BOOMER-II 800MHz OEM MODEM MODULE
RF EXPOSURE REQUIREMENTS

The Boomer-II OEM Modem Module falls under FCC requirements 2.1091 (d)(4) as a modular transmitter whereby its use in an integrated product is not easily determined beforehand.

The minimum RF exposure safety distance based on the MPE limits is given in section 1.1310, Table 1 as follows:

(B) Limits for General Population/Uncontrolled Exposure

300-1500 MHz F/1500

where F = Frequency in MHz

METHOD OF MEASUREMENT

Refer to FCC @ 1.1310, 2.1091 and Public Notice DA 00-705 (March 30, 2000)

In order to demonstrate compliance with MPE requirements (see Section 2.1091), the following information is typically needed:

(1) Calculation that estimates the minimum separation distance (20 cm or more) between an antenna and persons required to satisfy power density limits defined for free space.

(2) Antenna installation and device operating instructions for installers (professional/unskilled users), and the parties responsible for ensuring compliance with the RF exposure requirement

(3) Any caution statements and/or warning labels that are necessary in order to comply with the exposure limits

(4) Any other RF exposure related issues that may affect MPE compliance

Using the Equation from page 18 of OET Bulletin 65, Edition 97-01, the calculated power density at a certain distance is given by;

$$S = P G / 4 \pi r^2 = EIRP / 4 \pi r^2$$

where

S = Power density in mW/cm2
P = Power input into antenna in mW
G = numeric gain of antenna in dBi
EIRP = Effective (isotropic) radiated power
r = distance to centre of radiation in cm

Rearranging the above equation for the minimum safety distance:

$$r = \sqrt{(PG/4\pi S)}$$

TEST DATA

Using…

$$r = \sqrt{(PG/4\pi S)}$$

where

S = Power density = 806 MHz /1500 = 0.5373 mW/cm2
P = Power input into antenna = 33 dBm = $10^{(33/10)}$ = 1995 mW
G = numeric gain of antenna = 1dBi

This then gives r = 17.2 cm

EVALUATION OF RF EXPOSURE COMPLIANCE REQUIRMENTS

(1) A minimum separation distance of **20cm** will be specified in user documentation.

(2) Antenna installation and device operating instructions for installers (professional/unskilled users), and the parties responsible for ensuring compliance with the RF exposure requirement will be included in user documentation.

(3) Cautionary statements and/or warning labels that are necessary in order to comply with the exposure limits will be included in user documentation.

(4) A stipulation of a maximum average antenna gain of 1dBi will be specified in user documentation to ensure compliance with MPE limits.