

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

In the Matter of)
)
Amendment of Parts 2 and 25 of the Commission's)
Rules to Allocate Spectrum and Adopt Service Rules) IB Docket No. 07-101
and Procedures to Govern the Use of Vehicle Mounted)
Earth Stations in Certain Frequency Bands Allocated to)
the Fixed-Satellite Service)

To: The Commission

**REPLY COMMENTS OF SES AMERICOM, INC.
AND AMERICOM GOVERNMENT SERVICES**

SES Americom, Inc. ("SES Americom") and Americom Government Services ("AGS") (collectively referred to herein as "Americom"), by their attorneys and pursuant to Section 1.415 of the Commission's Rules, 47 C.F.R. § 1.415, hereby submit this reply to the comments of other parties in response to the Commission's Notice of Proposed Rule Making in the above-captioned proceeding, FCC 07-86, (released May 15, 2007) (the "Notice").¹

The comments overwhelmingly support the adoption of rules that will facilitate the licensing and implementation of networks of vehicle-mounted earth stations ("VMESs") in the standard and extended Ku-band frequencies allocated to the fixed-satellite service ("FSS"). Furthermore, there is broad agreement that the rules formulated for earth stations on vessels ("ESVs"), with some minor adjustments, should form the basis for VMES regulation. Based on

¹ SES Americom is a member of the Satellite Industry Association ("SIA"), and also concurs with the reply comments being filed by SIA in this proceeding.

SES Americom cites herein comments filed by the Association of Public Television Stations and the Public Broadcasting Service ("APTS/PBS"), ARINC, Incorporated ("ARINC"), the Boeing Company ("Boeing"), General Dynamics Corporation ("General Dynamics"), Maritime Telecommunications Network, Inc. ("MTN"), the National Spectrum Managers Association ("NSMA"), Raysat Antenna Systems, LLC ("Raysat"), SIA, and ViaSat, Inc. ("ViaSat").

the record here, the Commission should move forward expeditiously to complete the rulemaking, establishing a framework that will allow Americom and other operators to meet customer demand for this important service.

I. VMES NETWORKS CAN OPERATE ON A PRIMARY BASIS WITHOUT HARMING OTHER KU-BAND SERVICES

In its initial comments, Americom shared its own experience with development and operation of VMES systems and expressed confidence that VMES networks can coexist with existing and future Ku-band FSS services on a co-primary basis. Americom Comments at 2-3. In particular, SES Americom noted that it supplies space segment capacity for Qualcomm's OmniTRACS system, which was authorized by the Commission in 1989 and uses standard Ku-band spectrum for a vehicle-based data service, and SES Americom is not aware of any interference complaints during the long history of that service. *Id.* at 3. AGS has an application pending now before the Commission for a VMES network using SES Americom satellites (*see id.* at 2), and Americom was able to coordinate the proposed operations with adjacent satellite operators based on a demonstration that the system would not cause harmful interference to other services.

Other commenting parties agree that VMES operations are compatible with the Commission's two-degree spacing policies ensuring protection of adjacent satellite networks, and thus are entitled to primary status in the conventional Ku-band. For example, General Dynamics notes that it has operated a VMES network pursuant to special temporary authority and experimental authority for more than four years without a single reported instance of harmful interference. General Dynamics Comments at 2. Similarly, Raysat, which holds experimental authority for a VMES network, observes that its experience and that of others "confirms that

VMESs can operate successfully in a two-degree spacing environment consistent with the off-axis EIRP envelope applicable to routinely licensed Ku-band VSATs.” Raysat Comments at 3.

In contrast, APTS/PBS raises the possibility that VMES licensing will interfere with current use of Ku-band satellite system for distribution of public television programming. APTS/PBS Comments at 2. In particular, APTS/PBS suggests that VMES antennas will not meet the .2 degree antenna pointing accuracy requirements, and that if spread spectrum technology is used, interference from VMES systems will be almost impossible to identify and attribute to its source. *Id.* at 2-3. In order to address this potential threat, APTS/PBS suggests that the Commission should allow VMES only in the Ka-band, or should impose numerous restrictions if Ku-band VMES operations are permitted, including requiring exhaustive testing of antenna prototypes to verify pointing accuracy compliance. *Id.* at 3.

Americom strongly sympathizes with the concerns raised by APTS/PBS but also strongly believes that they are unfounded. As a satellite operator providing video distribution capacity to numerous programmers, including PBS, SES Americom understands that service quality and reliability is of the utmost importance. Accordingly, if we believed that VMES licensing under the framework being considered by the Commission posed any threat to our existing services, SES Americom would actively and vehemently oppose it. Neither SES Americom nor any other satellite operator would take action that could jeopardize its existing, bread-and-butter services simply for the possibility of future revenues from a new service, particularly one like VMES with a limited base of prospective users.

SES Americom’s support of VMES licensing here is premised on a thorough technical review that satisfied us that VMES operations under the conditions we are advocating are fully consistent with the Commission’s two-degree spacing policies and will be comparable in their

impact on adjacent satellite operations to VSAT systems that are eligible for routine licensing under existing rules. As discussed above, this determination is confirmed by our experience in supplying capacity for the OmniTRACs network, as well as the experience of other commenting parties who have offered VMES service pursuant to experimental or temporary authority.

As a result, there is no basis for concluding that VMES licensing is incompatible with incumbent uses of the Ku-band and should be relegated to other bands or subject to onerous regulatory requirements, as APTS/PBS suggests. The VMES regulatory framework supported by Americom, SIA and others will ensure that incumbent Ku-band users such as APTS/PBS are protected.

II. VMES SYSTEMS THAT DO NOT MEET STRICT POINTING ACCURACY STANDARDS SHOULD BE PERMITTED TO SHOW THAT THEY CAN PROTECT ADJACENT OPERATIONS

The record here also clearly supports Americom's position that VMES applicants should be allowed to demonstrate that they can operate without causing harmful interference even if their systems do not comply with the strict ESV pointing accuracy requirements. Operators should be given the flexibility to reduce power in order to compensate for a lower degree of pointing accuracy provided that they can make a technical showing that their VMES system will comply with the off-axis EIRP density mask or they have coordinated their operations with adjacent and next-adjacent satellite networks.

SIA, NSMA, Boeing, General Dynamics, Raysat, and ViaSat all agree that strict adherence to ESV pointing accuracy rules is not necessary to ensure that a VMES network complies with the off-axis EIRP density mask designed to prevent harmful interference.² NSMA, for example, notes that by reducing power, VMES terminals "can operate consistent with the

² See SIA Comments at 13-16; NSMA Comments at 6-7; Boeing Comments at 23-25; General Dynamics Comments at 17-18; Raysat Comments at 9-11; ViaSat Comments at 7-11.

permissible [off-axis EIRP density] mask even when mispointing exceeds 0.2 degrees,” thereby producing “no more off-axis EIRP than a perfectly pointed VSAT.” NSMA Comments at 6.

Sanctioning such operations is consistent with past Commission practice. Boeing observes that in granting it a license for Ku-band aeronautical mobile services, the Commission did not impose any antenna pointing accuracy or transmission cessation obligations “because Boeing demonstrated that its terminals would meet the applicable e.i.r.p. density mask without such requirements.” Boeing Comments at 24. Similarly, ViaSat notes that the successful fifteen-year history of the OminTRACs system, which uses spread spectrum technology, demonstrates that networks can avoid interference even without application of strict antenna pointing restrictions. ViaSat Comments at 9.

In contrast, insisting that all VMES terminals conform to pointing accuracy and transmission cessation requirements – even if their reduced power levels otherwise permit them to comply with the mask – would unnecessarily curtail provider options. As Raysat points out, such an approach “simply does not account for, and therefore inappropriately disadvantages, VMES terminals that operate at lower than the maximum power permitted by the mask.” Raysat Comments at 10. A modified approach to pointing accuracy “is essential to ensure that the VMES rules are technology neutral and facilitate the introduction of the most innovative VMES systems and services, while at the same time fully protecting other users of the Ku-band.” *Id.* at 10-11. ViaSat concurs that adopting “a 0.2° pointing accuracy requirement for all VMES terminals would severely limit the benefits offered by spread spectrum and other technologies that can prevent harmful interference even when mispointed.” ViaSat Comments at 7. Boeing argues that the Commission should encourage innovation and efficiency “by permitting satellite service providers to select freely the technologies that they will use to comply with the

Section 25.222(a) off-axis e.i.r.p. requirements rather than arbitrarily imposing unnecessary and technology-constraining Part 25 regulations.” Boeing Comments at 25 (footnote omitted).

Commenters that oppose any flexibility with respect to pointing accuracy provide no rationale for limiting the technological choices available to VMES system designers. MTN, for example, objects to Americom’s proposal to allow VMES applicants that do not meet the antenna pointing requirements to make a showing that they nevertheless will comply with the off-axis EIRP density mask, arguing that compliance with both the mask and the pointing rules is independently required. MTN Comments at 5.

MTN ignores the fact that the off-axis EIRP density mask and pointing accuracy requirements have the same objective – limiting the power of unwanted emissions from a terminal into adjacent satellites. Americom’s proposal would allow VMES applicants to demonstrate that they satisfy this objective because their power levels are sufficiently below the mask that they can comply with it even taking into account antenna mispointing that may exceed the ESV limits.³ Under these circumstances, as NSMA observes, the impact of a VMES terminal on adjacent operations would be no greater than that of a perfectly pointed VSAT. *See* NSMA Comments at 6. In contrast, for a VMES network operating at the maximum power levels permitted by the mask, compliance with pointing accuracy requirements would be needed to limit interference to adjacent satellites, and the flexibility envisioned by Americom’s proposal would not be available.

³ Elsewhere in its comments, MTN seems to recognize this trade-off between pointing accuracy and terminal power levels, stating that “MTN is very concerned with any proposal to relax the antenna pointing accuracy requirements *without a commensurate reduction in power.*” MTN Comments at 4 (emphasis added). Under Americom’s proposal, a VMES applicant would have the flexibility to exceed the mispointing allowance only if it could demonstrate that through reduced power it was still able to comply with the off-axis EIRP density mask.

Although General Dynamics freely acknowledges that trade-offs are possible to control interference without meeting antenna pointing requirements, it urges the Commission to apply routine licensing only to terminals that comply with the ESV rules. General Dynamics Comments at 17-18; 30-31. Similarly, ARINC argues that VMES terminals that do not comply with ESV pointing accuracy requirements should be relegated to secondary status (ARINC Comments at 6), and APTS/PBS requests exhaustive testing of prototype VMES terminals to ensure that pointing accuracy standards are met (APTS/PBS Comments at 3).

The Commission should reject these arguments. As discussed above, allowing VMES applicants the flexibility to control adjacent satellite interference through power reductions ensures that operators have the freedom to design their systems using any available technology while still ensuring protection of other users. Imposing more burdensome processing or testing requirements on certain networks cannot be justified, especially given the proven success of systems such as OmniTRACs and the Boeing aeronautical network that operate without pointing accuracy requirements.⁴

⁴ In opposing the flexibility Americom proposed with respect to pointing accuracy, General Dynamics suggests that the Americom approach would be inconsistent with a previous decision involving a Spacenet application. *See* General Dynamics Comments at 29-30, *citing Petition of Spacenet, Inc. for a Declaratory Ruling*, Order, 15 FCC Rcd 23712 (Int'l Bur. 2000). General Dynamics, however, mischaracterizes both the *Spacenet* decision and the Americom proposal.

General Dynamics states that in *Spacenet*, the Commission rejected a request for “operation of an FSS Ku-band system that would have resulted in a statistically low, but non-zero, probability of generating interference to adjacent users” and determined that “an acceptable level of probability of interference to adjacent satellite users is zero.” General Dynamics Comments at 29 (footnote omitted). In fact, however, the *Spacenet* decision expressly authorized operation of the relevant system based on a finding that Spacenet had demonstrated that its random access technique did not cause harmful interference to other satellite systems. *Spacenet*, 15 FCC Rcd at 23716 [¶ 12]. The Commission simply declined to issue a declaratory ruling that the system complied with the power levels in Section 25.134, given that there was a recognized possibility that the limits would be exceeded, and the Commission indicated it would consider these matters further in a pending rulemaking. *Id.* at 23715 [¶ 9].

Thus, VMES networks that are able to show that they meet the prescribed off-axis EIRP density mask, taking into account the system pointing error, are equivalent in their impact on adjacent satellites to routinely-licensed VSAT networks, and should be granted equivalent regulatory treatment. Specifically, they should be eligible for routine application processing and primary status in the conventional Ku-band.

III. THE COMMISSION SHOULD CONSIDER NATIONAL SECURITY SENSITIVITIES WITH RESPECT TO VMES DATA RECORDING RULES

Finally, the record confirms Americom's observation that in applying any data recording requirements to VMES networks, the Commission must be mindful of national security interests that could be implicated. Americom Comments at 4. SIA, Boeing, General Dynamics, Raysat, and ViaSat all agree with Americom that application of the ESV data logging requirements to VMES systems used by military, law enforcement, or other government customers could raise concerns.⁵ Accordingly, the Commission should adopt an exemption or grant waivers of any VMES data recording requirements in circumstances where availability of the data could adversely affect national security interests.

General Dynamics also suggests that grant of the flexibility requested by Americom would require the Commission to routinely license services that by their "fundamental design and nature, would inevitably interfere with other users." General Dynamics Comments at 30. In fact, Americom proposes only that the Commission allow a VMES applicant the opportunity to demonstrate that its system will not cause harmful interference because it complies with the off-axis EIRP density envelope designed to prevent interference. In such cases, the VMES network will be no more interfering than a routinely-licensed VSAT or ESV, or a VMES system that operates at higher power but complies with the antenna pointing standards.

⁵ See SIA Comments at 18; Boeing Comments at 28; General Dynamics Comments at 39; Raysat Comments at 14; ViaSat Comments at 22-23.

IV. CONCLUSION

For the foregoing reasons, SES Americom and AGS urge the Commission to expeditiously adopt rules for the operation of VMES networks in Ku-band FSS spectrum consistent with the recommendations made herein and in the SIA filings in this proceeding.

Respectfully submitted,

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