

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	Call Sign E060335,
KVH Industries, Inc.	)	File No. SES-LIC-20060824-01502
Radio Station Authorizations for	)	
Earth Stations Onboard Vessels	)	Call Sign E070085,
	)	File No. SES-LIC-20070504-00563

To: The Commission

**PETITION FOR CLARIFICATION AND/OR RECONSIDERATION**

Pursuant to Sections 1.104(b) and 1.106(f) of the Commission’s Rules, 47 C.F.R. § 1.104(b) and § 1.106(f), KVH Industries, Inc. (“KVH”), by its counsel, respectfully petitions the Commission to clarify and/or reconsider certain aspects of the radio station authorizations granted in connection with the above-captioned earth station onboard vessels (“ESV”) applications. Clarification and/or reconsideration is sought to conform the licenses to the underlying applications, amendments and supporting technical information and make minor administrative changes. KVH respectfully requests that the radio station authorizations be reissued to reflect the changes described below.

**I. BACKGROUND**

On November 4, 2009, the International Bureau released its Public Notice (Report No. SES-01189) granting KVH two ESV licenses under Call Signs E060335 and E070085, File Nos. SES-LIC-20060824-01502 and SES-LIC-20070504-00563, respectively. Both licenses are effective November 2, 2009 for a term of 15 years until November 2, 2024. However, certain aspects of the licenses are inconsistent with the underlying license applications, amendments and supporting technical information. The requested changes are mainly administrative in nature, although one inadvertently

included operating condition would have a significant adverse impact on KVH's proposed ESV operations.

The administrative changes proposed for each radio station authorization are set forth separately below, and the erroneous operating condition (which was included in both authorizations) is addressed thereafter. The International Bureau staff has been advised of the inconsistencies and this petition is being filed to request formal consideration of these issues and avoid acceptance of the authorizations as conditioned under Provision 9659 of the licenses.

## **II. CALL SIGN E060335**

The following administrative changes are requested to the radio station authorization for Call Sign E060335:

- Section A): Include number of remote terminals (2,000) in the Site ID;
- Section C): Modify satellite orbital arc range as 125W-125W because there is only one satellite point of communication, AMC-21 at 125° W.L.; and
- Section D): Replace NSS-7 with AMC-21 at 125° W.L. as the authorized satellite point of communication.<sup>1</sup>

## **III. CALL SIGN E070085**

The following administrative changes are requested to the radio station authorization for Call Sign E070085:

- Section A): Consistent with Call Sign E060335, designate the Site ID as MMBESV2.
- Section B): Consistent with Call Sign E060335, designate the Associated Antenna as KVH7;
- Section C): Modify satellite orbital arc range to 105W-105W because there is only one satellite point of communication, AMC-15 at 105° W.L.;

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<sup>1</sup> A May 2009 amendment to the underlying license application for E060335 requested that AMC-21 be the sole authorized satellite point of communication. *See* File No. SES-AFS-20090515-00589, Exhibit A.

- Section D) 1): Modify station reference to “MMBESV2” to conform to the change requested for Section A; and
- Section E): Modify the Antenna ID to “KVH7” to conform to the change requested for Section B.

#### **IV. PROVISION 358**

Provision 358 in the licenses for Call Signs E060335 and E070085 limits KVH to seven (7) simultaneously transmitting antennas in the same satellite receiving beam. As discussed below, this limitation erroneously interprets technical information included in the underlying ESV applications and should be clarified or reconsidered. To the extent that the Commission seeks to include a specific numeric limitation on the maximum number of simultaneously transmitting terminals in the context of revising the authorizations, KVH proposes such a limitation herein.

The technical appendix filed as part of the underlying ESV applications analyzes the worst-case interference potential of the system, but the Commission appears to have inadvertently misinterpreted a portion of this analytical example as a hard limit on the number of simultaneously transmitting terminals under all operating conditions.<sup>2</sup>

Specifically, the technical appendix includes the following language in its link analysis:

CDMA Parameters: Spreading factor of 32 chips/bit. Carriers placed in two 512K “stacks” with 7 carriers in each stack. The system can accommodate up to 14 carriers, in various uplink G/T beam contours, which would operate with the same aggregate power density. The 7 carrier stacks corresponds to a worst case, same uplink beam contour,  $10\log(n) = 8.4$  dB, where  $n=7$ .

This language suggests that the maximum number of simultaneously transmitting terminals is 14 (in two interleaved stacks of 7), *if they are all operating at 512K with a*

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<sup>2</sup> See SES-LIC-20060824-01502, Exhibit A: Description of Service and Technical Analysis, at 10 (for E060335); SES-LIC-20070504-00563, Exhibit A: ESV Network using Carlsbad, CA Hub Technical Analysis, at 9 (for E070085).

*spreading factor of 32 chips/bit.* Although the language references “n=7” for each stack under such operating conditions, it does not limit the total number of simultaneously transmitting terminals in the same satellite beam to seven, nor does it suggest that terminals will operate only at the data and chipping rates described in the example.

Although KVH acknowledges that some confusion may exist with respect to the implications of the worst-case interference analysis in the technical appendix, this language was not intended and should not be interpreted to be a hard limit of seven simultaneous transmitters per satellite beam for several reasons. First, the language indicates that there would be two stacks of seven 512K carriers (14 terminals total).

Second, the 14-terminal limit applies only if all terminals are transmitting at a 512 kbps data rate. This will not always be the case. For example, terminals may transmit at 256K, thereby halving the off-axis EIRP spectral density and doubling the maximum number of terminals that may transmit simultaneously. Other data rates are also possible.

Finally, a separate portion of the application that addresses pointing accuracy analyzes the ESV networks’ interference potential using a population of 15 simultaneously transmitting terminals in the analysis.<sup>3</sup> Thus, the limitation of seven simultaneously transmitting terminals in the same satellite receive beam does not comport with the information included in other areas of the applications.

KVH respectfully requests that the Commission either: (i) clarify that the limitation of seven simultaneously transmitting terminals applies only in the worst case conditions described in the application (*i.e.*, to each of two stacks where all terminals are transmitting at 512 kbps); or (ii) reconsider the value and establish a maximum number of

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<sup>3</sup> See File Nos. SES-LIC-20060824-01502 and SES-LIC-20070504-00563, Exhibit B at 4.

simultaneously transmitting terminals (*i.e.*, a value for "N") using a more common, lower data rate.<sup>4</sup> In this connection, KVH submits that an appropriate value for "N" would be 112 terminals operating at a data rate of 64 kbps. This value is consistent with KVH's current operations, which have been conducted for many months pursuant to special temporary authority and without any reported case of interference.

## V. CONCLUSION

For all of these reasons, KVH respectfully requests that the Commission clarify or reconsider the provisions set forth in the radio station authorizations for Call Signs E060335 and E070085 as described herein.

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Respectfully submitted,  
KVH INDUSTRIES, INC.

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December 2, 2009

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<sup>4</sup> As noted previously, lower data rates and high chipping rates can be used with the same carrier without changing aggregate off-axis EIRP spectral density.