

## **FCC ID : 2AF3ULFX-GW1**

### **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)

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>

**11.1 Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$**

Where

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

$P_{out}$ =output power to antenna in mW

$G$ = Numeric gain of the antenna relative to isotropic antenna

$\pi$ =3.1416

R= distance between observation point and center of the radiator in cm

Pd the limit of MPE,  $1\text{mW/cm}^2$ . If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## 11.2 Measurement Result

### WIFI DTS

Channel Freq. (GHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
2.412	11b	16.61	$17 \pm 1$	18	1	0.0126	1
2.437	11b	16.17	$17 \pm 1$	18	1	0.0126	1
2.462	11b	16.25	$17 \pm 1$	18	1	0.0126	1
2.412	11g	14.47	$15 \pm 1$	16	1	0.0079	1
2.437	11g	14.44	$15 \pm 1$	16	1	0.0079	1
2.462	11g	14.78	$15 \pm 1$	16	1	0.0079	1
2.412	11n HT20	14.12	$15 \pm 1$	16	1	0.0079	1
2.437	11n HT20	14.31	$15 \pm 1$	16	1	0.0079	1
2.462	11n HT20	14.53	$15 \pm 1$	16	1	0.0079	1
2.422	11n HT40	12.17	$13 \pm 1$	14	1	0.0050	1
2.437	11n HT40	12.71	$13 \pm 1$	14	1	0.0050	1
2.452	11n HT40	12.92	$13 \pm 1$	14	1	0.0050	1

### ZigBee

Channel Freq. (GHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
2.480	QPSK	6.16	$6 \pm 1$	7	1	0.0010	1