MINTZ LEVIN

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June 7, 2007

VIA HAND DELIVERY

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

Re: 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, Call Sign E060101, File No. SES-LIC-20060629-01083 - Notice of *Ex Parte* Presentation

Dear Ms. Dortch:

On June 6, 2007, representatives of RaySat, Inc. ("RaySat") met with members of the International Bureau to discuss issues raised in the above-captioned application proceeding.[1/] Participants in the meeting included David Gross, Ilan Kaplan and Robert Yip of RaySat; Carlos Nalda of Mintz Levin; Richard Barnett of Telecomm Strategies; and Scott Kotler, Howard Griboff, Stephen Duall and Hsing Liu of the International Bureau. The issues discussed in the meeting are reflected in the attached written presentation.

Pursuant to section 1.1206(b) of the Commission's rules, two copies of this submission are being filed with the Office of the Secretary. A copy is also being served electronically to the Commission staff listed below.

1/ This proceeding has been designated "permit-but-disclose" for purposes of the Commission's *ex parte* rules. *See* Public Notice, Report No. SES-00923 (May 2, 2007).

Please feel free to contact the undersigned with any questions regarding this submission.

Sincerely,

Carlos M. Nalda
Counsel to RaySat, Inc.

Attachment
cc (w/ att.): Scott Kotler
Howard Griboff
Stephen Duall
Hsing Liu

CERTIFICATE OF SERVICE

I, Christopher R. Bjornson, hereby certify that on this 7th day of June 2007, served a true copy of the foregoing "Notice of *Ex Parte* Presentation" by first class mail, postage pre-paid upon the following:

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Christopher R. Bjornson

Government & Military Satcom

Optimizing In-Motion Satellite Communication

ABOUT RAYSAT ANTENNA SYSTEMS:

RaySat Antenna Systems, L.L.C. (RAS) is a privately held U.S. based corporation that specializes in the development, marketing, sales and support of advanced, in-motion, two-way satellite communications systems. The company was formed from its parent company RaySat, Inc. in August, 2006.

RAS was founded to focus on satellite Communications-on-the-Move (COTM) solutions for key markets, including: the United States Department of Defense (DoD), government and commercial organizations with two-way satellite communications requirements.

RAS' parent company, RaySat, Inc., was established in 1997 and is a leading manufacturer and distributor of receive only, in-motion, low-profile, phased array satellite antennas for the commercial, railway, Original Equipment Manufacturer (OEM) and after-market automotive industries. These antennas allow vehicles to receive live satellite television while in motion. RaySat was also the first company in the industry to offer a low-cost, low-profile antenna solution for high-speed, two-way internet connectivity.

GOVERNMENT APPLICATIONS:

RAS understands the need to improve communications and make information readily available at all levels of government: federal, state & local. Today's requirements for dynamic rapid communications have never been more critical. From disaster relief and law enforcement to fighting terrorism within our borders, satellite communications continues to play a key role for decision making, planning and coordination.

RAS is positioned to provide satellite COTM solutions to all government agencies to help meet their goals of developing an on-the-move high-speed satellite link that is secure and independent of terrestrial infrastructure.

HOME LAND SECURITY (HLS):

The **StealthRay™** system is the perfect solution for providing broadband data, voice and video to those organizations that continuously keep our borders and waters safe from outside and domestic threats. This low-profile, in-motion broadband satellite antenna will enable HLS agencies to access and utilize information on the Homeland Security Information Network (HSIN). This network provides all states and major urban areas with the ability to collect and disseminate information between federal, state, and local agencies involved in combating terrorism. The **StealthRay™** will enhance this network by providing real-time information exchange while on-the-move thus increasing situational awareness nationwide when required.

MILITARY:

High-speed communications for moving vehicles is a necessary capability on today's battlefield. Other broadband on-the-move antenna solutions are expensive and significantly higher in profile, marking the vehicle as a high-value target and creating difficulties during air transport. The low-profile of the **StealthRay™** allows vehicles on the battlefield to access broadband information and applications. This capability provides continuous command and control and enhances situational awareness for commanders and their units globally.

PRODUCT DESCRIPTION:

RAS' **StealthRay™** is an innovative, low-profile (5.9"), two-way satellite system designed to provide communications for vehicles on-the-move. The StealthRay™ automatically searches for and acquires the designated satellite signal and maintains signal tracking through control of the azimuth, elevation and polarization angles while in motion.

8460-D Tyco Road, Vienna, VA 22182 ❖ www.raasys.com ❖ 800.561.9280 703-584-3770

SYSTEM COMPONENTS:

The StealthRay™ consists of a low-profile, vehicle roof-mounted array antenna connected to a controller and a satellite modem inside the vehicle.

The roof mounted antenna includes the BUC (Block Up Converter) and the LNB. The controller supplies the power to the antenna and controls the antenna movements.

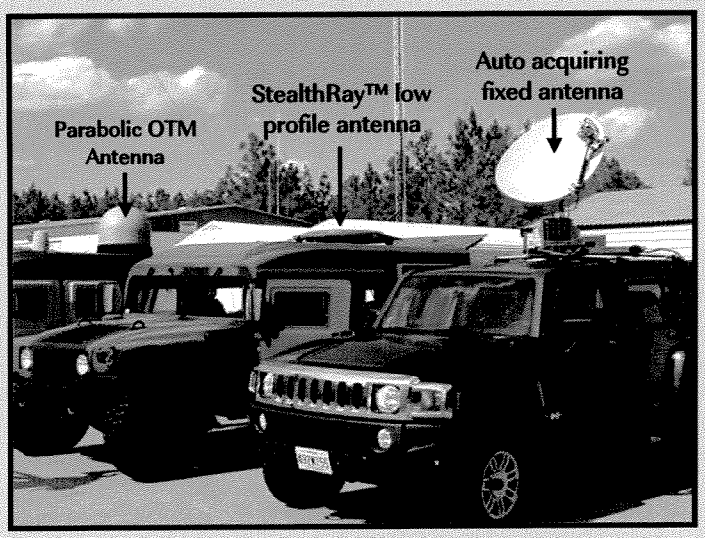
Additional networking equipment such as a router, WI-FI access point, as well as encryption systems are optional for creating a mobile, secure, in-motion hotspot.

MODEM COMPATABILITY:

The StealthRay™ system is **modem agnostic** and will support all RAS authorized SCPC satellite modems.

SYSTEM OPERATION:

- **No manual pointing is required**
  Using GPS signals to determine its location, the StealthRay™ automatically tracks and acquires the satellite using the internal gyros, inclinometer, and RSSI sampling.
- **On-the-move automatic re-peaking**
  Built-in gyros allow fast recovery from line-of-sight blockages. The antenna uses a hybrid mechanical and electrical scanning process to maintain pointing accuracy.
- **Adjacent satellite interference protection**
  In the event the antenna pointing is off by more than 0.5 degrees, the return link transmission is automatically muted until the pointing error is corrected by the antenna's sophisticated tracking system.



Antenna comparison performed at U.S. Army Battle Laboratories, Ft. Gordon, GA

CABLING:

The roof mounted antenna is connected with three cables to the controller and modem within the vehicle:

- Two RJ-58 cables using F-type connectors connect the antenna to the satellite modem (transmit signal and receive signal).
- One RJ-58 control cable using TNC connectors connects the antenna to the controller (for DC power and control data).

APPLICATIONS:

- High-speed com-on-the-move for military Command and Control vehicles
- Intelligence and reconnaissance
- Convoy protection and border patrolling
- Sense and respond logistics and other Combat Service Support
- Emergency response and disaster recovery communications for federal, state, and local governments
- High-speed communications for trains and other mass transit applications

Raysat Antenna Systems

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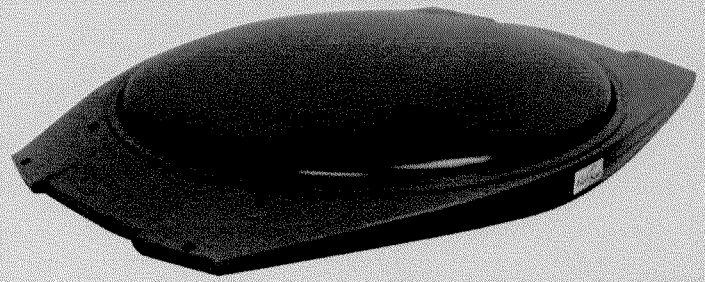
Raysat Antenna Systems



Meeting with FCC International Bureau

June 6, 2007

Meeting Agenda

- RaySat Background
- Regulatory Milestones
- Protection of Adjacent Satellites
- Comments on the Application
- Request for Waivers
- Effect of VMES Rulemaking
- Other Issues
- Conclusion

RaySat Background

- RaySat has developed an affordable low-profile, vehicle-mounted, mobile broadband earth station
  - Transmit operations in Ku-band LMSS spectrum (14.0-14.5 GHz) on a secondary basis
  - Receive operations in 11.7-12.2 GHz band on an unprotected, non-interference basis
- Main users are military and government entities
  - U.S. Military / National Guard
  - FBI, DOE and other agencies
- Other applications
  - Trains
  - News organizations

RaySat Background (cont'd)

- Deployment of RaySat's low-profile antenna (height < 6") is critical
- Significant benefits of a low-profile antenna
  - Force protection (low RCS, inconspicuous, etc.)
  - Vehicle accessibility (minimizes vehicle height)
  - Ease of installation and operation
  - Light weight, low power
  - Transportable/deployable in the field
  - Affordable

RaySat Background (cont'd)

RaySat's low-profile StealthRay antenna and larger, parabolic antennas

Raysat Antenna Systems

Regulatory Milestones

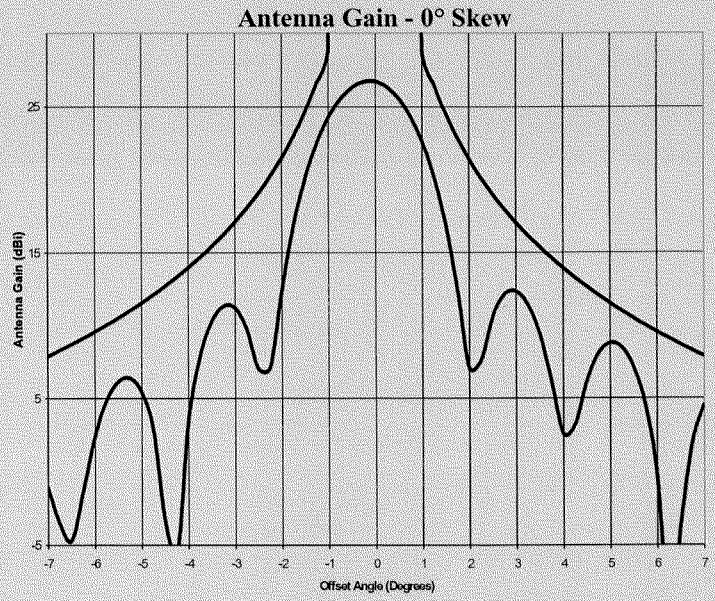
- Experimental Licensing
  - Experimental STA - March 2005 (WC9XCU)
  - Experimental STA - June 2005 (same)
  - Experimental License - August 2005 (WD2XTB, expires August 1, 2007)
  - Experimental modification to add Limited Market Study authority - January 2006 (same)
- International Bureau
  - LMSS blanket license application - filed March 2006 (pending)

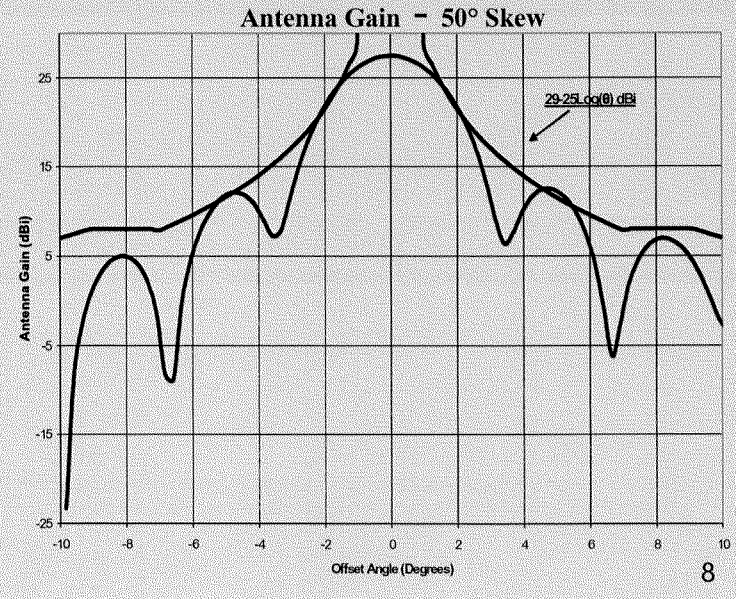
Protection of Adjacent Satellites

- RaySat fully protects primary FSS operations
  - Antenna characteristics and transmit power levels carefully designed to prevent harmful interference to adjacent satellites
  - Automated satellite acquisition and closed-loop tracking ensure off-axis EIRP along the GSO remains within prescribed levels
  - Cessation of emissions within 100ms if tracking error exceeds 0.5° precludes any possibility of harmful interference
- RaySat's operations have been fully coordinated by satellite operators
  - Seven proposed satellite points of communication coordinated with twenty satellites within +/- 6° of their orbital locations
- No instances of interference in more than two years of demonstrations and testing

Protection of Adjacent Satellites (cont'd)

- Antenna Tx panel is asymmetrical:
  23" in the horizontal plane
  3.25" in the vertical plane
- "Skew angle" is the offset between the longest axis of the antenna and the GSO arc
- Larger skew angles cause a larger contribution from the vertical component, thus broadening the antenna pattern
- 50° skew angle is the worst case expected for CONUS coverage





Raysat Antenna Systems

Protection of Adjacent Satellites (cont'd)

- Off-axis EIRP density levels may not exceed the following mask (resulting from maximum VSAT input power density of Section 25.134(a) into a Section 25.209(a) compliant antenna):

  $15 - 25\log(\theta)$dBW/4kHz for $1.25^o \leq \theta \leq 7.0^o$

  - 6dBW/4kHz for $7.0^o < \theta \leq 9.2^o$

  $18 - 25\log(\theta)$dBW/4kHz for $9.2^o < \theta \leq 48^o$

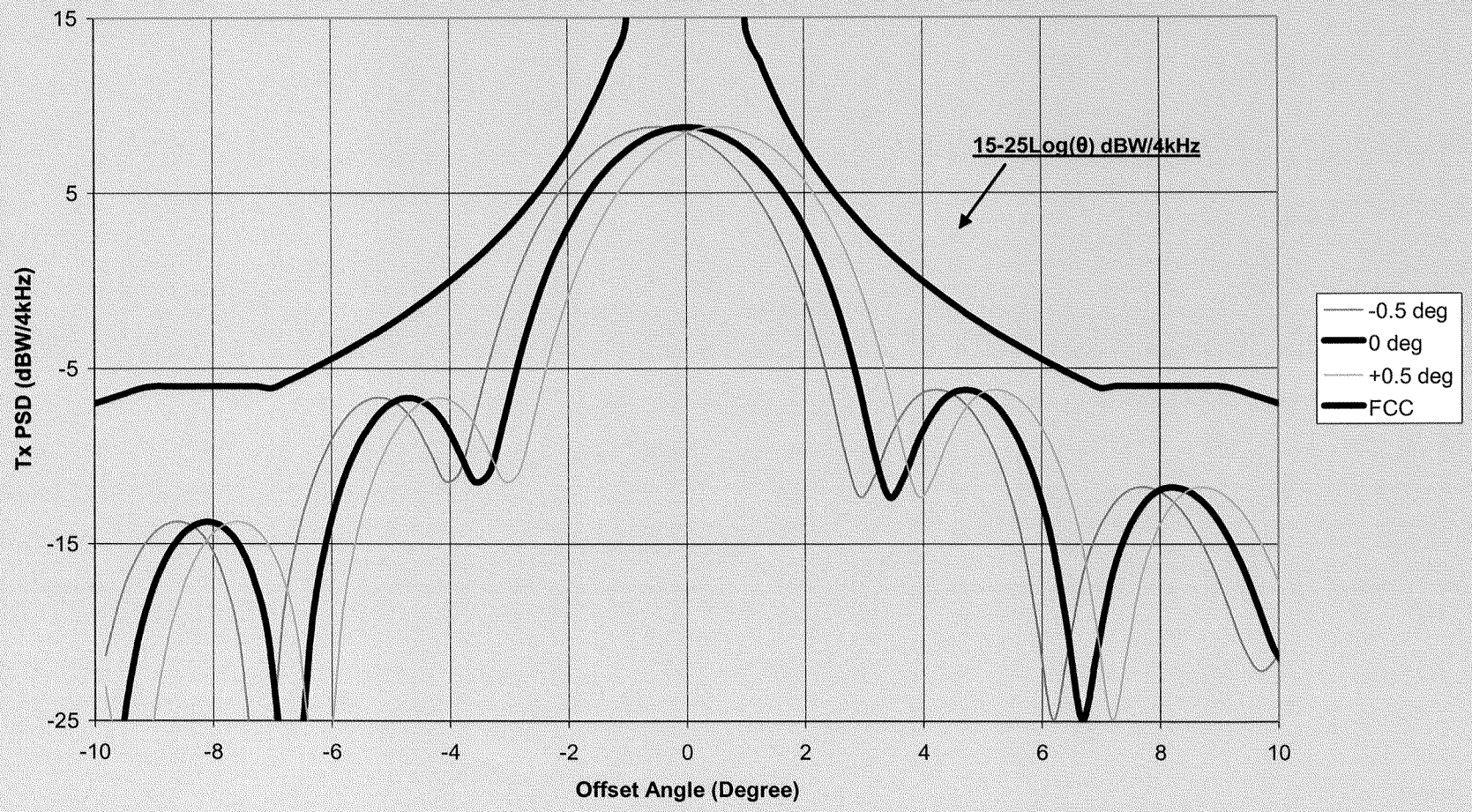
  - 24dBW/4kHz for $48^o < \theta \leq 180^o$

- RaySat antenna uses a maximum flange power density of -18.1 dBW/4kHz

- Off-axis EIRP density levels at 50^o skew angle confirm no possibility of harmful interference

Protection of Adjacent Satellites (cont'd)

Off-Axis EIRP Spectral Density at 50° Skew - 14.25 GHz (+/- 0.5° Pointing Error Shown)



Raysat Antenna Systems

Protection of Adjacent Satellites (cont'd)

- Fully automatic satellite acquisition and tracking -- no user action required
- Tracking Methodology
  - Closed-loop system tracks on downlink carrier
  - In the elevation plane, two tracking beams are generated
  - In the azimuth plane, dithering used to determine peak signal strength
  - Gyros determine satellite position and the antenna's angular position

	Azimuth Axis	Elevation Axis
Maximum Velocity	60 deg/s	72 deg/s
Maximum Acceleration	400 deg/s^2	>1,000 deg/s^2
Travel Range	360° continuous	20° – 70°

Comments on the RaySat Application

- Viasat filed comments raising three main issues:
  - Unspread signal without centralized NOC may cause interference
  - Pointing accuracy of the unspread signal may cause interference
  - Link budgets are not viable
- RaySat has fully responded to these issues:
  - Centralized network control is unnecessary
    - Unspread signal's off-axis EIRP density complies with FCC rules
    - RaySat's network, similar to VSAT networks, does not require a centralized NOC to ensure interference-free operation
    - All terminals controlled through sophisticated hub earth stations
  - Unlike other networks, RaySat takes pointing error into account and is always compliant with 2° spacing requirements (even when mispointed at 0.5°)
  - Supplemental link information and more than two years of operational experience confirm the service is robust

Request for Waivers

- RaySat requested waivers of 47 C.F.R. §25.209(a)(1) and (a)(2); also requested "catch all" waiver of other rules necessary for grant
- Waivers would strongly serve the public interest and would not undermine the purpose of the rules
  - Permits introduction and use of advanced LMSS antennas with no adverse interference consequences
  - Section 25.209(a)(1) waiver requested out of an abundance of caution
    - Non-conforming antennas permitted under Section 25.220(c)
    - Off-axis EIRP levels confirm no possibility of interference
    - RaySat's operations have been fully coordinated
    - Antenna gain and PSD patterns
  - Section 25.209(a)(2)
    - RaySat will coordinate with any future Ku-band NGSO service provider to ensure that there will be no harmful interference

Effect of VMES Rulemaking

- Secondary LMSS ≠ Primary VMES
  - LMSS must not cause harmful interference to and must accept interference from primary FSS operations
  - Constraints imposed through satellite operator coordination will ensure no harmful interference
- Consideration of the VMES NPRM should not delay or otherwise affect RaySat's application
- If RaySat seeks co-primary VMES status in the future, it will comply with rules adopted in the VMES proceeding or request appropriate waiver

Other Issues

- NASA and NSF Coordination
  - Coordination agreements completed and signed
  - Antennas will automatically mute transmission when located within exclusion zones
- Application Amendment
  - Change in applicant
  - Reduction in number of antennas
  - Additional technical information (as required)
- International Bureau Questions

Conclusion

- RaySat's proposed LMSS operations have been fully coordinated, will not cause harmful interference and should be authorized promptly
- The pending VMES proceeding should have no impact on FCC consideration of RaySat's LMSS application
- RaySat will provide any additional information necessary to facilitate expeditious grant of its application