Certificate Number: 5055.02

MPE REPORT

Report No.: SRTC2022-9004(F)-22052801(I)

Product Name: BT/Wi-Fi Module

Product Model: MWH516B

Applicant: Qingdao Hisense Communication Co., Ltd

Manufacturer: Qingdao Hisense Communication Co., Ltd

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

FCC ID: SARMWH516B

The State Radio_monitoring_center Testing Center (SRTC)

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

Beijing, P.R.China

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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
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Registration Number	239125
Designation Number	CN1267

1.3 Applicant’s details

Company:	Qingdao Hisense Communication Co., Ltd
Address:	No.218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, Shandong Province,China

1.4 Manufacturer’s details

Company:	Qingdao Hisense Communication Co., Ltd
Address:	218 Qianwangang Road, Qingdao Economic& Technological Development Zone, Qingdao, China

1.5 Test environment

Date of Receipt of test sample at SRTC:	2022-05-28
Testing Start Date:	2022-06-05
Testing End Date:	2022-06-13

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

Normal Supply Voltage (V d.c.):	5.5

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Bands	BT/BLE: 2400MHz – 2483.5MHz WIFI2.4GHz: 2400MHz – 2483.5MHz WIFI5GHz UNII-1: 5150MHz – 5250MHz WIFI5GHz UNII-2A: 5250MHz – 5350MHz WIFI5GHz UNII-2C: 5470MHz – 5725MHz WIFI5GHz UNII-3: 5725MHz – 5850MHz
Mode	BT:GFSK/π/4DQPSK/8DPSK BLE: 1Mbps/2Mbps/Coded 125kbps/ Coded 125kbps WIFI2.4GHz: 802.11b/g/n HT20/n HT40 WIFI5GHz: 802.11a/n HT20/n HT40/ac VHT20/ac VHT40 /ac VHT80/
Antenna Gain	BT/BLE:-0.5dBi WLAN2.4GHz Ant1:0.3dBi/ Ant2:0.2dBi/Ant3:0.2dBi/ Ant4:0.25dBi WLAN5GHz Ant1:0.5dBi/ Ant2:0.45 dBi/ Ant3:0.35dBi/ Ant4:0.4dBi
Power Supply	DC Adapter
Hardware Version	V3.00
Software Version	NA
IMEI or Sample	#1

3 REFERENCE SPECIFICATION

Specification	Version	Title
2.1091	2019	Radio frequency radiation exposure evaluation: mobile devices.
2.1093	2019	Radio frequency radiation exposure evaluation: portable devices.
1.1307(b)	2019	Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.
1.1310	2019	Radio frequency radiation exposure limits.
KDB447498	October 23, 2015	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 Issued by: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. Wang Hao	Issued date: 2022/06/16

5 TEST RESULTS

5.1 Average Power Output Test Result

Mode	Maximum Average power(dBm)
BT	6.0
BLE	6.5
WiFi2.4GHz	18.5
WiFi5.2GHz	18.5
WiFi5.3GHz	19.0
WiFi5.6GHz	19.0
WiFi5.8GHz	18.5

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)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
BT	2442	6.00	5.50	3.55	0.001	1.000	0.001
BLE	2480	6.50	6.00	3.98	0.001	1.000	0.001
WLAN2.4GHz Band	2412	18.50	18.75	74.99	0.015	1.000	0.015
WLAN5.2GHz Band	5180	18.50	19.00	79.43	0.016	1.000	0.016
WLAN5.3GHz Band	5320	19.00	19.50	89.13	0.018	1.000	0.018
WLAN5.6GHz Band	5500	19.00	19.50	89.13	0.018	1.000	0.018
WLAN5.8GHz Band	5745	18.50	18.90	77.62	0.015	1.000	0.015

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.

Worst Simultaneous Transmission Result

WWAN Power Density / Limit	WLAN Power Density / Limit	Σ(Power Density / Limit) of BT+ WLAN
0.001	0.018	0.019

Note: Simultaneous Transmission Limit=Power Density_1/ limit_1 + Power Density_2/ limit_2<1

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

---End of Test Report---