

FCC RF EXPOSURE REPORT

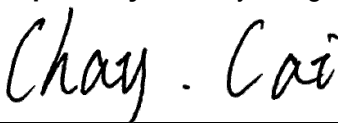
FCC ID: 2AV2N-SR1041F

Project No. : 2204C161
Equipment : Wireless Router
Brand Name : FiberHome
Test Model : SR1041F
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 : Apr. 26, 2022
Date of Test : Apr. 27, 2022 ~ May 21, 2022
Issued Date : Jun. 02, 2022
Report Version : R00
Test Sample : Engineering Sample No.: DG20220427114
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-4-2204C161	R00	Original Report	Jun. 02, 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		RFA1650CBB01A	Dipole	IPEX	5.32
2		RFA1650CBB01B	Dipole	IPEX	5.19

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain=10log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})²/N]dBi, that is Directional gain=10log[(10^{5.32/20}+10^{5.19/20})²/2]dBi=8.27. So, the output power limit is 30-(8.27-6)=27.73, the power spectral density limit is 8-(8.27-6)=5.73.
- 2) Beamforming Gain: 3 dB. So Directional gain=3+5.32=8.32. So, the output power limit is 30-(8.32-6)=27.68.
- 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)
IEEE 802.11ax(HE20)	-	V (Ant. 1+Ant. 2)
IEEE 802.11ax(HE40)	-	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 802.11ax(HE20)	V (Ant. 1+Ant. 2)
IEEE 802.11ax(HE40)	V (Ant. 1+Ant. 2)

For 5GHz:

Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		RFB1605CBB01C	Dipole	IPEX	5.19
2		RFB1605CBB01D	Dipole	IPEX	5.16
3		RFB1605CBB01E	Dipole	IPEX	5.29

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$ dBi, that is Directional gain= $10\log[(10^{5.19/20}+10^{5.16/20}+10^{5.29/20})^2/3]$ dBi =9.98. So, the UNII-1, UNII-3 output power limit is $30-(9.98-6)=26.02$, the UNII-2A output power limit is $23.98-(9.98-6)=20$. The UNII-1 power spectral density limit is $17-(9.98-6)=13.02$, the UNII-2A power spectral density limit is $11-(9.98-6)=7.02$, the UNII-3 power spectral density limit is $30-(9.98-6)=26.02$.
- 2) Beamforming Gain: 4.7 dB. That is Directional gain= $4.7+5.29=9.99$. So, the UNII-1, UNII-3 output power limit is $30-(9.99-6)=26.01$, the UNII-2A output power limit is $23.98-(9.99-6)=19.99$.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.
- 4) The EUT is 3T3R, but only NSS2 is supported.

Table for Antenna Configuration:

For Non Beamforming:

Operating Mode TX Mode	1TX	3TX
IEEE 802.11a	V (Ant. 1)	-
IEEE 802.11n(HT20)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11n(HT40)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT20)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT40)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT80)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE20)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE40)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE80)	-	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE160)	-	V (Ant. 1+Ant. 2+Ant. 3)

For Beamforming:

Operating Mode TX Mode	3TX
IEEE 802.11n(HT20)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11n(HT40)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT20)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT40)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ac(VHT80)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE20)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE40)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE80)	V (Ant. 1+Ant. 2+Ant. 3)
IEEE 802.11ax(HE160)	V (Ant. 1+Ant. 2+Ant. 3)

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
8.27	6.7143	22.26	168.2674	0.22488	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
8.32	6.7920	21.69	147.5707	0.19950	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
9.98	9.9541	16.57	45.3942	0.08994	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
9.99	9.9770	16.04	40.1791	0.07979	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.22488	0.08994	0.31482	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report