RF EXPOSURE EVALUATION

According to FCC 1.1310 and KDB 447498 D01 V06, 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 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

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

MPE Calculation Method

E (V/m) = $\frac{\sqrt{30 * P * G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$Pd = \frac{30 * P * G}{377 * D^2}$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Measurement Result

BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm^2

Power density limited: 1mW/cm
Antenna Type: Chip Antenna
Antenna :4.3dBi
R=20cm
mW=10^(dBm/10)

Mode	Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result
			(dBm)		tune-up power		Gain		(mW/cm2)
					(dBm)	(mW)	(dBi)	Numeric	
BLE	2402	GFSK	3.59	3±1	4	2.512	4.30	2.69	0.0013
	2440		3.53	3±1	4	2.512	4.30	2.69	0.0013
	2480		3.2	3±1	4	2.512	4.30	2.69	0.0013
BLE 2M	2402	GFSK	3.69	3±1	4	2.512	4.30	2.69	0.0013
	2440		3.59	3±1	4	2.512	4.30	2.69	0.0013
	2480		3.23	3±1	4	2.512	4.30	2.69	0.0013

Conclusion:
For the max result : 0.0013≤ 1.0, SAR is not required.

Signature: **Date:** 2025-07-28

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