

RF Exposure Evaluation

LIMIT

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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 Exposures				
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
300–1500	-	-	f/300	6
1500–100,000	-	-	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
300–1500	-	-	f/1500	30
1500–100,000	-	-	1.0	30

Note: f = frequency in MHz

EVALUATION METHOD

Transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm², **P_{out}** = output power to antenna in mW, **G** = gain of antenna in linear scale;

P_i = 3.1416, **R** = distance between observation point and center of the radiator in cm

TEST RESULT

☒ **Passed**

☐ **Not Applicable**

Type	Fundamental (dBuV/m)	Conducted power (dBm)	Maximum Tune-up (dBm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
BT-BLE	93.54	-2.16	-2.00	0.00014	1.0000	Pass

Note:

- 1) The maximum antenna gain is 0.5dBi
- 2) The exposure evaluation safety distance is 20cm.
- 3) According to ANSI C63.10: $E [dB \mu V/m] = EIRP [dBm] + 95.2$, for $d = 3 m$.
 $EIRP [dBm] = \text{Conducted power}[dBm] + \text{Antenna gain}[dBi]$