# RF Exposures Evaluation

For Maximum Permissible Exposure (MPE) evaluation of the product, the maximum power density at 20 cm from this transmitter shall be less than the General Population / Uncontrolled MPE limit in OET Bulletin 65.

For the product of tested model of ISP17, the measured maximum power input to the antenna was 3.824dBm, and antenna gain is 0.5dBi.

And the maximum source-based time-averaging duty cycle ($T_{on}$/ ($T_{on}$+$T_{off}$)) is in the DH5 of GFSK modulation type.

From these data, the exposed power density at a distance (R) of 20cm from the center of radiation of the antenna can be calculated according to OET Bulletin 65 as follow:

The (EIRP) = P*G = 2.706mW

The (EIRP) source-based time-averaging output power
= 2.706*($T_{on}$/ ($T_{on}$+$T_{off}$))mW
< 2.706 mW, since ($T_{on}$/ ($T_{on}$+$T_{off}$)) < 1

The power density at 20 cm from the antenna
= EIRP / 4πR^2
< 0.00054 mW/cm^2

where: S = power density (in appropriate units, e.g. mW/$cm_2$)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

In the frequency range of 1,500 - 100,000MHz, the MPE limit is 1.0 mWcm-2 for general population and uncontrolled exposure. As the measured power density at 20cm from the transmitter is lower than the MPE limit, the compliance to the MPE limit can be ensured by indicating the minimum 20cm separation between the transmitter's radiating structures and body of the user or nearby persons.

The following RF exposure statement is proposed to be included in the user manual:

**“FCC RF Radiation Exposure Statement Caution: To maintain compliance with the FCC’s RF exposure guidelines, place the product at least 20cm from nearby persons.”**