

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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Federal Communications Commission
Office of Secretary

In the Matter of

Spectrum Five LLC

Petition for Declaratory Ruling
To Serve the U.S. Market Using
BSS Spectrum from the 114.5° W.L.
Orbital Location

File Nos. SAT-LOI-20050312-00062
SAT-LOI-20050312-00063

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CONSOLIDATED RESPONSE OF SPECTRUM FIVE LLC

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EXECUTIVE SUMMARY

Spectrum Five LLC's proposed DBS service using Netherlands-authorized satellites from the 114.5° W.L. orbital location promises to bring substantial public interest benefits to United States consumers. Spectrum Five's service will greatly increase the available capacity for U.S. DBS services, increase local television offerings to underserved areas, promote competition in the MVPD marketplace, and promote the transition to digital television.

Only two parties – the incumbent U.S. DBS providers – filed “oppositions” to Spectrum Five's proposal.¹ DIRECTV alleges that Spectrum Five's service could interfere with existing systems. EchoStar claims only that Spectrum Five's service could “complicate” coordination with a hypothetical type of antenna that EchoStar is “considering” for future use. Neither DIRECTV nor EchoStar substantiates its concerns with actual, real-world analysis of Spectrum Five's proposal. Thus, their oppositions, which total a mere ten pages of material combined, are wholly speculative.

The development and international recognition of Spectrum Five's system are well underway. In conformity with rules governing international protection for DBS satellite services, the Netherlands Administration, on behalf of Spectrum Five, has sought modification to the International Telecommunication Union's (“ITU”) Region 2 BSS Plan. The Netherlands has also requested coordination with the FCC of Spectrum Five's service. In response, the Commission recently authorized DIRECTV and EchoStar to conduct direct operator-to-operator coordination negotiations with Spectrum Five.

¹ SES and the Gibraltar Regulatory Authority do not oppose the Petition, but seek the imposition of a condition that the Netherlands coordinate with the United Kingdom. For good reason, the FCC has not traditionally mandated that two non-U.S. Administrations coordinate. Nevertheless, Spectrum Five will certainly abide by its responsibilities under applicable international law.

The Commission has long complied with these established ITU rules and procedures for coordinating potential interference issues between U.S. and non-U.S.-licensed BSS satellites. This international process has historically ensured that the interests of existing U.S. DBS providers are protected, and promoted, to the extent allowed by applicable law. Critically, the Commission routinely authorizes service in the U.S. prior to completing coordination and modifying the Region 2 BSS Plan. There is no reason to depart from that routine practice here.

Even if the Commission considers DIRECTV's and EchoStar's unsubstantiated concerns of interference in this proceeding, the incumbent operators fail to demonstrate that Spectrum Five's proposed satellite would cause harmful interference to existing systems. EchoStar has its own pending "tweener" application and acknowledges the potential benefits from 4.5° orbital spacing. As for DIRECTV, it overstates the purpose and utility of the MSPACE analysis of Spectrum Five's system. The MSPACE analysis is used solely to determine when coordination is required, and is widely known to be based on outdated and unrealistically overbroad assumptions of the degree of protection required by modern DBS systems. For example, based on MSPACE analyses, a new satellite recently proposed by DIRECTV and Spectrum Five's proposed system would cause comparable negative margins to DIRECTV's existing operations. In short, the potential for actual harmful interference is substantially less than DIRECTV suggests.

In addition, even if DIRECTV's and EchoStar's allegations of interference potential were substantiated, numerous techniques are readily available to Spectrum Five to mitigate the risk. Direct operator-to-operator coordination negotiations provide DIRECTV and EchoStar with every opportunity to ensure that their interests are fully protected. Finally, given the international coordination process and the substantial likelihood of success, a rulemaking is not necessary to address the technical issues raised by Spectrum Five's proposal.

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CONSOLIDATED RESPONSE OF SPECTRUM FIVE LLC

Spectrum Five LLC ("Spectrum Five") hereby responds to the comments and oppositions filed with respect to its above-referenced Petition for Declaratory Ruling ("Petition") to provide Direct Broadcast Satellite ("DBS") services to the United States through Netherlands-authorized satellites at the 114.5° W.L. orbital location.¹ SES Americom, Inc. ("SES") and the Gibraltar Regulatory Authority ("GRA") do not oppose grant of Spectrum Five's Petition.² DIRECTV Enterprises, LLC ("DIRECTV") and EchoStar Satellite L.L.C. ("EchoStar") filed cursory "oppositions" without specific facts

¹ Spectrum Five, a U.S. company, will own the satellite assets at 114.5° W.L.

² See Comments of SES Americom, Inc., File Nos. SAT-LOI-20050312-00062/63, at 3 (May 16, 2005) ("SES Comments"); Letter from the Gibraltar Regulatory Authority to Kevin J. Martin, FCC Chairman, at 1 (May 12, 2005) ("GRA Letter").

to counter the public interest benefits of Spectrum Five's proposed service.³ As previously shown, grant of Spectrum Five's Petition would substantially increase local-into-local service in rural and underserved areas, including Alaska and Hawaii, in furtherance of the goal of Congress to increase the availability of local programming in these areas.⁴ Therefore, the FCC should promptly grant the Petition in accordance with its rules and international obligations.

I. THE OPPOSITIONS FILED BY ECHOSTAR AND DIRECTV ARE SPECULATIVE, CONCLUSORY AND PROCEDURALLY INFIRM

The "oppositions" filed by DIRECTV and EchoStar are highly speculative and should be dismissed. Oppositions are statutorily required to contain:

specific allegations of fact sufficient to show...that a grant of [Spectrum Five's Petition] would be prima facie inconsistent with the [public interest, convenience and necessity].⁵

"[A]llegation[s] of ultimate, conclusory facts or more general allegations on information and belief [are] not sufficient"⁶ to meet this "heavy burden."⁷ Pleadings "replete with

³ Opposition of DIRECTV Enterprises, LLC, File Nos. SAT-LOI-20050312-00062/63 (May 16, 2005) ("DIRECTV Opposition"); EchoStar Opposition To Petition For Declaratory Ruling, File Nos. SAT-LOI-20050312-00062/63 (May 16, 2005) ("EchoStar Opposition").

⁴ See Satellite Home Viewer Extension and Reauthorization Act of 2004, Pub. L. No. 108-447, §205 *et seq.* (Dec. 8, 2004).

⁵ 47 U.S.C. § 309(d); 47 C.F.R. §§ 25.154(a) & (a)(4) ("Petitions to deny, petitions for other forms of relief, and other objections or comments must ... [c]ontain specific allegations of fact (except for those of which official notice may be taken) to support the specific relief requested, which shall be supported by affidavit of a person or persons with personal knowledge thereof, and which shall be sufficient to demonstrate that the petitioner (or respondent) is a party of interest and that a grant of, or other Commission action regarding, the application would be prima facie inconsistent with the public interest").

⁶ *Stone v. FCC*, 466 F.2d 316, 322 (D.C. Cir. 1972) (quoting legislative history of Section 309(d), S. Rep. No. 690, 86th Cong., 1st Sess. 3 (1959)).

⁷ *California Public Broad. Forum v. FCC*, 752 F.2d 670, 674 (D.C. Cir. 1985). Indeed, the Commission has expressly found that Section 309(d) "forecloses" it from "allow[ing] great latitude for general allegations in petitions to deny." *WKBN Broad. Corp.*, 39 F.C.C.2d 116, 119-20 (¶ 13) (1972).

conclusory statements that are unsupported by specific facts” are routinely rejected in satellite proceedings.⁸ Dismissal of the oppositions would clearly be appropriate here.

DIRECTV does not provide any specific technical information showing that Spectrum Five’s proposed service would result in actual harmful interference to its operations. Instead, DIRECTV refers generically to concerns it raised about 4.5 degree spacing *in other proceedings involving other proposals*.⁹ Different arguments about different proposals by different applicants cannot constitute “specific allegations” as required by law.¹⁰ Similarly, DIRECTV’s unsubstantiated conjecture that coordination might be “difficult”¹¹ cannot substitute for statutorily mandated “facts,” as any party that has participated in a coordination would acknowledge that most, if not all, coordinations are “difficult.”

For its part, EchoStar does not assert that Spectrum Five will interfere with EchoStar’s existing DBS system. Indeed, EchoStar has its own pending “tweener” application and “acknowledge[s] the potential benefits from 4.5° orbital spacing.”¹² Rather, EchoStar indicates that it is “considering” and “exploring” a triple-feed antenna

⁸ *American Mobile Radio Corp.*, Order and Authorization, 13 FCC Rcd 8829, 8838-39 (¶ 21) (Int. Bur. 1997).

⁹ DIRECTV Opposition at 2. A party seeking to incorporate documents by reference, moreover, “must give ‘specific reference’ in the [pleading] to the documents incorporated.” *Lexington County Broadcasters, Inc.*, 40 F.C.C.2d 320, 323 (¶ 5) (1973) (citation omitted). DIRECTV’s allusions to unspecified “numerous filings” in other dockets fails to meet this standard. DIRECTV Opposition at n.2.

¹⁰ Plainly, off-target arguments ignore the distinct state-of-the-art technologies upon which Spectrum Five’s proposal is based and disregard the particular impact of Spectrum Five’s system on DIRECTV’s existing network.

¹¹ DIRECTV Opposition at 2.

¹² *Application of EchoStar Satellite L.L.C. 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 86.5° W.L.*, File No. SAT-LOA-20030609-00113 (filed June 9, 2003); EchoStar Opposition at 1.

that could “complicate” an interference analysis.¹³ Suppositions about unspecified future plans are not “facts.”¹⁴

In short, Spectrum Five’s 130-page technical analysis demonstrated the proposed service will not cause harmful interference to authorized systems, and DIRECTV and EchoStar did not supply engineering evidence to the contrary. Thus, DIRECTV’s and EchoStar’s speculative and conclusory oppositions “fail[] to establish any basis”¹⁵ to deny Spectrum Five’s Petition, and should be dismissed.¹⁶ If considered on the merits, moreover, the oppositions should be denied as shown below.

¹³ EchoStar Opposition at 3.

¹⁴ EchoStar cites no law or policy tying the FCC’s public interest analysis to speculation about potential and private business plans. See *NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission’s Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.76 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band*, Fourth Memorandum Opinion and Order, 18 FCC Rcd 8428, 8448 (¶ 43) (2003) (DIRECTV and EchoStar’s claim that they “could be forced” to increase effective power levels in the future to compensate for interference caused by MVDDS providers is “purely speculative and merits no further consideration”).

¹⁵ *Advanced Communications Corp., Hughes Communications Galaxy, Inc., For Allocation of Direct Broadcast Satellite Channels and Orbital Positions*, Memorandum Opinion and Order, 6 FCC Rcd 6977, 6978 (¶ 4) (1991).

¹⁶ Neither DIRECTV nor EchoStar support their related claim that Spectrum Five did not demonstrate its proposed system could operate satisfactorily along with all assignments in the BSS Plan, and thus failed to comply with Section 25.114(d)(13)(i) of the Commission’s rules. In fact, Spectrum Five provided a detailed analysis regarding its compliance with Section 25.114(d)(13)(i) in Exhibit 1, Attachment 1 to its Technical Appendix.

II. SPECTRUM FIVE'S PROPOSAL COMPLIES WITH APPLICABLE ITU AND FCC RULES FOR MODIFICATION OF THE REGION 2 BSS PLAN

A. **Completed Coordination Is Not a Prerequisite to Granting Spectrum Five's Petition**

The 12 GHz allocation is a "planned band" with established ITU procedures in Appendix 30/30A for modifications.¹⁷ The FCC has recognized that this international process "should provide adequate protection of U.S. DBS systems."¹⁸ Further, with one narrow exception,¹⁹ the Commission has repeatedly declined to impose technical rules and standards for DBS.²⁰ As a result, interference issues regarding U.S.- and non-U.S. licensed systems are vetted and resolved through international coordination negotiations.

Indeed, the FCC routinely grants applications by U.S. DBS operators prior to completion of international coordination and successful modification of the Region 2 Plan.²¹ Deference to ITU procedures is appropriate because during administration-to-administration coordination,²² the FCC has ample "opportunity to work with the Administration proposing the Plan modification to ensure protection of U.S. DBS

¹⁷ 47 C.F.R. § 25.148(f) ("DBS operations must be in accordance with the sharing criteria and technical characteristics contained in Appendices 30 and 30A of the ITU's Radio Regulations."). See also 47 C.F.R. §§ 25.111(c), 25.114(d)(13).

¹⁸ *Policies and Rules for the Direct Broadcast Satellite Service*, Report and Order, 17 FCC Rcd 11,331, 11,392 (¶ 130) (2002) ("DBS Rules Order").

¹⁹ The only FCC-specific DBS technical requirement is placed on satellite antenna cross-polarization, to facilitate sharing adjacent channels at the same orbital location. 47 C.F.R. § 25.215.

²⁰ *DBS Rules Order*, 17 FCC Rcd at 11,360 (¶ 56), 11,380 (¶ 106), 11,382-383 (¶ 111).

²¹ See, e.g., *EchoStar Satellite Corporation*, 17 FCC Rcd 11,326, 11,329 (¶ 11) (2002) (authorizing EchoStar satellite subject to condition that "(1) until the International Telecommunication Union (ITU) Region 2 BSS Plan and its associated Feeder Link Plan are modified to include the technical parameters of EchoStar VIII and its associated feeder links, this satellite system shall not cause greater interference than that which would occur from the current U.S. assignments in the Region 2 BSS Plan at 110° W.L. to other BSS or feeder link assignments, or other services or satellite systems operating in accordance with the ITU Radio Regulations"); *DIRECTV Enterprises, Inc., Application to Launch and Operate a Direct Broadcast Satellite Service Space Station*, Order and Authorization, 16 FCC Rcd 18530, 18,535 (¶ 16) (2001) (same).

²² See *MCI Telecommunications Corp. For Modification of Direct Broadcast Satellite Authorization*, Memorandum Opinion and Order, 14 FCC Rcd 9966, 9970 (¶ 13) (Int. Bur. 1999).

systems.”²³ Accordingly, the FCC issues licenses (or grant petitions) for U.S. service where coordination and compromise within the ITU process appears possible.²⁴ That is the case here.²⁵

The Government of the Netherlands already requested modification of the ITU Region 2 BSS plan to accommodate Spectrum Five’s DBS operations at 114.5° W.L. Moreover, contrary to DIRECTV’s assertion that “Spectrum Five has not yet even attempted to coordinate its proposed system,”²⁶ the Netherlands Radio Communications Agency sent a letter to FCC Chairman Martin requesting coordination. Just days ago the FCC authorized DIRECTV and EchoStar to enter into direct operator-to-operator negotiations with Spectrum Five.²⁷ To ensure those negotiations are pursued promptly, however, it is vitally important that the FCC “kick start” coordination by granting

²³ *DBS Rules Order*, 17 FCC Rcd at 11,392 (¶ 130).

²⁴ See also *Televisa Intl., LLC, Application for Blanket License For Receive-Only Earth Stations in the Fixed Satellite Service for Direct-to-Home Subscription Television Service*, Order and Authorization, 13 FCC Rcd 10,074, 10,078 (¶ 12) (1997) (permitting U.S. earth stations to receive Direct-to-Home video from non-U.S. licensed satellites prior to completion of coordination).

²⁵ The FCC imposes the same regulatory standard for proving technical sufficiency of a proposed DBS system on foreign systems as on U.S. operators. *Amendment of the Commission’s Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States; Amendment of Section 25.131 of the Commission’s Rules and Regulations to Eliminate the Licensing Requirement for Certain International Receive-Only Earth Stations*, 12 FCC Rcd 24,094, 24,175-176 (¶¶ 189-192) (1997) (“*DISCO II Order*”) (requiring operators of non-U.S. satellites seeking U.S. market entry to supply the same technical information that is required of U.S.-licensed satellites); see also 47 C.F.R. § 25.137(b).

Critically, no party disputes that grant of Spectrum Five’s Petition is consistent with the ECO-Sat test set forth in the *DISCO II Order*. *DISCO II Order*, 12 FCC Rcd at 24,137 (¶99). In its Petition, Spectrum Five demonstrated that there are no *de jure* or *de facto* barriers to entry for an entity proposing to use a U.S.-licensed satellite to deliver DBS services to the Netherlands or the Netherlands Antilles markets. Spectrum Five Petition at 14-17.

²⁶ DIRECTV Opposition at 2.

²⁷ See Letter from Kathryn O’Brien, Chief, Strategic Analysis and Negotiations Division, International Bureau, FCC, to Head Frequency Planning and Coordination Section, Radiocommunication Agency Netherlands (May 19, 2005).

Spectrum Five's petition for U.S. market entry as rapidly as possible. Given DirecTV's and Echostar's opposition, and SES' reported coordination difficulties,²⁸ prompt grant of the Petition will ensure that all parties will coordinate with due diligence.²⁹

B. There Is No Basis for SES' Request To Condition Spectrum Five's Authorization on Coordination Between Two Foreign Governments

The FCC should reject SES' request that the FCC compel the Netherlands to coordinate with the United Kingdom on behalf of the GRA.³⁰ The FCC does not condition or delay market entry pending coordination between or among *foreign* administrations.³¹ The FCC has also stated that its domestic licensing proceedings are not "the proper forum for trying to facilitate coordination discussions between two non-U.S. satellite operators."³² The same considerations weigh against the imposition of the

²⁸ See SES Consolidated Reply, SAT-PDR-20020425-00071, at 12-13, 24-25 (July 3, 2002) ("SES AMERICOM itself contacted EchoStar and DIRECTV multiple times in an attempt to provide these parties further technical detail on the SES AMERICOM proposal, and to address any concerns they might have. Parties proceeding in good faith would presumably have welcomed such meetings, but SES AMERICOM's overtures were rejected... it is important that formal coordination commence as quickly as possible, particularly given the parties' refusals to meet with SES AMERICOM on an informal basis"); Comments of SES Americom, Inc., Rep. No. SPB-196 at 26 (Jan. 23, 2004) (DIRECTV's petition for rulemaking "appears to be a desperate attempt to stall consideration of [reduced orbital spacing] proposals... DIRECTV is willing to do just about anything to avoid coordination of satellites at reduced orbital spacings.").

²⁹ See *Columbia Communications Corp., Application for Modification of Authorization to Launch and Operate a C-Band Satellite at 37.5° W.L., SES Americom, Inc., Request for Special Temporary Authority to Operate Satcom C-1 at 37.5° W.L.*, Order and Authorization, 20 FCC Rcd 1863, ¶ 11 (2005).

³⁰ SES asks the FCC to "include a condition requiring Spectrum Five to coordinate with affected systems of other administrations that have priority over the Netherlands filing for modification of the Region 2 Plan." SES Comments at 3.

³¹ In the FSS context, the Commission has recognized that "it is not necessary to complete international coordination before a satellite system can be authorized to provide service in the United States." *Telesat Canada (Petition for Declaratory Ruling For Inclusion of ANIK F1 on the Permitted Space Station List)*, Order, 15 FCC Rcd 24,828, 24,833 (¶ 14) (Sat. and Rad. Div., Int'l Bur., 2000).

³² *Telesat Canada (Petition for Declaratory Ruling For Inclusion of ANIK F1 on the Permitted Space Station List), New Skies Satellites N.V. (Petition for Clarification or, in the Alternative, for Reconsideration)*, Order, 16 FCC Rcd 16,365, 16,367 & n.12 (2001).

coordination condition requested by SES.³³ Spectrum Five will comply with all ITU requirements and obligations under the BSS Region 2 plan.

III. SPECTRUM FIVE'S PROPOSED NETWORK CAN BE COORDINATED WITH EXISTING U.S. NETWORKS

EchoStar notes that it is "considering" the use of a new type of antenna that "complicates the interference analysis for tweener satellites."³⁴ EchoStar's use of this antenna would be protected only to the extent that the Region 2 BSS Plan has been modified to incorporate the technical specifications of the antenna. Although EchoStar has not claimed that this future antenna is entitled to protection under international law, there is no reason to believe that EchoStar's rights cannot be protected in coordination negotiations.³⁵

DIRECTV, for its part, complains that coordination with Spectrum Five's system would be "difficult." DIRECTV bases its claim exclusively on the results of the MSPACE analysis of Spectrum Five's system. In addition to being wholly speculative, DIRECTV's concerns are unwarranted, as shown in detail in the attached appendix prepared by Spectrum Five's engineering team (Donald Jansky, John Kiesling, David Kane, and Rick Gould) ("Technical Appendix"). The Technical Appendix (i) documents DIRECTV's misleading assumptions and proposed interference thresholds; (ii) shows that use of real-world, as opposed to paper, parameters dramatically lowers the potential

³³ The Gibraltar Regulatory Authority ("GRA") further requests that Spectrum Five operate "on a non-interference basis" with respect to the United Kingdom's filing at 114.5° W.L. See GRA Letter. Of course, Spectrum Five will abide by its obligations to protect other systems as required under international law.

³⁴ EchoStar Opposition at 3.

³⁵ As a matter of policy, moreover, EchoStar offers no plausible explanation as to why a personal and speculative business interest should be given legal protection from a new competitive – and highly efficient – DBS service.

for interference; (iii) demonstrates that the effect of Spectrum Five on DIRECTV's margins would generally be on the same order as the present environment even without the entry of Spectrum Five; and (iv) describes several possible mitigation techniques that, when perfected in coordination, would eliminate the potential for harmful interference. In short, "there is good reason to believe that, employing well-understood sharing techniques, the proposed Spectrum Five network could be coordinated with existing BSS networks."³⁶

A. DIRECTV Overstates Potential Interference by Addressing Only MSPACE Results

Neither DIRECTV nor EchoStar demonstrate that Spectrum Five's proposed system would cause actual harmful interference to their existing operations.³⁷ At most, DIRECTV suggests that Spectrum Five's own MSPACE analysis somehow demonstrates the difficulty of coordination.³⁸ In doing so, DIRECTV overstates the purpose and utility of MSPACE analyses, and fails to demonstrate the potential for any interference that cannot be resolved through routine coordination.

First, MSPACE results are not proof of harmful interference. The single, narrow purpose of MSPACE is to identify areas for negotiation in inter-system coordination. In

³⁶ Technical Appendix at 4.

³⁷ DirecTV incorrectly asserts that Spectrum Five's submission of antenna spot beam diagrams in a .txt rather than .gxt format prevented DIRECTV from conducting a complete interference analysis. In fact, .gxt files are only used to describe shaped-beam, non-elliptical antennas, which are not part of the Spectrum Five system. Therefore, Spectrum Five was not required to provide the ITU with any .gxt files. Prior to filing its Petition, Spectrum Five discussed with Commission staff how to submit antenna beam information in a form that would be helpful and accurate. As a result of these discussions, Spectrum Five submitted a Microsoft Access (.mdb) file in the exact format required by the ITU for proposed Plan modifications. Thus, Spectrum Five provided DIRECTV and other third parties with the same technical data, in the same format, that they would have received from the ITU. This .mdb file included all of the antenna characteristics necessary to analyze the interference potential of Spectrum Five's system, and the .txt file simply provided this information in a different (albeit redundant) format.

³⁸ DIRECTV Opposition at 3; EchoStar Opposition at n.1.

other words, MSPACE only establishes an agenda for the relevant affected Administrations to discuss and to resolve interference issues. As DIRECTV has experienced,³⁹ and SES and EchoStar concede elsewhere,⁴⁰ an MSPACE analysis identifying “affected” systems does not doom coordination or system implementation. The MSPACE results in the Petition prove merely that ITU coordination is required—nothing more.

Second, the MSPACE analysis uses parameters widely understood as outdated and overbroad. The MSPACE assumptions covering Region 2 were taken from Annex 1 of Appendices 30 and 30A of the ITU Radio Regulations. These assumptions are over two decades old and no longer reflect today’s technology (for example, they presume analog carriers). As a result, MSPACE utilizes artificially high protection ratios for triggering coordination. Acceptance of MSPACE results as indicative of actual interference would require all new DBS systems to comply with 20-year-old specifications and protection margins based on obsolete technologies. Such a requirement, obviously, would generate enormous spectrum inefficiency.

As the FCC knows, real-world numbers are available in the Regions 1 and 3 BSS Plans. Those plans were updated in 2000 to reflect present-day practices. Applying the updated criteria from the Regions 1 and 3 BSS Plans to Region 2 would result in a

³⁹ For example, DIRECTV’s most recent DBS satellite application (DIRECTV 9S/ USABSS-21), File No. SAT-RPL-20050322-00070 (Mar. 22, 2005), contains an MSPACE analysis showing that the Commission must coordinate with Great Britain and Argentina.

⁴⁰ See SES Consolidated Reply, File No. SAT-PDR-20020425-00071, at 23 (July 3, 2002) (“Once coordination is triggered, the ITU rules dictate that interference issues are to be resolved through coordination between the parties, which need not (indeed, SES AMERICOM believes, *should not*) employ MSPACE in seeking to resolve interference issues”) (emphasis added); EchoStar Reply Comments, Rep. No. SPB-196, at 9 (Feb. 13, 2004) (“MSPACE is a software tool for determining *which* administrations are affected, rather than an aid to coordinating with those administrations”).

reduction of the relevant protection ratio values by 7 dB.⁴¹ Such a reduction would eliminate many of the negative values shown in the Spectrum Five MSPACE analysis and reduce the number of required coordinations.⁴²

Third, MSPACE does not always accurately capture actual interference because it indiscriminately analyzes all parameters contained in the ITU filing, rather than the parameters of the actual system implemented. Unsurprisingly, DIRECTV's opposition highlights the absolute worst case, rather than typical, MSPACE results. For example, DIRECTV points to the certain high OEPM values associated with the USABSS-15 filing.⁴³ These values assume that DIRECTV's CONUS beam serves Alaska (at the -20 dB contour) and Hawaii (at the -15 dB contour) using the smallest possible (45 cm) antennas. Yet, DIRECTV apparently does not provide negative margin service throughout Alaska or Hawaii.⁴⁴ Thus, a much more realistic measure would be degradation results for test points actually located in the continental United States—

⁴¹ See Technical Appendix at 1-2. DIRECTV itself has proposed protection criteria for currently-deployed DBS systems based on the updated parameters for Regions 1 and 3. See Reply Comments of DIRECTV, Inc., Rep. No. SPB-196 at 14 (Feb. 13, 2004) ("For regions 1 and 3, the ITU determined that a single-entry C/I of 26 dB and an aggregate C/I of 21 dB were appropriate. DIRECTV's proposed protection criteria for currently-deployed DBS systems, set forth in its Petition for Rulemaking, were based on these parameters.").

⁴² Technical Appendix at 2.

⁴³ DIRECTV Opposition at n.4.

⁴⁴ See DIRECTV web site at <http://www.directv.com/DTVAPP/learn/FAQ_DTVBasics.dsp#9> (answer to item no. 9) ("because of Alaska's location in relation to our satellites, you may need a larger satellite dish. For example, viewers in Anchorage or Fairbanks may need an eight-foot dish to get good reception. In the Juneau area, a four-foot dish may do the trick. Areas north and west of these locations will experience an even greater reduction in signal acuity"); <<http://www.directv.com/DTVAPP/learn/HawaiiProgramming.dsp>> ("To receive DIRECTV programming in Hawaii, a 39" x 29" DIRECTV® dish is required. For DIRECTV PARA TODOS, Jadeworld or HD programming, up to three (3) 90-centimeter dishes may be needed"). To the degree that DirectTV does provide service (with the smallest antennas) to Hawaii and Alaska in the future, Spectrum Five would be willing to undertake measures in coordination negotiations to reduce such interference to acceptable levels.

which Spectrum Five showed would reduce the margin on the order of 2 dB in the worst case.⁴⁵

Fourth, Spectrum Five would not degrade margins any more than DIRECTV is apparently willing to accept. The ITU's MSPACE analysis of DIRECTV's most recent filing, USABSS-18 at 119° W.L., shows that over 90 percent of the test points for DIRECTV's system at 119° W.L. would experience a margin degradation of more than 7.5 dB if the USABSS-18 filing is implemented. Furthermore; over half of all test points would have margin degradations of 10 dB or more. This is *before and without any contribution* from Spectrum Five. Yet these negative margins as computed by MSPACE are comparable to what DIRECTV complains is unacceptable from Spectrum Five.⁴⁶

B. Mitigation Techniques Are Readily Available To Prevent Harmful Interference to Authorized U.S. Systems

Even if interference concerns did legitimately exist, a number of mitigation techniques are available for Spectrum Five to coordinate its DBS operations with those of DIRECTV and EchoStar.⁴⁷ For example, as shown in the attached Technical Appendix, Spectrum Five could make small changes in spot-beam pointing and power levels to better match the power levels of its neighbors at locations particularly sensitive to interference. In addition, as Spectrum Five demonstrated in its Petition and as confirmed

⁴⁵ DIRECTV also frets about its USABSS-18 filing containing high OEPM values. DIRECTV Opposition at 3 & n.2. That filing also contains similar factors that result in exaggerated OEPM results. For example, the N119 beam in USABSS-18 serves Alaska and Hawaii at the -20 dB contour and CONUS at the -10 dB contour. In its Petition, Spectrum Five presented the MSPACE result for the worst-case test point for the DIRECTV spot beam (TP4 of SB06). This represented a more realistic situation where both systems had reasonably sized service areas. Even that analysis, however, represented a worst-case situation insofar as it assumed maximum Spectrum Five power, minimum DirecTV power, and a pointing error by the earth station antenna. *See* Technical Appendix at 3.

⁴⁶ Technical Appendix at 2.

⁴⁷ *Id.* at 3-4.

in the Technical Appendix, improved coding and minimal increases (*e.g.*, merely three centimeters) in the size of the subscriber antenna could limit the impact of its system to a 10 percent increase in additional unavailability (in the example given, 52.6 minutes of additional unavailability per year, or 1 minute per week).⁴⁸ Because current baseline outage levels in the DBS service are so low (in the range of 0.1 to 0.2 percent, or approximately 525 to 1050 minutes per year), the Commission has previously held that a 10 percent relative increase in DBS unavailability (in the range of 0.01 to 0.02 percent) would be a “negligible” level of interference that “does not rise to harmful interference.”⁴⁹ Indeed, the FCC noted that an approximate 10% increase in relative unavailability would be “much less than the seasonal, yearly, and city-to-city variability that already exists in the unavailability within the DBS service,” and “imperceptible to the consumer in most cases.”⁵⁰

The isolation provided by the earth station antenna further indicates the sharing potential between Spectrum Five and DIRECTV. As explained in the Technical Appendix, a 45 cm antenna will produce a level of isolation that has been demonstrated to be sufficient to allow for sharing in other services, and would be sufficient for DBS.

⁴⁸ Technical Appendix at 4.

⁴⁹ See *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corp., and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band*, Fourth Memorandum Opinion and Order, 18 FCC Rcd 8428, 8432-33 (¶¶ 10-11) (2003).

⁵⁰ *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band*, Memorandum Opinion and Order and Second Report and Order, 17 FCC Rcd 9614, 9645-46 (¶ 79), 9651 (¶ 85) (2002).

For example, Ku-band DBS with a 45 cm subscriber antenna and 4.5 degree spacing can provide a level of service similar to that provided under existing FCC rules for Ka-band FSS with 2-degree spacing and a small 66 cm subscriber antenna.⁵¹

IV. A RULEMAKING IS NOT NECESSARY TO ADDRESS THE TECHNICAL ISSUES RAISED BY SPECTRUM FIVE'S PETITION

Both DIRECTV and EchoStar treat Spectrum Five's petition as another chance to plea for a comprehensive rulemaking to "first establish technical rules"⁵² for "tweener" satellites.⁵³ EchoStar also contends interference to its possible future triple-feed antenna can be resolved only via rulemaking.⁵⁴ Neither claim is correct. The Commission has substantial discretion over its process in general⁵⁵ and may employ rulemaking or adjudication.⁵⁶ Moreover, EchoStar never explains why a triple-feed antenna necessarily has a heightened susceptibility to interference.⁵⁷ EchoStar can fully protect its interests through the traditional international coordination process.⁵⁸

⁵¹ Technical Appendix at 4.

⁵² EchoStar Opposition at 2.

⁵³ DIRECTV Comments at 2.

⁵⁴ EchoStar Opposition at 3-4.

⁵⁵ 47 U.S.C. § 154(j).

⁵⁶ *SEC v. Chenery Corp.*, 332 U. S. 194, 202-03 (1947); *Tel-Optik Limited, Application for a license to land and operate in the United States a submarine cable extending between the United States and the United Kingdom*, Memorandum Opinion and Order, 100 F.C.C.2d 1033, 1050 (¶¶ 36-37) (1985).

⁵⁷ A triple-feed antenna could be designed with a reflector large enough to allow each feed to "see" the same effective area as a 45 cm antenna. In that case, the triple-feed and standard 45 cm antenna would have similar gain and beamwidth measurements, which would result in similar levels of interference.

⁵⁸ Conditioning Spectrum Five's Petition on rules protecting EchoStar's hypothetical triple-feed antenna both sidesteps ITU coordination and allows EchoStar to manipulate the administrative process to select technological winners and losers.

Spectrum Five takes no position on adding to or modifying the DBS rules.⁵⁹

Either way, the Petition should be reviewed and granted independently of other proceedings.⁶⁰ For the last 20 years, the Commission has followed the procedures in the ITU Radio Regulations for making modifications to the Region 2 Plan, and there is no reason for the Commission to discriminate against Spectrum Five by deviating from this practice. The FCC recently concluded that the ITU coordination process and existing FCC rules were sufficient to protect U.S. DBS systems "while still preserving options for future entrants," including non-U.S. satellite systems located less than nine degrees from U.S. DBS orbital slots.⁶¹ In addition, granting Spectrum Five's Petition without a rulemaking is also consistent with the Commission's treatment of DIRECTV and EchoStar during their transition from analog to digital technology. In any event, Spectrum Five understands and accepts its legal obligation to comply with relevant rules adopted in the future.⁶²

⁵⁹ Both DIRECTV and EchoStar previously have suggested, however, that such rules are not required. See Comments of DIRECTV, Inc., IB Docket No. 98-21, at 2-3, 23-25 (filed Apr. 6, 1998); Comments of EchoStar, IB Docket No. 98-21 (filed Apr. 6, 1998). More recently, when seeking market entry, EchoStar apparently believed revised rules were not condition precedent to approval for its own "tweener" satellite. EchoStar Opposition at 3, n.5.

⁶⁰ As shown above, particularized interference issues are resolved through ITU coordination, not FCC proceedings.

⁶¹ *DBS Rules Order*, 17 FCC Rcd at 11,391 (¶ 129) ("Service into the United States from future entrants such as non-U.S. DBS satellites could result in smaller satellite spacing than the current nine-degree separation between U.S. DBS orbital locations."). No rules restricting such services were implemented.

⁶² *U.S. v. Storer Broadcasting Co.*, 351 U.S. 192, 203-06 (1956). The Commission routinely licenses (or grants market access to) satellites without waiting for final rules. See *PanAmSat Licensee Corp.*, Order and Authorization, 13 FCC Rcd 1405, 1414 (¶ 27) (Int'l Bur. 1997) (license conditioned on outcome of future rulemaking proceeding); *Amendment of the Commission's Regulatory Policies to Allow Non-U.S.-Licensed Space Stations to Provide Domestic and International Satellite Service in the United States and Amendment of Section 25.131 of the Commission's Rules and Regulations to Eliminate the Licensing Requirement for Certain International Receive-Only Earth Stations and Communications Satellite Corporation Request for Waiver of Section 25.131(j)(1) of the Commission's Rules as it Applies to*

V. GRANT OF SPECTRUM FIVE'S PETITION WILL SERVE THE PUBLIC INTEREST

None of the concerns raised in the oppositions outweighs the public interest benefits of granting Spectrum Five's Petition. First, Spectrum Five's planned service will increase spectrum efficiency by utilizing new technology to provide more spectrum at undeveloped orbital locations, without causing harmful interference to existing satellites at 110° W.L. and 119° W.L. Spectrum Five's service will provide over 1500 additional channels for programming while potentially causing only seconds of additional unavailability of existing services per day. This additional capacity will have a host of positive effects throughout the DBS and MVPD marketplace.

Second, Spectrum Five's service will have the ability to expand the availability of local-into-local programming in rural and underserved markets that currently have no local broadcast programming. The Congress and the Commission have previously recognized the importance of providing local-into-local programming to these areas.⁶³ Spectrum Five also plans to provide enhanced DBS service to Alaska and Hawaii, including local-into-local programming, in furtherance of this important Commission objective.⁶⁴

(Continued . . .)

Services Provided Via the INTELSAT K Satellite, Further Notice of Proposed Rulemaking, 12 FCC Rcd 14,220, 14,229 (¶ 22) (1997) (stating that the "[g]rant of any authorizations to provide DTH-FSS and DBS service prior to resolution of [certain foreign ownership and public interest] issues will be considered on a case-by-case basis and will be conditioned on their final outcome").

⁶³ Satellite Home Viewer Extension and Reauthorization Act of 2004, Pub. L. No. 108-447, §205 *et seq.* (Dec. 8, 2004); *General Motors Corp. and Hughes Electronics Corp., Transferors, and The News Corp. Ltd., Transferee, For Authority To Transfer Control*, Memorandum Opinion and Order, 19 FCC Rcd 473, 616-17 (¶¶ 333-34) (2004).

⁶⁴ *DBS Rules Order*, 17 FCC Rcd at 11,367 (¶ 72) (clarifying that to comply with the Commission's Alaska and Hawaii DBS service requirements at 47 C.F.R. § 25.148(c), an operator must "offer[] packages

Third, Spectrum Five's service will speed the DTV transition by making available much-needed capacity for the retransmission of local broadcast stations' HDTV and other digital services. Spectrum limitations restrict the ability of satellite operators to carry both analog and digital local-into-local broadcast services.⁶⁵ Spectrum Five's service will augment available spectrum and significantly reduce the shortfall prompted by technological change and surging marketplace demand.

Finally, Spectrum Five's service will increase competition in the MVPD market. The FCC has recognized the importance of local-into-local service in promoting competition in the MVPD market.⁶⁶ Spectrum Five's planned offerings will make existing DBS offerings more attractive as compared to cable, and other services, by increasing the availability of local-into-local programming and digital content.⁶⁷

VI. CONCLUSION

The FCC has consistently expressed its "reluctance for regulation of the DBS services" and a corollary promise to "implement the least intrusive rule."⁶⁸ This flexible approach has created a vibrant and robust DBS service. The Commission can best keep to that path by dismissing or denying DIRECTV's and EchoStar's oppositions, rejecting

(Continued . . .)

of services in Alaska and Hawaii that are reasonably comparable to what the provider offers in the contiguous 48 states").

⁶⁵ See *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Eleventh Annual Report, FCC 05-13, ¶ 165 (Feb. 4, 2005).

⁶⁶ *Id.* ¶¶ 58, 63.

⁶⁷ See Spectrum Five Petition at 14-15.

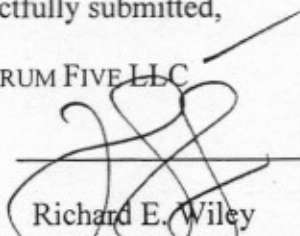
⁶⁸ *Revision of Rules and Policies for the Direct Broad. Satellite Service*, Report and Order, 11 FCC Rcd 9712, 9737 (¶ 65) (1995). See also *DBS Rules Order*, 17 FCC Rcd at 11,347 (¶ 29) (eliminating foreign ownership restrictions on DBS operators in order to "allow[] DBS applicants and licensees the maximum degree of regulatory freedom.").

the requests for unnecessary conditions and promptly granting this Petition in the public interest, convenience and necessity.

Respectfully submitted,

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TECHNICAL APPENDIX

This Appendix addresses the comments of DIRECTV regarding the negative margins in Spectrum Five's MSPACE results, and further provides information as to why coordination of Spectrum Five's proposed modification of the Region 2 BSS Plans has a high likelihood of success.

I. MSPACE ANALYSES DONE AS A CONSEQUENCE OF TRIGGER

When considering modifications to the Region 2 BSS Plans, MSPACE analyses are done where the threshold of 0.25 dB as specified in Article 4 of the Region 2 BSS Plans is exceeded. The analyses are intended to identify, based on technical assumptions in the Plans, the Administrations and assignments requiring coordination. In other words, an MSPACE analysis merely identifies items to be discussed during coordination. The MSPACE analysis is not a substitute for coordination. This is particularly important given the assumptions in the Plans, which are over 20 years old, are based on analog transmissions and overstate the severity of any potential impact on other systems.

The basic issue is whether the resulting C/Is as a consequence of interference from the Spectrum Five network are reasonable and do not cause unreasonable levels of interference. These can best be determined through a coordination negotiation involving actual system parameters.

II. TECHNICAL ASSUMPTIONS IN THE REGION 2 PLANS

As suggested above, misleading and out of date technical assumptions can lead to incorrect conclusions regarding the likelihood of successful coordination for Spectrum Five's proposed modification of the Region 2 BSS Plans. Indeed, Spectrum Five has every expectation that the real impact of its network on DIRECTV will be minimal and could be resolved during coordination negotiations. This is illustrated through consideration of the changed assumptions associated with the recently modified Regions 1 & 3 BSS Plans.

The modification to the Regions 1 & 3 BSS Plans was incorporated into the ITU Radio Regulations at WRC-03. The modification was predicated on updating the technical assumptions in the Regions 1 & 3 BSS Plans, and providing for additional ITU members. Annex 5 of Appendix 30 of the Plan states as follows:

"WRC-2000 adopted, for the protection of digital assignments from digital emissions, the following protection ratio values to be applied for calculation of downlink equivalent protection margins of the WRC-2000 Regions 1 and 3 Plan:

- 21 dB for co-channel signals;
- 16 dB for adjacent channel signals.

During planning at WRC-2000, these values were used for all assignments of the Region 1 and 3 Plan and List except those for which WRC-2000 adopted different values used in the planning process.”

The modified protection ratio adopted for the Regions 1 & 3 BSS Plans is far more realistic when compared with the ratio in the original Regions 1 & 3 BSS Plans (31 dB for co-channel signals, or 28 dB in the Region 2 Plans). The modified protection ratio should be applied to any MSPACE analysis involving the Region 2 Plans. It should be apparent that with a 21 dB protection ratio, sharing results would improve by 7 dB, many of the negative margins would disappear, and the likelihood for successful coordination would be very high. In reality, the networks being implemented today within the Region 2 Plans, as well as proposed modifications to the Region 2 Plans, are all digital. Indeed, when commenting on a similar situation, SES itself admitted that the basic issue is whether the resulting C/Is as a consequence of interference from the potential new network are reasonable and do not cause unreasonable levels of interference.

III. MSPACE NEGATIVE MARGINS

DIRECTV suggests that the MSPACE results that contain negative margins greater than the coordination threshold indicate an unfavorable sharing situation. However, this is misleading as the MSPACE analysis is based on assumptions from a Plan over 20 years old. These assumptions give extremely conservative results that do not determine whether sharing and coordination are possible.

One way to illustrate the conservative nature of the MSPACE assumptions is to consider what margins are obtained for DIRECTV's recent USABSS-18 filing *in the absence of any interference from Spectrum Five*. Assuming no interference from Spectrum Five at all into USABSS-18, for example, USABSS-18 has margins that range from -3.2 dB to -18.5 dB, with over 90% of the USABSS-18 test points showing a reference situation with the margin degraded by more than 7.5 dB, and over half the points with margins of -10.0 dB or worse. In other words, DIRECTV recognizes the conservative assumptions inherent in MSPACE and appears to have taken those negative margins into account. These margins are of similar magnitude to those to which it now objects in the context of the proposed Spectrum Five network. Clearly it makes no sense for DIRECTV to suggest MSPACE assumptions are representative of actual operational requirements -- and that its results preclude sharing -- given DIRECTV's willingness to modify and operate its own system assuming similar substantial negative margins.

IV. MSPACE RESULTS IN DIRECTV FILINGS

Furthermore, it is worthwhile to consider why the MSPACE results for DIRECTV's later filings seem so much worse than the degradation caused to the USA's original entries in the Plans (USAEH004 and USAEH003). This is surprising only because it suggests that DIRECTV is implementing systems increasingly susceptible to interference. Closer examination shows that these high values are an artifact of the DIRECTV ITU filing.

In the DIRECTV filing USABSS-15, referred to in footnote 4 on p.3 of the DIRECTV Opposition, all of the higher degradation numbers appear for the CONUS beam, but for test points that are not located in CONUS. The GIMS diagram shows that service to Hawaii occurs at the -15.0 dB contour and to Alaska at the -20.0 dB contour. This explains the low C/I values observed in the Spectrum Five Petition as the Spectrum Five filing contains spot beams for these regions. For most test points actually in CONUS, the worst-case degradation from the Spectrum Five network is on the order of 2.0 dB. To the degree that DIRECTV does provide service (with the smallest antennas) to Hawaii and Alaska, Spectrum Five would be willing to undertake measures in coordination negotiations to reduce such interference to acceptable levels. It should also be noted that the worst-case CONUS test points for the USABSS-15 CONUS beam occur at test points found at the -10.0 dB contour of the beam, and so overstates the impact on new network entries.

This appears to be a case of DIRECTV exaggerating the interference potential of any proposed network proposing to alter the BSS Plans. Note, additionally, that the original Plan was based on a much more spectrally efficient 4.0 dB service area rather than contours of -10.0 dB and -15.0 dB.

Next, DIRECTV points out, at p. 3 and n.2, that the MSPACE findings also show some high values for USABSS-18. USABSS-18, the latest DIRECTV filing contains many of the same factors that exaggerate the calculated interference. For example, the N119 beam serves Alaska and Hawaii at the -20.0 dB contour, and CONUS at the -10.0 dB contour. In the Spectrum Five Petition, the test point for the spot beam (TP4 of SB06) was considered because it illustrates a more realistic situation, with both systems having reasonable service areas. It is still very much a worst-case example however, in that it includes maximum Spectrum Five power, minimum DIRECTV power, and a pointing error. Note that, in general, antenna pointing error and mismatch of the beams of two systems do not systematically increase the interference experienced by one system. For every earth station that is mispointed toward Spectrum Five, there will be another one pointed away.

V. MITIGATION TECHNIQUES

Given the expected coordination situation described above, there are a number of techniques that have been used in such coordinations to achieve a successful result. A first step would be to agree on the characteristics of the systems concerned and the contours to be used for coverage area. Subsequently agreement should be reached on appropriate protection ratios for sharing between digital systems.

When calculations of any negative margins are examined several mitigation techniques can be used. These include improved modulation and/or coding, adjusting the size of the user earth station antenna, and changing the availability due to rain. Agreement on use of various mitigation techniques typically leads to a satisfactory coordination result. In addition, MSPACE includes many factors that do not systematically increase the interference for a system, but which may increase the maximum interference an individual earth station could experience at a particular moment. These are satellite station-keeping errors, earth station mis-pointing and relative EIRP of the two systems over a geographic expanse, such as CONUS. Note that the spot

beam system of Spectrum Five gives it flexibility in coordination of issues involving changes in EIRP. For example, Spectrum Five would be able to change individual spot-beam power levels to better match the power levels of neighboring satellites. Further, the MSPACE calculation considers the possibility of a single DIRECTV channel receiving interference from two different S5 channels. Therefore, traffic balancing can also be used to reduce this type of interference event in critical locations. Finally, Spectrum Five may be able to improve the cross-polarization discrimination performance beyond that currently filed with the ITU.

VI. AVAILABILITY CRITERIA FOR COORDINATION

If Spectrum Five were to launch and operate satellites in the near term when present BSS systems based on MPEG-2 standard digital TV and QPSK are in operation, the unavailability objective due to rain, for example, 0.1%, can be degraded by 52.6 minutes of outage or 10% of the total outage.¹ Under those circumstances, coordination may readily be accomplished. A similar criteria was used to accommodate the MVDDS and NGSO system in the 12.2-12.7 GHz band. The allowable C/I under these conditions was calculated to be 21.4 dB. The subscriber antenna discrimination resulted in a C/I = 20.8 dB, a shortfall of 0.6 dB. If another 4.0 dB is added to account for the peak gain of the spot beam antenna, the coordination objectives could still be met throughout the service area by the use of rate 1/3 coding for the Spectrum Five satellites and by enlarging the subscriber antenna to 48 centimeters, if necessary.

In sum, there is good reason to believe that, employing well-understood sharing techniques, the proposed Spectrum Five network could be coordinated with existing BSS networks.

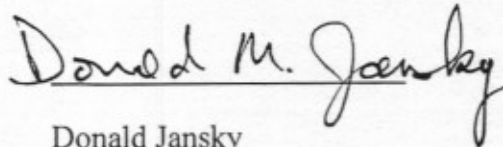
VII. COMPARISON OF KA AND KU BAND SERVICE

In the Ka band a typical FSS small subscriber antenna is 66cm. The FCC antenna characteristic is $29-25\log 2 = 21.5$ dBi, and the corresponding subscriber antenna gain for this antenna is $G = 40.6$ dBi, and the C/I is 19.1 dB. In the Ku band BSS, the FCC antenna characteristic is $29-25 \log 4.5 = 12.67$ dBi, and the corresponding subscriber antenna gain for a 45 cm antenna is $G = 33.5$ dBi, causing a C/I of 20.8 dB. This indicates that the BSS with 4.5 degree spacing, has slightly more isolation than the Ka band FSS with 2 degree spacing and therefore is capable of providing the same level of service provided for under existing FCC rules. Note that for Ka band FSS, these interference levels are accepted **without** the FCC requiring coordination. Here, we start with slightly better isolation and will also achieve other improvements as a result of the bilateral ITU coordination process.

¹ The Technical Appendix filed with Spectrum Five's Petition for Declaratory Ruling (at 13-15) describes this analysis in further detail.

**CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION**

I hereby declare under penalty of perjury that I am the technically qualified person responsible for preparation of the information contained in the foregoing application, 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 application, and that it is complete and accurate to the best of my knowledge and belief.



Donald Jansky

Technical Consultant

Dated: June 1, 2005

I, Kimberly Booth, a secretary at the law firm of Wiley Rein & Fielding LLP, hereby certify this 1st day of June 2005, that I caused copies of the foregoing Consolidated Response to be hand delivered to the following:

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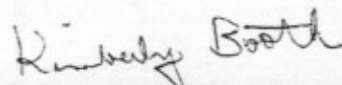
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