

## RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 §1.1307(b)

FCC ID: 2ANEX-Q3

### EUT Specification

<b>EUT</b>	<b>MINI PC</b>
<b>Frequency band (Operating)</b>	<input checked="" 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 ~ 5825GHz <input checked="" type="checkbox"/> Others: 2.402GHz~2.480GHz (BT4.1)
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<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>	17.48dBm (0.0560W)
<b>Antenna gain (Max)</b>	2.0 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> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
<b>300-1500</b>	--	--	<b>F/300</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
<b>300-1500</b>	--	--	<b>F/1500</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>1</b>	<b>30</b>

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

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = 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<sup>2</sup>. 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

### WiFi+BT4.2

Operating Mode	Channel Frequency (MHz)	Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/ cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
802.11b	2412	15.11	15.11±1	16.11	2	0.0129	1
	2437	15.78	15.78±1	16.78	2	0.0150	1
	2462	17.48	17.48±1	18.48	2	0.0222	1
802.11g	2412	13.26	13.26±1	14.26	2	0.0084	1
	2437	16.37	16.37±1	17.37	2	0.0172	1
	2462	16.08	16.08±1	17.08	2	0.0161	1
802.11n (HT20)	2412	13.75	13.75±1	14.75	2	0.0094	1
	2437	16.24	16.24±1	17.24	2	0.0167	1
	2462	15.74	15.74±1	16.74	2	0.0149	1
802.11n (HT40)	2422	12.29	12.29±1	13.29	2	0.0067	1
	2437	15.15	15.15±1	16.15	2	0.0130	1
	2452	13.83	13.83±1	14.83	2	0.0096	1
BT4.1	2402	1.498	1.498±1	2.498	2	0.0006	1
	2441	1.898	1.898±1	2.898	2	0.0006	1
	2480	2.686	2.686±1	3.686	2	0.0007	1
	2402	1.199	1.199±1	2.199	2	0.0005	1
	2441	1.591	1.591±1	2.591	2	0.0006	1
	2480	2.037	2.037±1	3.037	2	0.0006	1