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

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

# REPLY COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

October 6, 2005

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**REPLY COMMENTS OF**
**THE SATELLITE INDUSTRY ASSOCIATION**

The Satellite Industry Association ("SIA") hereby submits its reply comments on the Third Further Notice of Proposed Rulemaking ("3rd FNPRM") in the above-captioned proceeding.[1]

## I. Introduction and Summary

In its comments in this proceeding, SIA addressed four aspects of the 3rd FNPRM: (1) contention protocols; (2) analog video; (3) EIRP density masks; and (4) protection of the NRAO radio quiet zone. In these reply comments, SIA focuses on the first three of these issues. Because no comments were filed regarding the NRAO proposal, SIA does not address this issue in its reply.

***Contention protocols.*** SIA urges the Commission not to adopt the contention protocol regulations proposed in the 3rd FNPRM. As the comments in this proceeding demonstrate, the costs associated with the proposed regulations far outweigh the benefits, which appear to be non-existent.

[1] Sixth Report and Order and Third Further Notice of Proposed Rulemaking, IB Docket No. 00-248, FCC 05-62 (March 15, 2005).

***Analog video.*** SIA urges the Commission not to adopt the ban on analog video transmissions it proposed in the 3rd FNPRM and not to alter its current regulation of analog video transmissions. The commenting parties made clear that there is no reason to modify the Commission's current rules, within which analog video can be coordinated with other transmission formats. To the extent that a migration to a digital video environment would provide advantages, market forces already provide ample incentive for a timely transition. In contrast, an FCC-mandated conversion to digital video – particularly a rapid, near-term conversion – would harm businesses throughout the multichannel video marketplace, injure individual consumers, thwart technological innovation, impair public interest communications, and overwhelm the marketplace's ability to accommodate the transition.

***EIRP density masks.*** SIA supports the Commission's proposal for an EIRP density mask, and concurs that pointing accuracy should be taken into account. If the Commission decides to allow applicants to deviate from the mask, it should take care to ensure that any rule is technology neutral and does not give a preference to a particular technology, as one commenter's proposal would do.

As for other elements of the Commission's EIRP density mask proposal:

- SIA urges the Commission to continue assessing the potential for interference to adjacent satellites based on the EIRP density actually transmitted towards these satellites under worst case pointing conditions. Merely avoiding main-beam pointing towards adjacent satellites does not guarantee compliance with Section 25.209(f), despite what AvL Technologies, Inc. ("AvL") seems to suggest.
- SIA opposes any decrease in the starting angle for the mask contained in Section 25.209(b) of the Commisison's rules. No party to this proceeding has presented a technical justification for modifying the cross-polarized starting angle; absent such a technical justification, making a change would be unwarranted.

- SIA opposes AvL's suggestion that the Commission permit earth station operators to exceed the 29-25log(θ) curve by up to 3 dB. Such excursions cannot be accommodated in the current operating environment, as satellite operators and users have reduced available margins in order to maximize the efficiency and cost-effectiveness of satellite-based networks.
- SIA opposes the suggestion that applicants who do not satisfy the off-axis EIRP density envelope be allowed to make a technical showing rather than coordinate each proposed point of communication with adjacent satellite operators. This approach would be difficult to implement with adequate technical certainty and consistency, and is inconsistent with the reality faced by operators and users in the 2° spacing environment.
- SIA opposes AvL's proposal to adopt detailed antenna performance specifications, including in particular antenna pointing accuracy and wind loading specifications for motorized antennas. Additional regulation of this nature is unnecessary and would limit the flexibility that earth station licensees presently have and legitimately require, as well as unnecessarily complicate the earth station application process.
- SIA opposes AvL's proposal to impose special, additional requirements on applicants for temporary-fixed antennas. This proposal was not adequately justified; to the contrary, many antennas deployed as "temporary-fixed" use the same mounting hardware and methods as permanent antennas and there is no reason to impose upon those using these antennas special, more burdensome requirements.

## II. Contention Protocols

There is no record evidence that contention protocol channels are causing harmful interference or will lead to harmful interference in the future. All of the evidence is to the contrary. SIA demonstrated in its comments that regulation of contention protocols is unnecessary, unwarranted and economically burdensome.[2] It submitted a detailed study showing that contention protocol operations do not result in harmful interference, and that the cost of compliance with the proposed regulations would be exorbitant.

No one filed comments supporting the Commission's contention protocol proposal as set forth in the 3rd FNPRM. Although one party called for the regulation of contention protocols in an earlier phase of this proceeding, that party did not and could not support its case and has not participated in this phase of the proceeding. The only

[2] SIA Comments at 29-42.

current participant other than SIA that has commented on the contention protocol issue, Spacenet Inc. ("Spacenet")/StarBand Communications Inc. ("StarBand"), joined SIA in opposing regulation.[3]

The record in this proceeding is straightforward and clear-cut. As shown in SIA's comments, the costs associated with the proposed contention protocol regulations far outweigh the benefits, which appear to be non-existent. SIA urges the Commission not to adopt needless regulation that would impose unjustified costs on the industry and on end-users.

## III. Analog Video

### A. The Comments Demonstrate That There Is No Need To Change The Commission's Regulation Of Analog Video Transmissions

In the NPRM, the Commission requested comment as to whether it should revise its regulation of analog video transmissions in light of the EIRP density limits that it was proposing for other FSS transmissions. The Commission identified three alternative approaches: (1) extending to analog video transmissions the off-axis EIRP limits it had proposed for other narrowband analog transmissions; (2) developing new off-axis EIRP envelopes for C-band and Ku-band analog video transmissions; and (3) at the furthest extreme, eliminating analog video transmissions altogether.

The parties commenting on this issue are unanimous: the Commission should not prohibit analog video transmissions. More fundamentally, these parties all take the position that changing the current regulation of analog video transmissions is unnecessary.

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[3] Spacenet/StarBand Comments at 3. Spacenet/StarBand also question whether the former proponent of contention protocol regulation had a legitimate interference concern or merely was endeavoring to create market share for its own proprietary technology.

The Commission now has heard from a broad range of interests, including programmers, satellite operators, and technical experts, all of whom echo a single theme: "if it ain't broke, don't fix it."[4] The comments demonstrate that the current system "ain't broke." For more than two decades, satellite operators and video programmers have successfully coordinated analog video operations and have been able to accommodate analog video transmissions without experiencing objectionable interference, even in dense analog video environments.[5] Similarly, analog video transmissions co-exist with terrestrial operations in a settled, known environment.[6] In each case, success has been achieved against the backdrop of stable Commission rules and should be commended, not undone.

The comments also establish that market-based considerations are providing ample incentive for a transition from analog video to digital video.[7] Whatever advantages the Commission perceives from a digital video environment, therefore, they can best be achieved by permitting an orderly transition in response to market forces, rather than by instituting a government-mandated transition schedule that may prove to be at odds with marketplace developments.

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[4] SES Americom, Inc. ("SES Americom") Comments at 3. Notably, several of the comments were filed on behalf of or represented the views of large groups of entities. These included (in addition to SIA) the National Cable & Telecommunications Association ("NCTA"), whose members include more than 200 cable programming networks, cable operators serving more than 90% of the nation's cable television subscribers, and suppliers of equipment and services to the cable industry; Time Warner Inc. ("Time Warner"), whose operations include ten programming services distributed via almost fifty separate feeds and viewed in tens of millions of U.S. households, as well as cable operations serving nearly 11 million subscribers through approximately 179 cable headend facilities in 27 states; and a group of unaffiliated major programming entities who came together to express their opposition to the Commission's proposal.

[5] *See* SES Americom Comments at 5; Joint Comments of CBS Broadcasting, Inc. *et al.* ("Joint Comments") at 2; Time Warner Comments at 6; KDM Technical Showing at 1-2.

[6] *See* Comsearch Technical Showing at 2, 3.

[7] *See* Time Warner Comments at 5; SES Americom Comments at 7; *see also* KDM Technical Showing at 1 (estimating that approximately 95% of programming will be delivered in digital formats within the next decade).

### B. The Comments Demonstrate That Prohibiting Analog Video Transmissions Would Have Serious Adverse Consequences

The commenting parties all agree that mandating a conversion to digital video – particularly a rapid, near-term conversion – would be misguided, harming businesses throughout the multichannel video marketplace, injuring individual consumers, thwarting technological innovation, impairing public interest communications, and overwhelming the marketplace's ability to accommodate the transition.

One party stated that converting cable program distribution to digital would cost $130 million to $150 million, would affect approximately 74 cable television program feeds and 10,000 cable television and SMATV headend facilities, and would force the replacement of approximately 175,000 analog receivers.[8] The consequences of such a staggering undertaking would ripple throughout the industry. National Programming Service, LLC ("NPS"), for example, estimates that up to 90% of its revenues would be adversely impacted by a ban on analog video transmissions, as would 100,000 ordinary consumers, living primarily in rural and other non-cable areas, who rely on analog receivers to receive news, information, and entertainment programming.[9]

Cable program distribution is just one of the satellite-based services that would be affected by a digital-only requirement. Another party estimates that it would cost in excess of $100 million to convert a single analog data network that is used to serve more than 220,000 businesses and organizations.[10] Large expenses also would be run up to

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[8] Time Warner Comments at 3-4. Individual estimates were also provided in the Joint Comments, whose cost estimates ranged from $2 million to $17 million per programmer. *See also* NPS Comments at 2-3 (estimating that there are 50 analog video channels, representing approximately 8,400 hours of programming per week, currently being distributed in the United States); NCTA Comments at 3 (estimating that there are approximately 70 analog transponders currently in active use).

[9] NPS Comments at 2.

[10] Joint Comments at n.2.

convert analog satellite newsgathering ("SNG") trucks, which are widely used,[11] and to convert equipment used for distribution of non-SNG broadcast programming via satellite. In short, a forced conversion would saddle the industry with hundreds of millions in unnecessary expenses.

The Commission's proposal would also interfere with market-based capital investment plans, wreaking havoc with the capital budgets that programmers, cable operators, and others have developed in good faith. It would place a significant short-term stress on the resources available to these entities to meet their other needs or, in the worst case, force them to cease or restrict their operations.[12] It would require them to declare obsolete equipment they had planned to continue using, resulting in a variety of operational, financial and accounting consequences. And, once done, it would lock them into today's technology, stifling the development and deployment of new digital equipment.[13]

The Commission's proposal would place a particularly heavy burden on public safety and public service organizations. As C-SPAN discussed in its comments, these organizations face financial and budgetary constraints and a near-term, mandatory migration could force them to use a disproportionate (and unanticipated) share of their resources to complete the transition, impeding their ability to meet their broader objectives. If the Commission's proposal were applied to multi-purpose earth stations,[14] its detrimental effects would spread even further, impeding the distribution of aural

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[11] One company estimates that the conversion of its analog SNG trucks alone would cost on the order of $4 million. *See* Joint Comments at 7.

[12] *See* C-SPAN Networks ("C-SPAN") Comments at 1-2.

[13] Joint Comments at note 9; Time Warner Comments at 4-5.

[14] Multi-purpose earth stations are earth stations that are used in the distribution of audio, video, and/or data (*e.g.*, earth stations using $FM^2$ modulation or FM modulation with subcarriers).

information and data to hundreds of thousands of businesses and public service organizations including the Federal Emergency Management Agency, military bases, law enforcement agencies, and farmers.[15]

The harm, moreover, would go well beyond the financial. Were the Commission to outlaw the use of analog video, it would preclude programmers and other entities from using analog transmissions as a back-up to digital transmissions, thereby jeopardizing their ability to ensure the uninterrupted delivery of video programming and preserve a ubiquitous, fully-interoperable redundant network.[16] It would also prevent them from using analog transmissions where digital video is impracticable or unworkable, such as for program delivery to markets where digital receivers have not been widely deployed, and to individual households relying on backyard television receive-only ("TVRO") antennas.

### C. The Comments Demonstrate That EIRP Density Limits For Analog Video Transmissions Are Unworkable

SIA demonstrated in its comments that EIRP density limits are inappropriate for analog video signals, because one cannot develop an EIRP density mask that is applicable to analog carriers modulated by all kinds of video images.[17] With the exception of a single party that expressed qualified support for analog EIRP density limits, no one was in favor of the concept.[18] That single party, moreover, advocated maintaining the status quo, and only mentioned EIRP density limits as an alternative in the event that the Commission chooses not to stay the course. The party did not provide any technical analysis or address the technical issues raised in SIA's comments. Given these

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[15] Joint Comments at note 2.
[16] *See* Joint Comments at 3-4; Time Warner Comments at 3.
[17] SIA Comments at 21.
[18] *See* NPS Comments at 4.

circumstances, there is no basis in the record for applying EIRP density limits to analog video signals.

In sum, the Commission's proposal to prohibit analog video is a solution in search of a problem. The current system is working well, with rare cases of interference typically caused by inexperienced operators rather than by an over-arching inadequacy in the current regulatory regime. Analog transmissions are an essential medium for the present, and the market-based migration to digital, which is well underway, will achieve any efficiencies that digital transmissions offer within a reasonable time frame. A mandatory phase-out of analog video transmissions, on the other hand, would cost programmers, cable operators, and individual households hundreds of millions of dollars, force the premature obsolescence of existing equipment, impede technical innovation and capital investment and overwhelm the capacity of equipment suppliers. In all, the proposal to prohibit analog video transmissions creates vastly greater problems than it purports to solve and should be rejected.

## IV. Off-Axis EIRP Masks: Earth Station Antenna Pointing Accuracy

### A. Pointing Accuracy Should Be Taken Into Account When Granting Transmit Earth Station Licenses

SIA agrees with AvL that pointing accuracy is an important factor to be taken into account in the process of licensing earth station antennas, as the trend to use smaller and smaller equivalent diameters continues. This issue is extensively covered in SIA's comments.[19] However, SIA has concerns regarding AvL's suggestion that the

[19] SIA Comments at 12-20.

Commission adopt special processing rules for antennas having automatic tracking mechanisms.[20]

SIA has proposed that the Commission implement two separate uplink off-axis EIRP density masks as a function of the equivalent diameter of the transmit antenna, using an assumed pointing accuracy of 0.5° for smaller antennas. SIA also has suggested that, as a possible alternative to using a fixed pointing error of 0.5°, the Commission could allow small-antenna applicants to make a showing regarding the actual pointing accuracy of the proposed antenna and use a mask corresponding to such accuracy. This approach would accommodate situations in which the pointing accuracy is better than the 0.5° assumed for small antennas in the first approach, thereby addressing AvL's desire for applicants to be able to qualify for routine licensing by showing they can achieve pointing accuracy through computer controlled equipment.

SIA further notes that there are a variety of methods, in addition to using computer controlled equipment such as that manufactured by AvL, for small earth stations to maintain pointing accuracy. For example, cross-polarization monitoring has been successfully used to ensure that large deployments of small terminals remain correctly pointed, and this method does not require that additional hardware be installed on remote terminals. SIA believes that any rule change made to accommodate systems that have better pointing accuracy should be technology neutral, as is the case with SIA's alternative proposal. Granting a regulatory exemption to one technology and not to others would disadvantage the competitiveness of some companies and force them toward proprietary solutions.

[20] AvL Comments at 2-3, 5.

### B. Main Beam Avoidance Is Not The Only Factor To Be Taken Into Account When Determining The Level Of Protection Afforded To Neighboring Satellites

AvL appears to believe that it should be sufficient for purposes of Section 25.209(f) to demonstrate that the main beam of the antenna above 29-25log(θ) does not point to the adjacent satellite.[21] Compliance with Section 25.209(f) as modified in the Fifth Report and Order, however, requires more than that. As SIA has shown, what matters is that the EIRP density actually transmitted towards adjacent satellites under worst case pointing conditions be taken into account.

Adopting uplink off-axis EIRP density masks, as proposed by the Commission and supported by SIA, will simplify the process for evaluating compliance with Section 25.209(f), as modified in the Fifth Report and Order. The text added to Section 25.209(f) in the Fifth Report and Order, moreover, addresses AvL's concern that "power reduction or affidavits from adjacent satellites should only be required if 25.209(f) is not met."[22]

### C. The Starting Angle For The Mask Contained In Section 25.209(b) Should Not Be Decreased

SIA agrees with AvL's comment that the starting angle for the mask in Section 25.209(a) should be increased to 1.5°,[23] and SIA expressed the same position in its comments.[24] However, SIA strongly opposes reducing the starting angle of the mask in Section 25.209(b), which concerns the cross-polarized envelope, to 1.5°, as AvL appears to recommend.[25] There is no basis in the record for making such a change. No party (including AvL) has presented a technical justification for modifying the cross-polarized

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[21] AvL Comments at 3.
[22] AvL Comments at 3, ¶ 4.
[23] AvL Comments at 4, ¶ 5.
[24] SIA Comments at 8.
[25] AvL Comments at 1, ¶ A.

starting angle. Absent such a technical justification, making a change would be unwarranted.

### D. 3 dB Excursions Above The Uplink EIRP Density Limits Should Not Be Permitted

SIA opposes the suggestion by AvL that the Commission permit earth station operators to exceed the 29-25log(θ) curve by up to 3 dB.[26] Although the original technical investigation and proposal for 2° satellite spacing in 1983 may have allowed such excursions, they can no longer be permitted in the current operating environment. The tools for calculation of link parameters to be used for FSS transmissions have been refined over the years to make maximum use of satellite capacity without unnecessarily increasing the cost of transmit earth station equipment. This means that the margins are kept to the minimum necessary to ensure the required availability in the presence of propagation factors and allowed interference according to the relevant ITU-R Recommendations.

As a result, satellite operators cannot, in today's environment, tolerate excursions of as much as 3 dB above the values derived from the Commission's rules. In fact, that very concern was the driving force behind SIA's suggestion to make the uplink off-axis EIRP density mask 3 dB more stringent for smaller antennas to combat the increase in off-axis transmitted power resulting from pointing errors. SIA, therefore, opposes AvL's proposal for a 3 dB relaxation.

### E. A Technical Showing By Earth Station Applicants Is No Substitute For Coordination Documentation

SIA opposes the suggestion by Spacenet/StarBand that applicants not satisfying the off-axis EIRP density envelope be permitted to make a technical showing in lieu of

[26] AvL Comments at 5, ¶ 11.

coordinating each proposed point of communication with adjacent satellite operators.[27] Spacenet/StarBand acknowledge that in these circumstances there is no bright line that could be used to distinguish between an adequate technical showing and an inadequate one.[28]

The 2° spacing environment, moreover, requires constant updating of the conditions agreed among satellite operators to accommodate their transmissions in a way that ensures mutual compatibility of operations. Once earth station transmissions are planned in non-conformance with the off-axis EIRP regulations (which necessarily means that they exceed the allowed uplink off-axis EIRP density limits), the possible accommodation of such transmissions will require real-time knowledge of the affected transmissions in adjacent satellites and possible rearrangement of existing traffic. Permitting earth station applicants to exceed Commission technical limits without ensuring that the non-compliant operations have been coordinated with adjacent satellite operators can only contribute to chaos and problems for satellite users.

SIA therefore urges the Commission to reject Spacenet/StarBand's proposal, and instead to adopt procedures in line with SIA's proposal in Section II.E of its comments.[29]

### F. The Commission Should Reject AvL's Proposal To Include Antenna Pointing Accuracy And Wind Loading Performance Specifications For Motorized Antennas

Detailed specifications for antenna performance are not a matter for regulatory action and should be left to satellite operators and earth station licensees to establish. In its rules, the Commission specifies global interference standards with which licensees must comply. The Commission also establishes maximum values in individual earth

[27] Spacenet Comments at 2-3.
[28] Spacenet Comments at 2.
[29] SIA Comments at 9.

station licenses that must be satisfied. It is the responsibility of the licensees to determine how they will operate within these constraints.

AvL has proposed that the Commission adopt more detailed operational standards. In particular, AvL asks that the Commission implement mandatory criteria for backlash, wind loading, and similar items.[30] SIA opposes this proposal. The proposal is unnecessary; there has been no showing as to why additional regulation is required. Adopting the proposal, moreover, would limit the flexibility that earth station licensees presently have. Adopting the proposal would also complicate the earth station application process, thereby raising the prospect of an increased application backlog and extended average processing time for each application. For all of these reasons, AvL's proposal should be rejected.

### G. The Commission Should Not Impose Special Requirements On Temporary-Fixed Antennas

In its comments, AvL proposed that applications for temporary-fixed antennas should include a pointing accuracy demonstration along with antenna patterns for all antennas now considered non-compliant because of antenna beamwidth.[31] SIA opposes AvL's proposal. There is nothing about a temporary installation that warrants imposing this special requirement. In fact, many antennas deployed as "temporary-fixed" use the same mounting hardware and methods as permanent antennas. AvL has not made clear, moreover, why it believes there is a need to demonstrate pointing accuracy in the case of temporary-fixed antennas or on what basis it believes pointing accuracy could be shown. Given the lack of justification for AvL's proposal, it should be rejected.

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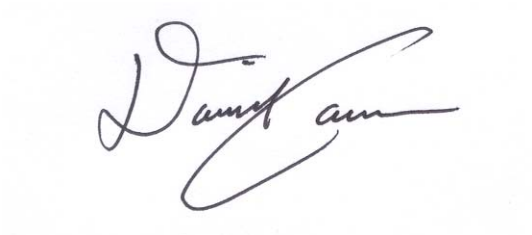
[30] AvL Comments at 4, ¶¶ 2, 6.
[31] AvL Comments at 4, ¶ 7.

## CONCLUSION

For the reasons stated herein and in SIA's comments, the Commission should modify in the manner reflected in SIA's comments and reply comments its proposals for EIRP density masks, analog video, contention protocols, and protection of the NRAO radio quiet zone.

Respectfully submitted,

SATELLITE INDUSTRY ASSOCIATION



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