Exhibit 3

ENVIRONMENTAL ASSESSMENT
FOR
EXPERIMENTAL LICENSE APPLICATION
(37.0-40.0 GHZ)

INTRODUCTION

This environmental assessment is provided in accordance with C.F.R. 47 Part 1.1307 for an experimental station installation to be operated by the Electronic Systems Division of Raytheon Company with a maximum EIRP of 55 dBw. Evaluation is provided for areas adjacent to the transmitting site where general population could be present and for the areas where only occupational personnel may be present. This assessment shows that the limits for maximum permissible exposure (MPE) of C.F.R. 47 Part 1.1310 are met for the general population with uncontrolled exposure and that the limits for occupational personnel with controlled exposures (5 mW/square cm) are met by the installation and operation of the station.

INSTALLATION

The experimental station is an extension of an existing effort for communication systems equipment development and will be located in a controlled access area. The experimental station will have a maximum EIRP of 55 dBw. The antennas to be used in association with this experimental license application will consist of both flat plate electronic array and parabolic dish reflector types of 0.3 meter to 0.5 meter diameters with gains ranging from 35 dB to 43 dB. The antenna will be mounted on a gimbaled supporting structure approximately 3 meters in height. The antenna will be capable of 360 degrees rotation in azimuth (horizontal plane) and 0 to 90 degrees in elevation (vertical plane). The site has controlled access and is monitored and controlled by system operators. The range to the areas where the general public may be present is greater than 155 meters with a negative deflection angel of approximately 11 degrees. The distance and the 11 degrees from the beam center eliminates any potential RF hazard to the general public outside of the controlled access building.

TRANSMITTER

The experimental transmitter has an output power of 1 to 15 watts and is collocated with the antenna with a feed loss of 1.5 dB. The modulation will be a composite consisting of one or more channels containing quantized or digital information, together with one or more channels. The modulation to be used during equipment development test will be QPSK, Offset QPSK. 8PSK, 16QAM and BPSK/QPSK direct sequence asynchronous modulation. The data rates will be up to 622 mbps with baud rates of up to 500 mega-baud in the 37.0 GHz to 40.0 GHz frequency range and occupy a bandwidth from less than 1 MHz up to 500 MHz during the development and test of the equipment.

ANTENNA

The antennas to be used with this experimental station will consist of either flat plate arrays or a parabolic dish reflector type of 0.3 meter to 0.5 meter diameter. The gain of these antennas will range from 35 dB to 43 dB and be mounted on a gimbaled supporting structure. The antenna will be capable of 360 degrees rotation in azimuth and 0 to 90 degrees in elevation.

CALCULATIONS

Maximum power density in front of the 0.5 meter antenna aperture with 15 watts input is calculated as follows.

$$S(surface) = 4P/A = 4P/\Pi R^2 = 4(15)/(\Pi \times 0.25^2) = 305.57 watts/meter^2$$

The range of the near field region is

$$R(nf\ @40GHz) = D^2/4\lambda = 0.5^2/(4 \times 0.0075) = 8.3 meters$$

The maximum near field on axis power density is

$$S(nf) = 16nP/\Pi D^2$$
$$S(nf) = (16 \times 0.6 \times 15)/(\Pi \times 0.5^2)$$
$$S(nf) = 183.34 watts/meter^2 .$$

The maximum near field off axis power density is

$$S(nf, offaxis) = 16n(P/100)/\Pi D^2$$
$$S(nf, offaxis) = \left(16 \times 0.6 \times (15/100)\right)/\left(\Pi \times 0.5^2\right)$$
$$S(nf, offaxis) = 1.83 watts/meter^2$$

Thus, the RF hazard need only be considered within the antenna main beamwidth.

The following calculations provide the minimum safe distance for occupational personnel assuming a worse case antenna elevation angle of zero degrees while operating at the maximum transmitter power of 15 watts (55DBw).

The distance to the beginning of the far field region at 30 GHz is

$$R(ff) = 0.6D^2/\lambda = \left(0.6 \times 0.5^2\right)/0.0075 = 20 meters$$

The transition region extends from $R(nf)$, the range of the near field region (8.3 meters) to $R(ff)$, the range of the beginning of the far field region (20 meters). The on axis power density in the transition region is given as

$$S(t) = S(nf)R(nf)/R(ff) = (183.34)(8.3)/20 = 76.1 watts/meter^2$$

Since this greater than the $50 watts/meter^2$ limit the far field region must be evaluated for the safe personnel distance from the front of the antenna for the case where the antenna is at low elevation angles, (main beam exposure conditions).

The power density decreases inversely as the square of the distance in the far field. Hence, the power density is given by

$$S(ff) = PG/4\Pi R^2 = (15)(21134.89)/4\Pi R^2 = 25227.94/R^2$$

the distance R which the limits for Occupational/Controlled Exposure (MPE) per OET Bulletin 65 of $50 watts/meter^2$ is met can be determined by solving the previous equation for the distance where this power density can be obtained. This is:

$$R(for 50 watts/m^2) = (25227.94/50)^{1/2} = 22.46 meters$$

CONCLUSIONS

It is extremely unlikely under normal circumstances for any person to be in any location where their exposure would exceed FCC guidelines since controlled access to the test site is maintained by the operating personnel. Signs will be posted at the entry to the area that a potential RF hazard could be present and other signs alert employees to be not closer than 25 meters in front of the antenna during test operations.

In addition, the limited access to the site, security monitoring of the access and coordination with the test personnel along with the warning signs ensures a safe operating environment for the installation.