

FCC RF EXPOSURE REPORT

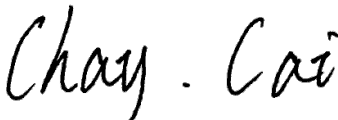
FCC ID: 2AV2N-SR1021E

Project No. : 2205C106
Equipment : Wireless Router
Brand Name : FiberHome
Test Model : SR1021E
Series Model : N/A
Applicant : Fiberhome Telecommunication Technologies Co., Ltd.
Address : No.88 Youkeyuan Road, Hongshan District, Wuhan, Hubei , China
Manufacturer : Fiberhome Telecommunication Technologies Co., Ltd.
Address : No.88 Youkeyuan Road, Hongshan District, Wuhan, Hubei , China
Factory : Fiberhome Telecommunication Technologies Co., Ltd.
Address : No.88 Youkeyuan Road, Hongshan District, Wuhan, Hubei , China
Date of Receipt : May 23, 2022
Date of Test : May 24, 2022 ~ Aug. 01, 2022
Issued Date : Aug. 24, 2022
Report Version : R01
Test Sample : Engineering Sample No.: DG2022052437
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
FCC Title 47 Part 2.1091

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



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TESTING CERT #5123.02

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2205C106	R00	Original Report	Aug. 05, 2022	Invalid
BTL-FCCP-4-2205C106	R01	Modified the antenna P/N, which does not affect the test result.	Aug. 24, 2022	Valid

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792 People's Republic of China.
 BTL's Registration Number for FCC: 357015
 BTL's Designation Number for FCC: CN1240

2. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:



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

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

For 2.4GHz:

Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		XDC0924DBB001	PCB	IPEX	3.95
2		XDC0924DBB001	PCB	IPEX	3.95

Note:

- 1) This EUT supports CDD, and all antennas have the same gain, Directional gain = G_{ANT}+Array Gain. For power measurements, Array Gain=0dB (N_{ANT}≤4), so the Directional gain=3.95. For power spectral density measurements, N_{ANT}=2, N_{SS} = 1. So the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi=3.95+10log(2/1)dBi=6.96. Then, the power spectral density limit is 8-(6.96-6)=7.04.
- 2) Beamforming Gain = 3 dB. So Directional gain=3+3.95=6.95. Then, the output power limit is 30-(6.95-6)=29.05.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

Table for Antenna Configuration:

For Non Beamforming:



Operating Mode	TX Mode	
	1TX	2TX
IEEE 802.11b	V (Ant. 1)	-
IEEE 802.11g	V (Ant. 1)	-
IEEE 802.11n(HT20)	-	V (Ant. 1+Ant. 2)
IEEE 802.11n(HT40)	-	V (Ant. 1+Ant. 2)

For Beamforming:

Operating Mode	TX Mode	
	2TX	
IEEE 802.11n(HT20)	V (Ant. 1+Ant. 2)	
IEEE 802.11n(HT40)	V (Ant. 1+Ant. 2)	

For 5GHz:

Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		XDC0924DBB001	PCB	IPEX	3.75
2		XDC0924DBB001	PCB	IPEX	3.75

Note:

- 1) This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$.
 For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=3.75.
 For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$.
 So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3.75 + 10\log(2/1)\text{dBi} = 6.76$.
 Then, the UNII-1 power spectral density limit is $17 - (6.76 - 6) = 16.24$, the UNII-2A, UNII-2C power spectral density limit is $11 - (6.76 - 6) = 10.24$, the UNII-3 power spectral density limit is $30 - (6.76 - 6) = 29.24$.
- 2) Beamforming Gain = 3 dB. So Directional gain= $3 + 3.75 = 6.75$. Then, the UNII-1 and UNII-3 output power limit is $30 - (6.75 - 6) = 29.25$, the UNII-2A output power limit is $23.98 - (6.75 - 6) = 23.23$.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

Table for Antenna Configuration:

For Non Beamforming:

Operating Mode / TX Mode	1TX	2TX
IEEE 802.11a	V (Ant. 1)	-
IEEE 802.11n(HT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT80)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	-	V (Ant. 1 + Ant. 2)

For Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11n(HT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac(VHT80)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2)

3. TEST RESULTS

For 2.4GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.95	2.4831	19.10	81.2831	0.04017	1	Complies

For 2.4GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.95	4.9545	18.83	76.3839	0.07533	1	Complies

For 5GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.75	2.3714	20.62	115.3453	0.05444	1	Complies

For 5GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.75	4.7315	20.11	102.5652	0.09659	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.07533	0.09659	0.17192	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report