



MPE ESTIMATION

FCC ID: 2A12O-M135YB

Test Requirement

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: $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm², **Pout** = output power to antenna in mW, **G** = gain of antenna in linear scale;

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

Assessment Result

☒ Passed

☐ Not Applicable

BLE

Frequency (MHz)	Reading result(dB μ V/m)	PK Output Power (dBm)	Output Power(mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Result
GFSK 1M 2402	92.2	-3	0.5	0.001	1.0	Pass

Note: PK Output Power (dBm)= Reading result(dB μ V/m)-95.2

LTE 4G

Mode	Minimum Separation Distance (cm)	Maximum conducted power		Antenna Gain (Numeric)	Power Density At 20 cm (mW/cm ²)	Power Density Limit (mW/cm ²)	Test Results
		dBm	mW				
LTE Band 2	20.00	22.98	198.609	1.3335	0.052716	1.0000	PASS
LTE Band 4	20.00	22.87	193.642	1.5346	0.059149	1.0000	PASS
LTE Band 5	20.00	22.45	175.792	1.6982	0.059421	0.5498	PASS
LTE Band 12	20.00	22.65	184.077	1.4223	0.052112	0.4665	PASS
LTE Band 13	20.00	22.76	188.799	1.6406	0.061653	0.5197	PASS

Antenna Gain:LTE Band 2: 1.25dBi, LTE Band 4: 1.86dBi, LTE Band 5: 2.3dBi
LTE Band 12: 1.53dBi, LTE Band 13: 2.15dBi

Power Density / Power Density Limit

Power density / Power density Limit(max LTE) =0.061653/0.5197=0.1186

Power density / Power density Limit(BLE) =0.001/1=0.001
0.1186 +0.001=0.1196<1

So the Simultaneous transmission of the LTE and BLE conform the requirements