RF EXPOSURE EVALUATION

EUT Specification

EUT	WIRELESS SUBWOOFER SYSTEM
Frequency band (Operating)	☒WLAN: 2.403GHz ~ 2.475GHz ☐WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐WLAN: 5.745GHz ~ 5.825GHz ☐Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation) ☐Others ___
Antenna diversity	☒Single antenna ☐Multiple antennas ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Max. output power	79.29 dBuV/m (-15.97dBm)(0.0253mW)
Antenna gain	0dBi
Evaluation applied	☒MPE Evaluation ☐SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	**--**	**--**	**F/300**	**6**
1500-100000	**--**	**--**	**5**	**6**
(B) Limits for General Population/Uncontrol Exposures				
300-1500	**--**	**--**	**F/1500**	**6**
1500-100000	**--**	**--**	**1**	**30**

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

Where
Pd= Power density in mW/cm^2
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 the limit of MPE, 1mW/cm2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

For 2.4G TX

Channel Frequency (MHz)	Max Output power (dBuv/m)	Max Output power (dBm)	Max Output power (mW)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
2403	75.45	-19.81	0.0104	2.08e-6	1
2442	72.69	-22.57	0.0055	1.10e-6	1
2475	79.29	-15.97	0.0253	5.03e-6	1

$$E = EIRP - 20\log D + 104.8$$

where:

E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.

EIRP=E-104.8+20logD=**79.29**-104.8+20log3=**-15.97**dBm

According to KDB447498 D01 V06, no simultaneous SAR measurement is required.