

## FCC ID : SMQLX3EDAN

### 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>				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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

Where

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

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

G = 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,  $1\text{mW}/\text{cm}^2$ , 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.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

## 11.2 Measurement Result

ANT 1

Antenna gain: 4.72 dBi

modulation	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain Numeric	Evaluation result ( $\text{mW}/\text{cm}^2$ )	Power density Limits ( $\text{mW}/\text{cm}^2$ )
802.11b	2412	18.24	17 to 19	19	2.96	0.0468	1
	2437	18.10	17 to 19	19	2.96	0.0468	1
	2462	18.37	17 to 19	19	2.96	0.0468	1
802.11g	2412	19.49	18 to 20	20	2.96	0.0589	1
	2437	22.18	21 to 23	23	2.96	0.1175	1
	2462	19.27	18 to 20	20	2.96	0.0589	1
802.11n (HT20)	2412	19.70	18 to 20	20	2.96	0.0589	1
	2437	21.84	20 to 22	22	2.96	0.0933	1
	2462	19.35	18 to 20	20	2.96	0.0589	1

## ANT 2

Antenna gain: 4.62 dBi

modulation	Channel Freq. (MHz)	Measured 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> )
802.11b	2412	17.86	16 to 18	18	2.90	0.0364	1
	2437	18.17	17 to 19	19	2.90	0.0458	1
	2462	18.09	17 to 19	19	2.90	0.0458	1
802.11g	2412	15.89	14 to 16	16	2.90	0.0230	1
	2437	21.71	20 to 22	22	2.90	0.0914	1
	2462	16.30	15 to 17	17	2.90	0.0289	1
802.11n (HT20)	2412	16.41	15 to 17	17	2.90	0.0289	1
	2437	20.69	19 to 21	21	2.90	0.0726	1
	2462	16.36	15 to 17	17	2.90	0.0289	1

## MIMO

Antenna gain: 7.7 dBi

modulation	Channel Freq. (MHz)	Measured 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> )
802.11n (HT20)	2412	21.37	20 to 22	22	5.89	0.1857	1
	2437	24.31	23 to 25	25	5.89	0.3706	1
	2462	21.12	20 to 22	22	5.89	0.1857	1