

EXPERIMENTAL STA APPLICATION PUBLIC INTEREST STATEMENT

Raysat Antenna Systems, LLC (“RAS”) hereby requests an experimental special temporary authorization (“STA”) to operate up to 100 Land Mobile-Satellite Service (“LMSS”) earth stations in the 14.0-14.5 GHz and 11.7-12.2 GHz frequency bands (collectively, the “Ku-band”). As discussed below, grant of the experimental STA would strongly serve the public interest by permitting already authorized LMSS operations to continue during the pendency of a related LMSS earth station application before the International Bureau.

I. INTRODUCTION AND BACKGROUND

RaySat, Inc. (“RaySat”), an affiliate of RAS, currently holds an experimental license to operate up to 100 LMSS remote terminals which expires on August 1, 2007 (*see* Call Sign WD2XTB). Pursuant to a prior business transaction, RaySat transferred to RAS, among other assets, the right to develop, market and deploy two-way, broadband LMSS equipment and services in the Ku-band. The principal rationale for this transaction was to establish RAS as a separate entity focused on marketing of two-way, broadband LMSS equipment and services to U.S. Government customers and enterprise users, which would permit RaySat to focus on receive-only applications (*e.g.*, satellite video) for consumer and other applications.

A blanket earth station application is currently pending before the International Bureau that will provide “regularized” authority for the proposed LMSS operations once granted.^{1/} Unfortunately, given the need to place an application amendment on public notice, it will not be possible for the International Bureau to grant the application or a separate STA prior to

^{1/} See RaySat, Inc., Application for Authority to Operate 4,000 In-Motion Mobile Satellite Antennas in the 14.0-14.5 GHz and 11.7-12.2 GHz Frequency Bands, File No. SES-LIC-20060629-01083, Call Sign E060101 (filed June 29, 2006); *see also* Application Amendment, Call Sign E060101, File No. SES-AMD-20070620-00839 (filed June 20, 2007).

expiration of experimental license Call Sign WD2XTB. Accordingly, RAS will need to obtain an experimental STA for a period of up to six months to maintain the existing experimental operations (demonstrations to US military and government users, limited market study, etc.) through the pendency of the International Bureau license application proceeding.

In the interest of administrative efficiency, the previous application information associated with Call Sign WD2XTB (File No. 0135-EX-ML-2005 and earlier file numbers) is hereby incorporated by reference. Only supplemental information and support for new experimental authority are provided in this STA request. To the extent the Commission requires additional information to grant RAS an experimental STA that includes authority previously granted to RaySat (*e.g.*, limited market study authority), RAS respectfully requests that it be permitted to supplement the record.

Significantly, RAS will operate the very same terminals previously authorized by experimental license Call Sign WD2XTB.^{2/} The technical aspects of the experimental operations will not change, but RAS is filing updated technical data and other materials that were submitted to the International Bureau in connection with the blanket license application. This new information, together with the information already associated with Call Sign WD2XTB, establishes that the ongoing LMSS operations will not cause harmful interference to adjacent satellite operators or other users of the spectrum.

II. SUPPLEMENTAL TECHNICAL MATERIALS

The materials upon which the Commission granted experimental license Call Sign WD2XTB demonstrate that there is no potential for harmful interference to adjacent satellites

^{2/} The name of the terminal has been changed from EagleRayTM to StealthRayTM.

from RAS's continued LMSS operations.^{3/} RAS is supplementing these materials with information filed with the International Bureau in connection with the pending LMSS blanket license application.

RAS submits as an attachment hereto detailed information regarding the off-axis EIRP levels of its LMSS earth stations (hereinafter referred to as "mobile terminals"). These figures and charts demonstrate that the off-axis EIRP produced by RAS LMSS transmissions, even if mispointed by 0.5° (when transmissions are automatically muted), are always below the levels produced by a compliant, perfectly pointed VSAT antenna. Thus, there is no potential for interference into adjacent Ku-band satellites.^{4/}

RAS also submits coordination agreements entered into with NASA to protect government space research facilities, and with the National Science Foundation to protect government radio astronomy sites. Thus, U.S. government users of certain Ku-band frequencies will be fully protected from RAS's experimental LMSS operations.^{5/}

In addition, this STA request includes an RF Hazard Assessment to demonstrate that it has examined RF safety issues and ensure that the LMSS terminals are operated in a manner that complies with the Commission's RF safety requirements.^{6/}

Also attached is an *ex parte* presentation from a recent meeting with the International Bureau that underscores certain aspects of the proposed LMSS operations and addresses issues

^{3/} See generally Call Sign WD2XTB, File No. 0135-EX-ML-2005 and earlier file numbers.

^{4/} See Attachment 1.

^{5/} See Attachment 2.

^{6/} See Attachment 3.

that arose in certain comments on the blanket license application.^{7/}

Finally, RAS submits the application amendment it filed on June 20, 2007 with the International Bureau that provides additional clarifying information regarding certain issues raised in the application proceeding. The principal issues addressed in the application amendment include: (i) use of multiple access schemes; (ii) initial satellite acquisition process; (iii) antenna tracking methodology; (iv) automatic muting of transmissions; and (v) control functions of hub earth stations versus individual users.^{8/}

These supplemental technical materials further demonstrate that, consistent with the prior experimental license granted to RaySat, RAS's LMSS operations can be conducted without causing harmful interference to adjacent satellite operators and U.S. government users of Ku-band spectrum.

III. OPERATING AUTHORITY UNDER THE EXPERIMENTAL STA

In addition to the requesting the same operating authority previously granted to RaySat under experimental license Call Sign WD2XTB (*e.g.*, limited market study authority), RAS requests that the geographic scope of the STA include all 50 U.S. states and that authority to provide services pursuant to government contract be included in the STA. Otherwise, RAS is fully prepared to accept the operating conditions included in the existing experimental license.

A. Geographic Scope

RAS seeks to operate LMSS mobile terminals on an experimental basis throughout the United States where the "skew angle" (the offset between the longest axis of the antenna and the

^{7/} See Attachment 4.

^{8/} See Attachment 5.

GSO arc) is below 50°. ^{9/} As demonstrated by the technical information submitted herewith, RAS mobile terminals operating at a skew angle of 50° or less produce no more off-axis EIRP than a compliant, perfectly pointed VSAT. RAS will not operate any remote terminals at skew angles greater than 50°. As a result, the Commission can authorize RAS LMSS operations throughout the United States without increasing the potential for interference to other users of the Ku-band.

B. Provision of Service Pursuant to Government Contract

Pursuant to Sections 5.3(b) and 5.63(b) of the Commission's Rules, RAS also requests an expansion of the prior experimental authority to encompass operations that will be conducted pursuant to government contract. RAS has a contract with DARPA (Contract No. N66001-07-C-0076) for integration and testing to demonstrate the performance of a new networking protocol in the LMSS context, a government subcontract with General Dynamics (Contract No. 200398C04) to evaluate the supply of mapping information and other data to emergency response vehicles via LMSS equipment, and has participated in numerous demonstrations to other critical government and military entities. These and other demonstrations may result in further testing and evaluation contracts with the U.S. government.

The Commission has authorized experimental operations in fulfillment of government contracts on countless occasions, necessarily finding that such experimental operations would serve the public interest. ^{10/} In this case, the public benefits resulting from the services provided under RAS's contracts are profound. The proposed experimental operations will afford

^{9/} Skew angle is simply a function of the geographic location of the mobile terminal and the orbit longitude of the serving satellite.

^{10/} See, e.g., Woods Hole Oceanographic Institution, Experimental Radio Station Construction Permit and License, Call Sign WA2XVB, File No. 6290-EX-PL-1998 (effective

U.S. government agencies and the U.S. military the ability to evaluate RAS's broadband LMSS systems and services, and to utilize these advanced communications services in the context of homeland security, public safety, military training and other critical U.S. government applications. The need for U.S. government access to such advanced land mobile communications services has never been clearer, particularly at this critical juncture in homeland security preparedness, disaster recovery and ongoing military operations overseas. Thus, authorizing RAS's experimental operations to provide critical communications services pursuant to a contract with the U.S. government plainly would serve the public interest.

IV. CONCLUSION

As demonstrated herein, grant of the requested experimental STA would strongly serve the public interest. Specifically, grant of the requested authority would permit RAS to continue already authorized LMSS operations during the pendency of a related earth station application and expand the range of mobile broadband services available to U.S. government users, without increasing the potential for interference to other users of Ku-band spectrum.

Dec. 21, 1998) (authorizing mobile satellite earth station operations required by National Science Foundation, an independent agency of the U.S. government, in "oceans worldwide"); AT&T Corp., Call Sign WA2XFW (1997) (new experiment to test point-to-point communications between ships at sea to fulfill U.S. Navy contract); Lockheed Martin Corp., Call Sign WA2XGJ (1997) (new experiment to support U.S. Army contract); Westinghouse Comm. Services, Inc., Call Sign KG2XLV (1995) (new experimental for fulfillment of U.S. Navy contract); The Boeing Company, Call Sign WC2XVE (2002) (modified experimental license to permit provision of aeronautical mobile-satellite services to government users pursuant to U.S. Air Force contract).