



Shenzhen CTA Testing Technology Co., Ltd.
Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community,
Fuhai Street, Bao'an District, Shenzhen, China

RF Exposure evaluation

Report Reference No.....: CTA24072303505

FCC ID.....: 2AG7C-A880

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Representative Laboratory Name.: Shenzhen CTA Testing Technology Co., Ltd.

Address.....: Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao' an District, Shenzhen, China

Applicant's name.....: Hangzhou Meari Technology Co., Ltd.

Address.....: Building 4, Huiding Intelligent Innovation Center, No. 825, Ruquan Road, Changhe Street, Binjiang District, Hangzhou, Zhejiang, China

Test specification.....:

Standard.....: 47CFR §1.1310 Basis and purpose
47CFR §2.1091 Radiofrequency radiation exposure evaluation:
mobile devices
KDB447498 D01 General RF Exposure Guidance v06

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Test item description.....: CAMERA WIFI Module

Trade Mark.....: N/A

Manufacturer.....: Hangzhou Meari Technology Co., Ltd.

Model/Type reference.....: A880

Listed Models: Speed 22Q, Speed 22F, OP1, OP1T, OP1Q, OP1F, Speed 24Q, Speed 24F, Mini 9Q, Mini 9T, Mini 12Q, Mini 12T, Mini 8T, Mini 8Q, Mini 16T, Mini 16Q, M1T, M1Q, IN1T, IN1Q, M4T, M4Q, P2T, P2F, P2Q, P4F, P4Q, DOME1, DOME1T, PETCAM1F, PETCAM1

Operation Frequency.....: From 2412MHz to 2462MHz, 5180MHz to 5240MHz, 5250-5350MHz, 5500-5700MHz, 5745MHz to 5825MHz

Hardware Version: A880 Ver 1.2

Software Version.....: N/A

Rating.....: DC 3.3V

Result.....: PASS

Shenzhen CTA Testing Technology Co., Ltd.

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TEST REPORT**Test Report No. : CTA24072303505**

Aug. 27, 2024

Date of issue

Equipment under Test : CAMERA WIFI Module

Model /Type : A880

Listed model : Speed 22Q, Speed 22F, OP1, OP1T, OP1Q, OP1F, Speed 24Q, Speed 24F, Mini 9Q, Mini 9T, Mini 12Q, Mini 12T, Mini 8T, Mini 8Q, Mini 16T, Mini 16Q, M1T, M1Q, IN1T, IN1Q, M4T, M4Q, P2T, P2F, P2Q, P4F, P4Q, DOME1, DOME1T, PETCAM1F, PETCAM1

Applicant : Hangzhou Meari Technology Co., Ltd.

Address : Building 4, Huiding Intelligent Innovation Center, No. 825, Ruquan Road, Changhe Street, Binjiang District, Hangzhou, Zhejiang, China

Manufacturer : Hangzhou Meari Technology Co., Ltd.

Address : 4F of Building 1 and 2-4F of Building 2, No. 91 Chutian Road, Xixing Street, Binjiang District, Hangzhou, Zhejiang, China

Test Result:**PASS**

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.

Contents

1. SUMMARY	4
1.1 EUT configuration	4
1.2 Product Description	4
2. TEST ENVIRONMENT	6
2.1 Address of the test laboratory	6
2.2 Test Facility	6
2.3 Environmental conditions	6
2.4 Statement of the measurement uncertainty	6
3. METHOD OF MEASUREMENT	7
3.1 Applicable Standard	7
3.2 Requirement	7
3.3 Limit	7
3.4 MPE Calculation Method	8
3.5 Antenna Information	8
4. CONDUCTED POWER RESULTS	9
5. MANUFACTURING TOLERANCE	14
6. MEASUREMENT RESULTS	24
6.1 Standalone MPE Evaluation	24
7. CONCLUSION	27

1. SUMMARY

1.1 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

● /	Length (m) :	/
	Shield :	/
	Detachable :	/

1.2 Product Description

Product Name	CAMERA WIFI Module
Trade Mark	N/A
Model/Type reference	A880
List Models	Speed 22Q, Speed 22F, OP1, OP1T, OP1Q, OP1F, Speed 24Q, Speed 24F, Mini 9Q, Mini 9T, Mini 12Q, Mini 12T, Mini 8T, Mini 8Q, Mini 16T, Mini 16Q, M1T, M1Q, IN1T, IN1Q, M4T, M4Q, P2T, P2F, P2Q, P4F, P4Q, DOME1, DOME1T, PETCAM1F, PETCAM1
Model Declaration	PCB board, structure and internal of these model(s) are the same, Only the model name different , So no additional models were tested.
Power supply:	DC 3.3V
Sample ID	CTA240723035-1#& CTA240723035-2#
Bluetooth	
Operation frequency	2402-2480MHz
Channel Number	40 channels for Bluetooth (DTS)
Channel Spacing	2MHz for Bluetooth (DTS)
Modulation Type	GFSK for Bluetooth (DTS)
WIFI(2.4G Band)	
Frequency Range	2412MHz ~ 2462MHz
Channel Spacing	5MHz
Channel Number	11Channel for IEEE 802.11b/g/n/ax(HT20) 7 Channel for IEEE 802.11n/ax (HT40)
Modulation Type	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ax HE20: OFDMA (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11ax HE40: OFDMA (64QAM, 16QAM, QPSK,BPSK)
WIFI(5.2G/5.3G/5.7G Band)	
Frequency Range	5150MHz ~ 5250MHz, 5250MHz ~ 5350MHz, 5500MHz ~ 5700MHz
Channel Number	4 Channels for 20MHz bandwidth(5180-5240MHz) 4 Channels for 20MHz bandwidth(5260-5320MHz) 8 Channels for 20MHz bandwidth(5500-5700MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 2 channels for 40MHz bandwidth(5270~5310MHz) 4 Channels for 40MHz bandwidth(5510-5670MHz)

Modulation Type	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT40: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax HE20: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax HE40: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
WIFI (5.8G Band)	
Frequency Range	5745MHz ~ 5825MHz
Channel Number	5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz)
Modulation Type	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT40: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax HE20: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax HE40: OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	Omni Antenna, 2.91dBi(Max.) for 2.4G Band and 3.81dBi(Max.) for 5G Band; FPC Antenna, 4.66dBi(Max.) for 2.4G Band and 2.96dBi(Max.) for 5G Band

2. TEST ENVIRONMENT

2.1 Address of the test laboratory

Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 517856 Designation Number: CN1318

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6534.01

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

2.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

2.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen CTA Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen CTA laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. METHOD OF MEASUREMENT

3.1 Applicable Standard

According to § 1.1307(b)(1), 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.

According to §1.1310 and §2.1091 RF exposure is calculated.

KDB447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

3.2 Requirement

Systems operating under the provisions of FCC 47 CFR 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. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498 D01 General RF Exposure Guidance v06 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3.3 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
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

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 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

3.4 MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where: S=power density

P=power input to 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

As declared by the Applicant, the EUT transmits with the maximum source-based Duty Cycle of 100%-see the User manual, and the EUT is a wireless device used in a mobile application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum mobile separation distance, $r = 20\text{cm}$, as well as the gain of the used antenna is 4.66dBi&2.96dBi and 2.91dBi&3.81dBi for BT&WLAN, and the power drift from Turn-up Procedure provide by manufacturer as following states, the RF power density can be obtained.

3.5 Antenna Information

A880 can only use antennas certificated as follows provided by manufacturer;

Internal Identification	Antenna Identification in Internal photos	Antenna type and antenna number	Operate frequency band	Maximum antenna gain
Antenna 1	WLAN ANT1	FPC antenna	2.4 – 2.5 GHz 5.0 – 6.0 GHz	4.66dBi(Max.) for 2.4G band 2.96dBi(Max.) for 5G band
Antenna 1	WLAN ANT1	Omni antenna	2.4 – 2.5 GHz 5.0 – 6.0 GHz	2.91dBi(Max.) for 2.4G band 3.81dBi(Max.) for 5G band

4. CONDUCTED POWER RESULTS

FPC Antenna:

Bluetooth

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK(BT LE)	0	2402	14.93
	19	2440	14.30
	39	2480	14.85

2.4GWLAN

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
802.11b	01	2412	21.00
	06	2437	21.08
	11	2462	20.52
802.11g	01	2412	22.23
	06	2437	22.35
	11	2462	20.25
802.11n(HT20)	01	2412	19.98
	06	2437	20.32
	11	2462	19.90
802.11n(HT40)	03	2422	19.94
	06	2437	20.21
	09	2452	20.16
802.11ax(HE20)	01	2412	21.70
	06	2437	22.61
	11	2462	22.24
802.11ax(HE40)	03	2422	21.78
	06	2437	22.78
	09	2452	22.49

5.2GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	36	5180	13.56
	40	5200	13.56
	48	5240	16.81
802.11n20	36	5180	13.80
	40	5200	14.23
	48	5240	17.02
802.11n40	38	5190	13.37
	46	5230	15.25
802.11ac20	36	5180	13.19
	40	5200	13.30
	48	5240	14.25
802.11ac40	38	5190	13.26
	46	5230	15.45
802.11ax20	36	5180	13.01
	40	5200	13.43
	48	5240	13.81
802.11ax40	38	5190	13.07
	46	5230	14.30

5.3GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	52	5260	16.08
	56	5280	16.49
	64	5320	16.97
802.11n20	52	5260	12.40
	56	5280	12.06
	64	5320	12.70
802.11n40	54	5270	12.36
	58	5310	12.73
802.11ac20	52	5260	12.91
	56	5280	12.85
	64	5320	13.12
802.11ac40	54	5270	12.84
	58	5310	12.84
802.11ax20	52	5260	12.84
	56	5280	12.81
	64	5320	13.09
802.11ax40	54	5270	12.75
	58	5310	12.81

5.7GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	100	5500	14.49
	120	5600	10.92
	140	5700	12.27
802.11n20	100	5500	13.14
	120	5600	11.12
	140	5700	11.52
802.11n40	102	5510	12.46
	118	5590	10.50
	134	5670	12.00
802.11ac20	100	5500	15.31
	120	5600	11.79
	140	5700	13.07
802.11ac40	102	5510	14.49
	118	5590	11.73
	134	5670	12.99
802.11ax20	100	5500	15.33
	120	5600	12.06
	140	5700	13.01
802.11ax40	102	5510	14.75
	118	5590	11.58
	134	5670	12.89

5.8GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	149	5745	12.27
	157	5785	13.27
	165	5825	14.35
802.11n20	149	5745	12.83
	157	5785	13.67
	165	5825	14.98
802.11n40	151	5755	12.77
	159	5795	13.68
802.11ac20	149	5745	11.70
	157	5785	12.64
	165	5825	13.49
802.11ac40	151	5755	11.65
	159	5795	12.42
802.11ax20	149	5745	16.61
	157	5785	12.57
	165	5825	13.49
802.11ax40	151	5755	11.62
	159	5795	12.38

Omni Antenna:**Bluetooth**

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK(BT LE)	0	2402	14.93
	19	2440	14.30
	39	2480	14.85

2.4GWLAN

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
802.11b	01	2412	21.00
	06	2437	21.08
	11	2462	20.52
802.11g	01	2412	22.23
	06	2437	22.35
	11	2462	20.25
802.11n(HT20)	01	2412	19.98
	06	2437	20.32
	11	2462	19.90
802.11n(HT40)	03	2422	19.94
	06	2437	20.21
	09	2452	20.16
802.11ax(HE20)	01	2412	21.70
	06	2437	22.61
	11	2462	22.24
802.11ax(HE40)	03	2422	21.78
	06	2437	22.78
	09	2452	22.49

5.2GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	36	5180	13.56
	40	5200	13.56
	48	5240	16.81
802.11n20	36	5180	13.80
	40	5200	14.23
	48	5240	17.02
802.11n40	38	5190	13.37
	46	5230	15.25
802.11ac20	36	5180	13.19
	40	5200	13.30
	48	5240	14.25
802.11ac40	38	5190	13.26
	46	5230	15.45
802.11ax20	36	5180	13.01
	40	5200	13.43
	48	5240	13.81
802.11ax40	38	5190	13.07
	46	5230	14.30

5.3GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	52	5260	16.08
	56	5280	16.49
	64	5320	16.97
802.11n20	52	5260	12.40
	56	5280	12.06
	64	5320	12.70
802.11n40	54	5270	12.36
	58	5310	12.73
802.11ac20	52	5260	12.91
	56	5280	12.85
	64	5320	13.12
802.11ac40	54	5270	12.84
	58	5310	12.84
802.11ax20	52	5260	12.84
	56	5280	12.81
	64	5320	13.09
802.11ax40	54	5270	12.75
	58	5310	12.81

5.7GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	100	5500	14.49
	120	5600	10.92
	140	5700	12.27
802.11n20	100	5500	13.14
	120	5600	11.12
	140	5700	11.52
802.11n40	102	5510	12.46
	118	5590	10.50
	134	5670	12.00
802.11ac20	100	5500	15.31
	120	5600	11.79
	140	5700	13.07
802.11ac40	102	5510	14.49
	118	5590	11.73
	134	5670	12.99
802.11ax20	100	5500	15.33
	120	5600	12.06
	140	5700	13.01
802.11ax40	102	5510	14.75
	118	5590	11.58
	134	5670	12.89

5.8GWLAN

Mode	Channel	Frequency (MHz)	Average Conducted Output Power (dBm)
802.11a	149	5745	12.27
	157	5785	13.27
	165	5825	14.35
802.11n20	149	5745	12.83
	157	5785	13.67
	165	5825	14.98
802.11n40	151	5755	12.77
	159	5795	13.68
802.11ac20	149	5745	11.70
	157	5785	12.64
	165	5825	13.49
802.11ac40	151	5755	11.65
	159	5795	12.42
802.11ax20	149	5745	16.61
	157	5785	12.57
	165	5825	13.49
802.11ax40	151	5755	11.62
	159	5795	12.38

5. MANUFACTURING TOLERANCE

FPC Antenna:

Bluetooth

GFSK BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	14.00	14.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

2.4GWLAN

IEEE 802.11b (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	21.00	21.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	22.00	22.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	19.00	20.00	19.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	19.00	20.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE20 (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	21.00	22.00	22.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	21.00	22.00	22.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

5.2GWLAN

IEEE 802.11a (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	16.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	14.00	17.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	15.00	
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	15.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	14.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

5.3G WLAN

IEEE 802.11a (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	16.00	16.00	16.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

5.7G WLAN

IEEE 802.11a (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	14.00	10.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	13.00	11.00	11.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	12.00	10.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	15.00	11.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	14.00	11.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	15.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	14.00	11.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

5.8GWLAN

IEEE 802.11a (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	12.00	13.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	11.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	16.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	11.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

Omni Antenna:**Bluetooth**

GFSK BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	14.00	14.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

2.4G WLAN

IEEE 802.11b (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	21.00	21.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	22.00	22.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	19.00	20.00	19.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	19.00	20.00	20.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE20 (Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	21.00	22.00	22.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	21.00	22.00	22.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

5.2GWLAN

IEEE 802.11a (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	16.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	14.00	17.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	15.00	
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	15.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	13.00	13.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 38	Channel 46	/
Target (dBm)	13.00	14.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

5.3G WLAN

IEEE 802.11a (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	16.00	16.00	16.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 52	Channel 56	Channel 64
Target (dBm)	12.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 54	Channel 58	/
Target (dBm)	12.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

5.7G WLAN

IEEE 802.11a (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	14.00	10.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	13.00	11.00	11.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	12.00	10.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	15.00	11.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	14.00	11.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE20 (Average)			
Channel	Channel 100	Channel 120	Channel 140
Target (dBm)	15.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 102	Channel 118	Channel 134
Target (dBm)	14.00	11.00	12.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0

5.8GWLAN

IEEE 802.11a (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.00	13.00	14.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	12.00	13.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	11.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/
IEEE 802.11ax HE20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	16.00	12.00	13.00
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ax HE40 (Average)			
Channel	Channel 151	Channel 159	/
Target (dBm)	11.00	12.00	/
Tolerance $\pm$ (dB)	1.0	1.0	/

6. MEASUREMENT RESULTS

6.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

FPC Antenna:

BT

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
GFSK(BT LE)	15.00	0.0316	4.66	0.0925	2.68

2.4GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11b	22.00	0.1585	4.66	0.4634	2.68
802.11g	23.00	0.1995	4.66	0.5834	2.68
802.11n(HT20)	21.00	0.1259	4.66	0.3681	2.68
802.11n(HT40)	21.00	0.1259	4.66	0.3681	2.68
802.11ax(HE20)	23.00	0.1995	4.66	0.5834	2.68
802.11ax(HE40)	23.00	0.1995	4.66	0.5834	2.68

5.2GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	17.00	0.0501	2.96	0.0991	4.53
802.11n20	18.00	0.0631	2.96	0.1247	4.53
802.11n40	16.00	0.0398	2.96	0.0787	4.53
802.11ac20	15.00	0.0316	2.96	0.0625	4.53
802.11ac40	16.00	0.0398	2.96	0.0787	4.53
802.11ax20	14.00	0.0251	2.96	0.0497	4.53
802.11ax40	15.00	0.0316	2.96	0.0625	4.53

5.3GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	17.00	0.0501	2.96	0.0991	4.53
802.11n20	13.00	0.0200	2.96	0.0394	4.53
802.11n40	13.00	0.0200	2.96	0.0394	4.53
802.11ac20	14.00	0.0251	2.96	0.0497	4.53
802.11ac40	13.00	0.0200	2.96	0.0394	4.53
802.11ax20	14.00	0.0251	2.96	0.0497	4.53
802.11ax40	13.00	0.0200	2.96	0.0394	4.53

5.7GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	15.00	0.0316	2.96	0.0625	4.53
802.11n20	14.00	0.0251	2.96	0.0497	4.53
802.11n40	13.00	0.0200	2.96	0.0394	4.53
802.11ac20	16.00	0.0398	2.96	0.0787	4.53
802.11ac40	15.00	0.0316	2.96	0.0625	4.53
802.11ax20	16.00	0.0398	2.96	0.0787	4.53
802.11ax40	15.00	0.0316	2.96	0.0625	4.53

5.8GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	15.00	0.0316	2.96	0.0625	4.53
802.11n20	15.00	0.0316	2.96	0.0625	4.53
802.11n40	14.00	0.0251	2.96	0.0497	4.53
802.11ac20	14.00	0.0251	2.96	0.0497	4.53
802.11ac40	13.00	0.0200	2.96	0.0394	4.53
802.11ax20	17.00	0.0501	2.96	0.0991	4.53
802.11ax40	14.00	0.0251	2.96	0.0497	4.53

Omni Antenna:**BT**

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
GFSK(BT LE)	15.00	0.0316	2.91	0.0618	2.68

2.4GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11b	22.00	0.1585	2.91	0.3097	2.68
802.11g	23.00	0.1995	2.91	0.3899	2.68
802.11n(HT20)	21.00	0.1259	2.91	0.2460	2.68
802.11n(HT40)	21.00	0.1259	2.91	0.2460	2.68
802.11ax(HE20)	23.00	0.1995	2.91	0.3899	2.68
802.11ax(HE40)	23.00	0.1995	2.91	0.3899	2.68

5.2GWLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	17.00	0.0501	3.81	0.1205	4.53
802.11n20	18.00	0.0631	3.81	0.1517	4.53
802.11n40	16.00	0.0398	3.81	0.0957	4.53
802.11ac20	15.00	0.0316	3.81	0.0760	4.53
802.11ac40	16.00	0.0398	3.81	0.0957	4.53
802.11ax20	14.00	0.0251	3.81	0.0604	4.53
802.11ax40	15.00	0.0316	3.81	0.0760	4.53

5.3G WLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	17.00	0.0501	3.81	0.1205	4.53
802.11n20	13.00	0.0200	3.81	0.0480	4.53
802.11n40	13.00	0.0200	3.81	0.0480	4.53
802.11ac20	14.00	0.0251	3.81	0.0604	4.53
802.11ac40	13.00	0.0200	3.81	0.0480	4.53
802.11ax20	14.00	0.0251	3.81	0.0604	4.53
802.11ax40	13.00	0.0200	3.81	0.0480	4.53

5.7G WLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	15.00	0.0316	3.81	0.0760	4.53
802.11n20	14.00	0.0251	3.81	0.0604	4.53
802.11n40	13.00	0.0200	3.81	0.0480	4.53
802.11ac20	16.00	0.0398	3.81	0.0957	4.53
802.11ac40	15.00	0.0316	3.81	0.0760	4.53
802.11ax20	16.00	0.0398	3.81	0.0957	4.53
802.11ax40	15.00	0.0316	3.81	0.0760	4.53

5.8G WLAN

Modulation Type	Tune up Power		Antenna Gain (dBi)	EIRP (W)	EIRP MPE Limits (W)
	dBm	W			
802.11a	15.00	0.0316	3.81	0.0760	4.53
802.11n20	15.00	0.0316	3.81	0.0760	4.53
802.11n40	14.00	0.0251	3.81	0.0604	4.53
802.11ac20	14.00	0.0251	3.81	0.0604	4.53
802.11ac40	13.00	0.0200	3.81	0.0480	4.53
802.11ax20	17.00	0.0501	3.81	0.1205	4.53
802.11ax40	14.00	0.0251	3.81	0.0604	4.53

Remark:

1. Output power including tune-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer.

7. CONCLUSION

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB447498 D01 General RF Exposure Guidance v06, No SAR is required.

.....End of Report.....