

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

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Policy Branch
International Bureau

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In the Matter of:)	
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International Bureau Seeks Comment)	Report No. SPB-196
On Proposals to Permit Reducing)	
Orbital Spacings Between U.S. Direct)	
Broadcast Satellites)	
)	
Petition of DIRECTV Enterprises, LLC)	RM No. 10804
For a Rulemaking on the Feasibility)	
Of Reduced Orbital Spacing in the U.S.)	
Direct Broadcast Satellite Services)	
)	
Petition of SES AMERICOM, Inc.)	SAT-PDR-20020425-00071
For a Declaratory Ruling)	
To Serve the U.S. Market Using)	
BSS Spectrum from the 105.5° W.L.)	
Orbital Location)	
)	
Applications of EchoStar Satellite)	SAT-LOA-20030606-00107
Corporation for Authority to Construct,)	SAT-LOA-20030605-00109
Launch, and Operate Direct Broadcast)	SAT-LOA-20030609-00113
Satellites in the 12.2-12.7 GHz and)	
17.3-17.8 GHz Frequency Bands at the)	
123.5°, 96.5°, and 86.5° W.L. Orbital)	
Locations)	
_____)	

REPLY COMMENTS OF SES AMERICOM, INC.

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SUMMARY

Princeton, NJ 08540The comments filed in response to the Commission's Public Notice demonstrate that a rulemaking on reduced orbital spacing of DBS satellites is neither necessary nor appropriate. Current international and domestic rules already govern entry of DBS satellites at new orbital locations, in a manner that protects existing systems, while providing opportunities for new entrants. As many parties have pointed out, the Commission may not ignore the procedures for DBS satellites, long established by an international process, and should accommodate new systems in a manner consistent with those procedures and priorities. Moreover, the international procedures are already incorporated in the Commission rules, and no new rules are required for the United States to obtain rights to new orbital slots, license such slots, or regulate U.S. market entry for satellites operating from foreign slots.

The international and domestic rules require coordination of new DBS systems with potentially-affected existing systems. In coordination, any number of technical parameters can be studied to find combinations of operational values that achieve mutual compatibility. Worst-case interference assessments, on the other hand, ignore the techniques that can be employed in coordination to overcome technical obstacles, and are not an accurate predictor of technical feasibility in many cases. As demonstrated by EchoStar in its comments, good-faith coordination can permit entry of new satellites at 4.5° spacing.

The comments of EchoStar also indicate the danger of imposing additional technical constraints on DBS satellites. DBS operational parameters, such as power levels, vary over the coverage area of DBS systems, and cannot be effectively specified

in generic rules. More importantly, the appropriate value of each such parameter depends on the particular systems under consideration, the geographic area under consideration, and the values of other operational parameters employed by each of the systems. Any attempt to adopt “one-size-fits-all” technical requirements for new satellites will introduce unnecessary constraints, precluding entry of systems that otherwise may be technically feasible.

The Commission should refrain from pursuing an unnecessary rulemaking with the intent of placing hard limits on potential new DBS entrants, and instead should encourage the several ongoing coordinations of such systems, pursuant to existing Commission rules. At the same time, the Commission, through its participation in these coordinations, should ensure that incumbent licensees do not use the coordination process to delay or prevent introduction of systems able to provide new and innovative services to U.S. consumers.

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In the Matter of:)	
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International Bureau Seeks Comment On Proposals to Permit Reducing Orbital Spacings Between U.S. Direct Broadcast Satellites)	Report No. SPB-196
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Petition of DIRECTV Enterprises, LLC For a Rulemaking on the Feasibility Of Reduced Orbital Spacing in the U.S. Direct Broadcast Satellite Services)	RM No. 10804
)	
Petition of SES AMERICOM, Inc. For a Declaratory Ruling To Serve the U.S. Market Using BSS Spectrum from the 105.5° W.L. Orbital Location)	SAT-PDR-20020425-00071
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Applications of EchoStar Satellite Corporation for Authority to Construct, Launch, and Operate Direct Broadcast Satellites in the 12.2-12.7 GHz and 17.3-17.8 GHz Frequency Bands at the 123.5°, 96.5°, and 86.5° W.L. Orbital Locations)	SAT-LOA-20030606-00107 SAT-LOA-20030605-00109 SAT-LOA-20030609-00113
)	

REPLY COMMENTS OF SES AMERICOM, INC.

SES AMERICOM, Inc. (“SES AMERICOM ”), by its attorneys, hereby replies to the comments submitted in response to the Commission’s Public Notice (the “Public Notice”)¹ seeking comment on proposals to permit reduced orbital spacings

¹ See *Public Notice*, Report No. SPB-196, December 16, 2003 (the “*Public Notice*”). See also Petition of DIRECTV Enterprises, LLC For a Rulemaking on the Feasibility of Reduced Orbital Spacing in the U.S. Direct Broadcast Satellite Service, RM No.

between U.S. direct broadcast satellite service (“DBS”) satellites.² As outlined below, the comments clearly demonstrate that the Commission should reject the request of DIRECTV, Inc. (“DIRECTV”) for a rulemaking on reduced orbital spacing, and should continue to apply its existing rules and procedures governing entry of DBS satellites at new orbital locations. In addition, the comments of EchoStar Satellite L.L.C. (“EchoStar”) show how coordination between satellite operators can ensure mutually compatible operation of DBS systems at 4.5° spacing.

10804, Sept. 5, 2003 (the “DIRECTV Petition”). As explained in the Public Notice, the Commission has received several proposals involving reduced orbital spacing in the DBS bands. *See* SES AMERICOM, Inc., Petition for Declaratory Ruling To Serve the U.S. Market Using BSS Spectrum from the 105.5° W.L. Orbital Location, SAT-PDR-20020425-00071, April 25, 2002 (the “SES AMERICOM Petition”). *See also* EchoStar Satellite Corporation, 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 123.5° W.L. Orbital Location, SAT-LOA-20030606-00107, June 6, 2003 (the “EchoStar 123.5° W.L. Application”); EchoStar Satellite Corporation, 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 96.5° W.L. Orbital Location, SAT-LOA-20030605-00109, June 5, 2003 (the “EchoStar 96.5° W.L. Application”); EchoStar Satellite Corporation, 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, SAT-LOA-20030609-00113, June 9, 2003 (the “EchoStar 86.5° W.L. Application”) (collectively, the “EchoStar Applications”).

- ² Comments addressed in detail in this Reply include the Comments of DIRECTV, Inc. (“DIRECTV Comments”); Comments of EchoStar Satellite L.L.C. (“EchoStar Comments”); Comments of New Skies Satellites N.V. (“New Skies Comments”); Comments of Pegasus Development Corporation (“Pegasus Comments”); Comments of The Boeing Company (“Boeing Comments”); Comments of the State of Hawaii (“Hawaii Comments”) Comments of Telesat Canada (“Telesat Comments”); Comments of Bell ExpressVu LP (“ExpressVu Comments”); Letter from the Government of Bermuda, Ministry of Tourism, Telecommunication & E-Commerce (“Bermuda Comments”); Letter from the Gibraltar Regulatory Authority (“Gibraltar Comments”); and Letter from the Office of Communications of the United Kingdom (“U.K. Comments”).

I. THE COMMENTS DEMONSTRATE THAT A RULEMAKING IS NEITHER NECESSARY NOR APPROPRIATE.

A. The Commission Rules, Through Incorporation of the International Rules Governing DBS Frequencies, Already Contain Effective Procedures for Accommodating Satellites at Reduced Spacing.

DIRECTV states in its comments that one of the main considerations involved in accommodating DBS satellites at reduced orbital spacings is “one of process.”³ As SES AMERICOM and others have demonstrated, a fair and effective process is already in place governing proposals for DBS satellites at new orbital locations. This process, contained in Appendices 30 and 30A of the International Telecommunication Union (“ITU”) Radio Regulations, is incorporated in the Commission’s rules for DBS systems (the “Commission Rules”).⁴ In its comments, DIRECTV provides no reason why the existing procedures, which require coordination with potentially-affected satellites, are not capable of protecting existing systems and services, while providing opportunities for new entrants and new systems. As pointed out in the comments, the Commission has already held that the existing procedures fully meet these goals.⁵

³ DIRECTV Comments at 3.

⁴ Appendices 30 and 30A contain the Region 2 plan for the broadcasting-satellite service (“BSS”) and associated feeder link plan (collectively referred to herein as the “BSS Plans”). The BSS Plans assign channels with designated frequencies at specified orbital slots for BSS satellites. Appendices 30 and 30A also contain procedures for modifying the Plans to accommodate systems whose technical parameters, including orbital location, differ from the planned assignments. See SES AMERICOM Comments at 5-13. The Commission Rules defer to these procedures. See 47 C.F.R. §§ 25.111(c), 25.114(c)(22), 25.148(f).

⁵ SES AMERICOM Comments at 12, 18; New Skies Comments at 4. In the 2002 *DBS Order*, the Commission, with reduced-spacing scenarios fully in mind, explicitly declined to adopt additional technical rules governing the DBS service, stating that

Many parties echoed SES AMERICOM's arguments on the importance of following the current international and domestic rules and procedures in considering DBS satellites at reduced spacing.⁶ As noted by Telesat Canada ("Telesat"), "the Region 2 Plan forms part of an international treaty of which the U.S. is a signatory."⁷ Consistent with this obligation, the Commission has followed the ITU procedures associated with the BSS Plans for all U.S. DBS systems to date,⁸ and should continue to do so with respect to proposals for satellites at reduced orbital spacing.⁹

Moreover, commenters agree with SES AMERICOM that the existing procedures are effective. New Skies Satellites N.V. ("New Skies") explained that the current rules and procedures "provide a flexible framework that use case-by-case coordination to ensure compatibility with existing DBS systems, promote arrangements that make commercial sense, permit a diversity of business plans, and maximize the

"our existing rules should provide adequate protection of U.S. DBS systems, while still preserving options for future entrants." *Policies and Rules for the Direct Broadcast Satellite Service, Report and Order*, FCC 02-110 (June 13, 2002) ("*DBS Order*"), ¶ 130.

⁶ See New Skies Comments at 4, EchoStar Comments at 7, Telesat Comments at 1, ExpressVu Comments at 2, Pegasus Comments at 2, Gibraltar Comments at 1, UK Comments at 2, Bermuda Comments at 1.

⁷ Telesat Comments at 1. See also Pegasus Comments at 2 (noting that the Commission's rules require compliance with the ITU BSS Plan provisions).

⁸ See SES AMERICOM Comments at 10.

⁹ Telesat notes that satellites at new orbital locations can cause problems for foreign satellites, and that all satellites, even those not co-coverage, must be protected. Telesat Comments at 1, 2, 5. The need to take into account foreign systems is fully addressed in the existing international and domestic procedures, which require coordination with any potentially-affected foreign satellites, whether co-coverage or not.

opportunity for American consumers to obtain the satellite services they desire.”¹⁰ As noted by EchoStar, the existence of these procedures has allowed the Commission to authorize advanced U.S. DBS systems and services, without being constrained by the outdated parameters contained in the original Region 2 BSS Plans.¹¹

A number of parties pointed out the difficulty of unilateral action by the Commission on this issue. Telesat noted that “any reduced spacing cannot be examined unilaterally by the FCC but instead must be considered in the context of BSS satellites and Plan entries for all Administrations.”¹² The problem, as Telesat pointed out, is that no Commission rulemaking, or assignment of any new DBS orbital positions not currently allocated to the United States, can proceed without appropriate modification of the Region 2 BSS Plans.¹³ The priority of other Administrations must be respected in these modification procedures, and this limits the ability of the United States to arbitrarily dictate satellite spacing.¹⁴ As the United Kingdom and Gibraltar concluded, a single

¹⁰ New Skies Comments at 1.

¹¹ EchoStar Comments at 4.

¹² Telesat Comments at 1.

¹³ Telesat Comments at 1-2. Modification of the Region 2 Plans occurs through the application by Administrations of the process prescribed in Article 4 of Appendices 30 and 30A.

¹⁴ *See, e.g.*, SES AMERICOM Comments at 23. *See also* EchoStar Comments, Technical Annex at 3. For this reason, the suggestion of The Boeing Company (“Boeing”) that the Commission consider more broadly the optimal spacing of DBS satellites to maximize the number of positions, Boeing Comments at 2, is problematic. The Commission cannot unilaterally change the orbital spacing of its DBS satellites without affecting the satellites of other Administrations. *See* SES AMERICOM Comments at 23. If the existing U.S. satellites are not moved, this permits consideration of only uniform 3° and 4.5° spacing. As several parties demonstrated, the technical obstacles with 3° spacing appear insurmountable,

solution for reduced orbital spacing is not needed, and would be inappropriate to apply to filings of other countries.¹⁵

Only DIRECTV asserts that 9° spacing is a “policy” that should be preserved.¹⁶ DIRECTV claims that its application to use a Canadian BSS slot at 72.5° W.L. demonstrates its continued belief that 9° spacing is important to maintain where 45 cm dishes are predominant.¹⁷ Moreover, notwithstanding the provisions of the international and domestic processes for modifying the BSS Plans, DIRECTV argues that movement from 9° spacing should not be effectuated through a series of “one-off” coordinations with other Administrations.¹⁸

However, the 72.5° W.L. orbital slot cited by DIRECTV did not originally permit service to the United States. In order to expand the service area, which is necessary to permit DIRECTV’s proposed service, the Canadian Administration applied the modification process contain in Article 4 of Appendix 30. This is precisely the same procedure that SES AMERICOM and others are advocating to permit additional use of the DBS bands at reduced orbital spacing.

assuming use of 45 cm dishes. This leaves 4.5° spacing as the most promising spacing for new satellites seeking entry in the BSS Plans. *See* EchoStar Comments, Technical Annex at 3; Pegasus Comments at A-3; SES AMERICOM Comments at 24-25.

¹⁵ UK Comments at 2; Gibraltar Comments at 2.

¹⁶ DIRECTV Comments at 1, 2, n.4.

¹⁷ *Id.* at 2, n.4.

¹⁸ *Id.* at 3.

Furthermore, while 72.5° W.L. may be approximately 9° away from any other Canadian orbital slot, it is not 9° from other co-coverage modifications. Mexico filed a modification to serve the United States from 77° W.L. on April 22, 1996, before the Canadian modification to serve the United States from 72.5° W.L. – resulting in a spacing of 4.5°. ¹⁹ Coordination between Canada and Mexico is therefore required (and perhaps has been completed).

It is inconsistent for DIRECTV to support the current rules and procedures where they have facilitated expanded service from Canadian BSS slots, while opposing other applications of the very same rules. Moreover, DIRECTV's application to use the 72.5° W.L. orbital location does not demonstrate DIRECTV's "continued belief" in 9° spacing, ²⁰ in fact it provides a clear example of the importance of coordination to permit closer spacing – 4.5° in DIRECTV's case – between co-coverage assignments.

For the above reasons, a rulemaking is not appropriate, nor would it be effective in furthering any Commission policy. Current ITU and Commission rules already govern the coordination process by which technical feasibility of a proposed new satellite is assessed. And the Commission Rules already contain all necessary provisions

¹⁹ In addition to Mexico's priority, the United States and Mexico have a protocol allowing satellites to provide DBS/DTH services to the other country. *See Public Notice*, Report No. SPB-65 (Int'l Bur., Nov. 13, 1996) ("International Bureau Announces Conclusion of U.S.-Mexico Protocol for Direct-to-Home Services"). By contrast, there are issues related to provision of service in Canada by U.S. satellite providers. *See* Digital Broadband Applications Corp., File No. SES-LIC-20020109-00023, *Order*, DA 03-1526 (Int'l Bur., May 7, 2003), ¶ 14.

²⁰ DIRECTV Comments at 2, n.4.

for domestic licensing of any new U.S. BSS slots, and for regulating U.S. market entry for satellites operating from any new foreign-licensed BSS slots.

Furthermore, as New Skies explained, a rulemaking “could be counterproductive if it were to result in delays for new entrants or in a rigid set of rules that unduly constrain the ability of new entrants to execute their business plans and compete with incumbent operators.”²¹ The Commission should encourage both U.S. and foreign satellite providers to follow the existing regulatory framework in pursuing entry of new satellites. This will best expedite the development and implementation of technically feasible proposals, while providing effective safeguards for protection of existing systems.

B. There Is No Need to “Re-plan” Region 2 BSS at this Juncture.

Telesat suggests that, if the United States were to contemplate changes that could affect foreign systems, international study and overhaul of the Region 2 BSS Plan may be required.²² While such re-planning has been undertaken in Regions 1 and 3, such a step is not necessary or useful in connection with the Region 2 proposals currently on the table, which respect the priority of foreign systems. The existing Appendix 30/30A provisions provide mechanisms for introducing satellites at reduced spacing, while protecting all existing systems.

A re-planning of the band would be required only if otherwise technically feasible proposals could not be accommodated by the current rules and procedures.

²¹ New Skies Comments at 1.

²² Telesat Comments at 5.

There is no evidence that this is the case at this juncture. All of the parties proposing satellites at new orbital locations have elected to pursue modification of the Plans according to the current procedures, and coordination discussions (where appropriate) are ongoing. No party has indicated that its proposal would require the drastic measure of a re-planning. As Pegasus Development Corporation (“Pegasus”) concluded, the existing ITU process, “rather than an overhaul of the Region 2 Plans through a [WRC], would most likely facilitate the deployment of these satellites and the timely entry of new competitors.”²³

Telesat’s satellite fleet provides an example of the flexibility of the current process. Although the original Canadian and Mexican plan assignments generally relied on the geographic separation between the two service areas,²⁴ Telesat and its Administration were able to obtain significant modifications to several of the original Canadian plan assignments (*e.g.*, 82° W.L. and 91° W.L.) to increase their coverage areas to include the United States. Telesat did not seek or need a wholesale overhaul of the Region 2 BSS Plans to achieve such modifications, but – like current operators proposing satellites at reduced spacing – chose to follow the Appendix 30/30A Article 4 procedures.

As in the case of Telesat’s modifications, the current proposals for reduced spacing provide evidence that the current modification procedures exhibit the flexibility

²³ Pegasus Comments at 6.

²⁴ For example, Mexico was assigned channels at 127° W.L., while Canada was assigned channels in the nearby 129° W.L. slot, taking advantage of the geographic isolation provided by the U.S. land mass.

necessary to adjust to changing needs and technologies.²⁵ As pointed out by Telesat, “the modification provisions have allowed evolution consistent with technological change.”²⁶

II. REDUCED ORBITAL SPACING IS TECHNICALLY FEASIBLE AND SHOULD BE EVALUATED ON A CASE-BY-CASE BASIS IN COORDINATION.

DIRECTV questions the ability of satellites operating at 4.5° or other reduced spacing to operate with antenna diameters comparable to those used by existing systems.²⁷ While the feasibility of such operation must be evaluated on a case-by-case basis, coordination can lead to introduction of commercially competitive systems at significantly reduced spacing, including 4.5° spacing. As EchoStar concluded, “[t]here can be no question that the existing 9° orbital spacing between U.S. DBS satellites, even with 45 cm receive dishes, is a luxury from the point of view of controlling adjacent satellite interference.”²⁸

A. DIRECTV Has Failed to Demonstrate the Infeasibility of 4.5° Spacing.

DIRECTV argues that the re-planning process undertaken by ITU Regions 1 and 3 in the late 1990s demonstrated that, in general, more than six-degree spacing is

²⁵ Boeing suggests that the Commission should consider whether changes to the Appendix 30 and 30A procedures could help coordination efforts. Boeing Comments at 2. It is possible that further experience with these procedures will bring to light changes that could aid Administrations in coordinating modifications to the Plan, but to SES AMERICOM’s knowledge, no such changes have been identified and proposed by any party seeking modification to the Region 2 BSS Plans to serve the United States from new orbital slots. In any event, any changes to the ITU rules are outside the scope of a Commission proceeding.

²⁶ Telesat Comments at 3.

²⁷ See DIRECTV Comments at 6-7.

²⁸ EchoStar Comments, Technical Annex at 2.

required with 60 cm receive antennas, and that, by analogy, “a minimum of 7.55 degrees would be required to afford the same interference protection” with 45 cm antennas.²⁹ DIRECTV’s comparison ignores a critical difference: the difference between band-planning and coordination.

In planning a band to contain generic orbital assignments, conservative assumptions must be employed. Because there will be no coordination between satellites operating in accordance with the Planned assignments, the spacing and other parameters must accommodate all contemplated satellites. In a coordination, by contrast, the particular characteristics of the satellites operating and planned for the orbital slots of interest can be taken into account. This will almost always permit closer spacing than specified in the Plan. Indeed, as pointed out in the SES AMERICOM and EchoStar comments, DBS systems are successfully operating in other parts of the world at significantly reduced orbital spacings.³⁰

²⁹ DIRECTV Comments at 6.

³⁰ As noted by EchoStar, direct-to-home (“DTH”) video and data broadcast services are provided by JSAT Corporation in the Ku-band, using 45 cm dishes, with co-frequency, co-coverage satellites spaced 4° apart. EchoStar Comments, Technical Annex at 2. In addition, in Europe, such services are provided using satellites spaced 4.3° apart. While these services employ receive dishes of 60 cm, analytical scaling shows them to be comparable to the use of 45 cm antennas in a 4.5° spacing environment. *See* SES AMERICOM Comments at 29, n.89; *see also* EchoStar Comments, Technical Annex at 2-3. Finally, in the U.S., VSAT systems have operated using receive dishes as small as 90 cm in a 2° spacing environment, suggesting that 4° orbital spacing with a 45 cm antenna is similarly feasible. EchoStar Comments, Technical Annex at 2. While none of these analogies by itself proves that 4.5° spacing is feasible for DBS systems in the United States using 45 cm receive dishes, they do illustrate the possibilities for coordinating U.S. satellites at reduced orbital spacings.

The BSS Plan modification procedures take advantage of the possibilities for more effective use of spectrum that can be identified when individual performance and protection criteria are considered. DIRECTV's simplistic analogy in no way disproves the possibility of 4.5° spacing in appropriate cases.³¹

DIRECTV also claims that SES AMERICOM's proposal "would preclude entirely DIRECTV from deploying any additional high-power spot beam satellites to increase local-into-local coverage."³² To support this statement, DIRECTV refers only to its previous comments on the SES AMERICOM Petition.³³ However, as discussed in detail in SES AMERICOM's reply to those comments, DIRECTV's assertion that spot beam capacity would be precluded, or significantly reduced, was based on the theoretical EIRP reductions that would be required for the DIRECTV 4S spot beams to meet the ITU

³¹ Moreover, DIRECTV's indication that there is alternative capacity that can be used for direct-to-home services in the Ku-band and Ka-band (in the FSS bands) and in the 17 GHz band (starting in 2007), DIRECTV Comments at 3, provides no justification for not permitting reduced spacing in the 12 GHz DBS band where feasible. The current DBS band has a number of advantages for operators, including the availability of existing low cost consumer equipment. In addition, reduced spacing serves the public interest by making more efficient use of the spectrum, permitting maximum entry. Finally, the Commission should not ignore the obligations of the United States to adhere to the BSS Plan modification procedures, including its provisions accommodating new entry where technically feasible.

³² DIRECTV Comments at 4. ExpressVu went further, arguing that "the financial consequences of a change from 9 degree satellite spacing to a 4.5 degree satellite spacing would undermine billions of dollars of satellite-based infrastructure." ExpressVu Comments at 1-2. ExpressVu provided no support whatsoever for this claim; its broad assertion stands as a single sentence, with no attempt at explanation. In any case, as demonstrated above, the international rules safeguard against such a result. And, as shown below, technical coordination *can* permit 4.5 spacing, in appropriate cases, while protecting existing systems.

³³ DIRECTV Comments at 4. Opposition of DIRECTV, Inc. SAT-PDR-20020425-00071, June 17 2002, ("DIRECTV Opposition") at 17-18, and Technical Annex at 9-13.

coordination trigger criteria into a satellite network at 105.5° W.L.³⁴ In order to determine if the ITU trigger criteria³⁵ is met, the ITU uses a computer program called MSPACE. As explained by SES AMERICOM in its reply, MSPACE and the ITU trigger levels are just that – triggers for coordination, not a method for completing or achieving coordination.³⁶ Such technical issues are being addressed in the ongoing coordination of the SES AMERICOM satellite.

It is interesting to note, however, that DIRECTV reduced the equivalent isotropic radiate power (“EIRP”) of some of its DIRECTV 4S spot beams as a result of coordination discussions with Telesat.³⁷ For example, spot beam 13 (channel 12) was reduced by 2.2 dB, spot beam 10 (channel 28) by 2.6 dB, and spot beam 2 (channel 28) by 1.7 dB. These EIRP reductions, agreed to by DIRECTV, are similar to those characterized as very detrimental by DIRECTV in its comments on the SES AMERICOM Petition. In those comments, DIRECTV cited EIRP reductions ranging from 0.2 dB to 4.3 dB, with only one channel in two beams “requiring” more than a 2.4 dB reduction.³⁸

³⁴ SES AMERICOM Consolidated Reply, SAT-PDR-20020425-00071, July 3, 2002 (“SES AMERICOM Consolidated Reply”) at 27-28.

³⁵ See ITU Radio Regulations, Appendix 30, Annex 1, Section 2.

³⁶ See SES AMERICOM Consolidated Reply at 22-25.

³⁷ Letter from Gary Epstein to Magalie Roman Salas, Secretary of the FCC, August 14, 2001. See also SES AMERICOM Consolidated Reply, Attachment 2 at 7.

³⁸ DIRECTV Opposition, Technical Annex at 9.

B. EchoStar Demonstrates How Reduced Spacing Can Be Coordinated in Appropriate Cases.

The Technical Annex filed by EchoStar provides an excellent example of how analysis conducted in good faith can lead to creative solutions that permit entry of new satellites. As EchoStar explained, “EchoStar’s more advanced assessment of interference in a 4.5° orbital spacing environment illustrates very well how detailed technical coordination between satellite operators can ensure mutually compatible operation, whereas the application of worst-case interference assessment can lead to the conclusion that such operation is not possible.”³⁹

As EchoStar pointed out, characteristics of the particular satellites under consideration affect any interference assessment. For example, differences in the frequency plans, and modulation and coding, used by each satellite must be taken into account, and in some cases these factors can improve the outlook for coordination.⁴⁰

³⁹ EchoStar Comments, Technical Annex at 2. EchoStar notes that its original assessment of SES AMERICOM’s proposal conservatively assumed worst-case values for the parameters used in the interference calculation, which led to EchoStar’s conclusion that accommodation of the proposed new satellite was not technically feasible. *Id.* at 1. A number of the parties commenting in this proceeding are similarly using worst-case, generic assumptions for operational parameters, leading to overly-pessimistic conclusions. For example, DIRECTV’s analogy to the re-planning of the assignments in Regions 1 and 3 draws conclusions from analysis undertaken under the assumption that no coordination would be conducted among operators. EchoStar demonstrates that such analysis is not an accurate predictor of technical feasibility in many cases, and that detailed coordination is necessary for parties to reach informed conclusions with respect to the possibility of DBS operation in a 4.5° spacing environment. *Id.*

⁴⁰ EchoStar Comments, Technical Annex at 6-7. For example, as pointed out by EchoStar, the satellite proposed by SES AMERICOM at 105.5° is designed such that the guard bands fall in the co-polar transponders of the U.S. DBS satellites, resulting in a small reduction in interference compared to the case where the full transponder

In addition, as EchoStar demonstrated, coordination allows the parties to consider a wide range of parameters, the combination of which may vary, but whose end result may be considered acceptable. For EchoStar, it is clear that a range of relative EIRP levels was considered acceptable.⁴¹ While EchoStar does not go into detail on how it assessed the acceptability of these varying Δ EIRP values, it is clear that many factors were considered, including the topocentric angle at the particular geographic location, and the impact on the availability at that location.⁴²

In addition, EchoStar found a wide range of carrier-to-interference ratios (“C/I”) values acceptable, depending on the earth station antenna size and whether the beam was a CONUS or spot-beam.⁴³ EchoStar’s comments demonstrate that coordination may effectively make use of multiple types of criteria to achieve consensus, such as a combination of C/I values and availability impact considerations. In this way, detailed coordination can lead to accommodation of a new satellite, even in cases where generic or worst-case analysis suggests that harmful interference would result.⁴⁴

power is assumed to interfere with the co-frequency, co-polar U.S. DBS satellite transponder. *Id.*

⁴¹ EchoStar Comments, Technical Annex at 8. Pegasus states that it would require a high degree of coordination to assure that adjacent satellites operate at similar power levels on the ground. Pegasus Comments, Technical at A-5-6. However, there is no need for the EIRPs of the adjacent satellites to be identical. EchoStar’s comments make it clear that a range of Δ EIRPs can be acceptable.

⁴² EchoStar Comments, Technical Annex at 14-18.

⁴³ *Id.* at 15.

⁴⁴ In addition, the comments of Sand Video show how evolving technologies can help make satellite communications more robust against interference. Comments of Sand Video, Inc., January 23, 2004.

As SES AMERICOM emphasized in its comments, each proposal for a satellite at reduced spacing should be judged on its own merits.⁴⁵ SES AMERICOM agrees with EchoStar that the “ability to accommodate new DBS satellites spaced 4.5° from existing U.S. DBS satellites spaced 9° apart will depend on the specific operational characteristics of the neighboring satellites.”⁴⁶

III. THE COMMISSION SHOULD CONTINUE TO SUPPORT THE EXISTING DBS COORDINATION PROCEDURES, AND NOT ADOPT PROPOSED “ONE-SIZE-FITS-ALL” RESTRICTIONS.

Some parties proposed that the Commission place power limits or other constraints on satellites operating at new orbital locations to prevent interference to existing systems. As SES AMERICOM and others explained, however, no such generic measures are necessary, and in fact, such limitations would likely preclude introduction of innovative and valuable services.⁴⁷

A. Coordination Best Accommodates New Systems, and Eliminates the Need for Generic Operational Restrictions.

Protection of existing satellite systems is routinely and effectively resolved in inter-system coordination, via detailed technical analysis and thorough consideration of the various possible interference mitigation techniques.⁴⁸ As New Skies noted, the “feasibility and technical constraints that will apply with respect to the new entrants proposing to operate at less than nine degrees from U.S. DBS systems are best

⁴⁵ See, e.g., SES AMERICOM Comments at 29.

⁴⁶ EchoStar Comments, Technical Annex at 2.

⁴⁷ SES AMERICOM Comments at 14; New Skies Comments at 2, 4; See also EchoStar Comments, Technical Annex at 1-2.

⁴⁸ See SES AMERICOM Comments at 13-15; EchoStar Comments, Technical Annex.

addressed and developed during case-by-case coordination between the respective administrations and/or operators.”⁴⁹ SES AMERICOM agrees with New Skies that in most situations, “the best technical solution for satellite operators results not from rules of general applicability, but from the case-by-case coordination between the incumbent operators and new entrants.”⁵⁰ As demonstrated by the EchoStar analysis discussed above, which showed the wide range in the values of key technical criteria that may be considered acceptable, coordination can create opportunities for sharing that would be eliminated by generic operational restrictions.⁵¹

Moreover, as SES AMERICOM explained in its Comments, the direct involvement of the Commission in such coordinations will help to ensure that its policy objectives are met.⁵² In addition to its participation in the coordination discussions, the Commission must ratify any coordination agreements reached by the parties involved. The Commission’s role as the party ultimately responsible for coordination of U.S. DBS systems allows it to ensure that its policy objectives are not ignored.

At the same time, SES AMERICOM agrees with Pegasus that the Commission, through its participating in coordinations, should “insure that incumbent licensees do not use the coordination process to delay or prevent new entry.”⁵³

⁴⁹ New Skies Comments at 2.

⁵⁰ *Id.* at 4.

⁵¹ See Section II.B above. As discussed further below, such variations in acceptable criteria do not lend themselves to the specification of “one-size-fits-all” technical rules. See also New Skies Comments at 8.

⁵² See SES AMERICOM Comments at 15.

⁵³ Pegasus Comments at 6.

Successful coordination – as implemented internationally across many satellite bands for decades – has always depended on the good faith of all parties involved.

B. PFD Limits Are Inappropriate and Overly-Constraining.

Pegasus proposes that power flux-density (“PFD”) limits be placed on new satellites, at least on an interim basis.⁵⁴ However, Pegasus acknowledges that operational limits can be appropriately developed in coordination.⁵⁵ Indeed, in discussing the various mitigation measures that would facilitate introduction of new satellites, Pegasus highlights the importance of coordination, and warns against Commission involvement “in design details that are better left to operators.”⁵⁶ There is no reason why whatever operational limitations are necessary to protect a given incumbent system cannot be developed in coordination, in a much more efficient and effective manner than by adoption of a “one-size-fits-all” rule.

Moreover, the specific proposal of a PFD limit is not a tenable solution. For a specified PFD level, the C/I provided to the wanted satellite varies across the geographic coverage area of the satellite, and also varies depending on the location of the satellite considered. This is due to change in the off-axis discrimination of the wanted receive earth station antenna, which is a function of the location of the earth station relative to the satellite, and because the EIRP of the wanted satellite varies across its

⁵⁴ Pegasus Comments at 4, A-1, A-3.

⁵⁵ *Id.* at A-2.

⁵⁶ *Id.* at A-6.

coverage area.⁵⁷ Further, the EIRP of existing satellites varies over the coverage area of the satellite, in a manner unique to each DBS satellite. This is complicated in particular by the existence of CONUS and spot-beam satellites, whose PFD levels vary significantly. A single PFD limit cannot take into account this variation in C/I and EIRP.⁵⁸ Coordination is required to arrive at a solution tailored to the particular satellites under consideration.⁵⁹

More generally, the analysis of EchoStar, described above, demonstrates the problems inherent in adoption of any generic sharing criteria. As shown by EchoStar, the appropriate values for PFD, Δ EIRP, C/I, and other technical parameters depend on a number of factors, and even vary within a single system. Adoption of a hard limitation on any of these parameters would place unnecessary constraints on satellite operators.

C. The Restrictions Suggested by The State Of Hawaii Are Unnecessary.

The State of Hawaii expresses concern that introduction of satellites at new orbital locations could degrade the quality of existing services to Hawaii, and proposes that the Commission adopt interference restrictions if degradation would

⁵⁷ For example, it is typical for the EIRP of a DBS satellite on the west coast to be 6 dB lower than the peak EIRP of the satellite.

⁵⁸ Furthermore, such a limit would constrain the evolution of BSS spacecraft toward operation at higher EIRP levels.

⁵⁹ Coordination also avoids the need to develop a generic transition period, as proposed by Pegasus. Pegasus Comments at A-1. Given the diversity in the EIRP levels of CONUS and spot beam systems, and the evolution in power levels of systems in general, it is unlikely that any set transition period or criteria will apply successfully to all systems.

necessitate the purchase of new receive equipment.⁶⁰ Hawaii provides no technical analysis justifying its concern, nor any proposal for the restrictions it would like to see implemented. Hawaii notes only that the signal strength of existing DBS services in Hawaii is below the signal strength of DBS services available on the mainland.⁶¹

Hawaii is correct that the signal strength received in Hawaii is lower than on the mainland. However, for this reason, the receive antennas deployed in Hawaii are already correspondingly larger than those used on the mainland. Therefore, there is no reason why a new satellite should pose a threat to Hawaii, assuming its operation is properly coordinated throughout its service area. Moreover, the incumbent operators serving Hawaii, and the Commission itself, will have every incentive in coordination to assure that outcome.⁶² There is no reason whatsoever why any special restrictions are required to achieve this result.

D. No Special Provisions Are Required for Protection of Airborne DBS Receivers.

In its comments, Boeing notes that its Connexion by BoeingSM (“Connexion”) service will provide airborne Internet services using an SES AMERICOM fixed-satellite service (“FSS”) satellite that is co-located with DIRECTV’s DBS satellites at 101° W.L., enabling the provision of DBS service to aircraft with the same antenna. Boeing asserts that the antenna it is using for the Internet service is 30 cm, at least for

⁶⁰ Hawaii Comments at 5.

⁶¹ *Id.*

⁶² As noted above, the Commission must ratify any coordination agreements reached by the parties involved. This review process will ensure that the Commission’s policy objectives, such as preservation of service to Hawaii and Alaska, are achieved.

small executive aircraft, and Boeing expresses concern that this may be insufficient for DBS reception in a reduced satellite spacing environment. Boeing provides a link budget for the airborne antennas used in its Connexion service, and urges the Commission to take airborne DBS applications into account in its consideration of the issues raised in the Public Notice. In particular, Boeing argues that the existence of airborne antennas may require satellites at new orbital locations to operate at power levels lower than those of existing DBS satellites.

First, it is important to point out that Boeing's licenses do not cover reception of DBS signals from the antennas it is using for communication with FSS satellites. Each of the authorizations cited by Boeing applies only to FSS operation, and there is no mention in either license of possible use of the antennas for reception of DBS signals from co-located satellites.⁶³ Moreover, as Boeing's aeronautical mobile-satellite service ("AMSS") application is a non-conforming use in the subject FSS bands, Boeing is authorized to operate only on a non-interference, non-protected basis in those bands.⁶⁴

⁶³ The Boeing Company, SES-LIC-20000828-01578, *Order and Authorization*, DA 01-658 (Int'l Bur., Apr. 13, 2001) ("*Boeing Receive-Only FSS Order*"); The Boeing Company, SES-LIC-20001204-02300, *Order and Authorization*, DA 01-3008 (Int'l Bur., Dec. 21, 2001) ("*Boeing Two-Way FSS Order*").

⁶⁴ *Boeing Receive-Only FSS Order*, ¶¶ 3, 7, 9 ("The stations on board aircraft for which Boeing seeks authorization would operate in the aeronautical mobile satellite service ("AMSS"). The United States Table of Frequency Allocations does not include an allocation for AMSS in the 12 GHz band."). See also *Boeing Two-Way FSS Order*, ¶¶ 2, 4, 16.

As an express condition of its licenses, Boeing may not cause interference to, and must accept all interference from, authorized systems in the bands.⁶⁵

Second, Boeing is simply wrong as to what the Commission has previously concluded. Boeing appears to claim that, in the DBS band, the Commission “concluded” in 1998 that aeronautical reception of DBS signals is not a secondary service, and is entitled to the same protection as other DBS services.⁶⁶ The Commission, however, has made no such determination. In the Notice of Proposed Rulemaking for the proceeding cited by Boeing, the Commission stated that “[w]e believe” this type of mobile operation is consistent with the U.S. DBS allocation, but the Commission requested comment on that issue.⁶⁷ In its subsequent decision, the Commission did not address the allocation question, apparently finding the issue moot in view of the fact that the record indicated that airborne antennas were not threatened by the new rules being adopted.⁶⁸

⁶⁵ *Boeing Receive-Only FSS Order*, ¶ 13(a),(b); *Boeing Two-Way FSS Order*, ¶ 19(a),(b).

⁶⁶ Boeing Comments at 4-5.

⁶⁷ 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, *Notice of Proposed Rulemaking*, ET Docket No. 98-206, FCC 98-310, November 24, 1998, ¶ 61.

⁶⁸ 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, *First Report and Order and Further Notice of Proposed Rulemaking*, ET Docket No. 98-206, FCC 00-418, December 8, 2000, ¶ 204. Moreover, the Commission did not address this issue in its 2002 *DBS Order*.

Given that no allocation exists in the DBS band for the aeronautical mobile-satellite service (or any other mobile-satellite service), and that there is no evidence that such operations were taken into account in developing the DBS allocation, it does not appear that Boeing's antennas are entitled to protection, particularly at the expense of primary DBS operations. As in the FSS bands, their operation should be permitted, but only on a non-interference, non-protected basis. This will ensure that Boeing and other parties desiring to intercept DBS signals from aircraft will develop and deploy antennas that do not place constraints on services to which the frequency band is allocated.

Third, even if the Commission were to afford protection to airborne DBS reception in appropriate cases, Boeing's antennas, as described in its comments, should not enjoy such protection. They are licensed for two-way FSS service, and are not even entitled to protection for that use.⁶⁹ There is no indication that they have been designed to function in the DBS environment in an efficient and non-constraining manner.

Furthermore, neither the ITU filings nor the Commission applications for the U.S. DBS systems cover 30 cm receive antennas. Therefore, reception by 30 cm dishes is not protected in accordance with Appendix 30 of the Radio Regulations. Moreover, such use was likely not considered in coordinating the U.S. modifications to the Plans pursuant to which the existing Plans operate. If the United States wants to protect such dishes, additional ITU filings would be required.

⁶⁹ See *supra* notes 64 and 65 and accompanying text.

Finally, from a technical standpoint, Boeing's submission is confusing on a number of points. In Boeing's most recent earth station application for the antenna it is using for the Connexion service, Boeing describes a 65 cm by approximately 20 cm elliptical antenna,⁷⁰ and not the 30 cm antenna cited in its comments.⁷¹ Even if 30 cm is meant to represent the effective diameter of the equivalent surface area of the elliptical antennas, use of 30 cm in the analysis does not take into account the much greater discrimination exhibited by an antenna that is 65 cm along the axis aligned with the GSO arc. In addition, the G/T value used in the comment analysis differs from that specified in the application.⁷² It is unclear how the 30 cm antenna used in Boeing's analysis relates to the elliptical antennas described in its applications.

Given these questions, further information on Boeing's antennas and their deployment is clearly necessary before any conclusions on interference can be drawn. In any case, however, it should be recognized that the AMSS antennas described by Boeing in its comments are not covered by the DBS allocation, or by the ITU filings and Commission applications for the relevant satellites.

⁷⁰ The Boeing Company, File No. SES-LIC-20030512-00693, May 12, 2003 ("Boeing Modification Application"), at 7. In addition, in prior applications, a phased array antenna was described as having a 17 inch by 26 inch active aperture. In the Boeing Modification Application, Boeing seeks to maintain authority for 125 such antennas. *Id.*, Technical Appendix at 1. Note that the number of antennas authorized for Boeing's AMSS service is very small compared to the millions of antennas deployed in the DBS service.

⁷¹ Boeing Comments, Annex at 1.

⁷² Boeing Comments, Annex at 4; Boeing Modification Application at 4.

IV. THE COMMISSION SHOULD REJECT ECHOSTAR'S INVITATION TO TIE THE TECHNICAL ISSUES OF REDUCED ORBITAL SPACING TO THE POLICY ISSUES OF U.S MARKET ENTRY BY FOREIGN-LICENSED SATELLITES.

EchoStar argues that it is imperative that the Commission examine potential access into the United States market from all non-U.S. DBS orbital positions, in connection with any inquiry into reduced orbital spacing.⁷³ EchoStar points specifically to the policy issues that arise from access to the U.S. market from Canadian DBS slots, such as the proposal of DIRECTV to operate from the 72.5° W.L. slot assigned to Canada.⁷⁴

It is entirely unclear how the issues of orbital spacing and market entry are linked. There have been proposals to offer service from foreign-licensed satellites that do not involve reduced spacing with respect to U.S. satellites,⁷⁵ and there have been proposals to offer service from domestic-licensed satellites that do.⁷⁶ In its comments, EchoStar provides no explanation of how it believes the licensing administration of a satellite impacts consideration of the technical issues of reduced orbital spacing raised in the Public Notice.

The Commission long ago decided how it would analyze requests to access the U.S. DBS market from foreign-licensed orbital slots. In 1997, it addressed this market entry issue and adopted the “effective competitive opportunities” test for

⁷³ EchoStar Comments at 2.

⁷⁴ *Id.* at 3.

⁷⁵ See Digital Broadband Applications, Corp., File No. SES-LIC-20020109-00023, Order, DA 03-1526 (Int'l Bur., May 7, 2003).

⁷⁶ See EchoStar Applications, *supra* note 1.

satellites, also known as the “ECO-Sat” test.⁷⁷ EchoStar has not suggested, nor has any other party, that the ECO-Sat test requires reexamination or that it does not adequately address all U.S. policy concerns relating to the provision of U.S. DBS services from foreign-licensed slots.⁷⁸

The Commission should, therefore, continue to apply its existing U.S. market entry requirements, such as the ECO-Sat test, with respect to any request to serve the United States from a foreign satellite, including a satellite at reduced spacing. These market entry requirements serve an entirely different purpose than the BSS Plan modification procedures used to coordinate operation of a satellite at a particular orbital location to ensure technical compatibility. The Commission should thus reject EchoStar’s invitation to expand the scope of this proceeding to include the Commission’s policies on U.S. market entry.

At the same time, the U.S. DBS licensing procedures should respect ITU priority.⁷⁹ Contrary to what some parties appear to propose, the Commission cannot license rights to BSS orbital resources to which it has no right under the ITU rules.⁸⁰

⁷⁷ 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, *Report and Order*, 12 FCC Rcd 24094, 24099 (1997) (“*DISCO II Order*”).

⁷⁸ In the SES AMERICOM Petition, *see note 1 supra*, SES AMERICOM demonstrated how its proposal to use the Gibraltar-licensed 105.5° W.L. slot fully meets the ECO-Sat test. *See* SES AMERICOM Petition at 16-19.

⁷⁹ SES AMERICOM Comments at 33-34; New Skies Comments at 6.

⁸⁰ DIRECTV has argued that any new DBS orbital locations that the Commission makes available should be granted to licensees based on the current rules governing domestic DBS service, and has called for dismissal of the petition of SES AMERICOM for U.S. market access from a foreign-licensed satellite so that all

Moreover, the Commission should continue to reject the proposition – made once again by DIRECTV⁸¹ and fully debunked in SES AMERICOM’s comments⁸² – that Commission policy permits U.S. systems to operate in a manner inconsistent with the ITU priority of operating foreign satellites.

V. THE COMMISSION SHOULD APPLY ITS EXISTING GEOGRAPHIC COVERAGE RULES AND POLICY TO ALL SATELLITES SERVING THE UNITED STATES.

The State of Hawaii opposes the addition of any services that are not made available in all fifty states, including Hawaii and Alaska.⁸³ In particular, Hawaii argues that the Commission should not permit the exception to its geographic coverage requirements – which applies when service is not “technically feasible from the assigned orbital location” – to be used in connection with any satellite west of 101° W.L.⁸⁴ Hawaii argues that the technical infeasibility exception was created because some DBS orbital positions east of this location do not have sufficient elevation angle to serve Hawaii and Alaska, and the exception should not become a “loophole” to permit service from orbital

parties can have an opportunity to acquire the subject orbital location (the subject of a pending U.K. modification). DIRECTV Petition at 18. In addition, Pegasus suggests that the Commission should open a processing round or conduct an auction to assign proposed new orbital locations. Pegasus Comments at 6. While the Commission may, of course, use its existing rules to license orbital locations and frequencies assigned to the United States under the BSS Plans, it cannot license orbital resources to which it has no right. See SES AMERICOM Comments at 33-34.

⁸¹ DIRECTV Comments at 7, n.10.

⁸² SES AMERICOM Comments at 24, n.76; SES AMERICOM Consolidated Reply at 18, n.56.

⁸³ Hawaii Comments at 2.

⁸⁴ *Id.* at 3-4.

locations that, for other technical reasons, cannot be coordinated to serve Hawaii and Alaska.⁸⁵

SES AMERICOM understands the importance of service to Hawaii and Alaska, and is making every attempt to ensure that its satellite will provide such service.⁸⁶ However, as SES AMERICOM has noted in prior proceedings, coverage of these states (and others) is subject to coordination with affected operators, including EchoStar and DIRECTV.⁸⁷ If such coverage proves to be “not technically feasible,” service to Alaska and Hawaii is not required under the Commission’s Rules.⁸⁸

The Commission should reject the State of Hawaii’s argument that technical feasibility refers only to the elevation angle of the satellite. In the *DBS Order*, the Commission stated that it was “technically feasible and economically reasonable to serve Alaska and Hawaii from the 101° W.L., 110° W.L. and 119° W.L. orbital slots.”⁸⁹ At the same time, however, the Commission did not preclude the possibility that there might be other reasons why service might not be “technically feasible” or even, while technically feasible, why service might be “economically unreasonable” due to

⁸⁵ *Id.*

⁸⁶ In particular, SES AMERICOM amended its USAT-S1 filing with the ITU to expand the geographic coverage of the satellite to cover Alaska and Hawaii, and is seeking a conforming amendment to its Gibraltar license.

⁸⁷ *See, e.g.*, SES AMERICOM Consolidated Reply at 52-54.

⁸⁸ *See* 47 C.F.R. § 25.148(c). Applicants not serving Alaska or Hawaii may show that “service is not feasible as a technical matter, or that while technically feasible such service would require so many compromises in satellite design and operation as to make it economically unreasonable.” *Id.*

⁸⁹ *DBS Order*, ¶ 55.

compromises to satellite design and operation that would be required to serve Alaska or Hawaii. Section 25.148(c) specifically leaves open the possibility that an operator proposing to operate at any orbital location can make such a showing by providing technical analysis to the Commission. Had the Commission wanted to limit technical feasibility to elevation angle considerations, it could easily have done so.

In sum, the Commission has recognized that legitimate technical obstacles can prevent service to Hawaii and Alaska, and that this should not prevent use of a given orbital slot to serve other portions of the United States. If service to Hawaii were the primary consideration, the Commission could not permit service to any portion of the United States from any of the orbital locations with insufficient elevation angle for Hawaii.⁹⁰ For obvious reasons, the Commission has rejected such a drastic measure. Legitimate technical obstacles that prevent service to Hawaii, no matter how caused, should not require a useful spectrum resource to go to waste. In the end, the burden is on the applicant to provide sufficient technical analysis to convince the Commission that service is not feasible. This Commission oversight will ensure that unsupportable technical arguments or tradeoffs are not used to create a “loophole” in the geographic coverage requirements.

⁹⁰ Hawaii argues that many programming services that are carried on short-spaced satellites may never be made available on other DBS satellites, and that other DBS operators will be under pressure to divert capacity from the national market to meet the competitive pressures in the limited regions served by short-spaced satellites. Hawaii Comments at 2. However, these arguments have nothing to do with reduced DBS orbital spacing, but point out concerns raised when *any* service does not reach Hawaii. However, the Commission has already held that not every DBS signal must reach Hawaii; the public interest requires such service only when it is technically feasible and economically reasonable.

SES AMERICOM agrees with the State of Hawaii's suggestion that "the Commission should ensure that the public interest is served by working closely with operators of both new and existing DBS satellites in order to identify technical solutions that permit the provision of new DBS services to all fifty states, including Alaska and Hawaii."⁹¹ However, when applications or petitions to provide service from the coordinated satellite are reviewed, the Commission should honor the exception to the geographic coverage requirements, if the applicant can demonstrate that service from the orbital location is not "technically feasible" or is, due to technical considerations, "economically unreasonable."

VI. THE COMMISSION SHOULD NOT IMPOSE A SPECTRUM CAP ON THE DBS SERVICE.

Pegasus argues that the Commission should establish a spectrum cap that limits the licensing of new orbital locations to new entrants.⁹² The Commission should refrain from imposing such constraints on the DBS market, particularly given the possibilities created for new entrants via reduced orbital spacing.

As the Commission noted in its 2002 *DBS Order*, "the only ownership restriction the Commission had ever imposed on DBS was the 'one-time' rule imposed in 1995 in connection with the auction of the licenses to use the 110° W.L. and 148° W.L.

⁹¹ Hawaii Comments at 4.

⁹² Pegasus Comments at 1-2, 5.

orbital locations.”⁹³ That rule was intended to prevent any entity from having an attributable interest in more than one of the three DBS full-CONUS locations.⁹⁴

As Pegasus acknowledges, however, the Commission has since abandoned that goal, and, to facilitate competition between cable and DBS operations, has permitted DBS operators to employ more than one full-CONUS slot.⁹⁵ The Commission has stated that it has “not found any competitive problems with allowing a DBS operator to operate in more than one full-CONUS orbital position, and indeed allowing such operation may enable DBS operators to better compete with cable systems in the future.”⁹⁶ The Commission has concluded that it “will not adopt any restrictions on the number of full-CONUS orbital locations one satellite company can control.”⁹⁷ The possibility that additional slots may be developed at new orbital locations, which itself offers options for new entrants, only bolsters the rationale for the Commission’s decision.

⁹³ *DBS Order*, ¶ 135.

⁹⁴ *Id.*

⁹⁵ *Id.*, ¶ 144; Pegasus Comments at 5, n.14.

⁹⁶ *DBS Order*, ¶ 144.

⁹⁷ *Id.* It should be noted that no spectrum caps will apply in the Commission’s upcoming auction for channels at 175° W.L., 166° W.L., and 157° W.L. See Auction of Direct Broadcast Satellite Licenses, AUC-03-52, *Order*, FCC 04-8, January 15, 2004, ¶ 24.

VII. CONCLUSION

For the above reasons, the Commission should reject the DIRECTV Petition for Rulemaking. Instead, the Commission should continue to follow the existing Commission Rules, which refer to the Appendix 30/30A procedures for modification of the BSS Plans. As the Commission has already held, no other technical rules are required to protect existing U.S. systems, while reserving options for future entrants.

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing Reply Comments of SES AMERICOM, Inc. was served this 13th day of February, 2004, by first class U.S. mail, postage prepaid, on the following:

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