

47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091
Maximum Permissible Exposure Calculations

For FCC ID: U4A-YRHCPMT1FM

EUT Device Category = General Population/Uncontrolled Exposure

MPE Summary:

According subpart 1.1307 (b)(1) and 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

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Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)	Averaging Time (Minutes)
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

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

Calculated Formulary:

Predication of MPE limit at a given distance

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

S = power density (in appropriate units, e.g. mW/cm²)

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

PG = EIRP

MPE and Limit are calculated for this device as follows:

BLE Transceiver Antenna Gain 2.05 dBi						
Freq	Conducted Power (dBm)	EIRP (dBm)	EIRP (mW)	Power Density at 20 cm (mW/cm ²)	Limit (mW/cm ²)	Margin (mW)
2402	-6.10	-4.05	0.394	0.00008	1.000	0.99992
2440	-5.90	-3.85	0.412	0.00008	1.000	0.99992
2480	-6.40	-4.35	0.367	0.00007	1.000	0.99993

Thread Transceiver Antenna Gain 2.05 dBi						
Freq	Conducted Power (dBm)	EIRP (dBm)	EIRP (mW)	Power Density at 20 cm (mW/cm ²)	Limit (mW/cm ²)	Margin (mW)
2405	12.9	14.95	31.261	0.00622	1.000	0.99378
2410	17.3	19.35	86.099	0.01713	1.000	0.98287
2440	17.1	19.15	82.224	0.01636	1.000	0.98364
2475	16.4	18.45	69.984	0.01392	1.000	0.98608
2480	3.2	5.25	3.350	0.00067	1.000	0.99933

Result: The device meets FCC MPE limit at 20 cm for General Population/Uncontrolled Exposure as specified in 47 CFR §1.1310 and §2.1091.