

FCC ID: RWB-0005922 IC: 23016-0005922

MPE Evaluation

Important Note: The output power was not intentionally increased from the original. Any deviations of the measured output power values from the values in the original grant of certification are within the laboratory measurement uncertainty as documented in Appendix C of the test report.

FCC

Maximum exposure limits from CFR 47, FCC Part 1.1310:

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)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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

Table 2 – Power Density Calculations, FCC

Occupational/Controlled	
General Population/uncontrolled	1

Transmitter	Frequency	Antenna Gain	Power Conducted	Power +10% for tolerance**	Power Density	Limit at specified distance
	MHz	numerical	mW	mW	mW/cm ²	mW/cm ²
1	902.6	0.32	64.48	70.93	0.0045	0.602
1	914.7	0.32	65.75	72.32	0.0046	0.610

Distance	20	cm
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Note: The user's manual will stipulate that a 20cm distance from the user is to be maintained.

*Antenna gain = -5.0 dBi = 0.32 numeric

EIRP values in mW were multiplied by 1.1 to account for a 10% tolerance in the conducted power

The power density is calculated as shown below:

$$S = (P \times G) / (4 \times \pi \times d^2) - \text{used to calculate exposure at 20 cm}$$

$$d = \sqrt{(S / (P \times G) \times 4 \times \pi)} - \text{used to calculate minimum distance to meet limits}$$

S= power density

P = transmitter conducted power (in mW)

G = antenna numeric gain

D = distance to radiation center (20 cm)

IC / ISED

Using RSS-102, Issue 5, Section 2.5.2

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{(0.6834)}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance). In these cases, the information contained in the RF exposure

Table 1 - Power Density Calculations, IC/ISED

Transmitter	Frequency	Antenna Gain	Power mW conducted	Power (EIRP) +10% for tolerance	Exemption Limit	Compliant
	MHz	Numerical	mW	mW	mW	
1	902.6	0.32	64.48	22.64	1371	YES
1	914.7	0.32	65.75	23.14	1384	YES

*Antenna gain = -5.0 dBi = 0.32 numeric