MPE Calculations : (WLAN: 802.11b)

- Frequency range :   2412   MHz ~   2462   MHz
- Measured RF output power : 17.93 dBm
- Target Power & Tolerance :   17.00 dBm **±**   1   dB (Max.   18   dBm & Min.   16   dBm)
- Maximum antenna peak gain :   2.46   dBi

- **Maximum output power for the calculation :   18.00   dBm**

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the

The MPE calculation for this exposure is shown below.

▪ **EIRP** = P + G	**- Note**
= 18.00 dBm + 2.46 dBi	P = Power input to the antenna(dBm)
= **20.46 dBm** **=** **111.174 mW**	G = Power gain of the antenna(dBi)

- **Power density at the specific separation**

▪ **S** = EIRP / (4 $R^2 \pi$)	**- Note**
= **111.174** / (4 X 20^2 X π)	S = Maximum power dencity(mW/cm^2)
= **0.022118** mW/cm^2	EIRP = Equivalent Isotropic Radiated Power(mW)
	R = Distance to the center of the radiation of
	the antenna(20cm)

Conclusion : **The exposure condition of this device is compliant with FCC rules.**

The maximum permissible exposure(MPE) of the general population/Uncontrolled for this device is 1.0 mW/cm^2.

MPE Calculations : (WLAN: 802.11g)

- Frequency range :   2412   MHz ~   2462   MHz
- Measured RF output power : 21.08   dBm
- Target Power & Tolerance :   20.50   dBm **±**   1   dB (Max.   21.5   dBm & Min.   19.5   dBm)
- Maximum antenna peak gain :   2.46   dBi

- **Maximum output power for the calculation :   21.50   dBm**

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the

The MPE calculation for this exposure is shown below.

▪ **EIRP** = P + G	**- Note**
= 21.50 dBm + 2.46 dBi	P = Power input to the antenna(dBm)
= **23.96** **dBm** = **248.886** **mW**	G = Power gain of the antenna(dBi)

- **Power density at the specific separation**

▪ **S** = EIRP / (4 $R^2 \pi$)	**- Note**
= **248.886** / (4 X 20^2 X π)	S = Maximum power dencity(mW/cm^2)
= **0.049515** mW/cm^2	EIRP = Equivalent Isotropic Radiated Power(mW)
	R = Distance to the center of the radiation of
	the antenna(20cm)

Conclusion : The exposure condition of this device is compliant with FCC rules.

The maximum permissible exposure(MPE) of the general population/Uncontrolled for this device is 1.0 mW/cm^2.

MPE Calculations : (WLAN: 802.11n HT20)

- Frequency range :   2412   MHz   ~   2462   MHz
- Measured RF output power : 21.51   dBm
- Target Power & Tolerance :   21.00   dBm   **±**   1   dB   (Max.   22   dBm   &   Min.   20   dBm)
- Maximum antenna peak gain :   2.46   dBi

- **Maximum output power for the calculation :   22.00   dBm**

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the

The MPE calculation for this exposure is shown below.

▪ EIRP = P + G	**- Note**
= 22.00 dBm + 2.46 dBi	P = Power input to the antenna(dBm)
= **24.46 dBm** = **279.255 mW**	G = Power gain of the antenna(dBi)

- **Power density at the specific separation**

▪ S = EIRP / (4 $R^2 \pi$)	**- Note**
= **279.255** / (4 X 20^2 X π)	S = Maximum power dencity(mW/cm^2)
= **0.055557** mW/cm^2	EIRP = Equivalent Isotropic Radiated Power(mW)
	R = Distance to the center of the radiation of
	the antenna(20cm)

Conclusion : The exposure condition of this device is compliant with FCC rules.

The maximum permissible exposure(MPE) of the general population/Uncontrolled for this device is 1.0 mW/cm^2.

MPE Calculations : (Bluetooth)

- Frequency range : $\quad$ 2402 $\quad$ MHz $\quad$ ~ $\quad$ 2480 $\quad$ MHz
- Measured RF output power : 3.85 $\quad$ dBm
- Target Power & Tolerance : $\quad$ 3.00 $\quad$ dBm $\quad \pm \quad$ 1 $\quad$ dB (Max. $\quad$ 4 $\quad$ dBm & Min. $\quad$ 2 $\quad$ dBm)
- Maximum antenna peak gain : $\quad$ 0.77 $\quad$ dBi

- **Maximum output power for the calculation : $\quad$ 4.00 $\quad$ dBm**

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the

The MPE calculation for this exposure is shown below.

▪ EIRP = P + G	**- Note**
$\quad$ = 4.00 dBm + 0.77 dBi	P = Power input to the antenna(dBm)
$\quad$ = **4.77 dBm** = **3 mW**	G = Power gain of the antenna(dBi)

- **Power density at the specific separation**

▪ S = EIRP / (4 $R^2 \pi$)	**- Note**
$\quad$ = **3.000** / (4 X 20^2 X π)	S = Maximum power dencity(mW/cm^2)
$\quad$ = **0.000597** mW/cm^2	EIRP = Equivalent Isotropic Radiated Power(mW)
	R = Distance to the center of the radiation of
	$\quad$ the antenna(20cm)

Conclusion : The exposure condition of this device is compliant with FCC rules.

The maximum permissible exposure(MPE) of the general population/Uncontrolled for this device is 1.0 mW/cm^2.

RF Exposure Compliance for simultaneous operations

▪ **Configurations for simultaneous operations**

  - **Configuration 1:** 2.4GHz WLAN + Bluetooth

▪ **Result**

RF function	802.11b	802.11g	802.11n (HT20)	BT	Total Power Density (mW/cm^2)
MODE	2.4GHz	2.4GHz	2.4GHz	2.4GHz	
Power Density (mW/cm^2)	0.022118	0.049515	**0.055557**	**0.000597**	
Configuration 1			**O** **0.055557**	**O** **0.000597**	**0.056154**

Note 1: The maximum power density in each RF function was used for above table.