

FCC RF EXPOSURE REPORT

FCC ID: 2AC23-WT38M2001

Project No. : 1708C160A
Equipment : WIFI+BT Module
Model : WT38M2001T
Applicant : Hui Zhou Gaoshengda Technology Co.,LTD
Address : NO.75 Zhongkai Development Area, Huizhou,
Guangdong, China

According: : FCC Guidelines for Human Exposure IEEE
C95.1 & FCC Part 2.1091

B T L I N C .

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MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi^2} = \frac{EIRP}{4\pi^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

BT&LE

Group 1

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3.56

Group 2

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	3.56

Note:

Group 1 and Group 2 are same type antenna, Group 1 is recorded as the worst case since which gain is same as Group 2.

2.4G WIFI

Group 1

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	GSD	N/A	Internal	N/A	3.53	N/A
2	GSD	N/A	Internal	N/A	3.59	N/A

Group 2

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	GSD	N/A	Internal	N/A	3.30	N/A
2	GSD	N/A	Internal	N/A	3.50	N/A

Note:

- Group 1 and Group 2 are same type antenna, Group 1 is recorded as the worst case since which gain is higher than Group 1.
- The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely uncorrelated, then, **Direction gain = G_{ANT}**, that is Directional gain=3.59.

4.

Operating Mode	1TX	2TX
TX Mode		
802.11b	V (ANT 1)	-
802.11g	V (ANT 1)	V (ANT 1+ANT 2)
802.11n(20MHz)	-	V (ANT 1+ANT 2)
802.11n(40MHz)	-	V (ANT 1+ANT 2)

ANT 1 for 1TX was found to be the worst case and recorded

5G WIFI

Group 1

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	5.51
2	N/A	N/A	Internal	N/A	5.47

Group 2

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	4.10
2	N/A	N/A	Internal	N/A	4.58

Note:

2. Group 1 and Group 2 are same type antenna, Group 1 is recorded as the worst case since which gain is higher than Group 1.

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely uncorrelated, then, **Direction gain = G_{ANT}** , that is Directional gain=5.51

4.

Operating Mode	1TX	2TX
TX Mode		
802.11a	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1+ANT 2)
802.11n(40MHz)	-	V (ANT 1+ANT 2)

ANT 1 for 1TX was found to be the worst case and recorded

TEST RESULTS

EUT :	WIFI+BT Module	Model Name :	WT38M2001T
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		

2.4G WIFI

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.59	2.2856	26.85	484.1724	0.22027	1	Complies

5G Band UNII-1

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.51	3.5563	15.94	39.2645	0.02779	1	Complies

5G Band UNII-2A

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.51	3.5563	15.97	39.5367	0.02799	1	Complies

5G Band UNII-2C

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.51	3.5563	15.75	37.5837	0.02660	1	Complies

5G Band UNII-3

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.51	3.5563	15.88	38.7258	0.02741	1	Complies

BT

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.56	2.2699	5.96	3.9446	0.00178	1	Complies

LE

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.56	2.2699	1.86	1.5346	0.00069	1	Complies

For WLAN+BT simultaneous transmission MPE:

$$0.22027 / 1 + 0.00178 / 1 = 0.22205$$

Note: the calculated distance is 20 cm.