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**ARNOLD & PORTER**

555 TWELFTH STREET, N.W.  
WASHINGTON, D.C. 20004-1206

(202) 942-5000  
FACSIMILE: (202) 942-5999

THEODORE D. FRANK  
(202) 942-5790

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LONDON

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March 26, 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Magalie Roman Salas, Esq.  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, D.C. 20554

Re: IB Docket No. 00-248

Dear Ms. Salas:

In accordance with paragraph 98 of the Notice of Proposed Rulemaking in this proceeding, we are submitting herewith a diskette in read-only format with the Comments of Spacenet Inc. and StarBand Communications, Inc. The name on the file on this diskette is "Comments." Also submitted is an original and nine paper copies of those Comments.

If there are any questions concerning this matter, please let me know.

Sincerely yours,



Theodore D. Frank  
Counsel for Spacenet Inc. &  
StarBand Communications, Inc.

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Before the  
**Federal Communications Commission**  
Washington, D.C. 20554

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**MAR 26 2001**

**FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY**

In the Matter of )  
 )  
2000 Biennial Regulatory Review -- )  
Streamlining and Other Revisions of Part 25 of ) IB Docket No. 00-248  
the Commission's Rules Governing the Licensing )  
of, and Spectrum Usage by, Satellite Network )  
Earth Stations and Space Stations )

To: The Commission

**Comments of Spacenet Inc and  
StarBand Communications, Inc.**

Theodore D. Frank  
Rosalind Allen  
Arnold & Porter  
555 12<sup>th</sup> Street N.W.  
Washington, D.C. 20004  
Counsel for Spacenet Inc. &  
StarBand Communications Inc.

Mark P. Bresnahan  
Vice President & General Counsel  
Spacenet Inc.  
1750 Old Meadow Road  
McLean, VA 22102  
(703) 848-1000

Tracey Friedlander  
General Counsel & Corporate Secretary  
John Chang  
StarBand Communications Inc.  
1760 Old Meadow Road  
McLean, VA 22102  
(703) 245-6430

March 26, 2001

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## SUMMARY OF COMMENTS

Spacenet Inc. (“Spacenet”) and StarBand Communications Inc. (“StarBand”) (collectively “Spacenet/StarBand”) welcome the Commission’s institution of this proceeding under Section 11 of the Communications Act to eliminate unnecessary and outdated regulations and to better reflect the realities of today’s VSAT market. The VSAT industry can provide affordable broadband service in geographic areas where cable modem, DSL, and terrestrial wireless services are unavailable. StarBand has started to provide Internet-access and distance learning opportunities to Native Americans living on reservations in some of the most isolated parts of Arizona, New Mexico, and Utah in cooperation with Northern Arizona University, and is exploring other opportunities to serve remote locations in Alaska and other states. StarBand is also offering its broadband service to residents of suburban areas and to anyone with an unimpeded view of the southern sky.

Spacenet/StarBand believes this satellite-based service offers immense potential to provide new and innovative services to all Americans. We are concerned that some of the proposals in the *Notice* appear to propose changes to the VSAT rules that go beyond streamlining existing processing procedures and eliminating unnecessary regulations, as Section 11 of the Act requires, to instead impose new and more stringent regulations on VSAT operators. If adopted, those regulations could significantly impact the VSAT industry’s ability to offer the public the benefit of these new services. Since there is no evidence that the existing practices of the VSAT industry has resulted, or will result, in any harm or will impair other satellite services, Spacenet/StarBand urge the Commission to clarify that the proposed rules are only intended to create an expedited processing

procedure for certain VSAT applications proposing “non-compliant” antennas and that the existing rules and procedures will continue to apply to other such applications. These rules and procedures have worked well in the past to stimulate innovative satellite-based services without causing harmful interference. The Commission should not undermine that effective regulatory regime on the speculation that the growing use of sub-meter antennas will increase the potential for interference.

Spacenet/StarBand urge the Commission to reconsider proposed modifications to Sections 25.134 and 25.209 and proposed new Section 25.220. These proposed rules are inconsistent with Section 11 of the Act, the Congressional mandate to promote the availability of advanced telecommunications services, the Commission’s own initiatives to promote broadband service to rural areas, and the regulatory approach of the 1996 Telecommunications Act, which limits regulatory activity to situations where the marketplace does not protect the public interest.

These proposals mark a significant departure from the Commission’s historical approach of using a light regulatory hand with the satellite industry in order to foster new services, and would impose onerous new requirements on the industry to address a problem that does not exist. Rather than adopting these proposals, Spacenet/StarBand urge the Commission to adopt the following proposals, grounded in developments in satellite technology, which will truly and effectively streamline the regulation of VSAT systems using antennas smaller than 1.2 meters.

Specifically, Spacenet/StarBand ask the Commission to abandon its proposal to reduce the permissible power density and power requirements for earth stations with antennas smaller than 1.2 meters. That proposal has no support in the record and, indeed,

is inconsistent with the unanimous industry position expressed in response to Spacenet's recent Petition for Declaratory Ruling or, in the Alternative, a Rule Making. It is more stringent than the requirements of the International Telecommunications Union and the operating standards used by Intelsat and Eutelsat, and will only harm the flexibility and quality of existing and future VSAT operations. To achieve true streamlining for VSAT operations using small antennas, Spacenet/StarBand urge the Commission to amend Section 25.209(g) of the Commission's rules to allow routine licensing of Ku-Band VSAT earth stations using antennas that are within the 29-25 log theta envelope at angles of 2° and greater from the main lobe axis in the orbital plane and 3° from the main beam axis perpendicular to the orbital plane.

Similarly, the proposed coordination requirements for non-routine operations are overly restrictive and impracticable. Since GSO FSS satellites are spaced 2° apart as viewed from the center of the earth, and actually appear more than 2° apart to earth stations operating in the United States, applications seeking authority to operate sub-meter antennas that meet the 29-25 log theta envelope at angles of 2° and greater should be routinely approved. Since both those earth stations and earth stations using larger antennas satisfy the 29-25 log theta envelope at angles of 2° and greater, where other satellites are located, there is no basis for imposing the coordination requirement proposed this *Notice*.

If the Commission adopts the coordination proposal, it should eliminate the proposed requirement that stations using non-compliant antennas reduce power if a later-filed satellite application is not coordinated with the applicant's system. This requirement is at odds with the Commission's standard practice of requiring applicants to

demonstrate that they will protect the operations of pre-existing licensees, and could threaten the introduction of new and innovative services.

If the Commission adopts the proposal to require VSAT operators using sub-meter antennas to reduce power or coordinate with at least six satellite operators, Spacenet/StarBand strongly urge the Commission to mitigate the harmful effects of those requirements by amending Section 24.134(a) to increase baseline power density. While that will not undo the harm of proposed Section 25.220, it will at least provide some relief.

Similarly, the Commission should fully explore industry proposals for incorporating random access techniques into Part 25. Those proposals received the unanimous support of the industry in comments filed in the *Spacenet Petition* proceeding, and were dismissed by the Commission without any explanation as to why they were inadequate or otherwise disserved the public interest. In contrast, the Commission's proposal will require VSAT operators using TDMA/ALOHA access schemes to operate with only half power, materially impairing their ability to deliver broadband services. Since there is absolutely no evidence that the continued use of the ALOHA access scheme — which has been in use for 20 years — will adversely affect new satellite operators, the Commission should abandon its proposal and adopt the average-power proposal advanced by Hughes Network Systems.

Finally, Spacenet/StarBand urge the Commission to adopt its proposals to (a) define wideband and narrowband, (b) establish a 60-day coordination period, (c) require applicants to submit additional public notice information with their applications, (d) allow the earlier use of temporary fixed stations and the inclusion of those stations in

VSAT system licenses, (e) require electronic filing of applications, but only after the electronic filing systems have been fully proven, (f) require the submission of antenna gain patterns, (g) extend the license term to fifteen years, (h) conform the VSAT rules to its DISCO policies, and (i) eliminate outdated rules.

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To: The Commission

**Comments of Spacenet Inc and  
StarBand Communications, Inc.**

Spacenet Inc. ("Spacenet") and StarBand Communications Inc. ("StarBand") (collectively "Spacenet/StarBand") submit their comments in response to the Commission's *Notice of Proposed Rulemaking*<sup>1</sup> in this proceeding. Spacenet/StarBand commend the Commission for initiating this proceeding and seeking to streamline the rules governing the VSAT industry, among other satellite services. Many of the current rules were adopted in the nascent stage of the developing VSAT industry, and a review of their continuing necessity is appropriate given the twenty years of operating experience in the industry.

Spacenet/StarBand share the Commission's objective in this proceeding: to "encourage innovation, significantly reduce the filing burdens on applicants and

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<sup>1</sup> See In the Matter of 2000 Biennial Regulatory Review — Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations, *Notice of Proposed Rulemaking*, IB Docket No. 00-248 (Dec. 14, 2000) ("*Notice*").

licensees, expedite the process of issuing licenses, accelerate the provision of service to the public, and promote service in rural and unserved areas.”<sup>2</sup> We are concerned, however, that some of the proposals in the *Notice* concerning the licensing of sub-meter antennas and the use of random access schemes appear to propose changes to the VSAT rules that are inconsistent with those objectives and, instead of streamlining existing processing procedures and eliminating unnecessary regulations, the proposals would impose new and more stringent regulations on VSAT operators. Those proposals, if adopted, could adversely affect the ability of the VSAT industry to continue providing existing services and to offer new and innovative services, including services to remote and underserved or unserved areas.

However, if the Commission is proposing to change its substantive rules, Spacenet/StarBand urge the Commission to reconsider its proposals and instead to adopt the suggestions set forth below, which will truly streamline the regulation of VSAT systems using antennas smaller than 1.2 meters. The Commission’s proposals would, if adopted, require the VSAT industry to modify practices that have been in place for almost twenty years. The FCC has advanced no reason to explain why those practices need to be modified and, indeed, there is no evidence that VSAT operations have caused or pose the risk of causing harm. The proposals are regulatory answers in search of a problem.

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<sup>2</sup> *Notice* at ¶ 1.

## INTRODUCTION

Spacenet is a subsidiary of Gilat Satellite Networks Ltd. (“Gilat”), a leading provider of telecommunications solutions based on VSAT satellite network technology. Gilat and its subsidiaries Spacenet, Gilat Florida Inc., Gilat-to-Home Latin America, and Gilat Europe, deliver satellite-based, end-to-end enterprise networking and rural telephony solutions to customers across six continents, including interactive broadband data services. Spacenet is one of the largest providers of VSAT network solutions to business and industry in the United States and Latin America. It has sold more than 140,000 VSATs worldwide, and currently provides VSAT networks to more than 50 of the largest companies in the United States.

StarBand is a joint venture between and among Gilat, Microsoft Corp., EchoStar Communications Corp., and ING Furman Selz Investments. It is the first nationwide provider of consumer-oriented, always-on, two-way, high-speed satellite broadband Internet service. StarBand employs sub-meter antennas capable of both operating as a satellite Internet access link and receiving DBS program services.<sup>3</sup> StarBand’s service includes always-on Internet access with downstream speeds up to 500 kbps and upstream speeds up to 150 kbps. Because it is GSO FSS Ku-band satellite-based, StarBand service is available virtually everywhere in the contiguous United States where the consumer has unimpeded access to the southern sky. StarBand expects that its customers will, in the future, be able to direct their PCs to receive channels of high-quality content from

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<sup>3</sup> See, e.g., Rebecca Cantwell, “EchoStar Cuts Two-Way Broadband Deal,” *Interactive Week*, March 6, 2000; “Satellite TV,” *Satellite Week*, Vol. 22, No. 9, (March 6, 2000); “The Cutting Edge MORE ON TECH EchoStar, Gilat Open TV to Sell Services Together,” *Los Angeles Times* C-11, (Feb. 24, 2000); “Two-way Net Satellite in the Works,” *USA Today* 3-D, (Feb. 24, 2000).

StarBand's entertainment and information partners, including MP3 files, software downloads, subscription content, and more. Under an agreement with Spacenet, Spacenet provides the satellite communications links used by StarBand to provide this new and innovative service.

Since Spacenet/StarBand use sub-meter antennas that are not compliant with Section 25.209 of the Commission's current and proposed rules, they will both be directly and immediately affected by the outcome of this proceeding. Indeed, a significant issue in the *Notice* relates to an issue Spacenet raised in a Petition for Declaratory Ruling or, in the Alternative, Notice of Proposed Rulemaking ("*Spacenet Petition*"),<sup>4</sup> which sought clarification of the applicability of Section 25.134 to access schemes used by VSAT systems. In these comments, Spacenet/StarBand will focus primarily on the proposals relating to (a) the use of non-compliant antennas, (b) power limitations for non-compliant antennas, and (c) random access schemes. We will also discuss briefly some of the other proposals that directly affect the VSAT industry.

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<sup>4</sup> See In the Matter of Petition of Spacenet, Inc. for a Declaratory Ruling that Section 25.134 of the Commission's Rules Permits Remote Stations in the Fixed Satellite Service to Use Network Access Schemes that Allow Statistically infrequent Overlapping Transmissions of Short Duration, or, in the Alternative, For Rulemaking to Amend that Section, *Order*, RM-9864, DA 00-2664 (Int'l Bur., Dec. 7, 2000) ("*Spacenet Order*"). The *Spacenet Petition* was filed at the suggestion of the Commission's staff in order to normalize the use of access schemes which might adversely affect nearby satellites. Rather than resolving the issue in connection with that Petition, the International Bureau deferred the issues to this proceeding and granted applicants and licensees using existing access schemes a limited waiver pending the outcome of this rulemaking. See *Spacenet Order* at ¶¶ 1, 16.

## COMMENTS

### I. The Commission Should Clarify The Scope of the Proposed Rules

#### A. The Scope of the Proposed Rules Is Ambiguous

The caption to, and the opening paragraphs of, the *Notice* indicate that the Commission issued this *Notice* pursuant to Section 11 of the Communications Act. That section requires the Commission to review its rules every second year to determine whether they “are no longer necessary in the public interest,” and “to repeal or modify any regulation . . . no longer necessary in the public interest.”<sup>5</sup> However, the proposed rules and the discussion in the *Notice* appear to propose modifying the current substantive requirements of the rules to make them more stringent and regulatory.

For example, Section III of the *Notice* is entitled “Streamlining Non-Routine Earth Station Licensing Procedures,” and the last sentence of paragraph 7 states that the Commission seeks comments on how it might “streamline our review of non-routine earth station applications.”<sup>6</sup> In the following paragraph, however, the Commission states that “we propose requiring applicants to . . . either [reduce power or coordinate with certain satellites]”<sup>7</sup> without any indication that the requirement is being proposed in order to obtain streamlined processing. Similarly, the proposed revision to Section 25.209(f) appears to require that any application proposing to use a non-compliant antenna must satisfy proposed Section 25.220, and would seem to eliminate the option, available under

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<sup>5</sup> See 47 U.S.C. § 161 (2001).

<sup>6</sup> *Notice* at ¶ 7.

<sup>7</sup> See *Notice* at ¶ 8.

the current rules, of obtaining a grant by submitting an engineering showing that the non-compliant earth station is consistent with the Commission's 2° orbital spacing policies.

The Commission should resolve this ambiguity and indicate that its proposals are designed to expedite the processing of certain applications seeking authority to use non-compliant antennas and are not intended to propose new limits on the use of those antennas. Such clarification is essential since the proposed rules are, as we show below, significantly more restrictive than the current rules in a number of crucial areas.<sup>8</sup> Since there is no evidence in the *Notice* or anywhere else that operation under the current rules has caused any harm to satellite operators or users, the proposals are inconsistent not only with Section 11 of the Act, but also with the Congressional mandate to promote the availability of new advanced telecommunications services, including broadband services, to all Americans,<sup>9</sup> the Commission's own initiatives in this area, and the general regulatory philosophy of the 1996 Telecommunications Act to limit regulatory intervention to those situations where regulation is necessary to assure that the market serves the public interest.<sup>10</sup> As the Chairman has made clear, that Act requires the Commission to forebear from regulating except where the marketplace will not promote the public interest.<sup>11</sup>

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<sup>8</sup> For example, proposed Section 25.220, which requires applicants either (a) to reduce power and power density levels if the antenna does not satisfy Section 25.209 or (b) to coordinate with satellites within 6° of the satellite with which the earth station will communicate, has no parallel in the current rules or Commission practices.

<sup>9</sup> See Telecommunications Act of 1996, Pub. L. 104-104, Title VII, § 706, Feb. 8, 1996, 110 Stat. 153; 47 U.S.C. § 157 and note.

<sup>10</sup> See S. Rep. No. 104-23, 104th Cong. 1st Sess. 1-2 (1995).

<sup>11</sup> Press Conference, Chairman Michael Powell (Feb. 6, 2001).

## **B. The Proposed Rules Will Adversely Affect Rural Service**

These proposals not only suffer from the defects noted in the preceding paragraph, but they will also impair the VSAT industry's ability to continue providing existing levels of services and to implement business plans for innovative new services that are based on the current rules and the lack of any industry concerns about the manner in which those rules are operating. StarBand's plans include the use of sub-meter antennas for satellite-based Internet service, a service which is currently being used to bring Internet service to Indian tribes in the Grand Canyon<sup>12</sup> and which holds the promise of making broadband service available in other remote, rural areas that are unlikely to be served by cable, DSL or terrestrial wireless services.

Analysts predict there will be a market for broadband satellite services principally in the estimated 20 to 30 million homes in rural and suburban areas that may be unable to receive cable or DSL services for the foreseeable future.<sup>13</sup> According to the Commission's own Report, only 50% of U.S. households are passed by cable systems capable of supporting cable modem service.<sup>14</sup> Only 25% of U.S. households are located

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<sup>12</sup> See, e.g., *Satellite Today*, "StarBand Unveils Distance Learning for Indian Tribes Along Colorado River, Vol. 4, Issue 34 (Feb. 21, 2001); *Arizona Republic*, "StarBand Means Remote Internet—Even in Canyon," at B5 (Nov. 24, 2000); *Washington Post*, "Dishing Up a New Link to the Internet," at A1 (November 6, 2000); *USA Today*, "Tribes Meet Technology: Internet Connects Remote Indians to Digital World, Jobs," at 1D (Oct. 10, 2000); *New York Times*, "Satellite Web Links Let Indian Tribes Take a Technological Jump," Section G (Sept. 9, 2000).

<sup>13</sup> Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, *Seventh Annual Report*, CS Dkt No. 00-132, 2001 WL 12938, at ¶ 79 (Jan. 8, 2001).

<sup>14</sup> See In the Matter of Inquiry concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, *Second Report*, CC Dkt No. 98-146 at ¶ 187 (Aug. 21, 2000) ("*Second Report*") (citing Stanford C. Bernstein & Co. and McKinsey & Co., Inc., *Broadband!* (2000)). According to Morgan Stanley Dean Witter, the figure is only 30%. See *Second Report* at p. 75 n.236.

within the distance limits of a central office from which DSL is offered,<sup>15</sup> and many of these cannot receive DSL service today because of limitations in the loops from the central offices to the homes.<sup>16</sup> Terrestrial wireless currently reaches less than 1% of U.S. households.<sup>17</sup> Since there presumably is, and will continue to be, a significant overlap among these providers, who are competing for the easiest-to-service and most profitable customers, it is clear that many U.S. households do not have, and will not have in the foreseeable future, high-speed data service available via cable modem, DSL, or terrestrial wireless.<sup>18</sup> Many of these are in rural, tribal, and other remote or insular areas that VSAT providers are uniquely capable of providing broadband service to these Americans.

Because the proposed rules will impair the ability of VSAT operators to offer these services, and because there is no evidence that the current rules have resulted in any harm, Spacenet/StarBand urge the Commission to clarify that its proposed rules are intended only to establish qualifications for the expedited processing of applications. Indeed, given the unanimous view of the VSAT industry that the current rules work well and do not result in any harm, the Commission should leave unchanged the current practice of licensing non-compliant stations that demonstrate that they satisfy the Commission's 2° orbital spacing policies.

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<sup>15</sup> See *Second Report* at ¶ 195.

<sup>16</sup> See *id.* at ¶ 38.

<sup>17</sup> See *id.* at ¶ 200.

<sup>18</sup> While terrestrial wireless providers are able to build out their networks with less initial investment than wireline service providers, the need to place cells within 3 to 5 miles (PCS service) or 25 to 35 miles (cellular and MMDS service), see *Second Report* at ¶ 52, makes even this technology unprofitable in areas of low customer density.

## **II. The Commission's Proposals Will Impair Both A Vibrant Existing Industry and A Promising New One**

### **A. The Notice Marks A Significant Departure From The Commission's Historic Approach To Satellite Regulation**

Since the inception of the domestic satellite industry, the Commission has continued to explore new ways to streamline the licensing process while promoting efficient and effective use of the orbital arc by multiple domestic satellite services.<sup>19</sup> Initially, earth station operations were subject to an informal regime of policies that were not formally codified as Commission rules. As users of domestic satellite services continued to multiply, the Commission has consistently maintained that while some standardization of policies and procedures is necessary for orderly and efficient use of orbital/spectrum resources and to minimize the potential for interference, operational flexibility is fundamental to the Commission's regulatory approach.<sup>20</sup>

With respect to VSAT networks in particular, the Commission has found that most potential interference can be resolved through a broad variety of remedial options and the availability of liberal waiver procedures to permit innovative interference reduction techniques that do not fit within the four corners of existing rules.<sup>21</sup> Tightening of operational and technical rules has occurred in close consultation with the satellite

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<sup>19</sup> See, e.g., Licensing of Space Stations in the Domestic Fixed-Satellite Service and Related Revisions of Part 25 of the Rules and Regulations, *Memorandum Opinion and Order*, FCC 84-487, CC Dkt No. 81-704, (rel. Jan. 9, 1985); Commission Launches Earth Station Streamlining Initiative, *Public Notice*, DA 99-1259 (June 25, 1999).

<sup>20</sup> See Amendment of Part 25 of the Commission's Rules and Regulations to Reduce Alien Carrier Interference Between Fixed-Satellites at Reduced Orbital Spacings and to Revise Application Processing Procedures for Reduced Orbital Spacings and to Revise Application Processing Procedures for Satellite Communication Services, *Notice of Proposed Rulemaking*, 2 FCC Rcd. 762, at ¶ 1 (1987).

<sup>21</sup> See In the Matter of Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands, *Notice of Proposed Rulemaking*, 5 FCC Rcd. 2778 at ¶¶ 6, 10 (1990).

industry, based on a record of documented interference complaints and prompted by commenters specifically opposing an increase in permissible power or a relaxation of other operational parameters that could increase the potential for interference.<sup>22</sup>

Approximately ten years after the inception of VSAT operations, there are more than 500,000 systems operating in over 120 countries<sup>23</sup> Competing service providers operate in an increasingly dynamic and challenging technology environment as each strives to improve reliability, signal quality and data rates, while avoiding harmful interference to each other's operations. Progressive reduction of earth station antenna size has greatly contributed to lowered service costs and permitted the provision of service to residential and small commercial users.

The Commission's proposals in this *Notice* mark a significant turn from the historic flexible approach to the regulation of VSAT networks – an approach that has facilitated the rapid expansion of this dynamic service. Based on speculation and without any support from any segment of the industry, the Commission has now, if the *Notice* is proposing substantive changes, issued a proposal that would slow the expansion of this existing industry and the growth of a new, satellite-based residential broadband service as well as require significant changes in industry practices that date back many years.<sup>24</sup>

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<sup>22</sup> See In the Matter of Amendment of Part 25 of the Commission's Rules and Regulations to Reduce Alien Carrier Interference Between Fixed-Satellites at Reduced Orbital Spacings and to Revise Application Processing Procedures for Reduced Orbital Spacings and to Revise Application Processing Procedures for Satellite Communication Services, *Notice of Proposed Rulemaking*, 2 FCC Rcd. 762 (1987).

<sup>23</sup> Global VSAT Forum Internet Site, <[www.gvf.org/vsat-industry/index.htm](http://www.gvf.org/vsat-industry/index.htm)>.

<sup>24</sup> Given the substantial changes in existing practices which these rules would require, Spacenet/StarBand urge the Commission to grandfather existing licensed systems or, at a minimum, provide for a transition period during which VSAT operators may bring their systems into compliance. Any other requirement would result in substantial disruption of not only the business of the VSAT operators, but also of their customers.

**B. The Proposed Rules for Non-Compliant Antennas  
Are Overly Regulatory**

Section 25.209 of the rules currently requires the gain of earth station antennas to fall within an envelope given by the formula “29-25 log theta” dBi for angles from the main beam axis between 1° and 7° in order to be approved routinely.<sup>25</sup> The Commission proposes that applicants using antennas that do not fall within the 29-25 log theta envelope either (i) reduce power until the emissions at all angles are within the allowable envelope or (ii) submit affidavits attesting that coordination with all satellites within  $\pm 6^\circ$  of the target satellite has been accomplished and that the applicant will abide by the coordination.<sup>26</sup> Licenses granted under option (ii) would be conditioned on the satellite carrier coordinating with future 2°-compliant satellites.

Neither the reduction in power nor the requirement to coordinate with satellites beyond  $\pm 2^\circ$  is warranted by any evidence.<sup>27</sup> Indeed, as Spacenet noted in the *Spacenet Petition* and as supported by all the industry players commenting on that Petition, there have been no problems with the current procedures, which do not impose such stringent

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<sup>25</sup> See Section 25.209(a), 47 C.F.R. § 25.209(a) (2001). Read this as “29 minus 25 log(theta) dB referenced to an isotropic radiator,” where “theta” is the angular displacement from the main beam axis or “boresight” of the antenna. Small earth station antennas used in the Ku band must fall within this envelope from 1.25° to 7°. See Sections 25.209(a), (g), 47 C.F.R. §§ 25.209(a), (g) (2001).

<sup>26</sup> While the Commission characterizes the procedure under option (i) as a streamlined procedure for authorizing non-compliant antennas, it seems that under the framework of the proposed rules these applications should qualify for the “auto-grant” procedures used for compliant antennas if the applicant declares that the power has been reduced to make the emissions compliant.

<sup>27</sup> The rules specify both antenna gain as a function of angle from the main beam axis (Section 25.209) and antenna flange power density (Sections 25.134, 25.211, and 25.212). Spacenet/StarBand note that the goal of the interference rules is to prevent satellites other than the target satellite from being illuminated with a power spectral density that would cause harmful interference. With this in mind, it is helpful, when analyzing proposed rules, to think in terms of power spectral density as a function of angle from the main beam axis, rather than gain and power density separately. Because of the separate focus of the Commission’s rules, many of the arguments against proposed Section 25.220 are also applicable to proposed Section 25.134.

and inhibiting requirements on VSAT operators. Given that record, Spacenet/StarBand urge the Commission not to increase its regulation of VSAT earth stations, but, instead, recommend that the Commission truly streamline its rules by amending Subsection 25.209(g) to allow the routine licensing of Ku band VSAT earth stations using antennas that are within the 29-25 log theta envelope at angles of 2° and greater from the main lobe axis in the orbital plane and 3° from the main beam axis perpendicular to the orbital plane.<sup>28</sup>

1. Adoption of the Spacenet/StarBand Proposal Will Streamline Processing Without Any Adverse Consequences to Other Satellite or VSAT Operators

The Commission acknowledges that it is receiving numerous applications proposing to use antennas that do not comply with current Section 25.209, and that these smaller antennas promote the wide availability of satellite-based services because they are less costly and it is easier to find suitable locations for them.<sup>29</sup> Amending Subsection 25.209(g) as Spacenet/StarBand propose will accomplish meaningful and effective streamlining by substantially reducing the burden both on the applicants who seek to license smaller antennas and on the Commission's staff who process the applications.<sup>30</sup> Under this proposed rule, Ku-Band earth station antennas would be routinely licensed as

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<sup>28</sup> Specifically, Spacenet/StarBand suggest the following rule:

§ 25.209(g). The antenna performance standards of small antennas operating in the 12/14 GHz band start at 2° in the orbital plane as it appears at the particular earth station location, and 3° perpendicular to the orbital plane, instead of 1° as stipulated in paragraph (a) of this section.

<sup>29</sup> See Notice at ¶ 12.

<sup>30</sup> As demonstrated in Exhibit F, this proposal also enjoys the support of antenna manufacturers [and others in the industry].

long as their gain falls within the 29-25 log theta envelope at angles of 2° and greater in the orbital plane and 3° and greater perpendicular to the orbital plane.

This proposal will not result in unacceptable levels of interference to adjacent or other satellites. According to Commission policy, GSO satellites are spaced at 2° intervals longitudinally (*i.e.*, at 2° intervals above the equator as viewed from the center of the earth). Therefore, regulating antenna patterns beginning closer than 2° to the main beam axis does nothing to reduce the energy transmitted toward other satellites – it merely regulates the energy radiated into space between satellites. Whether or not an earth station antenna falls within the 29-25 log theta envelope between the main beam axis and 2° is simply irrelevant to other satellites. What matters is that the radiation emitted at 2° and beyond from the main beam axis is within the acceptable limit. Therefore, all antennas that fall within the specified gain envelope at angles of 2° and greater should be treated in the same manner and should be routinely approved.

Moreover, because earth stations operate at the surface of the earth, closer to the GSO belt, satellites that are 2° apart as viewed from the center of the earth actually appear more than 2° apart to earth stations – nominally 2.2° for ALSAT satellites viewed from within their footprints in the U.S. and possessions. This difference between the longitudinal angle and the apparent angle provides an extra measure of safety against harmful interference.

Similarly, the proposed 3° elevational standard will not create unacceptable interference. Energy directed perpendicular to the orbital plane as viewed from the earth station location will not affect other GSO satellites. While this energy will illuminate space through which NGSO satellites will pass, NGSO satellites must cope, under the

Commission's current rules, with the higher power densities radiated by GSO earth stations transmitting narrowband analog carriers. Those stations are allowed to operate with a power density that is 6 dB higher than the limit for digital services.<sup>31</sup> Thus, the NGSO systems design necessary to accommodate these analog operations will also easily accommodate the minor expansion of GSO earth station patterns normal to the orbital plane.

This proposed rule will also allow Ku-Band earth station licensees to deploy today's advanced small elliptical antennas with a minimum of regulatory burden, while still protecting other satellites from interference to the same degree that they are protected today. Elliptical antennas are used by StarBand and its competitors to offer service from multiple satellites, typically permitting them to provide a DBS and Internet service using the same antenna. Treating these antennas as compliant with the Commission's 2° orbital spacing policy not only reflects the fact that they will not cause unacceptable levels of interference to adjacent satellites, but will also reduce the work required by the Commission's staff to process the applications and will advance Congress' goal of insuring that broadband services are timely available to all Americans.

2. Imposing A Reduction In Power for Non-Compliant Antennas is Unnecessary and Unwarranted

a. Historical Evidence Supports the Status Quo

The Commission's proposals are surprising not only because Section 11 requires a review of the rules to determine whether they should be relaxed, not made more

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<sup>31</sup> See Section 25.212, 47 C.F.R. § 25.212 (2001).

stringent, but also because there is no evidence that more stringent requirements are necessary. Indeed, the evidence is clearly and unanimously to the contrary.

As noted above,<sup>32</sup> the Commission recently considered interference issues in connection with the *Spacenet Petition*.<sup>33</sup> In its comments, PanAmSat, a leading satellite operator, urged the Commission to “update and refine” its VSAT rules to reflect the industry’s long experience that “the power level limits in the rules now are more restrictive than they need to be, or should be.”<sup>34</sup> Similarly, Hughes Network Systems advocated relaxed standards.<sup>35</sup> Space segment providers, who would be the direct victims of any harmful interference, did not file a single comment calling for reduced power or alleging that the current interference rules should be tightened.

Moreover, the FCC has granted a number of licenses for a large number of small Ku-Band VSAT antennas to Spacenet, Hughes Network Systems, and others,<sup>36</sup> and many of these antennas have been operating for some time. Yet Spacenet/StarBand are unaware of a single interference complaint traceable to the non-compliant patterns of

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<sup>32</sup> See n.6 *supra*.

<sup>33</sup> See *Spacenet Order*, *passim*.

<sup>34</sup> *Comments of PanAmSat* to the Petition of Spacenet, Inc. for a Declaratory Ruling that Section 25.134 of the Commission’s Rules Permits Remote Stations in the Fixed Satellite Service to Use Network Access Schemes that Allow Statistically infrequent Overlapping Transmissions of Short Duration, or, in the Alternative, For Rulemaking to Amend that Section, RM-9864t at 2, 3 (May 30, 2000).

<sup>35</sup> See *Comments of Hughes Network Systems* to the Petition of Spacenet, Inc. for a Declaratory Ruling that Section 25.134 of the Commission’s Rules Permits Remote Stations in the Fixed Satellite Service to Use Network Access Schemes that Allow Statistically infrequent Overlapping Transmissions of Short Duration, or, in the Alternative, For Rulemaking to Amend that Section, RM-9864 at 4 (May 30, 2000).

<sup>36</sup> Among them, E000166 (0.74 meter elliptical, licensed to Hughes Network Systems); E940455 (0.74 meter elliptical, licensed to Hughes Network Systems); E900682 (0.75 meter elliptical, licensed to Hughes Network Systems); E980474 (0.98 meter circular and 0.95 meter elliptical, licensed to Mobile Media Paging); E990127 (0.95 meter elliptical, licensed to Tachyon); E000035 (0.75 meter elliptical licensed to Spacenet); and E000132 (0.96 meter circular, licensed to Spacenet).