RF TEST REPORT

Product Name: module

Model Name: RC10EM-NA

FCC ID: 2AQSK-RC10EM-NA

Issued For   :   HuiZhou BoShiJie Technology CO.,Ltd

No. 1, Huifeng West three road, Zhongkai Hi-tech Zone, Huizhou

Issued By   :   Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number: LGT24G177HA01

Sample Received Date: Jul. 26, 2024

Date of Test: Jul. 26, 2024 – Aug. 16, 2024

Date of Issue: Aug. 16, 2024

TEST REPORT CERTIFICATION

Applicant:	HuiZhou BoShiJie Technology CO.,Ltd
Address:	No. 1, Huifeng West three road, Zhongkai Hi-tech Zone, Huizhou
Manufacture:	HuiZhou BoShiJie Technology CO.,Ltd
Address:	No. 1, Huifeng West three road, Zhongkai Hi-tech Zone, Huizhou
Product Name:	module
Trademark:	BSJ
Model Name:	RC10EM-NA
Sample Status:	Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR §2.1091 KDB 447498 D01 General RF Exposure Guidance v06	PASS

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Revision History

Rev.	Issue Date	Revisions
00	Aug. 16, 2024	Initial Issue

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	module
Trademark:	BSJ
Model Name:	RC10EM-NA
Series Model:	N/A
Model Difference:	N/A
LTE	LTE Band 2:1850~1910MHz LTE Band 4:1710~1755MHz LTE Band 5: 824~849MHz LTE Band 12: 699-716MHz LTE Band 17:704~716MHz LTE Band 38: 2570-2620MHz LTE Band 41: 2496-2690MHz LTE Band 66: 1710-1780MHz
Rating:	Input: DC 4V
Hardware Version:	PCB-RC10EM-V1.1
Software Version:	SDK:RC10EM_V2.07

1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)
Limits for Occupational / controlled Exposures			
0.3-3.0	614	1.63	*(100)
3.0-30	1842/f	4.89/f	*(900/f²)
30-300	61.4	0.163	1.0
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
0.3-1.34	614	1.63	*(100)
1.34-30	824/f	2.19/f	*(180/f²)
30-300	27.5	0.073	0.2
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

* = Plane-wave equivalent power density.

Friss Formula

Friss Transmission Formula: Pd = (Pout * G) / (4*pi*r²)

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.

2.3 EUT OPERATION CONDITION

EUT was enabled to transmit and receive at lowest, middle and highest channels.

2.4 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.

2.5 TEST RESULT

Turn up Result

Mode	Turn up Power
LTE B2	23±1dBm
LTE B4	23.5±1dBm
LTE B5	23±1dBm
LTE B12	22.5±1dBm
LTE B17	22.5±1dBm
LTE B38	24±1dBm
LTE B41	24.5±1dBm
LTE B66	23.5±1dBm

The MPE result of standalone calculation:

RF Function	Frequency (MHz)	Max Turn up Power (dBm)	Duty cycle factor	Max Power (dBm)	Max Power (mW)	ANT Gain (dBi)	ANT Gain (gain of antenna in linear scale)	Power Density (mW/cm²)	Limit (mW/cm²)	Result
LTE B2	1880	24	0	24	251.19	9	7.94	0.397	1	Pass
LTE B4	1717.5	24.5	0	24.5	281.84	9	7.94	0.445	1	Pass
LTE B5	844	24	0	24	251.19	9	7.94	0.397	0.563	Pass
LTE B12	699.7	23.5	0	23.5	223.87	9	7.94	0.354	0.466	Pass
LTE B17	710	23.5	0	23.5	223.87	9	7.94	0.354	0.473	Pass
LTE B38	2617.5	25	0	25	316.23	9	7.94	0.500	1	Pass
LTE B41	2680	25.5	-1.99	23.51	224.39	9	7.94	0.355	1	Pass
LTE B66	1772.5	24.5	0	24.5	281.84	9	7.94	0.445	1	Pass

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