FCC RF EXPOSURE REPORT

FCC ID: 2AUA9-RQZY004

Project No.	:	2005C172
Equipment	:	AX1800 Wi-Fi6 Smart WiFi Router
Brand Name	:	ROCK, rock space
Test Model	:	RSD0616
Series Model	:	N/A
Applicant	:	Shenzhen Renqing Excellent Technology Co., Ltd.
Address	:	104, No.15, Longfu Industrial Zone, Tongsheng Community, Dalang Street, Dalang Street, Longhua District, Shenzhen, Guangdong , China
Manufacturer	:	Shenzhen Renqing Excellent Technology Co., Ltd.
Address	:	104, No.15, Longfu Industrial Zone, Tongsheng Community, Dalang Street, Dalang Street, Longhua District, Shenzhen, Guangdong , China
Date of Receipt	:	May 27, 2020
Date of Test	:	May 28, 2020 ~ Jun. 30, 2020
Issued Date	:	Oct. 09, 2020
Report Version	:	R01
Test Sample	:	Engineering Sample No.: DG2019120614
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

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

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Certificate #5123.02

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Jul. 23, 2020
R01	Changed the product name.	Oct. 09, 2020

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's Test Firm 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

Table for Filed Antenna
For WLAN 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	SLEing®	N/A	Dipole	N/A	5.13
2	SLEing®	N/A	Dipole	N/A	5.13

Note:
This EUT supports CDD, and all antennas have the same gain, then the Directional gain = G_{ANT}+Array Gain, For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=5.13.
For power spectral density measurements, $N_{ANT} = 2$, $N_{SS} = 1$. So Directional gain = G_{ANT} + Array Gain = G_{ANT}+10log (N_{ANT}/ N_{SS}) dB =5.13+10log(2/1)dBi=8.14. Then, the power spectral density limit is 8-(8.14-6)=5.86.

Table for Antenna Configuration:

Operating Mode / TX Mode	1TX	2TX
IEEE 802.11b	V (Ant. 2)	-
IEEE 802.11g	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	-	V (Ant. 1 + Ant. 2)
IEEE vht20	-	V (Ant. 1 + Ant. 2)
IEEE vht40	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW40)	-	V (Ant. 1 + Ant. 2)

For WLAN 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	4.82	UNII-1
2	N/A	N/A	Dipole	N/A	4.82	UNII-1
1	N/A	N/A	Dipole	N/A	5.92	UNII-3
2	N/A	N/A	Dipole	N/A	5.92	UNII-3

Note:

This EUT supports CDD, and all antennas have the same gain, then the Directional gain = G_{ANT}+Array Gain,

a) For UNII-1:

For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=4.82.

For power spectral density measurements, N_{ANT} = 2, N_{SS} = 1. So Directional gain = G_{ANT} + Array Gain = G_{ANT}+10log (N_{ANT}/ N_{SS}) dB =4.82+10log(2/1)dBi=7.83. Then, the power spectral density limit is 17-(7.83-6)=15.17.

b) For UNII-3:

For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=5.92.

For power spectral density measurements, N_{ANT} = 2, N_{SS} = 1. So Directional gain = G_{ANT} + Array Gain = G_{ANT}+10log (N_{ANT}/ N_{SS}) dB =5.92+10log(2/1)dBi=8.93. Then, the power spectral density limit is 30-(8.93-6)=27.07.

Table for Antenna Configuration:

Operating Mode / TX Mode	2TX
IEEE 802.11a	V (Ant. 1 + Ant. 2)
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 (HEW20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW80)	V (Ant. 1 + Ant. 2)

3. TEST RESULTS

For 2.4GHz:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
8.14	6.5163	23.76	237.6840	0.30828	1	Complies

For 5GHz UNII-1:

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
7.83	6.0674	24.38	274.1574	0.33109	1	Complies

For 5GHz UNII-3:

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
8.93	7.8163	24.72	296.4831	0.46126	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Total	Limit of Power Density (S) (mW/cm^2)	Test Result
2.4GHz	5GHz			
0.30828	0.46126	0.76954	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report