

RF Exposure Evaluation

The EUT is a wireless device operating by 1.6 GHz Mobile-Satellite service and used in a mobile application, e.g. at least 20 cm from any body part of the user or nearby persons.

To satisfy RF exposure requirements the Power Density is calculated using the formula:

$$S = \frac{EIRP}{4\pi D^2}$$

Where: S is Power Density in W/m^2

$EIRP$ is equivalent isotropic radiated power.

$EIRP = P \times G$, where P is conducted Power, G is maximum numerical antenna gain.

D is the distance from the antenna in meters.

The maximum conducted Power is 1.43 W, maximum antenna gain is 5 dBi or 3.2.

$EIRP$ is calculated as 4.51 W.

At $D = 0.2$ m, $S = 8.97$ W/m^2 .

The MPE (Maximum Permissible Exposure) Limit for General Population/Uncontrolled Exposure can be found on the Table 1 in sec 1.1310 of the FCC Rules.

At frequencies 1.6 GHz $MPE = 10$ W/m^2 .

So, the calculated Power Density is below the limit, and RF Exposure is in compliance with FCC requirements at a distance of 20 cm.