FCC MPE Evaluation (FCC ID: BYM1409)

RF Exposure Requirements: 47 CFR §1.1307(b)

RF Radiation Exposure Limits: 47 CFR §1.1310

RF Radiation Exposure Guidelines: FCC OST/OET Bulletin Number 65

EUT Frequency Band: 2402-2480MHz
5150-5825MHz

Equation:

According to the procedure in KDB447498 (v05r02) section 4.3,

1g-SAR testing is excluded if the following criteria is met.

(P/d)* √f ≤3.0 for 1-g SAR

10g-SAR testing is excluded if the following criteria is met.

(P/d)* √f ≤7.5 for 10-g SAR

Where

P is the time averaged maximum conducted power in mW

d minimum separation distance in mm

f is the frequency in GHz

The distance between the antenna and human body is 5 mm. The calculation was based on the distance of 5 mm.

Radio	Frequency (MHz)	Max Conducted Power (dBm)	Max Conducted Output Power (mW)	Maximum Source-based Duty Cycle (%)	Max source-based average output power (mW)	Measurement distance (mm)	Test Exclusion Threshold Result
BLE	2402-2480	7.105	5.135	100%	5.135	5	1.617
5GHz	5180-5240	22.18	165.196	2.17 %	3.585	5	1.641
5GHz	5260-5320	22.23	167.109	2.17 %	3.626	5	1.673
5GHz	5500-5720	22.14	163.682	2.17 %	3.552	5	1.699
5GHz	5745-5825	23.42	219.786	2.17 %	4.769	5	2.302

The above results show that the device is excluded for both standalone 1g-SAR and 10g-SAR testing.

Per KDB447498, section 4.3.2, b), the simultaneous transmission SAR test exclusion shall be considered.

The standalone SAR value is estimated as follows,

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]·[√f(GHz)/x] W/kg, for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR

For BLE, standalone 1g-SAR = (P/d)* (√f/7.5) = 0.216 w/kg

standalone 10g-SAR = (P/d)* (√f/18.75) = 0.086 w/kg

For 5GHz, standalone 1g-SAR = (P/d)* (√f/7.5) = 0.307 w/kg

standalone 10g-SAR = (P/d)* (√f/18.75) = 0.123 w/kg

So simultaneous 1g-SAR = 1g-SAR (BLE) + 1g-SAR (5GHz) = 0.523 w/kg < 1.6 W/kg

simultaneous 10g-SAR = 10g-SAR (BLE) + 10g-SAR (5GHz) = 0.209 w/kg < 4 W/kg

The above results show that the device is excluded for both simultaneous 1g-SAR and 10g-SAR testing.

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