Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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

REPLY

Pursuant to Section 1.429 of the Commission's rules,[1] ViaSat, Inc. ("ViaSat") replies to the response filed by Maritime Telecommunications Network, Inc. ("MTN") on April 29, 2010 in the above-captioned proceeding.[2] MTN responds to the petitions for reconsideration filed by ViaSat[3] and The Boeing Company ("Boeing"),[4] which ask the Commission to modify certain aspects of its new regulatory framework for vehicle-mounted earth station ("VMES") networks.[5]

In its petition, ViaSat proposes several minor clarifications and modifications to the VMES framework, which are intended to enhance the ability of network operators to provide mobile broadband services to consumers—without causing any risk of harmful interference.

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1 47 C.F.R. § 1.429.

2 Consolidated Response of Maritime Telecommunications Network, Inc., IB Docket No. 07-101 (Apr. 29, 2010) ("MTN Response").

3 Petition for Reconsideration of ViaSat, Inc., IB Docket No. 07-101 (Dec. 4, 2009) ("ViaSat Petition").

4 Petition for Reconsideration of The Boeing Company, IB Docket No. 07-101 (Dec. 4, 2009) ("Boeing Petition").

5 Report and Order, 24 FCC Rcd 10414 (2009) ("*VMES Order*").

ViaSat supported each of its proposals with careful and reasoned legal and technical analysis. Boeing's petition accords with that filed by ViaSat in most respects.[6]

Notably, the lion's share of clarifications and revisions suggested by ViaSat and Boeing are unopposed. For example, no party objects to ViaSat's request that the Commission revise its rules to make clear that, in the case of variable power-density systems using CDMA protocols, off-axis EIRP density ("OAED") limits are calculated by assuming an "N" equal to one[7] (in fact, this proposal is similar to one advanced by Boeing[8]). Similarly, no party opposes ViaSat's request that the Commission clarify certain aspects of its antenna pointing rules for VMES systems,[9] provide VMES applicants flexibility in complying with RF exposure limits,[10] or allow variable power-density control systems to be eligible for ALSAT authority.[11] In fact, with the exception of relatively minor issues, there appears to be consensus among ViaSat, Boeing, and MTN—the only parties participating in this proceeding on reconsideration. Therefore, ViaSat believes the Commission can implement the vast majority of the proposed clarifications and revisions without delay.

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6 Boeing also asks the Commission to suspend its VMES rules until it establishes rules permitting and governing aeronautical-mobile satellite service ("AMSS") operations in the Ku-band on a primary basis. *See* Boeing Petition at 9-10. While ViaSat generally agrees with Boeing's positions in this proceeding, on this point ViaSat believes that MTN has the better of the argument. As MTN suggests, Boeing's concerns are appropriately addressed in the parallel AMSS proceeding, and should not interfere with the implementation of the Commission's VMSS rules. *See* MTN Response at 2-3.

7 *See* ViaSat Petition at 12. *See also* 47 C.F.R. § 25.226(a)(3).

8 *See* Boeing Petition at 12-13.

9 *See* ViaSat Petition at 17-24.

10 *Id.* at 11-13.

11 *Id.* at 13-14. MTN does ask the Commission to "proceed with caution" in making certain requested clarifications to its antenna pointing rules—a point addressed by ViaSat in Section III, *infra*.

However, MTN does express concern about the proposal advanced by ViaSat[12] (and independently by Boeing[13]) that the Commission eliminate any requirement that variable power-density systems maintain an effective aggregate power-density level 1 dB below the otherwise-applicable "default" limits specified in the Commission's rules.[14] In doing so, MTN does not address the specific arguments advanced in ViaSat's petition in support of this rule change, and, more fundamentally, fails to explain how denying innovative mobile broadband service to VMES users (the necessary result of maintaining that restriction) would serve the public interest, or be consistent with the goals set forth in the National Broadband Plan. As such, ViaSat's analysis stands unrefuted, and its petition therefore should be granted in full.

I. BACKGROUND

ViaSat commends the Commission's efforts in the *VMES Order* to "promote the innovative and flexible use of satellite technology," and to "increase the potential that broadband communications capabilities will be made available for various emergency preparedness and commercial purposes where high-bandwidth, advanced mobile communications capabilities are beneficial."[15] As ViaSat's petition recognizes, VMES technologies are critical to facilitate the ubiquitous availability of low cost, high-data-rate mobile broadband service to vehicles throughout the United States. For this reason, ViaSat largely supports the Commission's new regulatory framework for VMES networks.

At the same time, ViaSat's petition identifies a few aspects of that framework that should be clarified or modified in order to enhance the ability of network operators to provide

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12 *See* ViaSat Petition at 6-10.

13 *See* Boeing Petition at 12.

14 *See* MTN Response at 6.

15 *VMES Order* at ¶ 2.

affordable mobile broadband services to consumers. In particular, certain of the new rules impose unnecessary *ex ante* restrictions on VMES operations that likely will preclude the developing VMES industry from implementing the most innovative, efficient, and affordable mobile broadband solutions for commercial, consumer, and government applications. Accordingly, the petition proposes certain minor changes intended to ensure that the VMES rules fulfill their regulatory objectives—*without* adversely affecting the interference environment.

Since ViaSat's petition was filed, the Commission has embraced further the need to remove unnecessary and counterproductive constraints on the ability of network operators to provide mobile broadband services to the public. Notably, the National Broadband Plan identifies "flexible access to spectrum" as "an essential innovation policy that the FCC should continue to develop."[16] Similarly, the National Broadband Plan seeks to eliminate unnecessary technical restrictions on the use of spectrum—including overly conservative prophylactic limits—recognizing that such unnecessary constraints harm the ability of network operators to close the broadband availability gap.[17]

Only a single party, MTN, objects to *any* aspect of ViaSat's petition, and that objection is limited to a single aspect of the petition—namely, ViaSat's proposal that the Commission modify the new rules to eliminate the requirement that variable power-density systems maintain effective aggregate power density 1 dB below the otherwise applicable power-

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[16] *See* Federal Communications Commission, *Connecting America: The National Broadband Plan*, at 79 (2010), *available at* http://www.broadband.gov.

[17] For example, the National Broadband Plan proposes revising Wireless Communications Service ("WCS") technical rules, including out-of-band emission limits, to enable robust use of WCS spectrum while protecting other users from harmful interference. *Id.* at 85. The Plan also proposes updating broadcast technical rules to "enable stations to operate at currently prohibited spacing on the same or adjacent channels without increasing interference to unacceptable levels" in order to free spectrum for broadband use, and supports the further development and deployment of "opportunistic" spectrum uses. *Id.* at 89, 95.

density limits specified in the Commission's rules.[18] As explained herein, MTN's objection is entirely unsubstantiated and without merit.

II. ALLOWING VARIABLE POWER-DENSITY SYSTEMS TO OPERATE AT THE SAME POWER-DENSITY LEVELS AS OTHER SYSTEMS WOULD SERVE THE PUBLIC INTEREST

In its petition, ViaSat proposes modifying the new VMES rules to eliminate any requirement that variable power-density systems maintain effective aggregate power density at a level that is roughly 20 percent (1 dB) below the power-density levels at which other types of VMES (and earth station on vessel ("ESV") and very small aperture terminal ("VSAT")) terminals routinely are allowed to operate.[19] Through careful and reasoned analysis, ViaSat demonstrated that this reduction is unnecessary and contrary to the public interest because:

(i) There is no record evidence to suggest that the use of variable power-density control poses a risk of harmful interference, or that operators of terminals with that capability are not able to comply with the same power-density levels applicable to other earth stations;

(ii) Variable power-density control systems are actually less "complex," with a lower potential for causing harmful interference, than many code-division multiple access ("CDMA") and time-division multiple access ("TDMA") systems, which are not subject to any requirement to reduce power-density levels to provide some general "margin for error;"

(iii) Any applicant proposing to employ variable power-density control could be asked to "make a detailed showing of the measures it intends to employ" to satisfy the applicable power-density limit, giving the Commission, in the licensing process, a full opportunity to review the sufficiency of such measures, and thus precluding the need to impose an inflexible, *ex ante* power reduction requirement; and

(iv) As acknowledged by the *VMES Order*, the required 1 dB reduction would "impact the capacity and robustness of the relevant VMES networks,"[20] sharply limiting network efficiency and flexibility while having a direct, quantifiable, and adverse impact on the ability of VMES licensees to provide mobile broadband services to the public—without any offsetting benefit.

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[18] 47 C.F.R. § 26.226(a)(i).

[19] ViaSat Petition at 6-10.

[20] *VMES Order* at ¶ 118.

In its comments, MTN fails to acknowledge—and certainly fails to refute—this careful and reasoned analysis. Consequently, while MTN may "see[] no reason . . . to disturb the Commission's judgment that the additional 1 dB [reduction] is necessary,"[21] this is only because MTN has chosen to ignore the analysis that ViaSat provides.

Instead, MTN maintains that ViaSat's proposal should be rejected because "time has yet to tell" whether a variable power-density VMES system can operate within the same power-density limits applicable to other systems.[22] MTN is simply mistaken. Time already has told that variable power-density systems *can and do* operate within those limits; such systems have been employed in the aeronautical and maritime contexts both within and outside of the United States for years, using network management techniques that have ensured stable aggregate power-density levels. For example, ViaSat's ArcLight technology, which uses variable power-density control, has been employed since early 2003—including in U.S.-licensed systems operated by ViaSat, ARINC Inc. and KVH Industries, Inc.[23] This technology has been licensed for use on, and successfully deployed on, a variety of fixed-satellite service ("FSS") spacecraft, including a number of spacecraft with which the Commission is very familiar: AMC-15, AMC-21, GE-23, AMC-6, and NSS-7. *Over seven years of interference-free operations* more than demonstrates the operational "stability" of variable power-density control systems using CDMA technology, and obviates the need for a prophylactic, 20 percent reduction in power density and the corresponding capacity constraint.

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21 MTN Response at 6.

22 *Id.*

23 *See, e.g.*, IBFS File No. SES-LIC-20051028-01494 (ViaSat AMSS System); IBFS File No. SES-LIC-20030910-01261 (ARINC AMSS system); SES-LIC-20081104-01450 (KVH ESV system).

Moreover, MTN's anti-competitive position stands in direct opposition to the Commission's efforts to allow network operators to provide innovative and flexible mobile broadband solutions to consumers. MTN's "wait-and-see" approach would threaten to leave consumers without access to a competitive VMES broadband technology for years. There is no valid reason to adopt this approach where: (i) Commission policy, as established in the *VMES Order* and the National Broadband Plan, favors innovation and flexibility in the regulation of broadband technologies; (ii) there is no record evidence to suggest that variable power-density systems pose an interference risk, and historical experience in fact shows the stability of these systems; (iii) ViaSat has proposed that operators demonstrate in their applications that their particular variable power-density systems would not pose such a risk; and (iv) the ability of network operators to use variable power-density control would improve significantly their ability to provide cost-effective broadband service to the public.

The Commission should view MTN's objection for what it is—an effort to delay the ability of network operators to provide service using variable power-density control, thus harming their ability to provide innovative and flexible mobile broadband service to the public.[24] Notably, MTN is an incumbent provider of mobile satellite applications, and could face stiff competition from new entrants if the Commission accommodated ViaSat's proposal in establishing the rules that will govern the VMES industry in its formative years. This, coupled

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[24] While MTN suggests that the 1 dB reduction is of little import because "there is a mechanism in Section 25.226(a)(3)(ii) to enable VMES systems to employ off-axis ERIP [sic] spectral densities in excess of the levels in Section 25.226(a)(3)(i)," MTN Response at 6, this ignores the onerous, expensive, and time-consuming requirements that an operator must satisfy in order to exceed the Commission's "default" power-density limits (*e.g.*, completing coordination with all adjacent satellite operators, operating without ALSAT authority, operating within "default" antenna pointing limits, etc.). As such, complying with the cost and delay required by that rule is not an effective alternative to eliminating the unnecessary 1 dB power-density reduction requirement.

with MTN's failure to offer any meaningful, substantive opposition, or *any* discussion of the adverse impact of the 1 dB reduction on the ability of network operators to achieve the goals espoused in the National Broadband Plan, should cause the Commission to dismiss MTN's objection.

III. THE COMMISSION SHOULD CLARIFY ITS VMES ANTENNA POINTING RULES AS PROPOSED BY VIASAT WITHOUT DELAY

ViaSat's petition asks the Commission to clarify, with respect the antenna pointing limits applicable to VMES terminals, that: (i) the "default" 0.2 degree pointing tolerance level is a *peak* level;[25] (ii) the term "pointing error"[26] includes both deliberate and non-deliberate forms of mispointing; and (iii) VMES operators may vary simultaneously from both "default" pointing tolerances *and* the Commission's OAED mask, provided operations have been coordinated.[27]

While MTN does not oppose these clarifications, MTN does ask the Commission to "proceed with caution" so that accommodating this proposal does not result in inconsistencies in Commission rules.[28] As an initial matter, ViaSat seeks these clarifications in order to *cure* vagaries and internal inconsistencies in the existing rules—a point MTN does not dispute. The Commission should not hesitate to address *actual and documented* issues with its rules because of the *unsubstantiated possibility* that other issues *could* emerge as a result. In any event, ViaSat has faith that the Commission can implement the proposed clarifications in a manner that ensures consistency across its rules. In contrast, MTN's concerns are speculative, and easily addressed.

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[25] *See* 47 C.F.R. § 25.226(a)(1)(ii)(A).

[26] *See* 47 C.F.R. §§ 25.226(a)(1)(ii) and 25.226(a)(1)(iii).

[27] *See* ViaSat Petition at 14-24.

[28] *See* MTN Response at 7.

For example, while MTN notes that ViaSat did not specifically ask the Commission to make the same clarifications to Section 25.221 (governing C-band ESV operations) as it requested with respect to both Section 25.222 (governing Ku-band ESV operations) and Section 25.226 (governing VMES operations), the reason is simple. ViaSat did not address Section 25.221 because it does not have particular views on C-band ESV operations. The public comment process in rulemakings allows entities who have such views, such as MTN, to identify additional places where the Commission's rules could be conformed and made consistent. Moreoever, ViaSat has no doubt that the Commission will ensure that whatever changes it does adopt are implemented in a parallel manner. Certainly, ViaSat would not object to parallel clarifications being made to Section 25.221. After all, as MTN suggests, such clarifications simply would ensure uniformity in the Commission's rules.

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For the reasons set forth herein, ViaSat urges the Commission to grant ViaSat's petition for reconsideration in an expeditious manner.

Respectfully submitted,

ViaSat, Inc.

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CERTIFICATE OF SERVICE

I, Jarrett S. Taubman, an attorney at the law firm of Latham & Watkins LLP, hereby certify that on this 12th day of May, 2010, I served a copy of the foregoing Reply on the following, via first-class mail, postage prepaid:

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