

## RF EXPOSURE EVALUATION

### EUT Specification

<b>EUT</b>	WIFI+BT Module
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.320GHz <input type="checkbox"/> WLAN: 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input checked="" type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz) <input type="checkbox"/> Others(Zigbee: 2.405GHz ~ 2.480GHz)
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<b>Antenna diversity</b>	<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
<b>Max. output power</b>	19.97 dBm (99.31mW) for 2.4G WIFI 8.979 dBm (7.90mW) for BT
<b>Antenna gain</b>	-1.69 dBi
<b>Evaluation applied</b>	<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 <sup>2</sup> )
300-1500	--	--	F/1500
1500-100000	--	--	1

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

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,  $1mW/cm^2$ . 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

Only the worst case was recorded in the report.

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: BT (8DPSK)					
Low	2480	8.979	7.90	0.00107	1
Test mode: 2.4G WIFI (IEEE 802.11n(HT20))					
Low	2412	19.97	99.31	0.01339	1

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