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June 9, 2003

BY HAND DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
International Bureau - Satellites
P.O. Box 358210
Pittsburgh, PA 15251-5210

S2454 SAT-LOA-20030609-00113
EchoStar Satellite Corporation
Echostar 86.5 WL

Re: Application of EchoStar Satellite Corporation for Authority to Construct, Launch and Operate a Direct Broadcast Satellite in the 12.2-12.7 GHz and 17.3-17.8 GHz Frequency Bands at the 86.5° W.L. Orbital Location, File No. _____

Dear Ms. Dortch:

On behalf of EchoStar Satellite Corporation ("ESC"), enclosed please find for filing an original and nine copies of an application for authority to construct, launch and operate a Direct Broadcast Satellite ("DBS") in the 12.2-12.7 GHz and 17.3-17.8 GHz frequency bands at the 86.5° W.L. orbital location. Also enclosed is a check in the amount of $31,445.00 to cover the applicable "Authorization to Construct," "Construction Permit and Launch Authority" and "License to Operate" filing fees, and a completed FCC Form 159

We are also enclosing an additional copy of the application, which we ask you to date stamp and return with our messenger.

Respectfully submitted,

Pantelis Michalopoulos
Philip L. Malet
Attorneys for EchoStar Satellite Corporation

Enclosures

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

In the Matter of	)	
	)	
EchoStar Satellite Corporation	)	
	)	File No. _____
Application for Authority to Construct, Launch and Operate a Direct Broadcast Satellite in the 12.2-12.7 GHz and 17.3-17.8 GHz Frequency Bands at the 86.5° W.L. Orbital Location	)	

APPLICATION

Pursuant to Sections 308, 309 and 319 of the Communications Act of 1934, as amended, and Part 25 of the Commission's rules, 47 C.F.R. Part 25, EchoStar Satellite Corporation ("EchoStar"), a wholly-owned subsidiary of EchoStar Communications Corporation, hereby applies for authority to construct, launch and operate a Direct Broadcast Satellite ("DBS") using the 12.2-12.7 GHz downlink frequencies and 17.3-17.8 GHz feeder uplink frequencies. EchoStar intends to launch this satellite into the 86.5° W.L orbital location and operate over all 32 DBS channels. The use of this orbital location for DBS has become possible as a result of recent advances in satellite technology that, subject to appropriate constraints, allow for properly designed DBS satellites to operate without causing harmful interference to adjacent DBS satellites.

As the Commission is well aware, EchoStar is a leading provider of DBS service in the multichannel video programming distribution ("MVPD") market with over eight million subscribers. EchoStar and other EchoStar affiliates own and operate eight DBS satellites located

at the 61.5° W.L., 110° W.L., 119° W.L., and 148° W.L. orbital positions.[1] The new DBS satellite that is the subject of this Application will be integrated into EchoStar's overall satellite constellation. The additional channel capacity provided by this new satellite will be used to serve EchoStar's subscribers with new and innovative DBS and other spectrum-intensive services such as high-definition television ("HDTV"), more local channels and interactive multimedia offerings. These services will complement the existing DBS services presently being offered over EchoStar's current fleet of DBS satellites.

Attached to this Application is the information required to modify the Broadcasting-Satellite Service plans for the International Telecommunication Union ("ITU")'s Region 2.[2] EchoStar urges the Commission to forward this material promptly to the ITU and request a modification of the Broadcasting-Satellite Service plans for Region 2, under the

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[1] EchoStar recently received authorization to operate a satellite using three channels at the 157° W.L. orbital location. *In the Matter of EchoStar Satellite Corp., For Assignment of Direct Broadcast Satellite Orbital Position and Channels*, Order, File No. DBS-88-01, DA 03-1510 (Int'l Bur. rel. May 7, 2003). EchoStar is also authorized to provide Fixed-Satellite Service from a number of orbital locations. In addition, on May 30, 2003, EchoStar filed an application requesting authority to construct, launch and operate a DBS satellite over all 32 DBS channels at 114.5° W.L. using the 12.2-12.7 GHz downlink frequencies and 17.3-17.8 GHz feeder uplink frequencies. *See* File No. SAT-LOA-_____-_____. On June 5, 2003, EchoStar filed an application requesting authority to construct, launch and operate a DBS satellite over all 32 DBS channels at 96.5° W.L. using the 12.2-12.7 GHz downlink frequencies and 17.3-17.8 GHz feeder uplink frequencies. *See* File No. SAT-LOA-_____-_____. On June, 6, 2003, EchoStar filed an application requesting authority to construct, launch and operate a DBS satellite over all 32 DBS channels at 123.5° W.L. using the 12.2-12.7 GHz downlink frequencies and 17.3-17.8 GHz feeder uplink frequencies. *See* File No. SAT-LOA-_____-_____.

[2] *See* Attachment 1 and Exhibits A-B appended thereto. The complex analysis of Annex 1 to Appendix 30 and Annex 1 to Appendix 30A including MSPACE, which is used to determine if coordination with other Administrations may be required, will be submitted shortly under separate cover.

procedures set forth in Article 4 of Appendix 30 and Article 4 of Appendix 30A of the Radio Regulations.[3]

I. INTRODUCTION

The international Radio Regulations set forth assignments of Broadcasting-Satellite Service ("BSS") spectrum at specific orbital locations for countries in the ITU's Region 2 (North and South America). These assignments, part of the Region 2 "BSS Plan" and associated "Feeder Link Plan" (collectively the "Region 2 Plans"), are contained in Appendices 30 and 30A of the Radio Regulations. The Region 2 Plans, developed in the early 1980's, set forth technical parameters for satellites operating in the region, as well as a mechanism for implementing systems with technical parameters that vary from the planned assignments.[4]

In accordance with Appendices 30 and 30A, DBS orbital assignments to the United States and Canada are generally separated by nine degrees.[5] This satellite spacing is considerably greater than the two degree spacing typically deployed in the United States for the FSS bands. The intent behind this wide spacing was to accommodate the higher power deployed by DBS satellites and to allow for the use of consumer-friendly small receive dishes, while ensuring that there would be no harmful interference between adjacent DBS satellites.[6]

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[3] "Broadcasting-Satellite Service" or "BSS" is the terminology used internationally and by the ITU to describe what is referred to in the United States as Direct Broadcast Satellite or "DBS" service.

[4] *See In the Matter of Policies and Rules for Direct Broadcast Satellite Service*, Notice of Proposed Rulemaking, 13 FCC Rcd. 6907, 6931, ¶ 44 (1998) ("*DBS Services Rules NPRM*")

[5] *See* Radio Regulations, Appendix 30, Article 10; *see also In the Matter of Policies and Rules for Direct Broadcast Satellite Service*, Report and Order, 17 FCC Rcd. 11331, 11335, ¶ 6 (2002) ("*DBS Service Rules*").

[6] *See id.* at 11335, n. 33.

Questions have recently been raised, however, as to whether the technical assumptions underlying the nine degree spacing for BSS satellites set forth in the Region 2 Plans are still valid. In May 2002, the Commission sought comment on a petition filed by SES AMERICOM, Inc. to make capacity available for direct-to-home ("DTH") service to the United States on a foreign-licensed satellite that would operate midway between two U.S. DBS orbital locations, separated by only 4.5 degrees.[7] The SES petition maintained that the Region 2 Plans are based on analog technology that is now outdated, and that recent technological advances have made it possible for properly designed, high-power DBS satellites to operate at 4.5 degree separations without causing harmful interference to one another when serving the same geographic areas.[8] While EchoStar did not object to the entry of a new competitor into the MVPD market, SES's novel technical assertions were met with skepticism by EchoStar and others based on a preliminary analysis of SES's approach, which did not appear to support SES's conclusions regarding the feasibility of 4.5 degree spacing of DBS satellites.[9] EchoStar has consistently made clear, however, that its primary concern is maintaining reliable service for the millions of DBS subscribers throughout the United States who use small receive-only earth

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[7] *See* Public Notice, Report No. SAT-00110, at 1-2 (rel. May 17, 2002) (seeking comment on *In the Matter of SES AMERICOM, Inc.*, Petition for a Declaratory Ruling to Serve the U.S. Market Using BSS Spectrum From the 105.5° W.L. Orbital Location, File No. SAT-PDR-20020425-00071 ("SES Petition") (Apr. 25, 2002)).

[8] *See* SES Petition at 16.

[9] *See, e.g.* Comments of EchoStar Satellite Corporation, File No. SAT-PDR-20020425-00071, at 4 (June 17, 2002).

stations, and that it does not oppose any operation that will not disrupt current or planned service to U.S. DBS subscribers.[10]

Additional technical analysis conducted by EchoStar suggests that operation of a properly-designed DBS satellite at 86.5° W.L. could be managed (and made subject to appropriate restrictions) so as not to cause harmful interference to adjacent satellite networks serving the same geographic areas. As the attached Technical Annex demonstrates, operation of the proposed state-of-the-art satellite at the 86.5° W.L. orbital location is technically feasible.[11] Specifically, the original Region 2 Plans assumed that the channels would be power limited (as opposed to interference limited), due primarily to analog signaling and the power limitations of the previous generation of satellites. As a result, accommodations were made to maximize the amount of power reaching the user's set top box (*i.e.*, larger user antennas and higher powered (but fewer) transponders on the satellite). These techniques made up for the lack of digital encoding and of advanced error correction techniques that are prevalent today. Because of these and other advances, current channel operation is not limited by power but by interference, or more precisely, by the carrier to interference ratio, designated as C/I. Through the careful coordination of power levels and frequencies delivered to a given area on the ground by satellites that are separated by 4.5 degrees, C/I levels could be managed to support economically viable DBS operations at these reduced orbital spacings. Moreover, through the proper design of the proposed satellite, including beam shaping and power roll-off, harmful interference to other nearby planned BSS systems can be avoided.

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[10] *See* Letter from Pantelis Michalopoulos, *et al.*, Counsel to EchoStar, to Rockie Patterson, FCC, at 2 (Aug. 16, 2002); Letter from Pantelis Michalopoulos, *et al.*, Counsel to EchoStar, to Donald Abelson, FCC, at 2 (Aug. 30, 2002).

[11] *See* Attachment 1.

The Commission has already observed that advances in technology over the years have resulted in use of technical parameters on DBS satellites that differ from those upon which the Region 2 Plans were based.[12] Indeed, because the Region 2 Plans are nearly twenty years old, it comes as no surprise that some of the technology upon which they are based has become obsolete. For this reason, modification of the Region 2 Plans has become a necessity to accommodate modern BSS systems, prompting the Commission to note that "[m]odifications of the BSS plans are expected not only to continue, but also to increase, in the future."[13]

As the Commission is well aware, where DBS systems seek to incorporate parameters that differ from the planned assignments, the U.S. Administration must initiate a modification to the Region 2 Plans using the procedures set forth in Article 4 of Appendix 30 and Article 4 of Appendix 30A of the Radio Regulations.[14] Such modifications are not novel – modification requests are contemplated by the Commission's Rules,[15] and the U.S. Administration has undertaken to modify the BSS Plans on several occasions on behalf of U.S. space station applicants in Region 2, as well as Regions 1 (Europe and Africa) and 3 (Asia-

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[12] *See DBS Service Rules*, 17 FCC Rcd. at 11383, ¶ 112. For example, the Commission has explained, U.S. DBS systems use digital rather than analog modulation techniques, have lower downlink e.i.r.p., have extended the original intended service area delineated by the radio frequency beams, use larger feeder-link transmit earth station antennas, and receive earth station antennas with smaller diameters than were assumed during the creation of the Region 2 Plans. *Id.*

[13] *EchoStar Satellite Corp.*, Order and Authorization, 17 FCC Rcd. 894, 897, n.21 (Int'l Bur. 2002); *DirecTV Enterprises, Inc.*, Order and Authorization, 16 FCC Rcd. 18530, 18533, n.17 (Int'l Bur. 2002).

[14] *See DBS Service Rules NPRM*, 13 FCC Rcd. at 6931, ¶ 44.

[15] *See* 47 C.F.R. § 25.111(c) ("In the Direct Broadcast Satellite Service, applicants and licensees shall also provide the Commission with all information it requires in order to modify the Appendix 30 Broadcasting-Satellite Service ("BSS") Plans and associated Appendix 30A feeder link Plans, if the system uses technical characteristics differing from those specified in the Appendix 30 BSS Plans, the Appendix 30A feeder link Plans, Annex 5 to Appendix 30 or Annex 3 to Appendix 30A.")

Pacific).[16] Similarly, the Commission immediately should initiate a requested modification to the Region 2 Plans to incorporate the orbital slot assignment contained in this Application.[17] As required by the Commission's Rules, EchoStar provides in Attachment 1 to this Application, the information required to modify the Appendix 30 and Appendix 30A Region 2 Plans.[18]

The following information is also provided to the Commission in support of this Application:

II. APPLICANT NAME AND CONTACT INFORMATION

Name, address and phone number of applicant:

EchoStar Satellite Corporation
5701 South Santa Fe
Littleton, CO 80120
(303) 723-1000

Names, addresses and phone numbers of persons to whom inquiries or correspondence should be directed:

EchoStar Satellite Corporation
Attn: Mr. David K. Moskowitz
5701 South Santa Fe
Littleton, CO 80120
(303) 723-1000

[16] For example, in 1995, the United States filed for several modifications (in both the Region 2 Plans and the Regions 1 and 3 Plans) to provide BSS throughout the world. These modifications resulted in the inclusion of five U.S. BSS systems in the Regions 1 and 3 "Lists" for BSS downlinks.

[17] *See* Radio Regulations, Appendix 30, Article 10.

[18] *See* Attachment 1 and Exhibits appended thereto. *See also* note 2, *supra*.

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III. OWNERSHIP INFORMATION

This information is set forth in the attached FCC Form 312.[19]

IV. GENERAL DESCRIPTION OF SERVICES TO BE PROVIDED

The primary use of the proposed satellite is expected to be for MVPD services in the United States. It is anticipated that most of the capacity on this satellite will be used for serving the U.S., Puerto Rico, and the U.S. Virgin Islands; however, at least some of the beam coverage will extend beyond the United States into Mexico. Subject to obtaining any necessary international regulatory approvals, EchoStar also may provide MVPD services to other ITU Region 2 countries.

The additional capacity afforded by the new satellite can be used, in conjunction with EchoStar's current fleet of satellites and facilities, to offer subscribers more local service, new and expanded programming choices, and more meaningful competition to the dominant cable providers. Some of this programming, such as HDTV, is extremely spectrum intensive, requiring many times more bandwidth than standard NTSC video signals. To date, EchoStar has only been able to offer its subscribers a limited amount of HDTV programming due to the constraints on its spectrum capacity. With the addition of this new satellite however, there will

[19] *See* Attachment 2.

be more capacity available to offer DBS subscribers significantly more HDTV and other bandwidth intensive programming.

EchoStar further anticipates that it will be able to offer a wider range of niche programming with the additional satellite capacity, including more international, foreign language, informational and educational programs, to its DBS subscribers. There are approximately 8.0 million households in the United States headed by persons of foreign nationality, encompassing 22.6 million foreign-born persons living in the United States. Generally, it is not cost effective for traditional broadcasters or cable companies to serve these households with multiple program offerings because of the generally low number of niche customers in any particular local market. These customers, along with other subscribers interested in receiving international and cultural programming, create an opportunity to provide more foreign language and international content over EchoStar's DISH Network.

Specialized programming and other services could also be made available to business users that are a potential large untapped market for MVPD services. EchoStar estimates that there are approximately 8 million businesses and over 200,000 schools, libraries and other institutions that desire access to high quality video, audio and data programming services. EchoStar believes that with the increased capacity provided by this new satellite and its other proposed DBS satellites, more specialty services, data, informational, educational, foreign language and other niche programming can be directed toward this market in order to attract new subscribers.

V. GENERAL DESCRIPTION OF SATELLITE, FACILITIES AND OPERATIONS

A detailed technical description of EchoStar's proposed DBS satellite, facilities and operations is set forth in Attachment 1, hereto.

VI. INTERFERENCE ANALYSIS AND ITU FILINGS

As noted above, the information required by the Commission to submit a request for modification of the Region 2 Plans, and the necessary Radio Regulations Appendix 4 information required by the ITU Radiocommunication Bureau to advance publish, coordinate and notify the frequencies to be used for tracking, telemetry and control functions, is set forth in Attachment 1.[20] As demonstrated in this material, EchoStar's proposed new DBS satellite should be able to operate without causing any harmful interference to other BSS satellites identified in the Region 2 Plans.

VII. TECHNICAL QUALIFICATIONS – DUE DILIGENCE MILESTONES

The Commission's Rules require service to Alaska and Hawaii unless such service is not "technically feasible from the authorized orbital location."[21] Service to Alaska and Hawaii is not technically feasible from the 86.5° W.L. orbital location and for this reason, EchoStar's proposed satellite will not serve those states. Specifically, as explained in the attached Technical Annex, the geostationary orbital location of 86.5°W is not suitable for providing DBS service to either Hawaii or Alaska because of extremely low elevation angles.[22] The elevation angles associated with the 86.5° W.L. location are between 7° and 12° from Hawaii and lower than 8° towards Alaska, with the majority of Alaska not even visible from the 86.5°W orbital location (i.e., negative elevation angles). Even where those territories are visible, the extremely low elevation angles would not permit a viable DBS service due to the difficulty in

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[20] *See* 47 C.F.R. 25.111(c).

[21] 47 C.F.R. § 25.148(c).

[22] *See* Attachment 1, Technical Annex at 5-6.

locating user receive dishes where they could "see" the 86.5° W.L. satellite because of building, terrain and foliage blockage.

EchoStar is prepared to comply with the Commission's due diligence requirements for DBS satellites by completing contracting for construction of the proposed satellite within one year of the grant of a construction permit, completing construction of the first satellite within four years of the grant, and placing the satellite in operation within six years of the grant.[23]

VIII. SYSTEM COSTS AND FINANCIAL QUALIFICATIONS

EchoStar estimates that the cost of constructing and launching the proposed satellite and operating it for one year will be as follows:

Construction, Launch and Insurance	$	250-300 million
Other Miscellaneous Costs		25-50 million
First Year Operational Costs		10-15 million
TOTAL Estimated Costs	$	285-365 million

While the Commission does not require a prior demonstration of financial fitness for DBS system applicants, EchoStar is a publicly traded company that clearly has the financial capacity to fund these costs. EchoStar's financial qualifications are a matter of public record.

IX. LEGAL QUALIFICATIONS

EchoStar's legal qualifications are a matter of record and are also set forth in the Form 312 submitted today.

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[23] *See* 47 C.F.R § 25.148 (b).

X. STATUS OF OPERATIONS

EchoStar intends to operate these DBS satellites on a non-broadcast, non-common carrier basis.[24]

XI. PUBLIC INTEREST CONSIDERATIONS

EchoStar has long sought ways in which it could use spectrum and satellite capacity more efficiently and thereby, facilitate the offering of new and expanded programming choices to consumers and more meaningful competition to the dominant cable providers. The DBS system expansion EchoStar proposes here, which would take advantage of recent technological advances, is one step in this effort.

The prompt grant of EchoStar's application for authority to construct, launch and operate a new DBS satellite will clearly benefit the public in many important respects. Most significantly, if the sharing issues raised by 4.5 degree spacing can be managed, the shortage of full-CONUS capacity in the 12.2-12.7 GHz band may be relieved somewhat, permitting the expansion of DBS services to meet the acknowledged demand for additional DBS capacity.[25] As a result, EchoStar expects that it will be able to offer to subscribers more local stations, as well as a whole range of new and innovative services that otherwise could not have been made available.

These services could include more HDTV offerings and a wider range of niche programming such as international, foreign language, informational and educational programs to

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[24] *See* 47 C.F.R. § 25.114(c)(14).

[25] *See In the Matter of Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use,* Report and Order, 15 FCC Rcd. 13430, 13477, ¶ 97 (2000) ("*DBS Expansion Allocation Order*") ("We note that BSS is a rapidly growing service, and that additional spectrum may be required for BSS within the next decade.")

its subscribers. Specialized programming and other services could also be made available to business users that are a potential large untapped market for MVPD services. EchoStar estimates that there are approximately 8 million businesses and over 200,000 schools, libraries and other institutions that desire access to high quality video, audio and data programming services. EchoStar believes that with the increased capacity provided by the new satellites, more specialty services, data, informational, educational, foreign language and other niche programming can be directed toward this market in order to attract new subscribers.

Such an expansion in programming will enable EchoStar to compete more effectively with cable operators that have aggressively upgraded the capacity of their systems to allow for the digital retransmission of video programming.[26] The rollout of new digital cable upgrades and related facilities has compounded cable's incumbency advantages, and allows cable operators to offer a bundle of video and other services. The launch of a new satellite in the DBS bands provides EchoStar with a unique opportunity to meet the growing need for DBS capacity, and to meet the challenges presented by the highly competitive MVPD market.

Consistent with the Commission's stated goals for use of the DBS bands, EchoStar's proposed satellite, which is designed to maximize the efficient use of orbital and spectrum resources, also will help foster the development of next-generation DBS services and satellite telecommunications technologies needed to implement them.[27] Thus, grant of this

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[26] *See Annual Assessment of the Status of Competition in the Market for the Delivery of MVPD Competition Report*, Eighth Annual Report, 16 FCC Rcd. 6005, 6009-10, ¶¶ 11, 13 (2001) ("[v]irtually all the major MSOs offer Internet access via cable modems in portions of their nationwide service areas... The cable industry has continued to invest in improved facilities. As a result, there have been increases in channel capacity, the deployment of digital transmissions, and non-video services such as Internet access. Cable operators also offer telephony...")

[27] *See DBS Service Rules NPRM*, 13 FCC Rcd. at 6908, ¶ 1 ("In light of the growth of DBS and DTH-FSS, the promise of new broadband systems, the continuing rise in cable rates, as

Application will assist the United States in enhancing its global leadership role in advanced satellite systems and services.

In sum, by enhancing competition in the MVPD market, boosting the competitiveness of the DBS industry and facilitating the efficient use of orbital and spectrum resources, the proposed satellite will serve the public interest and simultaneously adhere to the Commission's stated policy goals for the DBS bands.[28] Accordingly, the Commission should not only grant this Application because it is in the public interest, it should do so expeditiously.

XII. WAIVER PURSUANT TO SECTION 304 OF THE COMMUNICATIONS ACT

In accordance with Section 304 of the Communications Act of 1934, as amended, 47 U.S.C. § 304, EchoStar hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of same, whether by license or otherwise.

XIII. CONCLUSION

For the foregoing reasons, EchoStar respectfully requests that the Commission promptly approve this Application as in the public interest, convenience and necessity.

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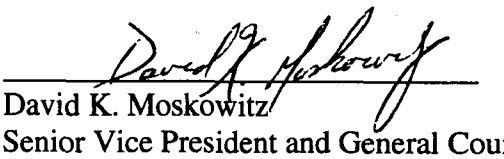
well as consumer benefits from competition such as more service offerings, better consumer service, and downward pressure on prices, we believe it is particularly important to continue to examine our policies to ensure that they are procompetitive and deregulatory."); *see also DBS Expansion Allocation Order*, 15 FCC Rcd. at 13431, ¶ 2 ("The 18 GHz band currently serves a variety of communications needs and has the potential to provide consumers, both business and residential, with exciting new services in the years to come.")

[28] *See DBS Expansion Allocation Order*, 15 FCC Rcd. at 13431, ¶ 1 ("With this Report and Order, we adopt rules that will permit the efficient use of spectrum for existing and future users, and will facilitate the deployment of new services in the 17.7-20.2 GHz band.")

Respectfully submitted,

EchoStar Satellite Corporation



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Counsel for EchoStar Satellite Corporation

Dated: June 9, 2003

Attachment 1

TECHNICAL ANNEX

Technical Description of EchoStar-86.5W

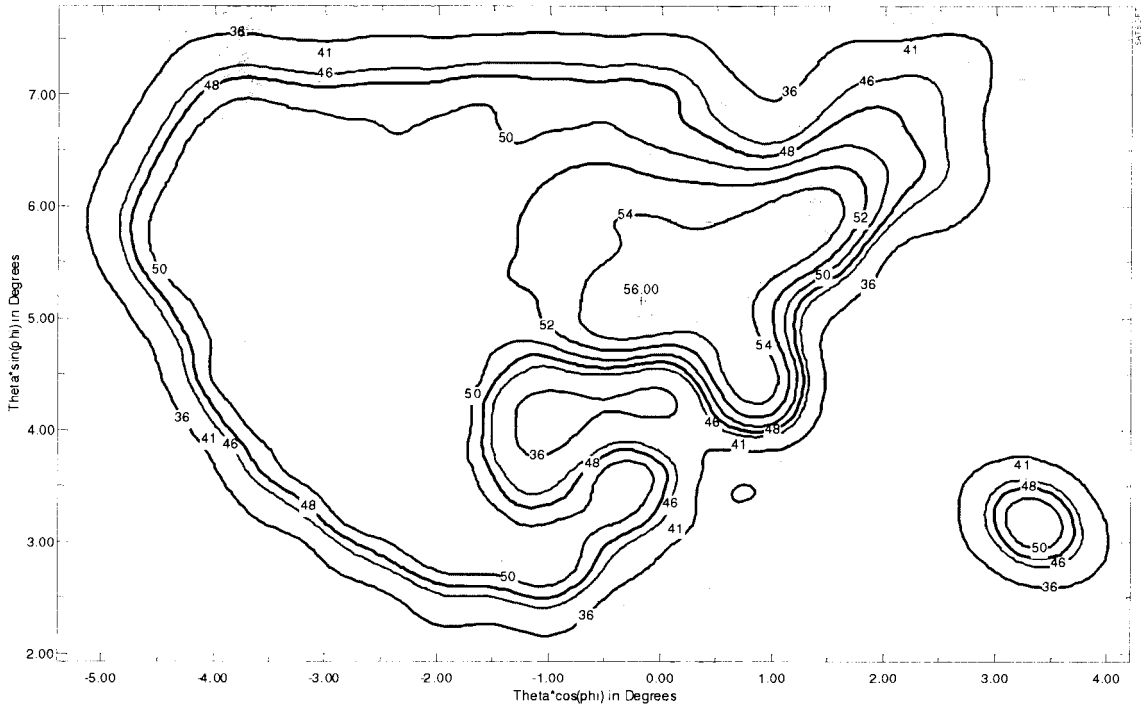
1. General Description

EchoStar-86.5W will deliver 32 DBS channels from the 86.5°W.L. geostationary orbital position. A single North American shaped antenna beam is used to broadcast over all of CONUS, Puerto Rico, US Virgin Islands and Mexico. Full frequency re-use is achieved by the use of dual circular polarization. Uplinks are provided from either of EchoStar's two existing facilities: Cheyenne, WY and Gilbert, AZ.

2. Satellite Transmit Performance (Downlink)

The EchoStar-86.5W satellite has a single North American shaped transmit beam that operates in both RHC and LHC polarizations. The EIRP performance of this beam is shown in Figure 2-1.[1] The performance in both polarizations is nominally the same.

Figure 2-1: North American Shaped Beam Transmit EIRP Contours (54, 52, 50, 48, 46, 41 and 36 dBW)

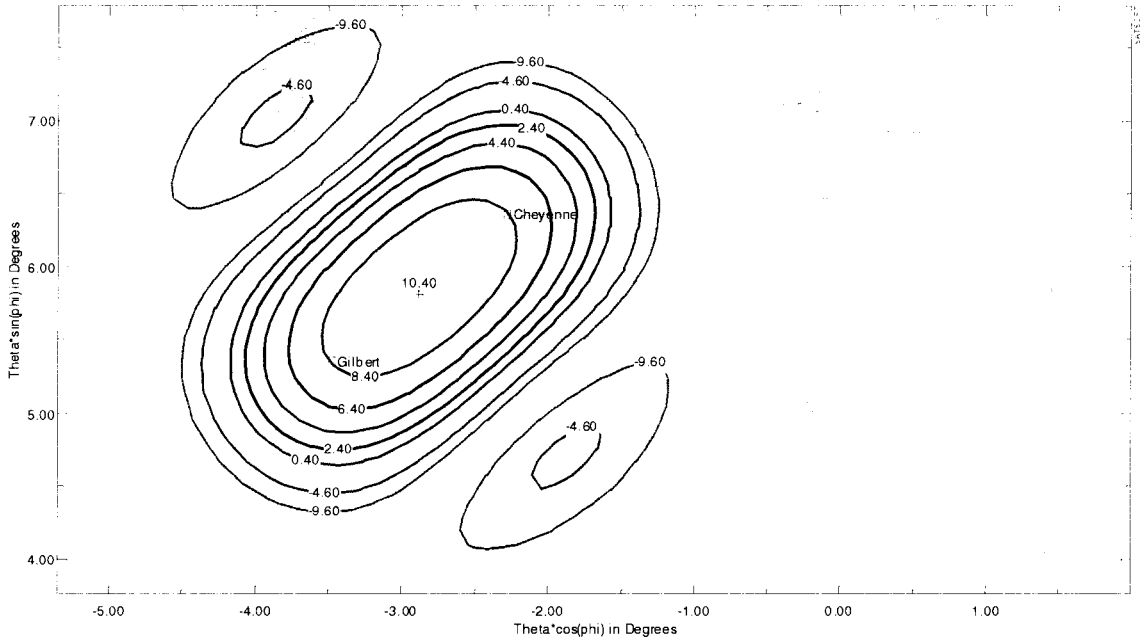


[1] The EIRP levels shown in Figure 2-1 are for high power mode (*see* Section 5 for explanation of the different modes of operation). In low power mode, the EIRP levels are approximately 2.8 dB lower than those shown in Figure 2-1.

3. Satellite Receive Performance (Uplink)

The EchoStar-86.5W satellite has a single receive beam that provides coverage of both EchoStar feeder uplink sites at Cheyenne, WY and Gilbert, AZ. This receive beam operates in both RHC and LHC polarizations. The G/T performance of this beam is shown in Figure 3-1. The performance in both polarizations is nominally the same.

Figure 3-1: Receive Beam G/T Contours
(+8.4, +6.4, +4.4, +2.4, +0.4, -4.6, -9.6 dB/K)



The G/T performance in the direction of the EchoStar feeder uplink sites is summarized in Table 3-1.

Table 3-1: G/T Performance towards EchoStar Uplink Sites

Uplink Site	Minimum G/T (dB/K)
Gilbert, AZ	**8.4**
Cheyenne, WY	**8.4**

4. Frequency Plans

The EchoStar-86.5W satellite uses the standard channel center frequencies and channel bandwidths prescribed in the ITU's Region 2 BSS Plan.[2] The difference is that the polarization of the channels is opposite to that in the Plan. This helps to reduce interference with respect to the adjacent BSS satellites, because the guard band between transponders is now co-polar with the adjacent satellites' transponders, due to the fact that co-polar and cross-polar channels are offset by approximately half the transponder bandwidth.

5. Communications Payload Configuration

The uplink signals are received in both polarizations by the satellite receive antenna. Two active receivers are used – one for each polarization. After appropriate down-conversion, channel filtering and amplification the signals are transmitted using a single 120 Watt Traveling Wave Tube Amplifier (TWTA) per channel in the case of low power mode operation. Each channel can also be configured to use two parallel 120W TWTAs for high power mode operation, giving a corresponding increase in the EIRP level of approximately 2.8 dB. In total, the communications payload can support 32 channels in low power mode, or 16 channels in high power mode, or the corresponding number of a mixture of high power and low power mode transponders. The reconfiguration of all transponders is switchable by ground telecommand. The outputs of all the TWTAs operating in the same polarization are then multiplexed into the appropriate downlink antenna port.

6. TT&C

The EchoStar-86.5W satellite and associated TT&C earth stations will operate TT&C signals at the following frequencies:

- Command frequencies (transfer orbit only): In the 14.0-14.5 GHz FSS band, subject to coordination
- Command frequencies (on-station): In the edges of the 17.3-17.8 GHz BSS feeder link band, subject to coordination.
- Telemetry frequencies: In the edge of the 12.2-12.7 GHz BSS downlink band, subject to coordination.

The exact frequencies selected for TT&C will be notified to the Commission when the information is available.

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[2] Channel bandwidth is 24 MHz. Spacing between center frequencies of adjacent co-polar channels is 29.16 MHz. Cross-polar channels offset by 14.58 MHz.

The primary TT&C earth stations will be in Gilbert, AZ and Cheyenne, WY.

Telecommand (including ranging) signals can be received by the satellite using wide-angle antennas or the feeder uplink receive antenna using right hand circular polarization. The command signal format is PCM/PSK/FM with command sub-carrier frequency of 16 kHz and a bit-rate of >250 bits/s. The satellite telecommand receive signal flux density levels are approximately –82 dBW/m^2 when operating with the wide-angle antenna at 14 or 17 GHz, and approximately –93 dBW/m^2 when operating with the high gain feeder uplink receive antenna at 17 GHz when in normal mode on-station.

Telemetry transmissions can utilize wide-angle antennas or the high gain North American shaped beam antenna using left hand circular polarization. The telemetry signal format is PCM/PSK Bi-phase L with subcarriers at 48 kHz (normal mode) and 72 kHz (auxiliary mode). Phase modulation is used with deviations of 1.0, 0.7 and 0.6 radians for 1, 2 and 3 subcarriers respectively. The telemetry data rate is 4,800 bits/s.

The telemetry downlink EIRP will be approximately +8 dBW when in normal mode on-station (through the North American shaped beam antenna).

7. Spacecraft Description and Launch Vehicle

The manufacturer of the EchoStar-86.5W satellite has not yet been decided. However, it will use a state-of-the-art high power spacecraft platform, available from a choice of satellite manufacturers. The spacecraft dry mass will be in the 2,000 Kg range and although dependent on the launch vehicle selected, the launch mass will be approximately 4,200 Kg.

The likely antenna configuration will consist of two large single surface reflectors for the North American downlink beam, deployed from the east and west sides of the spacecraft, and a small feeder uplink receive antenna mounted on the earth deck.

The design life of the satellite is 15 years.

The EchoStar-86.5W spacecraft will be compatible with a number of commercially available launch vehicles, including Atlas V, Ariane 5, Proton and Sea Launch.

8. Feeder Links

The EchoStar-86.5W feeder link earth stations will be located at EchoStar's existing facilities in Cheyenne, WY and Gilbert, AZ. EchoStar will file the necessary earth station modification applications with the FCC for the EchoStar-86.5W feeder link earth stations.

9. ITU Submissions

Exhibit A to this Technical Annex provides the ITU submission of AP4 (ITU Appendix 4 of the Radio Regulations) data for the downlinks from the EchoStar-86.5W satellite. Exhibit B to this Technical Annex contains the corresponding information concerning the feeder uplinks to the EchoStar-86.5W satellite.

10. Compliance with ITU Annexes 1 to Appendices 30 and 30A

Annexes 1 to Appendices 30 and 30A provide criteria to determine if another administration is affected by a proposed modification to the Region 2 BSS Plan. If an administration is found to be affected then the agreement of that administration is sought through the procedures of the ITU.

The EchoStar-86.5W satellite has been designed to attenuate its downlink EIRP as much as possible over Canadian territory, consistent with still providing reasonable service to all parts of CONUS. This is because of the proximity of the adjacent Canadian orbital assignments at 82°W and 91°W, both equally spaced 4.5° from the orbital location of the EchoStar-86.5W satellite. This beam pattern is likely to reduce interference to a low level towards Canada's original Plan assignments which serve Canada only, as will be shown by the MSPACE analysis. While the potential for interference to the Canadian modifications to the BSS Plan, which include CONUS in their service area, will be somewhat greater, it is expected that compatible operation of these networks with the EchoStar-86.5W satellite can be achieved through coordination.

There are also other Caribbean and South American assignments within the orbital range 91°W to 82°W, and these may also need to be addressed in the context of the negotiation procedures of the ITU, to insure compatibility.

There are no U.S. assignments that will be potentially affected by EchoStar-86.5W.

The complex analyses of Annex 1 to Appendix 30 and Annex 1 to Appendix 30A, including MSPACE, which are used to determine if coordination with other Administrations may be required, will be submitted under separate cover.

11. Compliance with Geographic Service Requirements

The geostationary orbital location of 86.5°W is not suitable for providing DBS service to either Hawaii or Alaska because of elevation angle problems. Figure 11-1 below illustrates the elevation angles which are between 7° and 12° from Hawaii and lower than 8° towards Alaska, with the majority of Alaska not even visible from the 86.5°W orbital location (i.e., negative elevation angle). Even where those territories are visible the extremely low elevation angle would not permit a viable DBS service due to the difficulty in locating user receive dishes where they could "see" the 86.5°W satellite because of building and foliage blockage.

Figure 11-1: Elevation Angles from 86.5°W towards Alaska and Hawaii

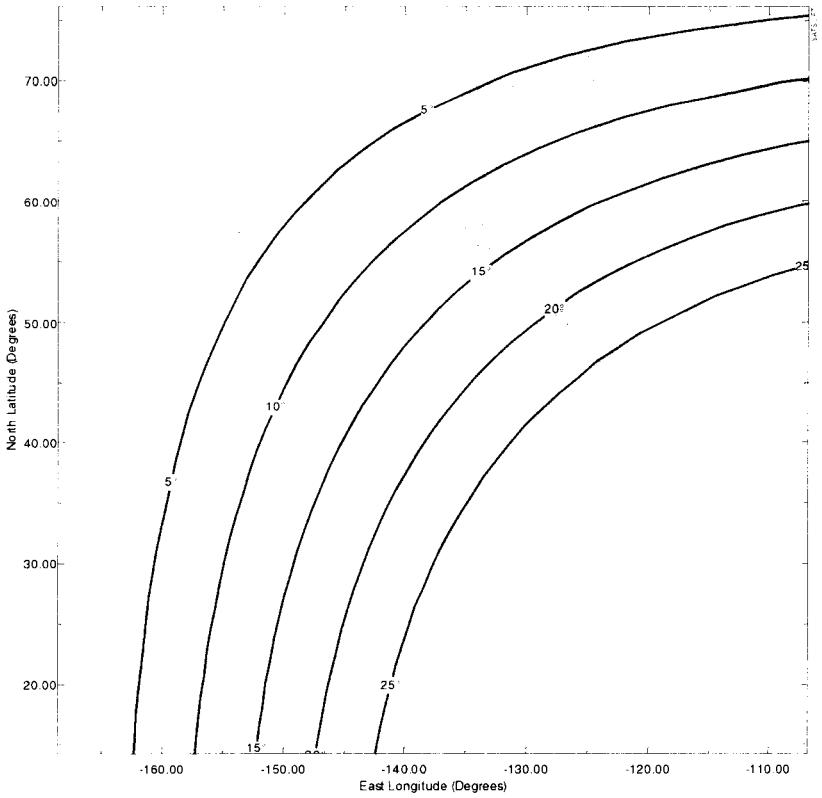


Exhibit A
to Technical Annex
(EchoStar-86.5W)

Exhibit A to Technical Annex
(EchoStar-86.5W)

ANNEX 2A to APPENDIX 4 INFORMATION FOR USABSS-21 at 86.5° W.L. for AP30 BSS

A.1 Identity of the satellite network

Identity of a satellite network: USABSS-21

b) Country and Beam Identification:
USA and BSS-21A

f) Country symbol of the notifying administration: USA

A.2 Date of Bringing Into Use

a) Date of Bringing into Use: May 28, 2011

A.3 Operation administration or agency

A.3 Operating administration or agency: 120

A.4.a Orbital information

1) Nominal geographical longitude on the GSO: 86.5°W

2) Planned longitudinal tolerance and inclination excursion: ±0.05° E-W; ±0.05° N-S

A.5 Coordination

None

A.6 Agreements

None

A.11 Regular hours of operation

00:00 – 24:00, 365 days/year

B.1 Designation of the satellite antenna beam

BSS-21A

B.3 Geostationary Space Station Antenna Characteristics

d) Pointing accuracy of the antenna: 0.12°

g) Case of space station submitted under Appendix 30:

1) Max co-polar gain of beam BSS-21A antenna: 34.2 dBi.
Max cross-polar gain of beam BSS-21A antenna: 4.0 dBi.

2) Beam is a shaped beam

3) For circular beams: Not Applicable – the beam is a shaped beam

4) For elliptical beams: Not Applicable – the beam is a shaped beam

5) For beams of other than circular or elliptical shape:

Co-polar and cross-polar gain contours are provided in electronic format:

Co-polar gain contours:	BSS-21ACPOL.gxt
Cross-polar gain contours:	BSS-21AXPOL.gxt
Beam aim point longitude:	87.672°W
Beam aim point latitude:	31.276°N

C.2.a Assigned frequencies

Channels 1 - 32. Assigned frequencies correspond to center frequencies as described in Table 4 of Article 10 of Appendix 30.

C.4 Class of station(s) and nature of service

Class of station: EV
Nature of service: CR

C.6 Polarization

Type of polarization: Circular
Sense of polarization:

Odd-numbered channels:	LHCP
Even-numbered channels:	RHCP

C.7.a Class of emission and necessary bandwidth

Class of emission:	24M0G7W
Necessary bandwidth:	24 MHz

C.8.h Power characteristics of the transmission

Power supplied to the antenna: 21.8 dBW

Maximum Power density per Hz:

Over Worst 27 MHz:	-52.0 dBW/ Hz
Over Worst 5 MHz:	-52.0 dBW/ Hz
Over Worst 40 kHz:	-52.0 dBW/ Hz
Over Worst 4 kHz:	-52.0 dBW/ Hz

C.9.b Information on modulation characteristics

In case of space station submitted in accordance with Appendix 30

1) Type of modulation: QPSK and 8PSK
2) Pre-emphasis characteristics: not applicable
3) TV standard: not applicable
4) Sound broadcasting characteristics:
   time division multiplexed compressed digital audio and data
5) Frequency deviation: not applicable

6) Composition of the baseband:
time division multiplexed compressed digital video and audio
7) Type of multiplexing of the video and sound signal: time division multiplex
8) Energy dispersal characteristics: carrier will always be modulated
9) Effective and transmitted bit/symbol rate:
Transmitted Rate: 20 Msymbols/s (QPSK 40 Mbits/s, 8PSK 60 Mbits/s)
Effective Rate: 13.8 Msymbols/s (QPSK 27.6 Mbits/s, 8PSK 41.4 Mbits/s)
10) Roll-off factor of the filter of the receiver: In accordance with BO-1293-1

C.10.c Type and identity of the associated station(s)
For an associated earth station (whether specific or typical):

45 cm Dish
2) Isotropic gain of the antenna in the direction of maximum radiation: 34.0 dBi
3) Beamwidth in degrees between the half power points: 3.5°
4) Radiation pattern of the antenna: Region 2 reference antenna pattern in AP30
6) Equivalent diameter of the antenna: 0.45 meters

60 cm Dish
2) Isotropic gain of the antenna in the direction of maximum radiation: 36.5 dBi
3) Beamwidth in degrees between the half power points: 2.8°
4) Radiation pattern of the antenna: Region 2 reference antenna pattern in AP30
6) Equivalent diameter of the antenna: 0.60 meters

90 cm Dish
2) Isotropic gain of the antenna in the direction of maximum radiation: 39.6 dBi
3) Beamwidth in degrees between the half power points: 1.85°
4) Radiation pattern of the antenna: Region 2 reference antenna pattern in AP30
6) Equivalent diameter of the antenna: 0.90 meters

1.2 m Dish
2) Isotropic gain of the antenna in the direction of maximum radiation: 42.0 dBi
3) Beamwidth in degrees between the half power points: 1.55°
4) Radiation pattern of the antenna: Region 2 reference antenna pattern in AP30
6) Equivalent diameter of the antenna: 1.20 meters

C.11.b Service area
Service area:

USA, MEX, PTR, and VIR.

Test points for BSS-21A Beam:

Test Point #	Longitude (°W)	Latitude (°N)
1	117.0	32.8
2	103.3	29.3
3	97.5	26.2
4	80.7	25.5
5	76.3	35.7
6	69.3	47.0
7	85.2	46.4
8	105.0	48.7
9	122.3	48.7
10	123.8	40.3
11	105.0	39.7
12	86.0	33.0
13	81.0	40.0
14	109.0	31.6
15	66.3	18.2
16	90.0	29.7
17	108.9	26.0
18	87.3	21.1
19	92.5	15.6
20	102.9	20.8

C.15 Description of groups required in the case of non-simultaneous emissions

Not applicable.

D. Overall link characteristics

1) Connection between Earth-to-space and space-to-Earth frequencies in the network:

Uplink Channel	Uplink Beam	Downlink Channel	Downlink Beam
1	BSS-21T	1	BSS-21A
2	BSS-21T	2	BSS-21A
3	BSS-21T	3	BSS-21A
4	BSS-21T	4	BSS-21A
5	BSS-21T	5	BSS-21A
6	BSS-21T	6	BSS-21A
7	BSS-21T	7	BSS-21A
8	BSS-21T	8	BSS-21A
9	BSS-21T	9	BSS-21A
10	BSS-21T	10	BSS-21A
11	BSS-21T	11	BSS-21A
12	BSS-21T	12	BSS-21A
13	BSS-21T	13	BSS-21A
14	BSS-21T	14	BSS-21A
15	BSS-21T	15	BSS-21A
16	BSS-21T	16	BSS-21A
17	BSS-21T	17	BSS-21A
18	BSS-21T	18	BSS-21A
19	BSS-21T	19	BSS-21A
20	BSS-21T	20	BSS-21A
21	BSS-21T	21	BSS-21A
22	BSS-21T	22	BSS-21A
23	BSS-21T	23	BSS-21A
24	BSS-21T	24	BSS-21A
25	BSS-21T	25	BSS-21A
26	BSS-21T	26	BSS-21A
27	BSS-21T	27	BSS-21A
28	BSS-21T	28	BSS-21A
29	BSS-21T	29	BSS-21A
30	BSS-21T	30	BSS-21A
31	BSS-21T	31	BSS-21A
32	BSS-21T	32	BSS-21A

Exhibit B
to Technical Annex
(EchoStar-86.5W)

Exhibit B to Technical Annex
(EchoStar-86.5W)

ANNEX 2A TO APPENDIX 4 INFORMATION FOR USABSS-21 at 86.5 W.L. for AP30A Feeder Links

A.1 Identity of the satellite network
a) Identity of a satellite network: USABSS-21
c) Country and Beam Identification: USA and BSS-21T
f) Country symbol of the notifying administration: USA

A.2 Date of Bringing Into Use
a) Date of Bringing into Use: May 28, 2011

A.3 Operation administration or agency
A.3 Operating administration or agency: 120

A.4 Orbital information
a)1) Geographical longitude on the GSO: 86.5°W
a)2) Planned longitudinal tolerance and inclination excursion: ±0.05° E-W; ±0.05° N-S

A.5 Coordination
None

A.6 Agreements
None

A.7 Earth station site characteristics
a) Horizon elevation angle in degrees for each azimuth around the earth station:

Cheyenne earth station:

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Azimuth (Deg)	Horizon Elevation Angle (Deg)
0	0.9	180	0.7
5	0.6	185	0.6
10	0.6	190	0.7
15	0.6	195	0.7
20	0.6	200	0.8
25	0.6	205	0.8
30	0.3	210	0.9
35	0.4	215	0.9
40	0.4	220	0.9
45	0.3	225	1.0

50	0.3	230	1.0
55	0.3	235	1.0
60	0.3	240	1.0
65	0.3	245	1.0
70	0.0	250	1.0
75	0.0	255	1.0
80	0.0	260	1.0
85	0.0	265	1.1
90	0.2	270	1.2
95	0.2	275	1.2
100	0.0	280	1.2
105	0.0	285	1.2
110	0.0	290	1.2
115	0.0	295	1.2
120	0.2	300	1.2
125	0.3	305	1.1
130	0.4	310	1.1
135	0.3	315	1.2
140	0.3	320	0.9
145	0.3	325	1.0
150	0.3	330	1.0
155	0.3	335	1.0
160	0.4	340	0.9
165	0.7	345	0.9
170	0.7	350	0.9
175	0.7	355	0.9

Gilbert earth station:

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Azimuth (Deg)	Horizon Elevation Angle (Deg)
0	0.00	180	0.00
5	0.00	185	0.00
10	0.00	190	0.00
15	0.00	195	0.00
20	0.00	200	0.00
25	0.00	205	0.00
30	0.00	210	0.00
35	0.00	215	0.00
40	0.00	220	0.00
45	0.00	225	0.00
50	0.00	230	0.00
55	0.00	235	0.00
60	0.00	240	0.00

65	0.00	245	0.00
70	0.00	250	0.00
75	0.00	255	0.00
80	0.00	260	0.00
85	0.00	265	0.00
90	0.00	270	0.00
95	0.00	275	0.00
100	0.00	280	0.00
105	0.00	285	0.00
110	0.00	290	0.00
115	0.00	295	0.00
120	0.00	300	0.00
125	0.00	305	0.00
130	0.00	310	0.00
135	0.00	315	0.00
140	0.00	320	0.00
145	0.00	325	0.00
150	0.00	330	0.00
155	0.00	335	0.00
160	0.00	340	0.00
165	0.00	345	0.00
170	0.00	350	0.00
175	0.00	355	0.00

d) Altitude (meters) of the antenna above mean sea level:
Cheyenne earth station: 1808.4 meters
Gilbert earth station: 371.2 meters

A.11 Regular hours of operation
00:00 – 24:00, 365 days/year

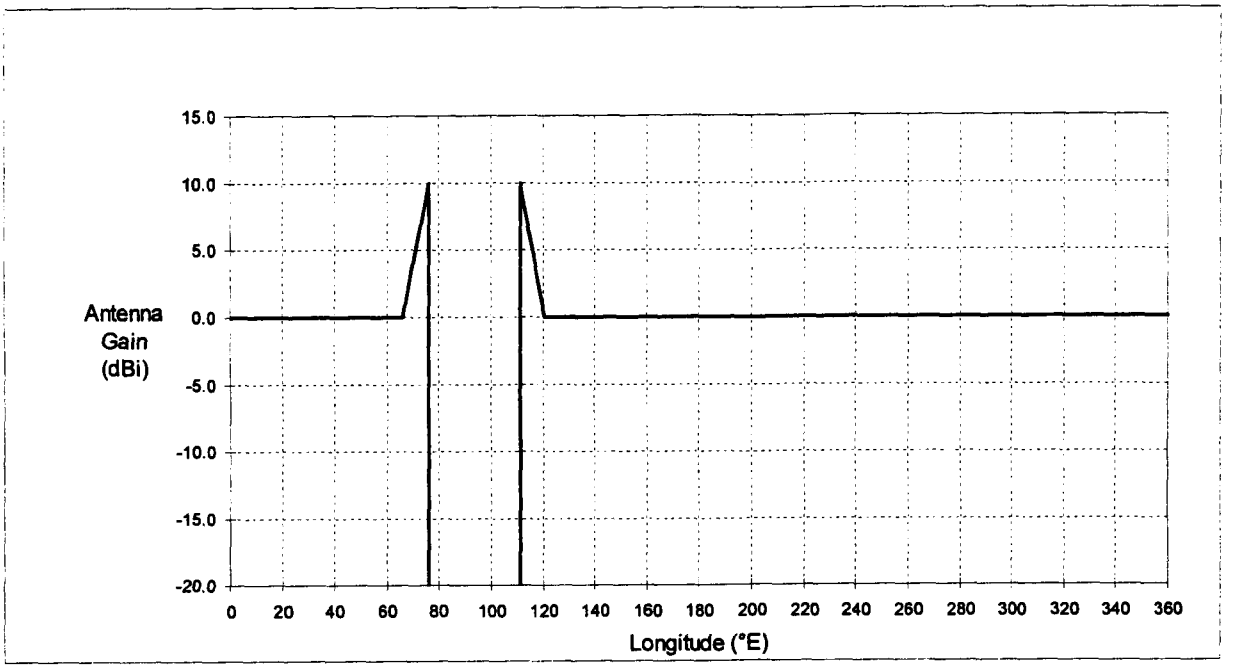
A.12 Range of automatic gain control
Cheyenne earth station: 9 dB under operator control
Gilbert earth station: 9 dB under operator control

B.1 Designation of the satellite antenna beam
BSS-21T

B.3 Geostationary space station antenna characteristics

d) Pointing accuracy of the antenna: 0.12°

f) Gain towards the GSO Arc: see diagram below:



g) Case of space station submitted under Appendix 30A:

1) Max co-polar gain of beams BSS-21T: 40.0 dBi.
Max cross-polar gain of beams BSS-21T: 10.0 dBi.

2) Shape of the Beam: Shaped

3) For Circular beams: Not Applicable – Beam is a shaped beam

4) For elliptical beams: Not Applicable – Beam is a shaped beam

5) For beams of other than circular or elliptical shape:

Co-polar and cross-polar gain contours are provided in electronic format:

Co-polar gain contours:	BSS-21TCPOL.gxt
Cross-polar gain contours:	BSS-21TXPOL.gxt
Beam aim point longitude:	108.178°W
Beam aim point latitude:	36.650°N

C.2.a Assigned frequencies

Channels 1 - 32. Assigned frequencies correspond to center frequencies as described in Table 2 of Article 9 of Appendix 30A.

C.3.a Assigned frequency band
Bandwidth of the assigned freqeuncy band in kHz: 24000

C.4 Class of station(s) and nature of service
Class of station: EC
Nature of service: CR

C.5.a Receiving system noise temperature
Lowest total receiving system noise temperature: 900 K

C.6 Polarization
Type of polarization: Circular
Sense of Polarization:

Odd-numbered channels: LHCP
Even-numbered channels: RHCP

C.7 Class of emission and necessary bandwidth
a) Class of emission: 24M0G7W
b) Necessary bandwith: 24 MHz

C.8.i Power characteristics of the transmission
In the case of an earth station submitted in accordance with Appendix 30A:

Cheyenne earth station:
Total transmitting power (dBW) in the assigned frequency band supplied to the input of the antenna: 17.0
over worst 1 MHz: -56.8 dBW/Hz
over 24 MHz RF bandwidth: -56.8 dBW/Hz

Range of Power Control: 9 dB under operator control

Gilbert earth station:
Total transmitting power (dBW) in the assigned frequency band supplied to the input of the antenna: 17.0
over worst 1 MHz: -56.8 dBW/Hz
over 24 MHz RF bandwidth: -56.8 dBW/Hz

Range of Power Control: 9 dB under operator control

C.9 Information on modulation characteristics
b) In case of space station submitted in accordance with Appendix 30A
1) Type of modulation: QPSK and 8PSK
2) Pre-emphasis characteristics: not applicable
3) TV standard: not applicable

4) Sound broadcasting characteristics:
time division multiplexed compressed digital audio and data
5) Frequency deviation: not applicable
6) Composition of the baseband:
time division multiplexed compressed digital video and audio
7) Type of multiplexing of the video and sound signal: time division multiplex
8) Energy dispersal characteristics: carrier will always be modulated
9) Effective and transmitted bit/symbol rate:
Transmitted Rate: 20 Msymbols/s (QPSK 40 Mbits/s, 8PSK 60 Mbits/s)
Effective Rate: 13.8 Msymbols/s (QPSK 27.6 Mbits/s, 8PSK 41.4 Mbits/s)
10) Roll-off factor of the filter of the receiver: In accordance with BO-1293-1

C.10 Type and identity of the associated station(s)

Cheyenne earth station

b) For a specific associated earth station, identity of the earth station and geographical coordinates of the antenna site: Cheyenne Earth Station
Latitude: 41°7'56'' N Longitude: 104°44'9'' W

c) For associated earth station:

1) Class of Station/Nature of Service: TC, OT

2) Isotropic gain of the antenna in the direction of maximum radiation: 65 dBi

3) Beamwidth in degrees between the half power points: 0.1°

4) Radiation pattern of the antenna:

Co-polar :	29-25log(θ)	for 1° < θ </= 7°
	+8 dBi	for 7° < θ </= 9.2°
	32-25log(θ) dBi	for 9.2° < θ </= 48°
	-10 dBi	for 48° < θ </= 180°
Cross-polar:	19-25log(θ)	for 1.8° < θ </= 7°
	-2 dBi	for 7° < θ </= 180°

6) Equivalent diameter of the antenna: 13.2 meters

Gilbert earth station:

b) For a specific associated earth station, identity of the earth station and geographical coordinates of the antenna site: Gilbert Earth Station
Latitude: 33°21'55.7'' N; Longitude: 111°48'48.8'' W

c) For associated earth station:

1) Class of Station/Nature of Service: TC, OT

2) Isotropic gain of the antenna in the direction of maximum radiation: 65 dBi

3) Beamwidth in degrees between the half power points: 0.1°

4) Radiation pattern of the antenna:

Co-polar :	29-25log(θ) dBi	for 1° < θ </= 7°
	+8 dBi	for 7° < θ </= 9.2°
	32-25log(θ) dBi	for 9.2° < θ </= 48°
	-10 dBi	for 48° < θ </= 180°

Cross-polar: 19-25log(θ) for 1.8° < θ </= 7°
-2 dBi for 7° < θ </= 180°

6) Equivalent diameter of the antenna: 13.2 meters

C.11 Service Area

b) Service area: Within the USA and for elevation angles of 30 degrees and greater.

Test points for beam BSS-21T:

Latitude (°N)	Longitude (°W)
41	104
42	105
34	112
33	111

C.15 Description of Groups

Not applicable.

D. Overall Link Characteristics

1) Connection between Earth-to-space and space-to-Earth frequencies in the network:

Uplink Channel	Uplink Beam	Downlink Channel	Downlink Beam
1	BSS-21T	1	BSS-21A
2	BSS-21T	2	BSS-21A
3	BSS-21T	3	BSS-21A
4	BSS-21T	4	BSS-21A
5	BSS-21T	5	BSS-21A
6	BSS-21T	6	BSS-21A
7	BSS-21T	7	BSS-21A
8	BSS-21T	8	BSS-21A
9	BSS-21T	9	BSS-21A
10	BSS-21T	10	BSS-21A
11	BSS-21T	11	BSS-21A
12	BSS-21T	12	BSS-21A
13	BSS-21T	13	BSS-21A
14	BSS-21T	14	BSS-21A
15	BSS-21T	15	BSS-21A
16	BSS-21T	16	BSS-21A
17	BSS-21T	17	BSS-21A
18	BSS-21T	18	BSS-21A
19	BSS-21T	19	BSS-21A
20	BSS-21T	20	BSS-21A
21	BSS-21T	21	BSS-21A
22	BSS-21T	22	BSS-21A
23	BSS-21T	23	BSS-21A
24	BSS-21T	24	BSS-21A
25	BSS-21T	25	BSS-21A
26	BSS-21T	26	BSS-21A
27	BSS-21T	27	BSS-21A
28	BSS-21T	28	BSS-21A
29	BSS-21T	29	BSS-21A
30	BSS-21T	30	BSS-21A
31	BSS-21T	31	BSS-21A
32	BSS-21T	32	BSS-21A

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this pleading, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this pleading, and that it is complete and accurate to the best of my knowledge and belief.

Richard Barnett
Telecomm Strategies Inc.
6404 Highland Drive,
Chevy Chase, MD 20815
(301) 656-8969

Dated: June 9, 2003

Attachment 2

FCC 312
Main Form

Approved by OMB 3060-0678

Est. Avg. Burden Hours Per Response: 11 Hrs.

FEDERAL COMMUNICATIONS COMMISSION

APPLICATION FOR SATELLITE SPACE AND EARTH STATION AUTHORIZATIONS

FCC Use Only
File Number:
Call Sign:
Fee Number:

APPLICANT INFORMATION

1. Legal Name of Applicant EchoStar Satellite Corporation		2. Voice Telephone Number (303) 723-1000
3. Other Name Used for Doing Business (if any)		4. Fax Telephone Number (303) 723-1608
5. Mailing Street Address or P.O. Box 5701 South Santa Fe ATTENTION: David K. Moskowitz	6. City Littleton	
	7. State / Country (if not U.S.A.) CO	8. Zip Code 80120
9. Name of Contact Representative (If other than applicant) Pantelis Michalopoulos		10. Voice Telephone Number (202) 429-6494
11. Firm or Company Name Steptoe & Johnson LLP		12. Fax Telephone Number (202) 429-3902
13. Mailing Street Address or P.O. Box 1330 Connecticut Avenue, N.W. ATTENTION:	14. City Washington	
	15. State / Country (if not U.S.A) DC	16. Zip Code 20036

CLASSIFICATION OF FILING

17. Place an "X" in the box next to the classification that applies to this filing for both questions a. and b. Mark only one box for 17a and only one box for 17b.

- [ ] a1. Earth Station
- [X] a2. Space Station

- [X] b1. Application for License of New Station
- [ ] b2. Application for Registration of New Domestic Receive-Only Station
- [ ] b3. Amendment to a Pending Application
- [ ] b4. Modification of License or Registration
- [ ] b5. Assignment of License or Registration
- [ ] b6. Transfer of Control of License or Registration
- [ ] b7. Notification of Minor Modification
- [ ] b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- [ ] b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- [ ] b10. Other (Please Specify): _____

18. If this filing is in reference to an existing station, enter: Call sign of station: N/A	19. If this filing is an amendment to a pending application enter: (a) Date pending application was filed: N/A (b) File number of pending application: N/A

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Place an "X" in the box(es) next to all that apply.

[X] a. Fixed Satellite [ ] b. Mobile Satellite [ ] c. Radiodetermination Satellite [ ] d. Earth Exploration Satellite [ ] e. Direct to Home Fixed Satellite [ ] f. Digital Audio Radio Service [X] g. Other (please specify) Broadcasting Satellite Service

21. STATUS: Place an "X" in the box next to the applicable status. Mark only one box.

[ ] a. Common Carrier [X] b. Non-Common Carrier

22. If earth station applicant, place an "X" in the box(es) next to all that apply.

[ ] a. Using U.S. licensed satellites [ ] b. Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Mark only one box. Are these facilities:

[ ] a. Connected to the Public Switched Network [ ] b. Not connected to the Public Switched Network N/A

24. FREQUENCY BAND(S): Place an "X" in the box(es) next to all applicable frequency band(s).

[ ] a. C-Band (4/6 GHz)
[ ] b. Ku-Band (12/14 GHz) [X] c. Other (Please specify) 12.2-12.7 GHz; 17.3-17.8 GHz

TYPE OF STATION

25. CLASS OF STATION: Place an "X" in the box next to the class of station that applies. Mark only one box.

[ ] a. Fixed Earth Station [ ] b. Temporary-Fixed Earth Station [ ] c. 12/14 GHz VSAT Network [ ] d. Mobile Earth Station [X] e. Space Station [ ] f. Other (Specify) _____

If space station applicant, go to Question 27.

26. TYPE OF EARTH STATION FACILITY Mark only one box.

[ ] a. Transmit/Receive [ ] b. Transmit-Only [ ] c. Receive-Only N/A

PURPOSE OF MODIFICATION OR AMENDMENT

27. The purpose of this proposed modification or amendment is to: Place an "X" in the box(es) next to all that apply.

[ ] a -- authorization to add new emission designator and related service
[ ] b -- authorization to change emission designator and related service
[ ] c -- authorization to increase EIRP and EIRP density
[ ] d -- authorization to replace antenna
[ ] e -- authorization to add antenna
[ ] f -- authorization to relocate fixed station
[ ] g -- authorization to change assigned frequency(ies)
[ ] h -- authorization to add Points of Communication (satellites & countries)
[ ] i -- authorization to change Points of Communication (satellites & countries)
[ ] j -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
[ ] k -- Other (Please Specify)

_____

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? [ ] YES [X] NO
If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application.

A Radiation Hazard Study must accompany all applications as an exhibit for new transmitting facilities, major modifications, or major amendments. Refer to OET Bulletin 65.

ALIEN OWNERSHIP

29. Is the applicant a foreign government or the representative of any foreign government?	☐ YES	☒ NO
30. Is the applicant an alien or the representative of an alien?	☐ YES	☒ NO
31. Is the applicant a corporation organized under the laws of any foreign government?	☐ YES	☒ NO
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	☐ YES	☒ NO
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	☐ YES	☒ NO
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit, the identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.		

BASIC QUALIFICATIONS

35. Does the applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	☐ YES	☒ NO
36. Has the applicant or any party to this application had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of the circumstances.	☒ YES	☐ NO
37. Has the applicant, or any party to this application, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceeding two items? If Yes, attach as an exhibit, an explanation of the circumstances.	☐ YES	☒ NO
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, addresses, and citizenship of those stockholders owning of record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.		
41. By checking Yes, the undersigned certifies, that neither the applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.	☒ YES	☐ NO
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. § 25.137, as appropriate. If no, proceed to question 43.	☐ YES	☒ NO
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station? N/A		

43. Description. (Summarize the nature of the application and the services to be provided).

EchoStar hereby applies for authority to construct, launch and operate a Direct Broadcast Satellite ("DBS") using the 12.2-12.7 GHz downlink frequencies and 17.3-17.8 GHz uplink frequencies that have been allocated and are currently used for DBS service. EchoStar intends to launch this satellite into the 86.5°W.L. orbital slot.

Exhibit No.	Identify all exhibits that are attached to this application.
A	Response to Question 36
B	Response to Question 40

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Place an "X" in the box next to applicable response.)

☐ a. Individual ☐ b. Unincorporated Association ☐ c. Partnership ☒ d. Corporation ☐ e. Governmental Entity ☐ f. Other (Please specify) _____

45. Typed Name of Person Signing	46. Title of Person Signing
David K. Moskowitz	Senior Vice President and General Counsel

47. Signature: David K. Moskowitz/DG

48. Date: 6/9/03

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

Response to Question 36

In a Memorandum Opinion and Order released May 16, 2002, the Satellite Division of the International Bureau cancelled two conditional construction permits held by EchoStar affiliates for 22 channels at the 175° W.L. orbital location *See In the Matter of EchoStar Satellite Corporation, Directsat Corporation, Direct Broadcasting Satellite Corporation, Consolidated Request for Additional Time to Commence Operation*, Memorandum Opinion and Order, DA 02-1164 (rel. May 16, 2002).

By Order released July 1, 2002, the International Bureau cancelled EchoStar's license for a Ka-band satellite system and dismissed a related modification application filed by EchoStar. *See In the Matter of EchoStar Satellite Corporation; Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed-Satellite Service*, Memorandum Opinion and Order, DA 02-1534 (rel. July 1, 2002). On November 8, 2002, the International Bureau reinstated license for a Ka-band system and reinstated the related modification application. *See In the Matter of EchoStar Satellite Corporation; Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed-Satellite Service,* Memorandum Opinion and Order, DA 02-3085 (rel. Nov. 8, 2002).

Response to Question 40

OWNERSHIP AND CORPORATE OFFICERS AND DIRECTORS

OWNERSHIP

EchoStar Satellite Corporation is an indirect, wholly-owned subsidiary of EchoStar Communications Corporation (a Nevada corporation). The stockholders owning of record and/or voting 10 percent or more of the voting stock of EchoStar Communications Corporation include:

Ownership Interest	Citizenship	Approx. Equity Interest[1]
Charles W. Ergen[2] Chairman and CEO EchoStar Communications Corporation 5701 South Santa Fe Littleton, CO 80120	USA	50.1%
Fidelity Management and Research Corporation 82 Devonshire Street Boston, MA 02109	USA (Massachusetts corporation)	15.3%

[1] As of March 21, 2003. Mr. Ergen and Fidelity Management and Research Corporation have an approximately 91% and 1% voting interest, respectively, in EchoStar Communications Corporation, as of March 21, 2003.

[2] Includes both Class A common and Class B common stock ownership. Class B common stock is owned through a family trust.

CORPORATE OFFICERS AND DIRECTORS[3]

EchoStar Communications Corporation

Executive Officers:
Charles W. Ergen - Chief Executive Officer
Soraya Cartwright - Executive Vice President - DISH Network
James DeFranco - Executive Vice President
Michael T. Dugan - President and Chief Operating Officer
David K. Moskowitz - Senior Vice President, General Counsel and Secretary
Steven B. Schaver - President - EchoStar International Corporation
Michael R. McDonnell - Senior Vice President and Chief Financial Officer
Mark W. Jackson - Senior Vice President - EchoStar Technologies Corporation
Michael Schwimmer - Senior Vice President of Programming
Michael Kelly - Senior Vice President - DISH Network Service Corporation
O. Nolan Daines - Senior Vice President - Executive Transition Team

Board of Directors:
Charles W. Ergen - Chairman
Steven R. Goodbarn
James DeFranco
David K. Moskowitz
Peter A. Dea
Cantey M. Ergen
Raymond L. Friedlob

[3] The address for all officers and directors of EchoStar Communications Corporation and EchoStar Satellite Corporation is 5701 South Santa Fe, Littleton, CO 80120.

EchoStar Satellite Corporation

Executive Officers:
Charles W. Ergen- President and Chief Executive Officer
Soraya Cartwright: Executive Vice President
James DeFranco: Executive Vice President
David K. Moskowitz: Senior Vice President, General Counsel and Secretary

Board of Directors:
Charles W. Ergen - Chairman
James DeFranco
David K. Moskowitz

READ INSTRUCTIONS CAREFULLY BEFORE PROCEEDING

(1) LOCKBOX # **358210**

FEDERAL COMMUNICATIONS COMMISSION

REMITTANCE ADVICE

Approved by OMB 3060-0589

Page No 1 of 2

SPECIAL USE

FCC USE ONLY

SECTION A - PAYER INFORMATION

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)
Steptoe & Johnson LLP

(3) TOTAL AMOUNT PAID (U.S. Dollars and cents)
$31,445.00

(4) STREET ADDRESS LINE NO. 1
Attn: Pantelis Michalopoulos

(5) STREET ADDRESS LINE NO. 2
1330 Connecticut Avenue, N.W.

(6) CITY
Washington

(7) STATE
DC

(8) ZIP CODE
20036-1795

(9) DAYTIME TELEPHONE NUMBER (include area code)
(202) 429-6494

(10) COUNTRY CODE (if not in U.S.A.)

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(11) PAYER (FRN)
0003-7546-29

(12) PAYER (TIN)
521349790

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

(13) APPLICANT NAME
EchoStar Satellite Corporation

(14) STREET ADDRESS LINE NO. 1
Attn: David K. Moskowitz

(15) STREET ADDRESS LINE NO. 2
5701 South Santa Fe

(16) CITY
Littleton

(17) STATE
CO

(18) ZIP CODE
80120

(19) DAYTIME TELEPHONE NUMBER (include area code)
(303) 723-1000

(20) COUNTRY CODE (if not in U.S.A.)

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(21) APPLICANT (FRN)
0004-2658-80

(22) APPLICANT (TIN)
841114039

COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEET

(23A) CALL SIGN/OTHER ID	(24A) PAYMENT TYPE CODE	(25A) QUANTITY
EchoStar 86.5 W.L.	**MTD**	**1**

(26A) FEE DUE FOR (PTC)	(27A) TOTAL FEE	FCC USE ONLY
$2,865.00	**$2,865.00**	

(28A) FCC CODE 1	(29A) FCC CODE 2

(23B) CALL SIGN/OTHER ID	(24B) PAYMENT TYPE CODE	(25B) QUANTITY
EchoStar 86.5 W.L.	**MXD**	**1**

(26B) FEE DUE FOR (PTC)	(27B) TOTAL FEE	FCC USE ONLY
$27,780.00	$27,780.00	

(28B) FCC CODE 1	(29B) FCC CODE 2

SECTION D - CERTIFICATION

(30) CERTIFICATION STATEMENT

I, David K. Moskowitz, certify under penalty of perjury that the foregoing and supporting information is true and correct to the best of my knowledge, information and belief. SIGNATURE David K. Moskowitz (TRL) DATE 6/9/03

SECTION E - CREDIT CARD PAYMENT INFORMATION

(31)

☐ MASTERCARD

MASTERCARD/VISA ACCOUNT NUMBER:

EXPIRATION DATE:

☐ VISA

I hereby authorize the FCC to charge my VISA or MASTERCARD for the service(s)/authorization herein described.

SIGNATURE _____ DATE _____

REMITTANCE ADVICE (Continuation Sheet)

FEDERAL COMMUNICATIONS COMMISSION

Approved by OMB
3060-0589

SPECIAL USE
FCC USE ONLY

USE THIS SECTION ONLY FOR EACH ADDITONAL APPLICANT

SECTION BB - ADDITIONAL APPLICANT INFORMATION

(13) APPLICANT NAME		
(14) STREET ADDRESS LINE NO. 1		
(15) STREET ADDRESS LINE NO. 2		
(16) CITY	(17) STATE	(18) ZIP CODE
(19) DAYTIME TELEPHONE NUMBER (include area code)	(20) COUNTRY CODE (if not in U.S.A.)	

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(21) APPLICANT (FRN)	(22) APPLICANT (TIN)

IF MORE BOXES ARE NEEDED, USE ADDITIONAL FCC 159-C CONTINUATION SHEETS TO LIST EACH SERVICE

SECTION CC - PAYMENT INFORMATION

(23A) CALL SIGN/OTHER ID	(24A) PAYMENT TYPE CODE	(25A) QUANTITY
EchoStar 86.5 W.L.	**MPD**	**1**

(26A) FEE DUE FOR (PTC)	(27A) TOTAL FEE	FCC USE ONLY
$800.00	**$800.00**	

(28A) FCC CODE 1	(29A) FCC CODE 2

(23B) CALL SIGN/OTHER ID	(24B) PAYMENT TYPE CODE	(25B) QUANTITY

(26B) FEE DUE FOR (PTC)	(27B) TOTAL FEE	FCC USE ONLY

(28B) FCC CODE 1	(29B) FCC CODE 2

(23C) CALL SIGN/OTHER ID	(24C) PAYMENT TYPE CODE	(25C) QUANTITY

(26C) FEE DUE FOR (PTC)	(27C) TOTAL FEE	FCC USE ONLY

(28C) FCC CODE 1	(29C) FCC CODE 2

(23D) CALL SIGN/OTHER ID	(24D) PAYMENT TYPE CODE	(25D) QUANTITY

(26D) FEE DUE FOR (PTC)	(27D) TOTAL FEE	FCC USE ONLY

(28D) FCC CODE 1	(29D) FCC CODE 2

(23E) CALL SIGN/OTHER ID	(24E) PAYMENT TYPE CODE	(25E) QUANTITY

(26E) FEE DUE FOR (PTC)	(27E) TOTAL FEE	FCC USE ONLY

(28E) FCC CODE 1	(29E) FCC CODE 2

(23F) CALL SIGN/OTHER ID	(24F) PAYMENT TYPE CODE	(25F) QUANTITY

(26F) FEE DUE FOR (PTC)	(27F) TOTAL FEE	FCC USE ONLY

(28F) FCC CODE 1	(29F) FCC CODE 2

STEPTOE & JOHNSON LLP

VENDOR #	VENDOR NAME				CHECK #	CHECK DATE
0261	FEDERAL COMMUNICATIONS COMMISSION				347729	06/04/2003
VOUCHER #	**INV DATE**	**INVOICE #**	**COMMENTS**	**GROSS**	**DISCOUNT**	**AMOUNT PAID**
420996	06/04/2003	026106042003	APPLICABLE FCC DBS APPLICATION FEES	31,445.00	0.00	31,445.00
CUSTOMER REF#			**CHECK TOTALS**	**31,445.00**	**0.00**	**31,445.00**

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STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, D.C. 20036-1795
(202) 429-3000

CHECK NUMBER: **347729** 15-122/540
CHECK DATE: **06/04/2003**
VENDOR NUMBER: **0261**

THIRTY-ONE THOUSAND FOUR HUNDRED FORTY-FIVE AND 00/100 Dollar

$31,445.00***

PAY TO THE ORDER OF

VOID AFTER 180 DAYS

FEDERAL COMMUNICATIONS COMMISSION

AUTHORIZED SIGNATURE

SECURE FEATURES INCLUDE INVISIBLE FIBERS • MICROPRINTING • VOID FEATURE PANTOGRAPH • ENDORSEMENT BACKER • BROWNSTAIN CHEMICAL REACTANT

⑈347729⑈ ⑆054001220⑆ 20000325689871⑈