

Exhibit 1 to Form 442

Per Item 4 on the FCC document

Particulars of Operation:

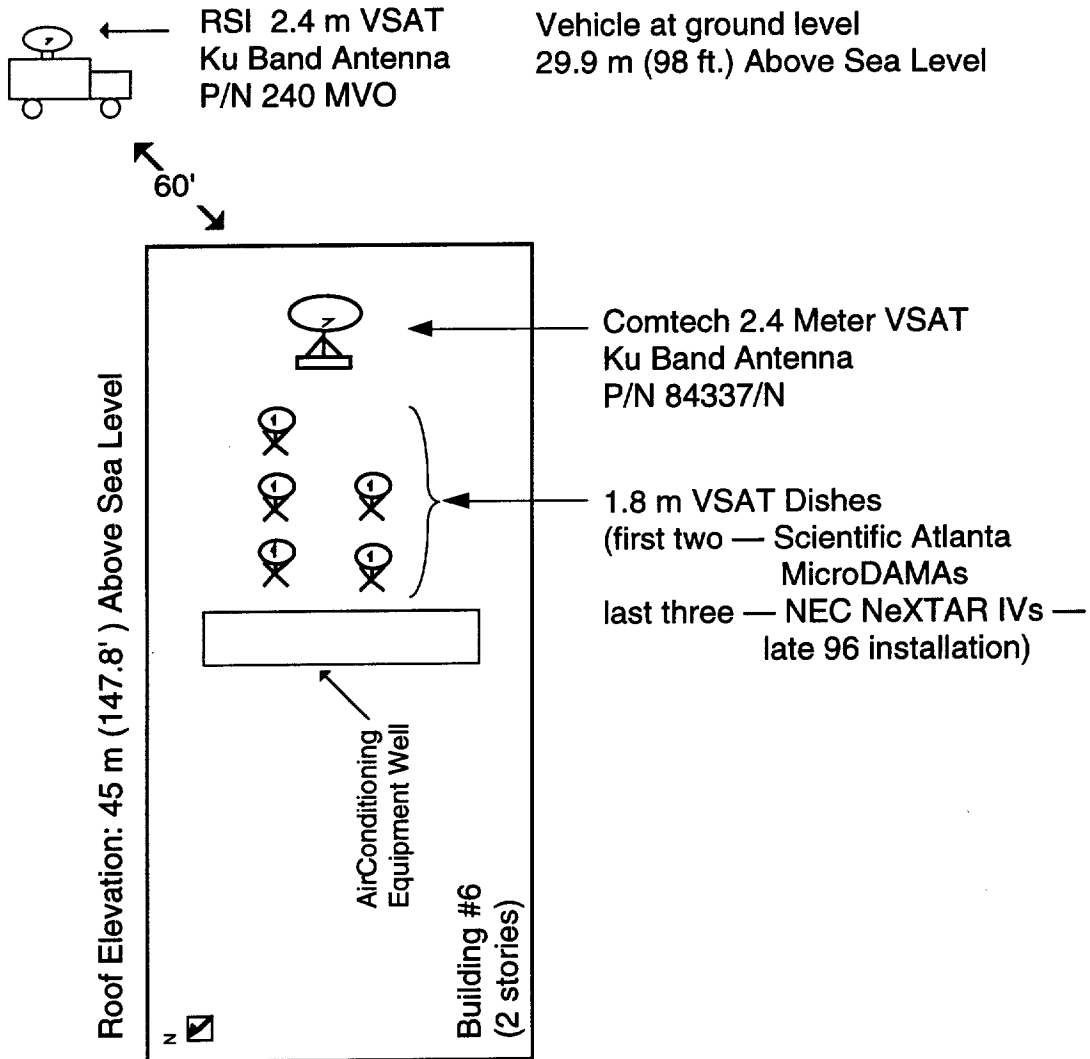
Frequency	Power			Emission	Modulating signal	Necessary Bandwidth (kHz)
(A)*	(B)*	(C)*	(D)*	(E)*	(F)*	(G)*
Base Antenna (Comtech)						
11,500-12,200 MHz †	N/A	N/A	N/A	Receive	- Same signal as below	
14,000-14500 MHz †	20 w	63.1 dBW <i>204 MW</i>	mean/mean	G1 or G7	- 500 kcps - 2000 kcps	1000 kHz 2000 kHz ‡
Mobile Ant. (RSI)						
11,500-12,200 MHz †	N/A	N/A	mean/mean	Receive	- Same signal as below	
14,000-14500 MHz †	20 w	62.8 dBW <i>1.905 MW</i>	mean/mean	G1 or G7	- 500 kcps - 2000 kcps	1000 kHz 2000 kHz ‡

† Exact frequency block to be determined when transponder lease negotiated. It will be two 5 MHz intervals, one within each of these bands.

‡ Bandwidth represents main lobe of unfiltered BPSK or QPSK waveform at the maximum transmitted chip rate of 2.0 Mcps; the leased frequencies will be a block with bandwidth rounded up to the next multiple of 5 MHz, since bandwidth on the transponder can only be leased in 5 MHz multiples. The waveform will be transmitted with a center frequency to keep the main lobes within that 5 MHz block.

* - See explanations given in the FCC form 442: "Application for new or modified radio station authorization under part 5 of FCC Rules-experimental radio service (other) than broadcast," section 4.

Antenna Layout



GTE Government Systems Corporation
Electronic Defense Division
Mountain View, CA

Figure 1: *Antenna Layout*

Exhibit 2 to Form 442

a) Description of the nature of the research project being conducted

Government Systems Corporation seeks operating authority for transmission and receiving equipment with two 2.4 m VSAT Ku-band antennas, one fixed and one mobile (though operated next to the building with the fixed antennas on the roof) and up to five 1.8 m VSAT fixed antennas, located at Mountain View, California, with a Ku-band transponder on Spacenet 3. The first two 1.8 m VSAT antennas will be operated as one network with the fixed 2.4 m VSAT as a hub, with the later addition of three more 1.8 m VSAT antennas as a second network, sharing the hub. The exact frequencies will be determined when the lease is negotiated and finalized. The system will be used in support of research and development of modern communication systems, signals (waveforms) and techniques. The waveforms will be direct sequence spread spectrum transmission of voice, digitized voice or pseudorandom data sequences for link performance measurements. The information data rate will be less than or equal to 19.2 kbps, which when BPSK modulated and spread by pseudorandom data sequence(s) will result in either BPSK or QPSK modulated channel symbols (chips) at chip rates between 500 Kcps and 2 Mcps. The testing will consist of a series of "loop-back" tests which will demonstrate and verify the performance of the communication ability of the waveform(s). The testing is expected to occur in short bursts of activity spread over six months starting as early as mid to late May 1996.

b) A showing that communications facilities requested are necessary for the project involved.

The tests are designed to show the performance of the test waveforms over satellite channels using 1.8 m as well as 2.4 m Ku-band VSAT antennas. Also, the use of a single 2.4 m antenna as a hub for one or more 1.8 m VSAT networks will be tested.

c) A showing that existing communications facilities are inadequate

New 2.4 m and 1.8 m VSAT antennas are required to provide the necessary networking facilities at Ku-band. As GTE believes the research indicated here is in the interest of the developing telecommunications art, particularly as an alternate for specialized Government satellite systems, it is in the interest of the Government to allow GTE to perform this test .

receive?

EXHIBIT 3 to Form 442

28-30 The contract number is MDA904-96-C-P103. GTE is currently leasing from GE Americom and using 1MHz of bandwidth on SPACENET3, transponder 19. Transmit freq. is 14029.5 GHz and receive is 11729.5 GHz. On Nov.1 of this year we will add a second MHz of leased space bringing us up to 2MHz total centered on 14029.0 transmit and 11729.0 receive. The customer is a member of DOD and the work being done is centered on testing commercial VSAT systems for possible future inclusion in larger GTE supplied DOD programs. 28-30