



May 15, 2007

Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
9300 East Hampton Drive  
Capitol Heights, MD 20743

Attention: Satellite Division, International Bureau

**SUBJECT: Response to ViaSat Comments**  
**File No.: SES-LIC-20070322-00396**  
**Call Sign: E060390**  
**Comments of ViaSat, Inc., May 4, 2007**

The referenced filing was accepted for Public Notice on April 4, 2007. We will address the ViaSat comment herein. It is our position that the comment does not provide sufficient justification to halt the license grant. We request that the license be granted based on the substantial information already filed with the FCC.

#### **Background**

L3 has developed methods to protect adjacent satellite operations. These methods have taken several years to develop and refine and have been verified in laboratory and operational conditions. A conservative analysis has been performed and will continue to be used to protect adjacent satellite operations. Power Spectral Density (PSD) into the antenna shall be managed within the required FCC limits by limiting transmit power and/or utilizing spread spectrum modulation.

**“SES, Intelsat, and ITC acknowledge that the use of the L3 non-conforming antennas will not cause unacceptable interference into adjacent satellites in accordance with the FCC’s 2-degree spacing policy”**

L3’s development of this product has been incremental, conservative, and thorough. L3’s license application with the FCC follows this incremental approach and includes the following steps:

1. **Experimental License** – L3’s first experimental license was granted June 3, 2005. L3 have been performing development and verification testing of the earth station for almost two years. The development and verification activities have improved the product and have helped to achieve customer and satellite operator confidence.
2. **Single Station License** – This is the current license application. Since the use of small aperture, “non-compliant” antennae is not routine for the FCC, we chose to seek FCC confirmation of the EIRP spectral density, antenna performance attributes, and spread spectrum modulation techniques through a single station license. L3 has applications which involve from one to several earth stations and as such single station licenses are appropriate.

***iNTELLICOM Technologies, Inc.***  
PO Box 27056, San Diego, CA 92198  
Tel: (858) 486-1115, Email: [info@itccom.net](mailto:info@itccom.net)  
[www.itccom.net](http://www.itccom.net)



3. **Blanket VSAT License** – With FCC confirmation of the “non-compliant” antenna, L3 intends to file for the Blanket VSAT license at a later date. VSAT networks have been routinely licensed by the FCC and the attributes of the L3 network will be shown to comply with FCC rules. In this license application, we plan to address the network provisions which ensure that positive control of all VSAT earth stations can be maintained from the Hub (or Network Controller).

### Public Notice Comment

We have reviewed the comments filed by ViaSat and provide the following in response:

1. *“ViaSat is concerned about the potential for interference if this terminal were operated within an Network”*
  - a. The license application is for operation of a single earth station and not a Blanket VSAT network. It is not appropriate to dismiss this application for something that has not been requested.
  - b. We are more than happy to deal with the networking aspects in the planned Blanket VSAT license application.
2. *“1. The Application Does Not Provide A Technical Basis For Assessing The Interference Potential Of The Terminal If Operated Within A Network.”*
  - a. The license application is for operation of a single earth station and not a Blanket VSAT network. It is not justified to dismiss this application for something that has not been requested.
  - b. The application provides extensive technical information regarding antenna patterns, pointing angle analysis, modulation, maximum power spectral density relative to FCC 25.209, and corrections for relative rotation to the geostationary arc. This information is substantial for a single earth station. In fact **Intelsat and SES have provided a signed affidavit stating that they are in agreement with the operational practices.** Whether for a single earth station or a network, **the maximum power spectral density will not be exceeded.** Additional technical information on the network management techniques will not change the key performance metric which is the maximum EIRP spectral density.
  - c. Per the filed document 20060920M01V10pm\_Tech\_BRIEF.doc: “While spread spectrum is used as a method to reduce transmit power spectral density, it is NOT USED as a multiple access scheme”. Since CDMA is not used, the management of the EIRP spectral density of each station is sufficient.
    - A CDMA based network, such as ViaSat’s, requires additional reduction of  $10 \cdot \log(N)$  below a single carrier or station EIRP density, where N is the number of accesses. Our system does not require a reduction of this type.

***iNTELLICOM Technologies, Inc.***

PO Box 27056, San Diego, CA 92198  
Tel: (858) 486-1115, Email: [info@itccom.net](mailto:info@itccom.net)  
[www.itccom.net](http://www.itccom.net)



- d. *"L3 Titan accounts for the relative rotation of the antenna, but does not appear to allocate any excess gain for multiple access methods"*
    - L3's correction for relative rotation of the antenna demonstrates the attention to detail and the use of conservative engineering methods.
    - Margins for multiple access methods are appropriate for a CDMA network but are not relevant to our application.
  - e. *"ViaSat has used and tested the L-3 Datron antenna and raises no issue with respect to the antenna's performance" and "ViaSat's operations using this antenna employed a modem that had a spread spectrum waveform with a very low power density, which greatly reduces the potential for interference due to antenna mispointing"*
    - This is the approach that L3 has proposed. The Direct Sequence spreading factor is adjusted to ensure that the maximum EIRP density is not exceeded.
  - f. We are more than happy to deal with the networking aspects in the planned Blanket VSAT license application.
3. *"II. The Commission Should Apply The Same Locational Record Keeping Requirements That Apply To Earth Station On Vessels."*
- a. We are aware that the FCC is currently reviewing a requirement for network operators of mobile or "non-compliant" antennas to maintain records of the location. Should the FCC rule to require records for VSAT networks and/or for single earth stations, then the mechanisms specified by the FCC will be added to the system to ensure compliance.
  - b. The license application is for operation of a single earth station and not a blanket VSAT network. The location and activities of a single earth station are not typically required by the FCC.
4. The potential victim of interference is not represented by ViaSat but instead by the satellite operators. L3 has filed an affidavit with the license application signed by the satellite operators, **Intelsat** and **SES Americom**, stating that they are satisfied with the technology and operational methods planned. In addition, L3 has been registered for operation on **SES New Skies** Satellites. A signed affidavit of satellite operators provides credibility that operation of this earth station is acceptable with regards to interference.

***iNTELLICOM Technologies, Inc.***

PO Box 27056, San Diego, CA 92198  
Tel: (858) 486-1115, Email: [info@itccom.net](mailto:info@itccom.net)  
[www.itccom.net](http://www.itccom.net)



## Conclusions and Recommendations

L3 has been developing and verifying operation of this earth station for well over two years and has been developing satellite earth station antennas and modem equipment for over 20 years. The L3 earth station technology has been favorably critiqued by SES Americom, Intelsat, SES New Skies, FCC's Engineering and Technology branch, FCC's International branch, and numerous customers. An affidavit was provided by satellite operators supporting the operation of the earth station.

ViaSat's comments are not applicable to a single earth station. Comments regarding CDMA multiple access margins are not applicable since CDMA is not used. ViaSat's comments regarding testing of the earth station antenna confirm the use of the antenna and a spread spectrum waveform with a low power density, "which greatly reduces the potential for interference".

L3's product development has been incremental, conservative, and thorough. L3's license applications with the FCC follow this incremental approach. The single earth station license is requested by L3 for its continued verification and customer training and trials. L3 intends to file for a subsequent Blanket VSAT license. Technical information on the antenna performance and maximum EIRP density, which has already been filed with the FCC, should be ample to evaluate the interference impact on adjacent systems and has been confirmed by satellite operators.

We respectfully request that the FCC grant a license for a single earth station.

Regards,

A handwritten signature in black ink that reads "Paul Moller". The signature is fluid and cursive, with the first name "Paul" being larger and more prominent than the last name "Moller".

Paul Moller  
VP, Intellicom Technologies  
480-993-2220  
[PMoller@ITCcom.net](mailto:PMoller@ITCcom.net)  
[www.IntellicomTech.com](http://www.IntellicomTech.com)

cc:  
Elizabeth Park  
LATHAM & WATKINS LLP  
555 Eleventh Street, NW  
Suite 1000  
Washington, DC 20004-1304

***iNTELLICOM Technologies, Inc.***

PO Box 27056, San Diego, CA 92198  
Tel: (858) 486-1115, Email: [info@itccom.net](mailto:info@itccom.net)  
[www.itccom.net](http://www.itccom.net)



## Certificate of Service

I, Paul E. Moller, herby certify that on this 15<sup>th</sup> day of May, 2007, I served a true copy of the foregoing Response to ViaSat comments by commercial courier upon the following:

Elizabeth Park  
LATHAM & WATKINS LLP  
555 Eleventh Street, NW  
Suite 1000  
Washington, DC 20004-1304  
Direct Dial: (202) 637-1056  
Fax: (202) 637-2201  
Email: [elizabeth.park@lw.com](mailto:elizabeth.park@lw.com)  
[www.lw.com](http://www.lw.com)

A handwritten signature in black ink, appearing to read "Paul Moller", is written over a horizontal line.

Paul E. Moller

***iNTELLICOM Technologies, Inc.***

PO Box 27056, San Diego, CA 92198  
Tel: (858) 486-1115, Email: [info@itccom.net](mailto:info@itccom.net)  
[www.itccom.net](http://www.itccom.net)