

November 20, 2008

**BY HAND DELIVERY**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

Re: KVH Industries, Inc., Application for Authority and STA Request To Operate  
Ku-band ESV Network (Call Sign E010236, File Nos. SES-LIC-20081104-01450  
and SES-STA-20081105-01449 )

Dear Ms. Dortch:

KVH Industries, Inc. ("KVH"), pursuant to Section 1.65 of the Commission's Rules, 47 C.F.R. § 1.65, hereby submits the enclosed Technical Operational Coordination Agreement for the Joint Usage of the Band 14.0– 4.5 GHz Between the National Science Foundation and Earth Stations Onboard Vessels (ESVs) Operated by KVH, Inc. ("Coordination Agreement"). On November 4, 2008, KVH filed the above-captioned application and request for special temporary authority ("STA") to operate a Ku-band ESV network. The enclosed Coordination Agreement, entered into pursuant to Section 25.222(e) of the Commission's rules, 47 C.F.R. § 25.222(e), governs the use of KVH ESVs operating in the Pacific Ocean region to ensure the protection of radio astronomy stations operations in the 14.47 – 14.5 GHz band.

Please feel free to contact me with any questions or if you require any additional information to facilitate expeditious action on the STA request and underlying application.

Respectfully submitted,



Carlos M. Nalda

Counsel to KVH Industries, Inc.

Enclosure

cc (w/ encl.): Scott Kotler



**TECHNICAL OPERATIONAL COORDINATION AGREEMENT  
FOR THE JOINT USAGE OF THE BAND 14.0 -14.5 GHz  
BETWEEN THE NATIONAL SCIENCE FOUNDATION  
AND EARTH STATIONS ONBOARD VESSELS (ESVS)  
OPERATED BY KVH INDUSTRIES, INC.**

Radio astronomy observations are conducted in the 14.47-14.5 GHz band in the USA at a number of radio astronomy sites. KVH Industries, Inc. ("KVH") desires to operate a network of in-motion earth stations onboard vessels ("ESVs") in Pacific Ocean region, which will operate in portions of the 14.0 to 14.5 GHz transmit and the 10.7 to 12.2 GHz receive band.<sup>1</sup> The present agreement is intended to facilitate operation of the KVH ESV network, without causing interference to Radio Astronomy stations.

**1. General Information**

- 1.1 The band 14.47 to 14.5 GHz is allocated to the radio astronomy service on a secondary basis. The band 14.0 -14.5 GHz is allocated in the United States to the Fixed-Satellite Service ("FSS") on a primary basis, and ESVs are considered an application of the FSS. Despite their respective allocation priority, KVH undertakes to fully protect radio astronomy service from interference.
- 1.2 KVH plans to file an application with the FCC to operate up to six hundred (600) technically identical transmit/receive ESVs to operate in the 10.7 - 12.2 and 14.0 - 14.5 GHz frequency bands.
- 1.3 This agreement document has been developed to govern the use of all KVH ESVs operating in the Pacific Ocean region to ensure the protection of radio astronomy stations operations in the 14.47 to 14.5 GHz band.
- 1.4 The Electromagnetic Spectrum Management Unit (ESMU) of the National Science Foundation ("NSF") has the authority to negotiate and sign this agreement for the radio astronomy site listed in Section 2, and KVH has the authority to negotiate and sign this agreement on behalf of itself.
- 1.5 This agreement constitutes coordination under 47 CFR 25.222(e).

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<sup>1</sup> ESV receive operations in the 10.7-11.7 GHz "extended" Ku-band are permissible but conducted on an unprotected basis.

## **2. NSF supported Radio Astronomy Observatories Covered by this Agreement**

Only the radio astronomy site at Mauna Kea, Hawaii (latitude 19° 48' 05" N, longitude 155° 27' 20" W) supported by NSF is included in this agreement. All other radio astronomy sites that utilize the 14.47 – 14.5 GHz band are sufficiently distant from KVH's planned Pacific Ocean region operational area so as to not require specific coordination to adequately protect these sites.

NSF shall give KVH no less than two (2) months advance notice of changes in the status of existing sites, or of any additional radio astronomy site being brought into use in the 14.47 - 14.5 GHz band. In case of any change to the protected sites, either party may reopen this agreement to address issues arising in connection with such change.

## **3. Technical Operational Coordination Agreement**

NSF and KVH agree to the following:

- 3.1 The purpose of this agreement is to provide protection to the radio astronomy site identified in Section 2 in the 14.47 - 14.5 GHz band during periods of radio astronomy observations to the following aggregate pfd levels within that band:  $-187 \text{ dB(W/m}^2\text{/Hz)}$ .
- 3.2 This agreement shall be reviewed on an annual basis by all parties signing this document beginning within one year after KVH has informed NSF of the start of service under an operational special temporary authorization or license. The purpose of this review is to assess the effectiveness of this agreement as well as to update as applicable this or successor operational coordination agreements.
- 3.3 Each party shall inform the other party in a timely manner of changes in the points of contact as defined in Section 5.

KVH agrees to:

- 3.4 Prevent transmissions from any ESV that would exceed the threshold given in Section 3.1 above. Based on KVH's technical parameters and Section 25.222(e) of the FCC's ESV rules, KVH will achieve this by ensuring that the ESV terminals will not operate within an exclusion zone of 125 km around the Mauna Kea, Hawaii radio astronomy site during radio astronomy observations.
- 3.5 Respond, as expeditiously as practicable, to an NSF request for protection in accordance with Section 3.4 for observations of special transient celestial objects (comets, supernovae, and other celestial objects of heretofore unknown type) that are not anticipated by the schedule of Section 3.6, and that may need to be accommodated on shorter notice. Requests for such observations are not expected to exceed 40 hours per calendar year.

NSF agrees to:

- 3.6 Maintain an observation schedule for the band 14.47 - 14.5 GHz for the site listed in Section 2 and make this schedule available upon request to the designated KVH point-of-contact listed in Section 5.2.
- 3.7 Provide, through NRAO, full access to KVH representatives to data on interference that may be collected during observations that fall within the scope of this agreement.

**4. Assignment and Termination**

- 4.1 This agreement shall be binding upon the parties hereto and their respective successors and assigns.
- 4.2 This agreement may be terminated by the written mutual agreement of the parties, upon 6 months notice.

**5. Points of Contact**

- 5.1 Points of contact concerning this agreement.

Name: Dr. Andrew W. Clegg	Name: Felise Feingold
Title: Program Director, ESMU	Title: Vice President and General Counsel
Organization: National Science Foundation	Organization: KVH Industries, Inc.
Address: 4201 Wilson Boulevard, Room 1045	Address: KVH Industries, Inc. 50 Enterprise Center
City State Zip: Arlington VA 22230	City State Zip: Middletown, RI 02842
Phone: (703) 292-4892	Phone: 1-401-845-8148
Fax: (703) 292-9034	Fax: 1-401-849-0045
E-mail: esm@nsf.gov	E-mail: ffeingold@kvh.com

- 5.2 Contacts concerning the notification of radio astronomy observation schedules:

Dr. Harvey Liszt	Name: Brian Arthur
Title: Spectrum Manager	Title: Vice President, Product Development
Organization: NRAO	Organization: KVH Industries, Inc.
Address: NRAO 520 Edgemont Road Charlottesville, VA 22903-2475	Address: KVH Industries, Inc. 50 Enterprise Center Middletown, RI 02842
Phone 434.296.0344	Phone 1-401-845-8153
Fax: 434.296.0278	Fax: 1-401-845-8116
E-mail: hliszt@nrao.edu	E-mail: barthur@kvh.com

**6. Signatures**

This Agreement is being made in good faith by both parties and is effective on the date on which the last party signs it. It may be executed in one or more counterparts, each of which will be deemed an original and all of which together will constitute one and the same instrument.

For the National Science Foundation

By:           *Dr. Andrew W. Clegg*          

Name: Dr. Andrew W. Clegg

Title: Program Director, ESMU

Date:           11/20/08          

For KVH Industries, Inc.

By:           *Felise Feingold*          

Name: Felise Feingold

Title: Vice President and General Counsel

Date:           11/13/08