

RF EXPOSURE EVALUATION

EUT Specification

EUT	ZEN Blue V2
Frequency band (Operating)	<input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Max. output power	-5.662dBm(0.27mW)
Antenna gain	3dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> 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)
300-1500	--	--	F/1500
1500-100000	--	--	1

Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

P_d = Power density in mW/cm^2

P_{out} = 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

P_d the limit of MPE, $1mW/cm^2$. 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

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Max Output power (mW)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
Test mode: GFSK					
Low	2402	-9.191	0.12	0.000048	1
Middle	2441	-10.140	0.10	0.000040	1
High	2480	-10.077	0.10	0.000040	1
Test mode: $\pi/4$ -DQPSK					
Low	2402	-6.207	0.24	0.000095	1
Middle	2441	-7.392	0.18	0.000071	1
High	2480	-7.304	0.19	0.000075	1
Test mode: 8DPSK					
Low	2402	-5.662	0.27	0.000107	1
Middle	2441	-6.848	0.21	0.000083	1
High	2480	-6.699	0.21	0.000083	1

According to KDB447498 D01 V06, Compliance with RF Exposure requirement.