

RF Exposure Evaluation Report

Report Reference No...... : **MTEB25020061-H**
FCC ID..... : **2BNTB-BRGRCR001**

Compiled by

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Date of issue..... : **Feb.17,2025**
Representative Laboratory Name.: **Shenzhen Most Technology Service Co., Ltd.**

Address..... : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
Nanshan, Shenzhen, Guangdong, China.

Applicant's name..... : **Shenzhen brglight technology co., ltd**

Address..... : Room 601, Building A5, Anle Industrial Zone, No.172, Hangcheng
Avenue, Sanwei Community, Hangcheng Street, Baoan
District, Shenzhen, Guangdong

Test specification/ Standard..... : **47 CFR Part 1.1307; 47 CFR Part 1.1310**
KDB447498D01 General RF Exposure Guidance v06

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description..... : LED WIFI - BLUETOOTH CONTROLLER

Trade Mark..... : BRGLight

Model/Type reference..... : BRGRCR001, BRGRCR011

Listed Models : BRGRCR002, BRGRCR003, BRGRCR004, BRGRCR005,
BRGRCR006, BRGRCR007, BRGRCR008, BRGRCR009,
BRGRCR010, BRGRCR012, BRGRCR013,
BRGRCR014, BRGRCR015, BRGRCR016, BRGRCR017,
BRGRCR018, BRGRCR019, BRGRCR020

Modulation Type..... : GFSK

b: DSSS, CCK

g/n: BPSK, QPSK, QAM

Operation Frequency..... : From 2402MHz to 2480MHz

From 2412MHz~2462MHz

Hardware Version..... : V1.0

Software Version..... : V1.0

Rating..... : DC 24V by Adapter

Result..... : **PASS**

TEST REPORT

Equipment under Test : LED WIFI - BLUETOOTH CONTROLLER

Model /Type : BRGRCR001,BRGRCR011

Listed Models : BRGRCR002,BRGRCR003,BRGRCR004,BRGRCR005,
BRGRCR006,BRGRCR007,BRGRCR008,BRGRCR009,
BRGRCR010,BRGRCR012,BRGRCR013,
BRGRCR014,BRGRCR015,BRGRCR016,BRGRCR017,
BRGRCR018,BRGRCR019,BRGRCR020

Remark : Only the model “BRGRCR001,BRGRCR011” was tested, Their electrical circuit design, layout, components used and internal wiring are identical, Only the model name and Appearance (Number of buttons) is different.

Applicant : Shenzhen brglight technology co., ltd

Address : Room 601, Building A5,Anle Industrial Zone, No.172,Hangcheng Avenue,Sanwei Community,Hangcheng Street, Baoan District, Shenzhen, Guangdong

Manufacturer : Shenzhen brglight technology co., ltd

Address : Room 601, Building A5,Anle Industrial Zone, No.172,Hangcheng Avenue,Sanwei Community,Hangcheng Street, Baoan District, Shenzhen, Guangdong

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2025.02.17	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$ Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure**BLE**

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402 MHz)	3.603	3.603 ± 1	4.603
Middle(2440MHz)	1.948	1.948 ± 1	2.948
Highest(2480MHz)	5.705	5.705 ± 1	6.705

BLE

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2480MHz)	6.705	4.68	-2.63	0.0005	1.0	Pass

Note: 1) Refer to report MTEB25020061-R for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (4.68 \cdot 0.55) / (4 \cdot 3.1416 \cdot 20^2) = 0.0005$

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	10.67	10.67 ± 1	11.67
Middle(2437MHz)	9.72	9.72 ± 1	10.72
Highest(2462MHz)	10.55	10.55 ± 1	11.55

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	12.74	12.74 ± 1	13.74
Middle(2437MHz)	11.86	11.86 ± 1	12.86
Highest(2462MHz)	12.37	12.37 ± 1	13.37

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	10.90	10.90 ± 1	11.9
Middle(2437MHz)	11.01	11.01 ± 1	12.01
Highest(2462MHz)	11.78	11.78 ± 1	12.78

WIFI 2.4G

Worst case: 802.11g						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Lowest(2412MHz)	13.74	23.66	-2.63	0.0026	1.0	Pass

Note: 1) Refer to report MTEB25020061-R1 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} * G) / (4 * \pi * R^2) = (23.66 * 0.55) / (4 * 3.1416 * 20^2) = 0.0026$

.....THE END OF REPORT.....