

EXHIBIT 1
United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE

EXPERIMENTAL
(Nature of Service)

XD MO
(Class of Station)

KO2XBZ
(Call Sign)

0016-EX-ML-1999
(File Number)

NAME LOCKHEED MARTIN CORPORATION

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.202(i) of the Commission's Rules

Station Locations

- (1) MOBILE: Syracuse, Onondaga County, NY, within 370 km, centered around NL 43-06-43; WL 76-11-18

Frequency Information

MOBILE: Syracuse, Onondaga County, NY, within 370 km, centered around NL 43-06-43; WL 76-11-18

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
<u>9200</u> 9400 10000 MHz	MO	25M0M1D	3800 W (ERP) <u>5000</u>	

Special Conditions:

- (1) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (2) The station identification requirements of Section 5.152 of the Commission's Rules are waived.

This authorization effective SEP 09, 1999 and
will expire 3:00 A.M. EST SEP 01, 2001

FEDERAL
COMMUNICATIONS
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Beacon**1.0 Introduction**

The Beacon mode for the KTX program is a new and separate radar mode. The radar is in a fixed PRF and it transmits a pulse at 9375 Mhz to excite the beacon. The beacon will respond at 9310 +/- 3 Mhz. The radar will receive that signal and put up a symbol on the display. The radar will process both channels, sum and guard, to avoid putting up a symbol if the beacon is triggered by a sidelobe. The radar will perform CFAR processing and the display will be a synthetic symbol. The instability on the beacon transmit frequency is wider than our IF bandwidth. To handle this instability, beacon mode will hop between two frequencies on a CPI by CPI basis between 9308.33 and 9312.5 MHz. On a pulse by pulse basis the COHO will tune to 9375 MHz for the transmit pulse and retune to one of the two receive frequencies. The Synchronizer will command the COHO to perform the frequency hopping by outputting the two beacon frequencies (transmit and receive) over the normal synchronizer/COHO interface twice per PRI. The SW will output both frequencies to the synchronizer via ports LO1RCVFREQ and LO1FREQ. The setting of the beacon bit in the radar timing and control register will enable this multiple output. The beacon mode includes some changes to the RSP/Synchronizer control for mode exit - the frequency synthesizer on the COHO needs a phony CPI to change out of beacon mode.

2.0 Normal Operation

The waveform, PRF, Tx gate will be commanded to the synchronizer in the normal manner. The Coho will go to the beacon transmit frequency for the duration of the transmit pulse, as set by the Tx gate. The receiver is tuned to the receive frequency (+/- 500 KHz) within 7 microseconds. This corresponds to a minimum range of 0.5 nm + the beacon delay time.

Some of the specifics are negotiable to some extent depending on implementation concerns. The overall beacon specifics are:

- BCN Characteristics:
- BCN Rx Freq.: 9375 MHz
- ✓ • BCN Tx Freq.: 9310 MHz.
- ✓ • BCN Pulse Length (BCN Tx): 0.35 +/- .05 microseconds
- BCN Delay: 1.0 +/- .05 microseconds
- BCN Sensitivity (including the antenna): -65 dBm
- BCN Bandwidth: 30-40 MHz
- BCN Antenna: Omni-directional, Vertically Polarized
- BCN Frequency Stability: 6.0 MHz
- ✓ • BCN Interrogation repetition Rate: 150-4000 Hz (899/Hz) NOMINAL
- BCN Output: 1, 2, or 3 pulses
- BCN Interrogation Pulse Length: 0.2 to 3.0 microseconds
- ✓ • BCN Transmit Power: 400 watts peak

0.1 W AVG.