MPE Calculation for Bluetooth FCC ID: QOQWT12

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
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

Maximum peak output power at the antenna terminal:	3,46	(dBm)
Maximum peak output power at the antenna terminal:	2,21819642	(mW)
Antenna gain(typical):	0,5	(dBi)
Maximum antenna gain:	1,122018454	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2450	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm^2)

Power density at prediction frequency: 0,000495 (mW/cm^2)

MPE Calculation for FCC ID: O9EQ2687 for 1900MHz band
based on conducted output power level and antenna gain described in
the original application's RF exposure exhibit for mobile exposure.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
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

Maximum peak output power at the antenna terminal:	30,00	(dBm)
Maximum peak output power at the antenna terminal:	1000	(mW)
Antenna gain(typical):	3	(dBi)
Maximum antenna gain:	1,995262315	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	1900	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1	(mW/cm^2)

Power density at prediction frequency: 0,396945 (mW/cm^2)

MPE Calculation for FCC ID: O9EQ2687 for 850MHz band
based on conducted output power level and antenna gain described in
the original application's RF exposure exhibit for mobile exposure.

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
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

Maximum peak output power at the antenna terminal:	32,50	(dBm)
Maximum peak output power at the antenna terminal:	1778,27941	(mW)
Antenna gain(typical):	1,4	(dBi)
Maximum antenna gain:	1,380384265	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	824,2	(MHz)
MPE limit for uncontrolled exposure at prediction frequency:	0,549467	(mW/cm^2)

Power density at prediction frequency: 0,488349 (mW/cm^2)

Bluetooth and GSM 1900 combined RF exposure MPE calculation

When all the antennas are at least 20cm away from the user, but individual antennas can not be separated by 20cm from each other.

$$\frac{0.000495\frac{mW}{cm^2}}{1.0\frac{mW}{cm^2}} + \frac{0.396945\frac{mW}{cm^2}}{1.0\frac{mW}{cm^2}} = 0.39744$$

$0.39744 < 1$

Therefore, the device complies with FCC's RF radiation exposure limit for general population for a mobile device.

Bluetooth and GSM 850 Combined RF Exposure MPE Calculation

When all the antennas are at least 20cm away from the user, but individual antennas can not be separated by 20cm from each other.

$$\frac{0.000495\frac{mW}{cm^2}}{1.0\frac{mW}{cm^2}}+\frac{0.488389\frac{mW}{cm^2}}{0.549467\frac{mW}{cm^2}}=0.889336$$

$0.889336 < 1$

Therefore, the device complies with FCC's RF radiation exposure limit for general population for a mobile device.