Maximum Public Exposure to RF (MPE) CFR 1.1310 (e) & RSS-102, clause 4

The maximum exposure level to the public from the EUT shall not exceed a power density, **S**, per the table below.

NOTE: The calculation performed for this EUT were performed for antenna with a maximum gain of 6 dBi, to determine the minimum distance required in order to remain compliant with the permissible exposure levels. If different antenna gain or distance is to be used, the permissible exposure levels of Table 1 below must be respected.

Table 1—Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Equation for S (Power density):

$S= P*G/(4\pi R^2)$

All calculations performed by:
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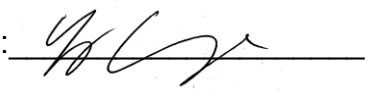
Signature: 

Therefore, for:

In the band of 150-174 MHz:

Peak Power (dBm)ERP= 30 dBm = 32.15 dBm (EIRP)
Peak Power (mW) = 1640 mW
Antenna Gain (dBi)= 6 dBi (3.98 numeric)
MPE limit (S) = 0.2 mW/cm^2

Minimum distance from human=

$R = \sqrt{(PG/(4\pi S))}, = \sqrt{(1640*3.98/(4\pi*0.2))} = 51$ cm

RSS-102, Clause 4 Exposure Compliance for 150.05-174.0 MHz:

According to RSS-102 Issue 5, Table 4, the limit for EUT operating in this band is 1.29 W/m^2. The FCC limit is much lower than this value therefore compliance with the FCC requirements for MPE at the calculated minimum distance will ensure compliance with the General Public Uncontrolled Environment of RSS-102.

In the band of 450-512 MHz:

Peak Power (dBm)ERP= 33 dBm = 35.15 dBm (EIRP)
Peak Power (mW) = 3273 mW
Antenna Gain (dBi)= 6 dBi (3.98 numeric)
MPE limit (S) = 0.32 mW/cm^2

Minimum distance from human=

$R = \sqrt{(PG/(4\pi S))}, = \sqrt{(3273*3.98/(4\pi*0.32))} = 57$ cm

RSS-102, Clause 4 Exposure Compliance for 450-470 MHz:

According to RSS-102 Issue 5, Table 4, the limit for EUT operating in this band is 5.648 W/m^2. The FCC limit is much lower than this value therefore compliance with the FCC requirements for MPE at the calculated minimum distance will ensure compliance with the General Public Uncontrolled Environment of RSS-102.

In the band of 763-775 MHz:

Peak Power (dBm)ERP= 33 dBm = 35.15 dBm (EIRP)
Peak Power (mW) = 3273 mW
Antenna Gain (dBi)= 6 dBi (3.98 numeric)
MPE limit (S) = 0.51 mW/cm^2

Minimum distance from human=

$R = \sqrt{(PG/(4\pi S))}, = \sqrt{(3273*3.98/(4\pi*0.51))} = 45$ cm

RSS-102, Clause 4 Exposure Compliance for 768-775 MHz:

According to RSS-102 Issue 5, Table 4, the limit for EUT operating in this band is 7.78 W/m^2. The FCC limit is much lower than this value therefore compliance with the FCC requirements for MPE at the calculated minimum distance will ensure compliance with the General Public Uncontrolled Environment of RSS-102.

In the band of 851-869 MHz:

Peak Power (dBm)ERP= 33 dBm = 35.15 dBm (EIRP)
Peak Power (mW) = 3273 mW
Antenna Gain (dBi)= 6 dBi (3.98 numeric)
MPE limit (S) = 0.57 mW/cm^2

Minimum distance from human=

$R = \sqrt{(PG/(4\pi S))}, = \sqrt{(3273*3.98/(4\pi*0.57))} = 43$ cm

RSS-102, Clause 4 Exposure Compliance for 851-869 MHz:

According to RSS-102 Issue 5, Table 4, the limit for EUT operating in this band is 8.40 W/m^2. The FCC limit is much lower than this value therefore compliance with the FCC requirements for MPE at the calculated minimum distance will ensure compliance with the General Public Uncontrolled Environment of RSS-102.

In the band of 929-941 MHz:

Peak Power (dBm)ERP= m33 dBm = 35.15 dBm (EIRP)
Peak Power (mW) = 3273 W
Antenna Gain (dBi)= 6 dBi (3.98 numeric)
MPE limit (S) = 0.67 mW/cm^2

Minimum distance from human=

$R = \sqrt{(PG/(4\pi S))}, = \sqrt{(3273*3.98/(4\pi*0.67))} = 39.4$ cm

RSS-102, Clause 4 Exposure Compliance for 929-930, and 931-940 MHz:

According to RSS-102 Issue 5, Table 4, the limit for EUT operating in this band is 8.89 W/m^2. The FCC limit is much lower than this value therefore compliance with the FCC requirements for MPE at the calculated minimum distance will ensure compliance with the General Public Uncontrolled Environment of RSS-102.