

Maximum Permissive Exposure

FCC ID: ODI2012DTV001
 Product Name: WiFi Module
 Model No: DTV001

1. According to FCC CFR 47 §1.1310, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b).

Table 1 Limits for Maximum Permissible Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits For Occupational / Control Exposures (f = frequency)				
30-300	61.4	0.163	1.0	6
300-1500	...	...	f/300	6
1500-100,000	...	...	5.0	6
(B) Limits For General Population / Uncontrolled Exposure (f = frequency)				
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

2. Transmitters' Parameter

Antenna Gain:

Antenna	Total pw	Max (dBi)	Min (dBi)	Average
1 (1.9Hz)	1850	0.94	-10.36	-1.97
	1990	2.68	-5.87	-0.14
2 (2.4GHz)	2400	2.74	-6.17	-1.02
	2500	2.81	-6.44	-0.29
3 (2.4GHz)	2400	0.95	-11.06	-1.61
	2500	1.83	-7.33	-1.06
4 (2.4GHz)	2400	2.04	-6.66	-0.74
	2500	1.95	-6.56	-1.31

WLAN:

Table 2 Peak Output Power of DTV001

Mode	Type of Network	Channel	Frequency	Peak Output Power (dBm)		Total Peak Output Power (dBm)
				Ant.2	Ant.3	
1.	802.11b	CH 1	2412MHz	17.75	17.24	20.51
2.		CH 6	2437MHz	17.08	16.36	19.75
3.		CH 11	2462MHz	17.40	16.25	19.87
4.	802.11g	CH 1	2412MHz	23.66	22.41	26.09
5.		CH 6	2437MHz	24.10	22.08	26.22
6.		CH 11	2462MHz	23.34	21.42	25.50
7.	802.11n-HT20	CH 1	2412MHz	21.18	21.23	24.22
8.		CH 6	2437MHz	24.45	22.24	26.49
9.		CH 11	2462MHz	21.04	20.89	23.98
10.	802.11n-HT40	CH 3	2422MHz	19.40	19.05	22.24
11.		CH 6	2437MHz	24.57	21.99	26.48
12.		CH 9	2452MHz	19.88	18.35	22.19

WWAN:

Table 3 Maximum Output Power of GOBI3000

Mode	Frequency Range (MHz)	ANT. main	ANT. aux	Maximum output power (dBm)
GPRS 1900	1850.2 to 1909.8	V		30.71
WCDMA	1852.4 to 1907.5	V		24.33
CDMA1X-1XEVD0	1851.25 to 1908.75	V		24.48
GPS			V	N/A

Table 4 Technology Duty Cycles for MPE Calculations

Technology	Duty Cycle
CDMA 2000	100%
WCDMA	100%
GPRS Cat 10(2 uplink Transmit Slots)	25%
WLAN	98%

3. MPE Calculation

For WLAN:

Based on safety distance 20cm, the antenna gain is 2.81dBi, and the power output is 445.65mW, the power density is 0.169mW/cm².

RF Exposure Calculations:

$$S = (P * G) / (4 * \pi * r^2) \text{ or } r = \sqrt{(P * G) / (4 * \pi * S)}$$

Where S = Power Density in mW/cm²

P = 26.49dBm = 445.65mW

G = 2.81dBi = 1.909 Numerical

r = 20cm

$$S = 445.65 * 1.909 / 4 * \pi * 20^2 = 0.169 \text{mW/cm}^2$$

Based on safety distance 20cm, the antenna gain is 0.94dBi, and the power output is 1177.6mW, the power density is 0.291mW/cm².

RF Exposure Calculations:

$$S = (P * G) / (4 * \pi * r^2) \text{ or } r = \sqrt{(P * G) / (4 * \pi * S)}$$

Where S = Power Density in mW/cm²

P = 30.71dBm = 1177.6 mW

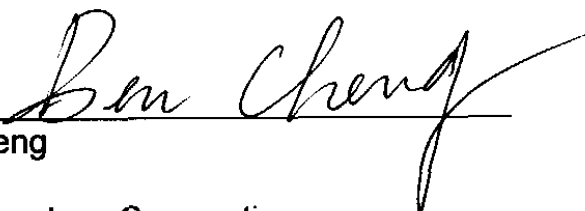
G = 0.94 dBi = 1.242 Numerical

r = 20cm

$$S = 1177.6 * 1.242 / 4 * \pi * 20^2 = 0.291 \text{ mW/cm}^2$$

WWAN MPE (mW/cm ²)	WLAN MPE (mW/cm ²)	Total MPE (mW/cm ²)	Limit (mW/cm ²)	Compliance or not
0.291	0.169	0.46	1	YES

Sincerely Yours,



Mr. Ben Cheng
Manager
AUDIX Technology Corporation