number of 17.3-17.8 GHz BSS uplink stations.

DIRECTV also requests that the Commission's rulemaking seek comment on the types of measures that BSS uplink operators at 17.3-17.8 GHz should take in order to minimize this interference potential, such as (i) operating their uplinks at transmit power levels that are no greater than those needed to meet performance requirements;[21] (ii) minimizing uplink antenna sidelobes in the horizontal direction; and (iii) using natural and man-made shielding, where practical, to minimize radiation from the BSS uplink site.

The 17.7-17.8 GHz band currently is available for both fixed and mobile terrestrial services. The power flux density ("PFD") limits on spacecraft emissions contained in Part 25 of the Commission's rules, 47 C.F.R. § 25.208, should provide adequate protection to these existing services. Based on DIRECTV's experience with terrestrial use of the 12.2-12.7 GHz band, DIRECTV does not anticipate a significant interference problem from incumbent terrestrial users into BSS antennas. However, in order to develop a commercially reasonable and operationally practical coordination process for satellite receive antennas in this part of the band, additional information and analysis may be needed with respect to any current mobile uses of this band.

The Commission has designated the 17.7-17.8 GHz band as a possible downlink band for geostationary (GSO) satellites in the FSS. Although co-primary FSS and BSS downlink uses are compatible, both uses cannot occur in the same band at the same orbital location (or at nearby orbital locations). In any event, GSO FSS service providers will need to

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[21] *See, e.g.*, 47 C.F.R. § 25.204(d) (1996).

protect BSS service in the 17.7-17.8 GHz band effective April 2007.[22] As the Commission has noted, more than sufficient downlink bandwidth is available at 17.8-18.8 GHz and 19.7-20.2 GHz to meet the needs of all of the recently licensed Ka-band GSO FSS satellite systems, without GSO FSS use of the 17.7-17.8 GHz band.[23] In particular, under the Commission's 28 GHz band plan, a total of 1.0 GHz of uplink spectrum and 1.6 GHz of downlink spectrum is available for the GSO FSS. The Commission designated more downlink spectrum than uplink spectrum in order to facilitate solutions to possible incompatibilities or problems, such as the use of the 17.7-17.8 GHz band for BSS.[24] No U.S.-licensed GSO FSS system has requested operating authority at 17.7-17.8 GHz in the U.S., and there is no reason to believe this band will be needed by the GSO FSS for U.S. service. In short, more than enough bandwidth exists to accommodate both BSS and FSS downlink needs at 17.7-18.8 and 19.7-20.2 GHz.

With respect to the 24.75-25.25 GHz band, the Commission has indicated that the only current operations are two FAA radionavigation radar facilities located near Washington D.C. and Newark, N.J. that will be decommissioned as of January 1, 1998 and January 1, 2000, respectively.[25] If BSS feeder links are brought into operation by those dates, appropriate coordination arrangements should be able to be reached.

With respect to the compatibility of BSS feeder links with the DEMS service, DIRECTV has filed a Petition for Reconsideration today with respect to the *DEMS Order*,

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22 *See, e.g., 28 GHz First Report,* 3 C.R. 857 (P&F), ¶ 78.

23 *See, e.g., Hughes Communications Galaxy, Inc.*, DA-97-971, ¶¶ 19-20 (released May 9, 1997).

24 *28 GHz First Report,* 3 C.R. 857 (P&F), ¶ 78.

25 *DEMS Order,* ¶ 15.

contending, among other things, that the Commission did not even consider the impact of DEMS on the deployment of BSS uplinks at 24.75-25.25 GHz when it allocated that band for DEMS service. Because the Commission did not consider the impact on BSS uplinks, and there was no public notice or opportunity to comment before that Order was released, DIRECTV is unable to determine definitively the extent of the incompatibility between DEMS and BSS uplinks.

It is widely understood, however, that transmitting earth stations present a potential for interference into nearby terrestrial receive antennas. The scope of the problem turns on a number of factors, such as the sensitivity of the terrestrial antenna and its proximity to the earth station, the strength of the terrestrial signal that is being transmitted, and the number and type of the transmitting earth stations in question. In a number of situations involving widely-deployed terrestrial receive antennas, such as the type envisioned for DEMS, the Commission determined that significant interference problems would arise from the deployment of satellite transmit earth stations in the same band, and decided or proposed to preclude earth stations from operating in the same part of the band as the terrestrial service.[26]

DIRECTV's preliminary analysis concludes that there will be zones around a DIRECTV uplink station at 24.75-25.25 GHz where a DEMS antenna could receive unacceptable interference.[27] The shape and size of that zone, and the extent of the problem,

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26 *See, e.g.*, *28 GHz First Report*, 3 C.R. 857 (P&F), ¶¶ 25-28; *In re Allocation and Designation of Spectrum for Fixed Satellite Services, et al*, FCC 97-85 (NPRM)(released March 24, 1997), ¶ 12 & n.11.

27 DIRECTV's analysis thus far is based on an extrapolation of data on 18 GHz DEMS operations. DIRECTV needs information about DEMS transmit/receive parameters at 24 GHz in order to fully analyze this issue, but that information is not publicly available.

will depend on a number of factors, such as whether a DEMS licensee uses the 25.05-25.25 GHz band to transmit in the "node to user" or "user to node" direction.

VI. Effective Date of BSS Allocation.

Although international footnote S5.517 provides that the allocation for BSS at 17.3-17.8 GHz does not come into effect until April 1, 2007, there does not appear to be any reason to constrain use of that band for BSS prior to that date, as long as BSS downlinks do not cause harmful interference to any other co-primary service in the band.[28] As noted above, DIRECTV does not believe than the potential for such harmful interference exists, as long as BSS transmissions comply with the PFD limits set forth in Section 25.208 of the Commission's rules, which are the same as those contained in the ITU's Radio Regulations.[29] As noted above, a pressing demand exists for additional BSS capacity today. Because no good purpose would be served by delaying the introduction of BSS in these bands until 2007, DIRECTV respectfully requests that the Commission implement this allocation as soon as possible, recognizing that the BSS service in this band may not be able to be afforded international protection until 2007.

VII. Public Interest Benefits.

Amending the Table of Frequency Allocations and the Rules as DIRECTV proposes will serve the public interest significantly in a number of respects.

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[28] DIRECTV acknowledges that the U.S. may need to engage in bilateral discussions with neighboring nations to address concerns about the early implementation of BSS in this band.

[29] ITU Radio Regulations, S21.16.

First, expanding the capacity of BSS satellite systems will serve the U.S. consumer. It will allow the carriage of an increased variety of program and service offerings, thereby facilitating more robust competition with the cable television industry.

Second, making these frequency bands available for BSS service will allow the United States to compete more effectively in the growing international market for direct-to-home satellites and ground equipment.

Third, allowing use of the 17.3-17.8 GHz band on a "reverse band working" basis is important to maximize the efficient use of orbital spectrum resources. Reverse band working is particularly well-suited for use in bands, such as 17.3-17.8 GHz, where current use is limited to a handful of uplinks within the United States. The Commission recognized the benefits that can be offered by reverse band working use of the spectrum when it advocated at WRC-95 the bi-directional use of the 19.3-19.7 GHz band for feeder links for NGSO MSS systems. Thus, existing and new BSS service providers will be able to maximize the use of the valuable spectrum through this bi-directional use of bandwidth. This will result in a more efficient use of the available orbital locations.

Finally, as the Commission is well aware, the U.S. has only a limited amount of BSS spectrum available to it under the existing ITU BSS plan for 12 GHz, and neighboring countries have proposed to modify their BSS assignments to allow coverage of the U.S. Because use of the 17.3-17.8 band for BSS has not been "planned," it provides a unique opportunity for the Commission to afford U.S. satellite operators greater flexibility and capacity in their BSS operations.

VIII. Conclusion.

For the foregoing reasons, the Commission should grant DIRECTV's petition for rulemaking, and it further should amend the Table of Frequency Allocations contained in Section 2.106 of the Commission's Rules, and also amend Parts 25 and 100 of the Rules, to allow use of the 24.75-25.25 GHz for FSS feeder links for the BSS, and use of 17.3-17.8 GHz for BSS.

Respectfully submitted,

DIRECTV ENTERPRISES, INC.

By: _____

Gary M. Epstein
John P. Janka
James H. Barker
LATHAM & WATKINS
1001 Pennsylvania Avenue, N.W.
Suite 1300
Washington, D.C. 20004-2505
(202) 637-2200

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Exhibit A

Proposed changes to the Table of Frequency Allocations are shown in bold type on the attached three pages.

International Table			United States Table		FCC Use Designators	
Region 1 - Allocation GHz (1)	**Region 2 - Allocation GHz** (2)	**Region 3 - Allocation GHz** (3)	**Government** Allocation GHz (4)	**Non - Government** Allocation GHz (5)	**Rule Part(s)** (6)	**Special Use Frequencies** (7)
•	•	•	•	•	•	•
24.75 - 25.25 FIXED	24.75 - 25.25 FIXED - SATELLITE (Earth-to-space) **S5.542**	24.75 - 25.25 FIXED FIXED - SATELLITE (Earth-to-space) **S5.542** **MOBILE** **S5.541**	24.75 - 25.25 RADIONAVIGATION	**24.75 - 25.25** **FIXED-SATELLITE** **(Earth-to-space) S5.542**	AVIATION (87) **FIXED-SATELLITE SERVICE (25)**	
•	•	•	•	•	•	•

Renumber existing international footnote "882F" as "S5.541," and existing international footnote "882G" as "S5.542."

International Table			United States Table		FCC Use Designators	
Region 1 - Allocation GHz (1)	Region 2 - Allocation GHz (2)	Region 3 - Allocation GHz (3)	Government Allocation GHz (4)	Non - Government Allocation GHz (5)	Rule Part(s) (6)	Special Use Frequencies (7)
•	•	•	•	•	•	•
17.3 - 17.7 **FIXED-SATELLITE (Earth-to-space) S5.516** **Radiolocation** **S5.514**	17.3 - 17.7 FIXED-SATELLITE (Earth-to-space) **S5.516** **BROADCASTING-SATELLITE** Radiolocation **S5.514 S5.515 S5.517**	17.3 - 17.7 **FIXED-SATELLITE (Earth-to-space) S5.516** **Radiolocation** **S5.514**	17.3 - 17.7 Radiolocation US259 US271 G59	17.3 - 17.7 FIXED-SATELLITE (Earth-to-space) **BROADCASTING-SATELLITE (space-to-Earth)** US259 US271 NG140 **S5.515**	**BROADCASTING SATELLITE SERVICE (100)**	
17.7 - 17.8 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) **S5.516** MOBILE	17.7 - 17.8 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) **S5.516** **BROADCASTING-SATELLITE** **Mobile S5.518** **S5.515 S5.517**	17.7 - 17.8 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) **S5.516** MOBILE	17.7 - 17.8 US271	17.7 - 17.8 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) **BROADCASTING-SATELLITE (space-to-Earth)** **Mobile S5.518** US271 US XXX NG140 NG144 **S5.515**	AUXILIARY BROADCASTING (74) CABLE TELEVISION RELAY (78) DOMESTIC PUBLIC FIXED (21) PRIVATE OPERATIONAL-FIXED MICROWAVE (94) **BROADCASTING SATELLITE SERVICE (100)**	

S5.514 Additional allocation: in Algeria, Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, the Islamic Republic of Iran, Iraq, Israel, Japan, Jordan, Kuwait, The Former Yugoslav Republic of Macedonia, Libya, Nepal, Nicaragua, Oman, Pakistan, Qatar, Slovenia, Sudan, Sweden, and Yugoslavia, the band 17.3 - 17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. S21.3 and S21.5 shall apply.

S5.515 In the band 17.3-17.8 GHz, sharing between the fixed-satellite service (Earth-to-space) and the broadcasting-satellite service shall also be in accordance with the provisions of section 1 of Annex 4 of Appendix S30A.

S5.516 The use of the band 17.3 - 18.1 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band 17.3 - 17.8 GHz in Region 2 by the feeder links for the broadcasting-satellite service in the band 12.2 - 12.7 GHz, see Article S11.

S5.517 In Region 2, the allocation to the broadcasting-satellite service in the band 17.3-17.8 GHz shall come into effect on 1 April 2007. After that date, use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not claim protection from and shall not cause harmful interference to operating systems in the broadcasting-satellite service.

S5.518 ***Different category of service:*** **in Region 2, the allocation of the band 17.7-17.8 GHz to the mobile service is on a primary basis until 31 March 2007.**

US XXX Use of the fixed-satellite (space-to-Earth) service in the band 17.7-17.8 GHz shall not claim protection from and shall not cause harmful interference to operating systems in the broadcasting-satellite service.

Exhibit B

Proposed changes to the Rules below are shown in bold type.

1. Amend the table and footnotes in Section 25.202(a)(1) to allow use of 24.75-25.25 GHz for FSS feeder links to the broadcasting-satellite service, so that Section 25.202(a)(1), as amended, reads as follows:

(a)(1) Frequency bands. The following frequencies are available for use by the fixed satellite service. Precise frequencies and bandwidths of emission shall be assigned on a case-by-case basis.

Space-to Earth (GHz)	Earth-to-space (GHz)
3.7-4.2[1]	5.925-6.425[1]
10.95-11.2[1,2]	13.75-14.0[4]
11.45-11.7[1,2]	14.0-14.2[5]
11.7-12.2[3]	14.2-14.5
17.7-19.7[1]	**24.75-25.25[6]**
19.7-20.2	27.5-29.5[1]
	29.5-30.0

[1] This band is shared coequally with terrestrial radiocommunication services.
[2] Use of this band by the fixed-satellite service limited to international systems, *i.e.*, other than domestic systems.
[3] Use of this band by the fixed-satellite service in Region 2 is limited to national and subregional systems. Fixed-satellite transponders may be used additionally for transmissions in the broadcasting-satellite service.
[4] This band is shared on an equal basis with Government radiolocation service, grandfathered space stations in the Tracking and Data Relay Satellite System, and until January 1, 2000, spaceborne sensors.
[5] In this band, stations in the radionavigation service shall operate on a secondary basis to the fixed-satellite service.
[6] Use of this band by the fixed-satellite service is limited to feeder links to the broadcasting-satellite service.

2. Amend Section 100.1(b) to permit use of the 17.3-17.8 GHz band for the broadcasting satellite service, so that Section 101.1(b), as amended, reads as follows:

(b) The purpose of this part is to prescribe the manner in which parts of the radio frequency spectrum may be made available for the development of interim direct broadcast satellite service. Interim direct broadcast satellite systems shall be granted licenses pursuant to these interim rules during the period prior to the adoption of permanent rules. The Direct Broadcast Satellite Service shall operate in the frequency bands 12.2-12.7 GHz **and 17.3-17.8 GHz**.

3. Renumber the existing paragraph in Section 100.21 as paragraph (a) and add a new paragraph (b) regarding power flux density limits, that is consistent with existing Section 25.208, so that Section 101.21, as amended, reads as follows:

§100.21 Technical requirements.

(a) Prior to the 1983 Regional Administrative Radio Conference for the Broadcasting-Satellite Service, interim direct broadcast satellite systems shall be operated in accordance with the sharing criteria and technical characteristics contained in Annexes 8 and 9 of the Final Acts of the World Administrative Radio Conference for the Planning of the Broadcasting Satellite Service in Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), Geneva, 1977; *Provided, however,* That upon adequate showing systems may be implemented that use values for the technical characteristics different from those specified in the Final Acts if such action does not result in interference to other operational or planned systems in excess of that determined in accordance with Annex 9 of the Final Acts.

(b) In the 17.7-17.8 GHz frequency band, the power flux density at the Earth's surface produced by emissions from a space station for all conditions and for all methods of modulation shall not exceed the following values:

(1) 115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane.

(2) 115+0.5 (d-5) dB (W/m^2) in any 1 MHz band for angles of arrival d (in degrees) between 5 and 25 degrees above the horizontal plane.

(3) 105 dB (W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

DECLARATION OF PAUL R. ANDERSON

I, Paul R. Anderson, hereby declare as follows:

1. I am Director, Communications Systems for DIRECTV Enterprises, Inc. ("DIRECTV"). I am an engineer by training and familiar with the technical and interference characteristics of DIRECTV's DBS System, the requirements of Part 25 and Part 100 of the commission's rules, and the interference and technical issues referenced in the foregoing Petition for Rulemaking.

2. I have reviewed the foregoing Petition for Rulemaking from a technical perspective, and the information contained therein is true and accurate to the best of my knowledge, information and belief.

By: Paul Anderson

Paul R. Anderson
Director, Communications Systems
DIRECTV Enterprises, Inc.

June 4, 1997