

### RF Exposure Evaluation

According to KDB447498D01 General RF Exposure Guidance v06 4.3.1. Standalone SAR test exclusion considerations Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	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 Friis Formula

Friis transmission formula:  $Pd = (Pout * G) / (4 * \pi * R^2)$  Where

Pd = power density in mW/cm<sup>2</sup>

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

Pd is the limit of MPE . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

Test Result of RF Exposure Evaluation

Antenna gain: 1.34dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance: 20cm

Measurement Data

The Max Conducted Peak Output Power data refer to report Report No.:POCE230803052BRW

## 1.1 EUT RF EXPOSURE

Operational Mode: BLE (GFSK worst case)						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dB)	Maximum tune-up Power		Calculated value (mW/cm <sup>2</sup> )	Exclusion threshold (mW/cm <sup>2</sup> )
			(dBm)	(mW)		
2402 MHZ	-1.56	-1.56±1	-0.56	0.879	0.000238	1.0
Conclusion: the calculated value $\leq 1.0$ , SAR is exempted.						

1)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (0.879 * 1.361) / (4 * 3.14159 * 20 * 20) = 0.000238$  ,  $G = 10 \text{ gain} / 10 = 1.361$