

 **SES SATELLITES  
(GIBRALTAR) LIMITED**

6 March 2009

Federal Communications Commission  
International Bureau  
445 12<sup>th</sup> Street, S.W.  
Washington, DC 20554

Subject: Engineering Certification of SES Satellites (Gibraltar) Ltd.

To whom it may concern:

This letter certifies that SES Satellites (Gibraltar) Ltd, ("SES") is aware that SWE-DISH Satellite Communications, Inc. ("SWE-DISH") has petitioned the Federal Communications Commission ("FCC") for special temporary authority ("STA") to conduct tests of a stabilized, transmit/receive Satcom-on-the-Move ("SOTM") antenna using Ku-band fixed-satellite service frequencies on a non-conforming, non-interference basis for a period of six (6) months. Specifically, SWE-DISH has petitioned the FCC for STA to utilize the AMC-21 satellite at 125 degrees west longitude.<sup>1</sup>

SES understands that, as described in SWE-DISH's application, the transmit/receive antenna under test is a stabilized, vehicle-mounted antenna manufactured by SWE-DISH and SAAB AB ("SAAB"). The SWE-DISH SOTM antenna has a 98 cm diameter with a transmit gain of 41 dBi at 14.10 GHz and a receive gain of 40.4 dBi at 11.85 GHz. This antenna will operate with an rms pointing accuracy of +/- 0.14 degrees while uplinking to the target satellite.

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<sup>1</sup> The Commission's rules do not provide a framework for operation of an in-motion terminal in Ku-band spectrum allocated for fixed satellite services. However, Section 25.222 of the Commission's rules specifies the technical requirements for operation of earth stations on vessels (ESVs) in the Ku-band. Because operational issues for the SWE-DISH SOTM terminal under test are similar to those for ESVs, this application uses the performance standards and other rules applicable to ESVs as a reference in describing the operations of the SOTM terminal.

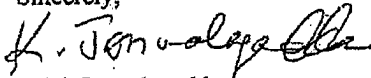
Measurements performed at a calibrated antenna range in Arboga, Sweden indicate the proposed antenna under test satisfies or is less than 1 dB short of satisfying the performance standards specified in Section 25.209(a) and (b) of the Commission's rules.<sup>2</sup> Additional measurements are planned to confirm compliance with Section 25.209 emission masks, and to enable SWE-DISH to generate detailed antenna patterns that demonstrate compliance with spectral density at the input of the antenna at the Commission's -14 dBW/4kHz limit in the 14.0-14.5 GHz band. For the purposes of the proposed STA, spectral density at the input to the antenna while under test will not exceed -15 dBW/4kHz.

Emissions from the antenna under test will automatically cease within 100 ms if the angle between the orbital location of AMC-21 and the axis of the main lobe of the uplink antenna exceeds 0.5 degrees and transmissions will not resume until such angle is equal to or less than 0.2 degrees. Moreover, in order to prevent any potential unacceptable interference from the antenna under test, experienced SWE-DISH staff will operate the terminal at all times.

SES acknowledges that the use of the above referenced transmit/receive antenna by SWE-DISH, installed and operated in accordance with the above conditions, is within the levels coordinated with the adjacent satellite operators and should not cause unacceptable interference into adjacent satellites operating in accordance with FCC's 2-degree spacing policy.

SWE-DISH has agreed that should operation of this antenna cause unacceptable interference into other systems, SWE-DISH will terminate transmissions immediately upon notice from the affected parties.

Sincerely,



Krish Jonnalagadda  
Manager, Spectrum Development  
SES Americom  
4 Research Way  
Princeton NJ 08540  
Tel: (609) 987 4194

Date: 6 March '09

<sup>2</sup> The antenna patterns from the initial tests show gain in one degree increments. The antenna patterns' resolution makes it difficult to confirm that the main lobe of the antenna satisfies 25.209(a) and (b) with regard to the  $29-25 \log_{10} \theta$  gain envelope between approximately -1.5 and -1.7 degrees. Subsequent tests are planned at a U.S. test range to generate higher resolution antenna patterns. For the purposes of this STA, limiting input to -15 dBW/4kHz will ensure the main lobe remains within the 25.209 emission mask.

Acceptance by SWE-DISH:

SWE-DISH testifies that the information provided to SES and reflected in this Affidavit letter is true and accurate to best of SWE-DISH's knowledge.

Mark Steel  
Senior VP of Engineering  
SWE-DISH Satellite Systems Inc

*3/9/09*  
Date

Acceptance by INTELSAT:

Intelsat agrees to operation of the above antenna provided it is conducted through the beam serving CONUS, Alaska and Hawaii, of AMC-21, with the technical parameters described herein with respect to Galaxy-18 at 123°W, Galaxy-13/Horizons-1 at 127°W, and Galaxy-27 at 129°W longitudes which have a nominal geocentric separation of two (2) degrees, two(2) degrees and four (4) degrees, respectively, from the AMC-21 at 125 degrees west longitude.

*Jose Albuquerque*  
Jose Albuquerque  
Senior Director, Spectrum Engineering  
INTELSAT

Date:  
*6 March 2009*