0059-EX-ST-1998

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November 19, 1998

Federal Communications Commission
Experimental Radio Services
P.O. Box 358320
Pittsburgh, PA 15251-5320

need 11/20/98

? 3390-98

Re: Raytheon TI Systems, Inc.
Request for Renewal of Special Temporary Authority
Experimental Radio Service Station KS2XAR

To the Commission:

On behalf of Raytheon TI Systems, Inc., transmitted herewith is a request for renewal of the special temporary authority granted under Experimental Radio Service Station KS2XAR.

Also enclosed is a check for $45.00 to cover the filing fee (Fee Type Code "EAE"), along with a completed Form 159.

If you have questions, please call me at (202) 429-7058.

Respectfully submitted,

David E. Hilliard

David E. Hilliard
Counsel for
Raytheon TI Systems, Inc.

Enclosures

Raytheon TI Systems

6600 Chase Oaks Blvd.
Plano, Texas 75023

November 17, 1998

VIA OVERNIGHT DELIVERY
SENT THROUGH PITTSBURGH

Mr. James R. Burtle
Chief, Experimental Licensing Branch
Office of Engineering and
Technology
Federal Communications Commission
2000 M Street, NW, Suite 480
Washington, D.C. 20554

Care of:

Mellon Bank
Three Mellon Bank Center
525 William Penn Way
27th Floor, Room 15333-2713
Pittsburgh, PA 15259-0001
ATTN: Federal Communications Commission
Wholesale Lockbox Shift Supervisor

2790-98

Re: **Request for Renewal of Special Temporary Authority - Experimental Radio Service, Station KS2XAR, Raytheon TI Systems, Inc.**
Office of Engineering and Technology

Dear Mr. Burtle:

Pursuant to section 5.56 of the Commission's Rules, 47 C.F.R. §5.56 (1997), Raytheon TI Systems, Inc., requests that the special temporary authority granted May 20, 1998, under call sign KS2XAR for ground facilities on 29.650 GHz and an airborne mobile facility on 19.930 GHZ be renewed for up to 180 days. An application for an experimental license for these facilities was filed on March 20, 1998, and is shown in the Commission's records as file no. 6121-EX-PL-1998 with associated call sign WA2XRF. Raytheon TI Systems requests an extension in accordance with the parameters set forth below to test equipment now under development.

In accordance with the FCC's Fee Schedule (Fee Code EAE), a check for $45 is enclosed along with FCC Form 159.

In support of this request, the following is shown:

1) Applicant's Name and Address:

Raytheon TI Systems, Inc.
P.O. Box 405
MS 3425
Lewisville, TX 75067

2) Need for Special Action:

Special action is needed in order to meet testing deadlines. As noted above, an application for experimental authority is pending in order to provide long term authority to cover product development. The STA is needed in order to perform initial testing.

3) Type of Operation:

intermittent

4) Purpose of Operation:

The authority is needed to conduct testing of certain elements of a wideband high-speed data transmission system (antennas, terminals, components, etc.) for use in future low orbit earth satellites and stratospheric systems, and to determine such elements' applicability and characteristics in an operating environment.

5) Date of Operation:

11-20-98 to - 11-05-99

6) Class of Station:

experimental

7) Location of Proposed Operation:

The ground station is to be located at Raytheon TI facilities at Plano, Texas, 33-03-36-N, 96-41-47.5- W and McKinney, Texas, 33-12-59.8-N, 96-38-19.3- W. The aircraft station is to operate at altitudes of up to 65,000 feet. The primary area of operation is planned to be centered north of the ground station and is to operate with a 100 Nm radius of the coordinates for the ground station.

8) Equipment to be Used:

There will be one aircraft station and one ground station. Each will use custom fabricated transmitters and receivers. The ground station will utilize a parabolic antenna with a 1.2 meter diameter, a receive gain of 45.5 dBi, a half power beamwidth of .83 degrees, a transmit gain of 48.5 dBi and a half power beamwidth of 0.56 degrees. The G/T will be 22 dB/K. The airborne station will utilize a linearized parabolic antenna with a 12 inch diameter and a receive gain of 33.3 dBi, half power beamwidth of 3.3 degrees, a transmit gain of 36.7 dBi, and a half power beamwidth of 2.2 degrees. The G/T will be 2.1 dB/K and the EIRP will be 53.28 dBm.

The ground station will use a modification of an ACTS satellite terminal to provide wideband high-speed data to demonstrate and characterize switching and multiplexing, network interfaces, and video transmission. The airborne station will use a small gimbal stabilized parabolic antenna, amplifier, transceiver, and modulator/demodulator for high-speed digital signals.

9) Frequencies Desired:

29.650 GHz FX (i.e. the ground station)
19.930 GHz MO (i.e. the mobile station)

Note: Raytheon TI Systems has coordinated with NASA regarding the proposed experimentation. A copy of Raytheon TI's correspondence with NASA was submitted with the original STA request and is attached. The stations have been and will continue to be operated so as not to interfere with NASA's operations.

10) Radiated Power:

29.650 GHz: 78.5 dBm EIRP (43.3 MW (EMP))
19.930 GHz: 53.5 dBm EIRP (137 kW (EIRP))

11) Transmitter Power:

29.650 GHz: 30 dBm
19.930 GHz: 20 dBm

12) Type of Emission:

242M2F9X The modulation is D-QPSK.

13) Overall Height of Antenna Above Ground:

The fixed station will be on the roof of a building and will not extent more than 20 feet above the roof.

14) Anti-Drug Abuse Certification

In accordance with Section 1.2002 of the Commission's Rules, 47 C.F.R. § 1.2002 (1997),Raytheon TI Systems, Inc., hereby certifies that it, its officers and directors, and any party with a 5 percent or greater interest in this request for special temporary authority is not subject to a denial of the Federal benefits requested herein pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 853(a).

15) Environmental Statement

The proposed fixed station will simulate a satellite earth station. Note that the fixed station antenna will be located on the roof pointing away from the ground of a secure site to which access is strictly controlled and access by the general public is prohibited, thereby limiting access only to those who would be considered to be within a controlled area. The ladder providing access to the roof will incorporate an appropriate sign to the antenna so that personnel will not be likely to come in contact with the antenna or an area within which the permissible exposure limits could be exceeded. The airborne antenna will be mounted in such a manner that the controlled area guidelines are never exceeded in the aircraft.

Sincerely,

Bruce Snider
Department Manager,
Space Antennas
b-snider@ti.com

Attachment:

NASA coordination email correspondence