Certificate Number: 5055.02

MPE REPORT

Report No.: SRTC2022-9004(F)-22030703(I)

Product Name: 2.4GHz WIFI+ Bluetooth dual-mode module

Product Model: MHCWB6G-IB

Applicant: Xiaomi Communications Co.,Ltd.

Manufacturer: Xiaomi Communications Co.,Ltd.

Specification: FCC Part §2.1091, §2.1093, §1.1307(b), §1.1310 (2019)

FCC ID: 2AFZZ-MHCWB6G-IB

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, P.R.China

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CONTENTS

1 GENERAL INFORMATION

1.1 Notes of the test report

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1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, P.R.China
City:	Beijing
Country or Region:	P.R.China
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Registration Number	239125
Designation Number	CN1267

1.3 Applicant's details

Company:	Xiaomi Communications Co.,Ltd.
Address:	#019, 9th Floor, Building 6, 33Xi′erqi Middle Road, Haidian District, Beijing, China

1.4 Manufacturer's details

Company:	Xiaomi Communications Co.,Ltd.
Address:	#019, 9th Floor, Building 6, 33Xi′erqi Middle Road, Haidian District, Beijing, China

1.5 Test environment

Date of Receipt of test sample at SRTC:	2022-03-22
Testing Start Date:	2022-03-23
Testing End Date:	2022-03-29

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	22	35

Normal Supply Voltage (V d.c.):	3.3

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Bands	BLE: 2402MHz – 2480MHz WIFI2.4GHz: 2400MHz – 2483.5MHz
Mode	BLE: GFSK 1Mbps/ 2Mbps/Coded 125K/500K WIFI2.4GHz: 802.11b/g/n HT20/n HT40
Antenna Gain	WLAN2.4GHz:2.5dBi BLE:2.5dBi
Power Supply	DC supply
Hardware Version	V1.1
Software Version	V1.0
IMEI or Sample	#1

3 REFERENCE SPECIFICATION

Specification	Version	Title
2.1091	2022	Radio frequency radiation exposure evaluation: mobile devices.
2.1093	2022	Radio frequency radiation exposure evaluation: portable devices.
1.1307(b)	2022	Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
1.1310	2022	Radio frequency radiation exposure limits.
KDB447498	March 2, 2022	RF exposure procedures and equipment authorization policies for mobile and portable devices

4 RESULT SUMMARY

No.	Test case	FCC reference
1	MPE Calculation	FCC Part §2.1091, FCC Part §2.1093, FCC Part §1.1307(b) FCC Part §1.1310 KDB 447498

This Test Report Is Approved by: Mr. Peng Zhen	Review by: Mr. Li Bin
Tested and issued by: Mr. Du Wei	Approved date: 20220411

5 TEST RESULTS

5.1 Average Power Output Test Result

WIFI 2.4GHz

Mode	Freq (MHz)	Average power output (dBm)	Tune-up (dBm)
802.11b	2412	13.45	13.5
802.11b	2437	13.42	13.5
802.11b	2462	13.80	14.0
802.11g	2412	13.52	14.0
802.11g	2437	13.71	14.0
802.11g	2462	13.60	14.0
802.11n HT20	2412	13.55	14.0
802.11n HT20	2437	13.72	14.0
802.11n HT20	2462	13.80	14.0
802.11n HT40	2422	13.81	14.0
802.11n HT40	2437	13.72	14.0
802.11n HT40	2452	13.98	14.0

BLE

Modulation type	Conducted Average Power(dBm)			Tune-up (dBm)
	2402MHz	2440MHz	2480MHz	
GFSK (LE 1Mbps)	-2.06	2.31	6.44	6.5
GFSK (LE 2Mbps)	-3.84	1.02	4.79	5.0
Coded 125K	-1.83	2.70	6.70	7.0
Coded 500K	-1.62	2.88	6.83	7.0

5.2 Calculation result

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure ☐

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time |E|2, |H|2 or S (minutes)
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 ☑

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time |E|2, |H|2 or S (minutes)
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 *Plane-wave equivalent power density

Calculation procedure:

According to §2.1091, §2.1093, §1.1307(b) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

The $S = PG / (4\pi R^2)$

Where S = power density in mW/cm^2

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

Band	Freq. (MHz)	Maximum Power (dBm)	Ant Gain (dBi)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm	Limit (mW/cm^2)	Power Density / Limit
BLE	2480	7.0	2.5	9.50	8.91	0.002	1.0	0.002
WLAN2.4GHz	2452	14.0	2.5	16.50	44.67	0.009	1.0	0.009

Note1:

SAR considers the worst case, use Tune up with maximum power plus antenna gain as EIRP.

Note2:

For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

According to the KDB447498 D01 section 7.1 determine the device is exclusion from SAR test.

---End of Test Report---