

Exhibit 1

Form 442- Item 4

Exhibit 1 - Addendum to item 4 - Particulars of Operation

Frequency MHz (A)	Power			Emission (E)	Modulating Signal (F)	Necessary Bandwidth (kHz) (G)
	(B)	(C)	(D)			
7900 - 8400 MHz	5 Watts	39 dBW	Peak	G1DA / G1BW	19.2k baud	23 kHz
"	"	"	"	G1DA / G1BW	9.6k baud	11.5 kHz
"	"	"	"	G1DA / G1BW / G1FC	4.8k baud	5.7 kHz
"	"	"	"	G1DA / G1BW	2.4k baud	2.8 kHz
"	"	"	"	G1DA / G1BW	1.2k baud	1.4 kHz
"	"	"	"	G1DA / G1BW	600 baud	1.2 kHz
"	"	"	"	G1DA / G1BW	300 baud	600 Hz
"	"	"	"	G1DA / G1BW	150 baud	300 Hz
"	"	"	"	X1DA	37.5 hop/sec 19.2k baud	1011 kHz

(A) Specific 500 kHz operating band within 7.9 to 8.4 GHz transmit band will be allocated by US Air Force during time of test. The transmitter will operate with one of the specified emissions types for the duration of a message packet.

(F)

G1DA / G1BW emission:

Selectable rate data modulation, B: 1.2k, 2.4k, 4.8k, 9.6k, 19.2k baud MSK modulation
(600 to 9.6k bit/sec data with rate-1/2 error correction encoding)
150, 300, 600 baud BPSK modulation
(75 to 300 bit/sec data with rate-1/2 error correction encoding)

150 to 19.2k baud modulation centered in a 90 kHz FDM channel used within 500 kHz bandwidth

150 to 4.8 baud modulation centered in a 15 kHz FDM channel used within 500 kHz bandwidth

G1DA used for automatic controls and will consist of data packets less than 600 bits.

G1BW used for operator initiated data transmissions and will consist of data packets less than 200k bits.

G1FC emission - digitally encoded voice (LPC-10 at 2400 bit/sec) with rate-1/2 error correction encoding
4.8k baud MSK modulation centered in a 15 kHz FDM channel used in 500 kHz bandwidth

X1DA emission - frequency hopped and direct spread modulation - 1 MHz hopping bandwidth
1.2 k hops/sec CW tone each hop (synchronization) followed by
37.5 hops/sec, 19.2 k chips/sec direct spread MSK of 75 bits/sec data

(G) For MSK: $B_n = B * 1.18$ (99% energy bandwidth), MSK selected for spectral confinement to minimize adjacent channel interference at highest baud rate within 500 kHz operating band.

For BPSK: $B_n = B * 2$ (null-to-null bandwidth)

For freq. hopping waveform: hopping bandwidth specified by government requirements to be 1 MHz plus an addition 1/2 of modulation bandwidth of the ($.5 * 19.2 \text{ k} * 1.18 = 11.3 \text{ kHz}$). The information rate is 75 bps that is overlaid with a direct spreading sequence generated at 19.2k bps.

Form 442- Item 4 Possible antenna orientations

(b) Orientation in horz plane (true bearing)	104°	110°	114°	117°	125°	150°	160°	243°	247°
(c) Orientation in vert plane (elevation)	4°	10°	14°	16°	23°	34°	36°	24°	13°

Form 440A - Item 6

The Air Force SHF Portable Terminal System (PTS) development program requires the development of a waveform, channel access protocol, and proof of concept radio systems for demand assignment multiple access half-duplex communications. The system will use a 500 kHz sub-band of SHF relay satellites such as DSCS II / III to support FDM operations. Part of the contract requires demonstration of the radio hardware and protocol performance at Air Force sites and under government auspices. The GE Camden location would be used to repair and, in conjunction with government site equipment, test single channel HDX portable terminals during the 3 month evaluation period and one year follow-on test support phase.