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

FCC PART 15 SUBPART C TEST REPORT

FCC PART 15 C(15.249)

Report Reference No.....:	**CTA24061301901**
FCC ID..... :	**2AG7C-BELL5T**
Compiled by (position+printed name+signature) .:	File administrators Jinghua Xiao
Supervised by (position+printed name+signature) .:	Test Engineer Lushan Kong
Approved by (position+printed name+signature) .:	Manager Eric Wang
Date of issue .....:	Jun.11, 2024

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 .....:	Room 604-605,Building 1,No.768 Jianghong Road,Changhe Street,Binjiang District,Hangzhou,Zhejiang,China
Test specification.....**:**	
Standard.....:	**FCC CFR 47 PART 15 C(15.249)** **ANSI C63.10-2020**
TRF Originator.....:	Shenzhen Global Test Service Co.,Ltd.
Master TRF .....:	Dated 2014-12

Test item description .....:	**Wireless DoorBell**
Trade Mark .....:	N/A
Manufacturer .....:	Hangzhou Meari Technology Co., Ltd.
Model/Type reference .....:	Bell 5T
Listed Models .....:	Bell 5S, Bell 5F, Bell 8S, Bell 8T, Bell 8F, Bell 9S, Bell 9T, Bell 12S, Bell 12T, WIFICDP10GY, 30828, OSI-DBCAM-AC, EOD1-1002-2K
Modulation Type.....:	OOK
Operation Frequency.....:	From 915MHz
Hardware Version .....:	BELL5S-T10MB_F51 REV1_0
Software Version.....:	N/A
Rating .....:	DC 5.0V/1.0A by Adapter or AC/DC 12.0V-24.0V
Result .....:	**PASS**

T E S T R E P O R T

Test Report No. :	**CTA24061301901**	Jun.11, 2024 Date of issue

Equipment under Test	:	Wireless DoorBell
Model /Type	:	Bell 5T
Listed model	:	Bell 5S, Bell 5F, Bell 8S, Bell 8T, Bell 8F, Bell 9S, Bell 9T, Bell 12S, Bell 12T, WIFICDP10GY, 30828, OSI-DBCAM-AC, EOD1-1002-2K
Applicant	:	**Hangzhou Meari Technology Co., Ltd.**
Address	:	Room 604-605,Building 1,No.768 Jianghong 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. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz.
ANSI C63.10-2020: American National Standard for Testing Unlicensed Wireless Devices
KDB558074 D01 DTS Meas Guidance v05r02: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	May.30, 2024
Testing commenced on	:	May.30, 2024
Testing concluded on	:	Jun.10, 2024

2.2. Product Description

Product Name	Wireless DoorBell
Trade Mark	N/A
Model/Type reference	Bell 5T
List Models	Bell 5S, Bell 5F, Bell 8S, Bell 8T, Bell 8F, Bell 9S, Bell 9T, Bell 12S, Bell 12T, WIFICDP10GY, 30828, OSI-DBCAM-AC, EOD1-1002-2K
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 5.0V/1.0A by Adapter or AC/DC 12.0V-24.0V
Sample ID	CTA240613019-1# & CTA240613019-2#& CTA240613019-3#
SRD	
Frequency Range	915MHz
Channel Number	1Channel
Modulation Type	OOK
Antenna Description	FPC Antenna, 1.00dBi(Max.)
WIFI(2.4G Band)	
Frequency Range	2412MHz ~ 2462MHz
Channel Spacing	5MHz
Channel Number	11 Channel for 20MHz bandwidth(2412~2462MHz)
Modulation Type	802.11b: DSSS; 802.11g/n: OFDM
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) 11 Channels for 20MHz bandwidth(5500-5700MHz)
Modulation Type	802.11a/n: OFDM
WIFI (5.8G Band)	
Frequency Range	5745MHz ~ 5825MHz
Channel Number	5 channels for 20MHz bandwidth(5745-5825MHz)
Modulation Type	802.11a/n: OFDM
Antenna Description	FPC Antenna, 2.63dBi(Max.) for 2.4G Band and 3.27dBi(Max.) for 5G Band

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	○	230V / 50 Hz	○	120V / 60Hz
		●	12 V DC	●	24 V DC
		●	Other (specified in blank below)		

DC 5.0V

Pre-test at both voltage AC/DC 12V&24V and DC 5V to Adapter, but we only recorded the worst case in this report.(DC 5V to Adapter)

2.4. Short description of the Equipment under Test (EUT)

This is a Wireless DoorBell. .
For more details, refer to the user's manual of the EUT.

2.5. EUT operation mode

Mode of Operations	Frequency Range (MHz)	Data Rate (Mbps)
SRD	915	1
For Conducted Emission		
Test Mode	TX Mode	
For Radiated Emission		
Test Mode	TX Mode	

Channel	Frequency(MHz)
1	**915**

The EUT has been tested under operating condition.

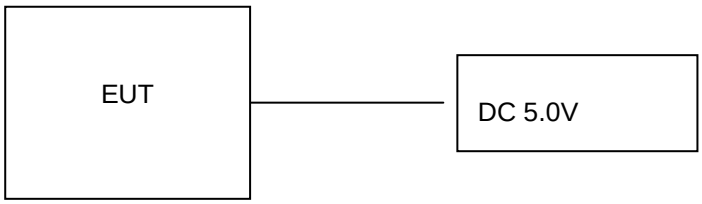
This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/50Hz modes, recorded worst case(AC 120V/60Hz).

Worst-case mode and channel used for 150 KHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, which was determined to be SRD mode.

Worst-case mode and channel used for 9 KHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be SRD mode.

2.6. Block Diagram of Test Setup



2.7. EUT Exercise Software

The product continues to transmit signals after power on.

2.8. Special Accessories

Manufacturer	Description	Model	Serial Number	Certificate
SHENZHEN TIANYIN ELECTRONICS CO.,LTD.	Adapter	TPA-46B050100UU	--	SDOC
Zhuzhou Dachuan Electronic Technology Co.,Ltd.	Adapter	DCT07W050100US-C1	--	SDOC

2.9. External I/O Cable

I/O Port Description	Quantity	Cable
USB Port	1	1.0M, Unscreened Cable

2.10. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AG7C-BELL5T** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.11. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. 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

3.2. 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.

3.3. Environmental conditions

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

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

3.4. 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 Testing Technology Co., Ltd. :

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz	3.02 dB	(1)
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)
Output Peak power	30MHz~18GHz	0.55 dB	(1)
Power spectral density	/	0.57 dB	(1)
Spectrum bandwidth	/	1.1%	(1)
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.10 dB	(1)
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.32 dB	(1)
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.54 dB	(1)

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

3.5. Test Description

Applied Standard: FCC Part 15 Subpart C				
FCC Rules	Description of Test	Test Sample	Result	Remark
§15.207(a)	Conduction Emissions	CTA240613019-3#	Compliant	Note 1
§15.205(a) §15.209(a) §15.249(a) §15.249(c)	Radiated Emissions Measurement	CTA240613019-3#	Compliant	Note 1
§15.249	Band Edges Measurement	CTA240613019-3#	Compliant	Note 1
§15.249, §15.215	20 dB Bandwidth	CTA240613019-3#	Compliant	Note 1
§15.203	Antenna Requirements	/	Compliant	Note 1

Remark:
1. The measurement uncertainty is not included in the test result.
2. NA = Not Applicable; NP = Not Performed
3. Note 1 – Test results inside test report;
4. Note 2 – Test results in other test report (MPE Report).
5. We tested all test mode and recorded worst case in report

3.6. Equipments Used during the Test

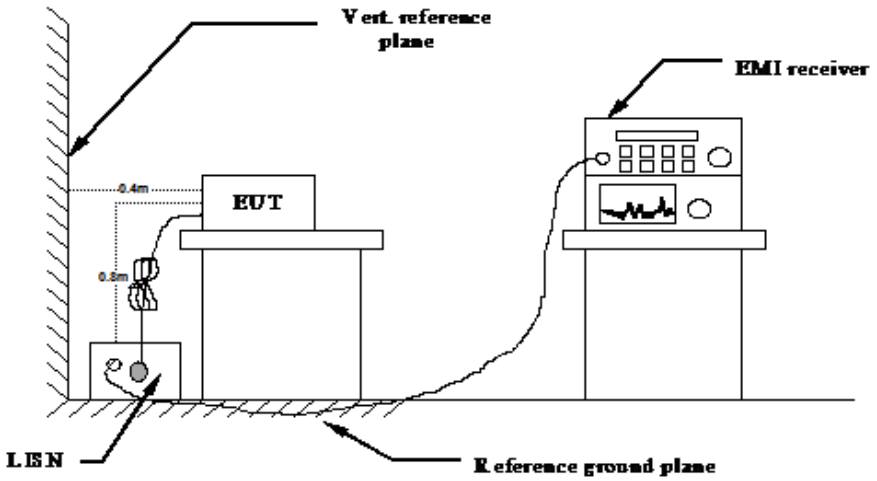
Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	CTA-308	2023/08/02	2024/08/01
LISN	R&S	ENV216	CTA-314	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESPI	CTA-307	2023/08/02	2024/08/01
EMI Test Receiver	R&S	ESCI	CTA-306	2023/08/02	2024/08/01
Spectrum Analyzer	Agilent	N9020A	CTA-301	2023/08/02	2024/08/01
Spectrum Analyzer	R&S	FSP	CTA-337	2023/08/02	2024/08/01
Vector Signal generator	Agilent	N5182A	CTA-305	2023/08/02	2024/08/01
Analog Signal Generator	R&S	SML03	CTA-304	2023/08/02	2024/08/01
Universal Radio Communication	CMW500	R&S	CTA-302	2023/08/02	2024/08/01
Temperature and humidity meter	Chigo	ZG-7020	CTA-326	2023/08/02	2024/08/01
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	CTA-310	2023/10/17	2024/10/16
Horn Antenna	Schwarzbeck	BBHA 9120D	CTA-309	2023/10/13	2024/10/12
Loop Antenna	Zhinan	ZN30900C	CTA-311	2023/10/17	2024/10/16
Horn Antenna	Beijing Hangwei Dayang	OBH100400	CTA-336	2021/08/07	2024/08/06
Antenna Tower	Suzhou Keletuo electronic Technology Co., LTD	BK-*AT-BS	N/A	N/A	N/A
Amplifier	Schwarzbeck	BBV 9745	CTA-312	2023/08/02	2024/08/01
Amplifier	Taiwan chengyi	EMC051845B	CTA-313	2023/08/02	2024/08/01
Directional coupler	NARDA	4226-10	CTA-303	2023/08/02	2024/08/01
High-Pass Filter	XingBo	XBLBQ-GTA18	CTA-402	2023/08/02	2024/08/01
High-Pass Filter	XingBo	XBLBQ-GTA27	CTA-403	2023/08/02	2024/08/01
Automated filter bank	Tonscend	JS0806-F	CTA-404	2023/08/02	2024/08/01
Power Sensor	Agilent	U2021XA	CTA-405	2023/08/02	2024/08/01
Amplifier	Schwarzbeck	BBV9719	CTA-406	2023/08/02	2024/08/01

Note: 1. The Cal.Interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2013.
2 Support equipment, if needed, was placed as per ANSI C63.10-2013
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
4 The EUT received DC 5V power, the adapter received AC120V/60Hz or AC 240V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following：

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

DISTURBANCE Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:
CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

TEST RESULTS

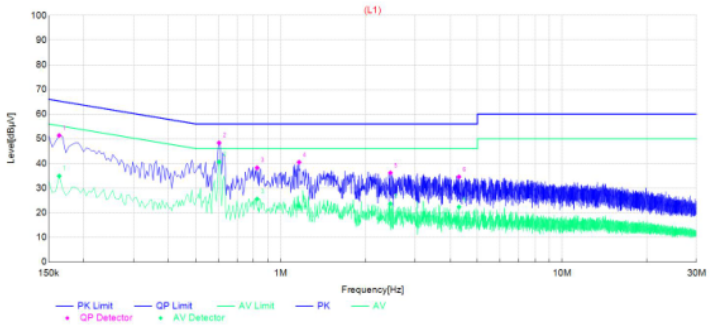
Remark: We measured Conducted Emission at SRD mode from 150 KHz to 30MHz in AC120V and the worst case was recorded.

Temperature	24.2℃	Humidity	54.2%
Test Engineer	Lushan Kong	Configurations	SRD

Adapter: TPA-46B050100UU

Power supply:	AC 120V/60Hz	Polarization	L

Test Graph



Final Data List

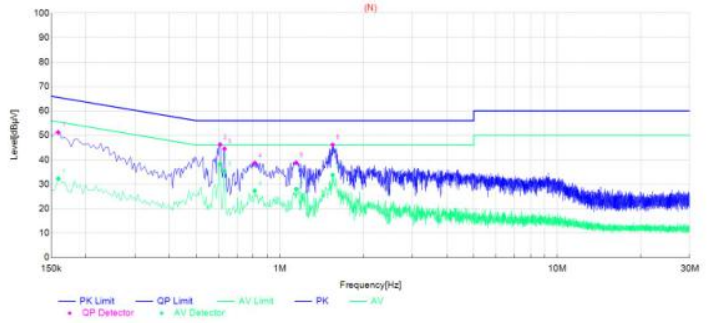
NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.1635	41.03	24.57	10.29	51.32	34.86	65.28	55.28	13.96	20.42	L1	PASS
2	0.6045	38.16	30.40	10.19	48.35	40.59	56.00	46.00	7.65	5.41	L1	PASS
3	0.825	27.96	15.31	10.24	38.20	25.55	56.00	46.00	17.80	20.45	L1	PASS
4	1.1625	30.26	12.51	10.21	40.47	22.72	56.00	46.00	15.53	23.28	L1	PASS
5	2.454	25.85	13.36	10.30	36.15	23.66	56.00	46.00	19.85	22.34	L1	PASS
6	4.299	24.19	11.94	10.36	34.55	22.30	56.00	46.00	21.45	23.70	L1	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N

Test Graph



Final Data List

NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.159	40.85	21.97	10.31	51.16	32.28	65.52	55.52	14.36	23.24	N	PASS
2	0.609	36.01	28.00	10.20	46.21	38.20	56.00	46.00	9.79	7.80	N	PASS
3	0.6315	34.29	25.10	10.20	44.49	35.30	56.00	46.00	11.51	10.70	N	PASS
4	0.8115	28.38	17.08	10.25	38.63	27.33	56.00	46.00	17.37	18.67	N	PASS
5	1.1445	28.61	17.79	10.21	38.82	28.00	56.00	46.00	17.18	18.00	N	PASS
6	1.5495	35.91	23.55	10.24	46.15	33.79	56.00	46.00	9.85	12.21	N	PASS

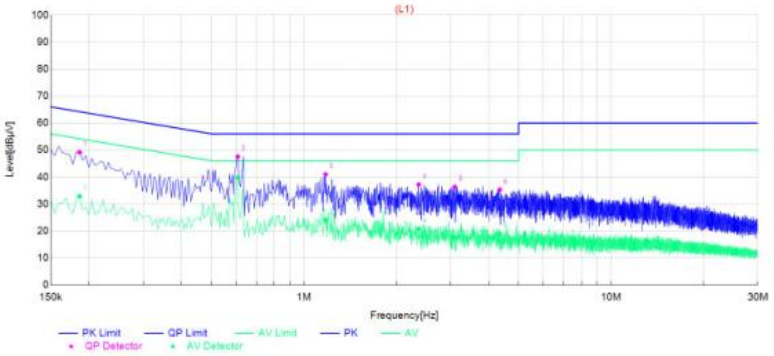
Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Adapter: DCT07W050100US-C1

Power supply:	AC 120V/60Hz	Polarization	L

Test Graph



Final Data List

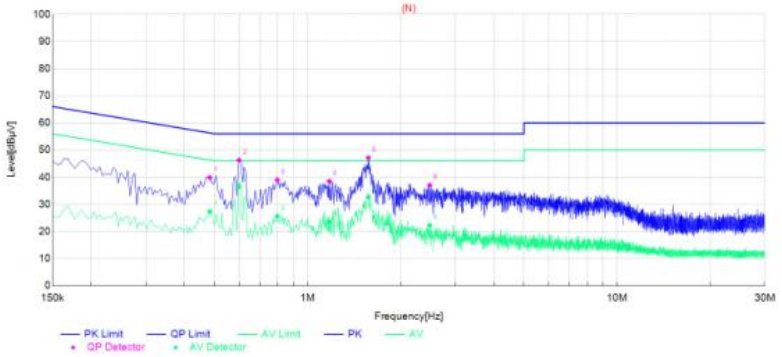
NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.186	39.02	22.69	10.18	49.20	32.87	64.21	54.21	15.01	21.34	L1	PASS
2	0.609	37.35	29.60	10.20	47.55	39.80	56.00	46.00	8.45	6.20	L1	PASS
3	1.176	30.76	13.91	10.21	40.97	24.12	56.00	46.00	15.03	21.88	L1	PASS
4	2.364	26.91	10.53	10.30	37.21	20.83	56.00	46.00	18.79	25.17	L1	PASS
5	3.0975	25.98	7.21	10.34	36.32	17.55	56.00	46.00	19.68	28.45	L1	PASS
6	4.3395	24.92	8.57	10.36	35.28	18.93	56.00	46.00	20.72	27.07	L1	PASS

Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

Power supply:	AC 120V/60Hz	Polarization	N

Test Graph



Final Data List

NO.	Frequency	QP Reading	AVG. Reading	Factor	QP Result	AVG. Result	QP Limit	AVG. Limit	QP Margin	AVG. Margin	Line	Remark
1	0.483	29.59	17.03	10.25	39.84	27.28	56.29	46.29	16.45	19.01	N	PASS
2	0.6	36.07	26.36	10.19	46.26	36.55	56.00	46.00	9.74	9.45	N	PASS
3	0.798	28.69	15.32	10.25	38.94	25.57	56.00	46.00	17.06	20.43	N	PASS
4	1.176	28.27	13.45	10.21	38.48	23.66	56.00	46.00	17.52	22.34	N	PASS
5	1.572	36.88	22.47	10.24	47.12	32.71	56.00	46.00	8.88	13.29	N	PASS
6	2.481	26.73	11.95	10.30	37.03	22.25	56.00	46.00	18.97	23.75	N	PASS

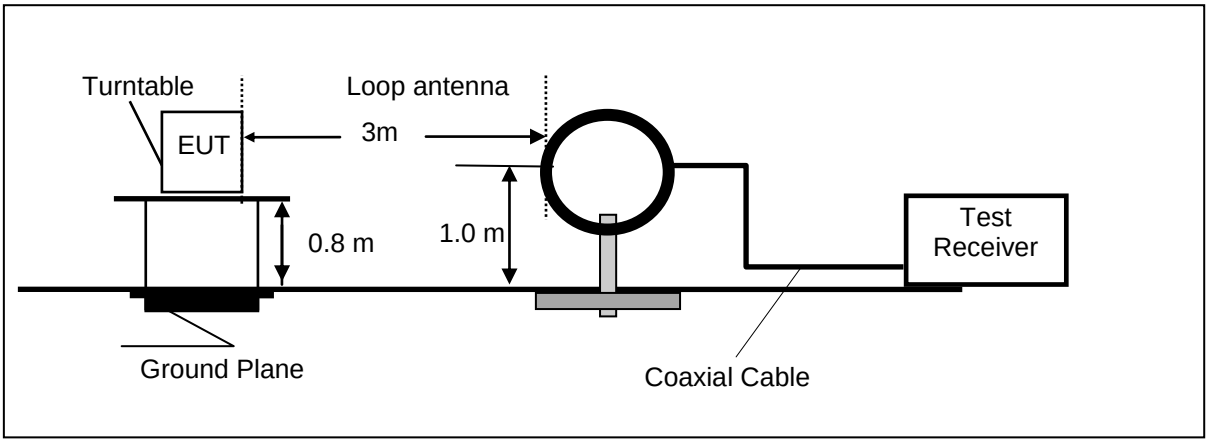
Note:1. Result (dBµV) = Reading (dBµV) + Factor (dB).

2. Factor (dB) = Cable loss (dB) + LISN Factor (dB).

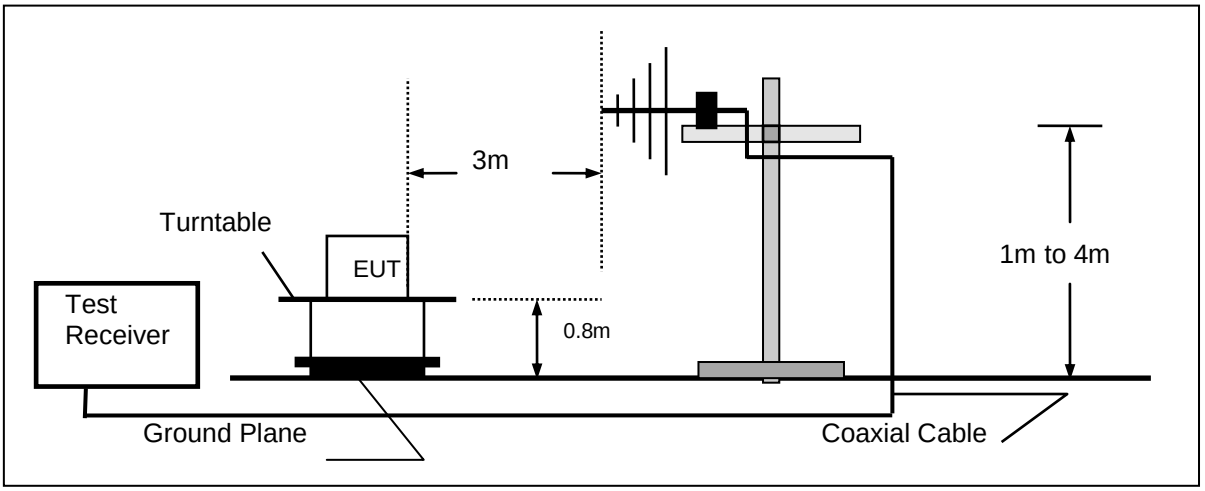
4.2. Radiated Emission

TEST CONFIGURATION

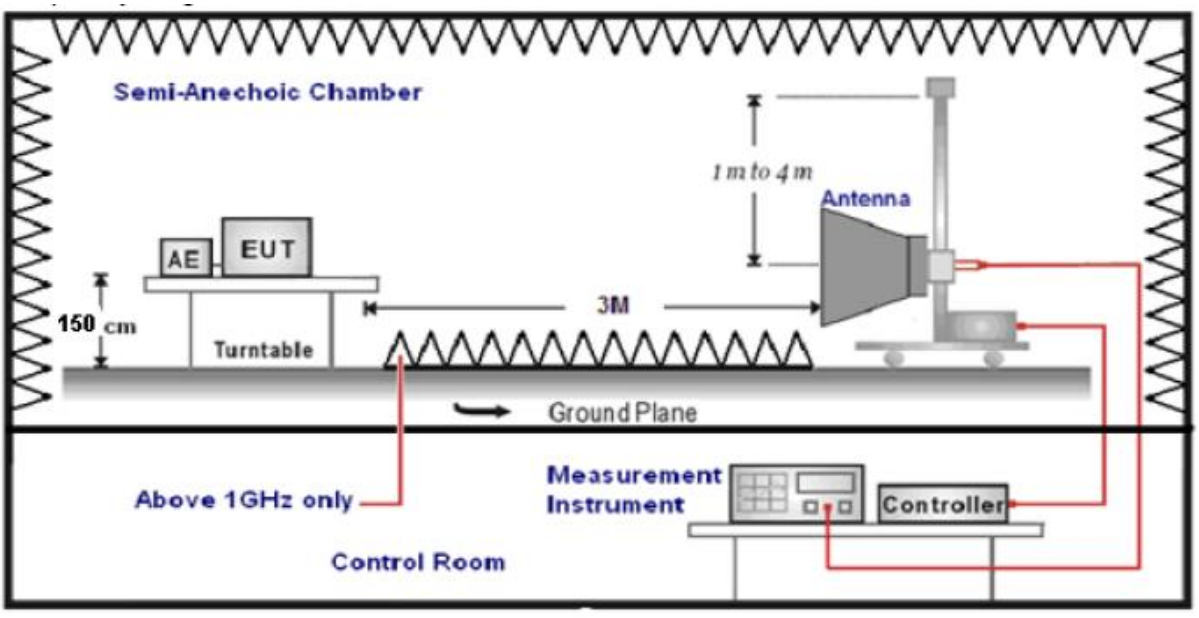
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 9 KHz –1GHz;the EUT was placed on a turn table which is 1.5m above ground plane when testing frequency range 1GHz – 25GHz.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 30MHz to 25GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Anternna	1

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

Transd=AF +CL-AG

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

Remark: We measured Radiated Emission at SRD mode from 30 MHz to 10GHz in AC120V and the worst case was recorded.

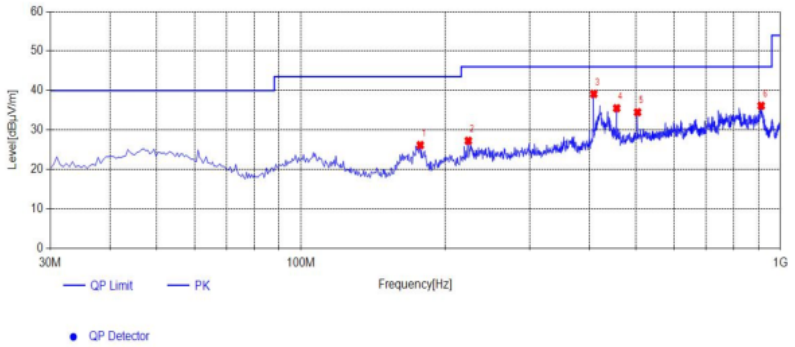
Temperature	24.1℃	Humidity	53.8%
Test Engineer	Lushan Kong	Configurations	SRD

Adapter: TPA-46B050100UU

For 30MHz-1GHz

Horizontal

Test Graph



Suspected List

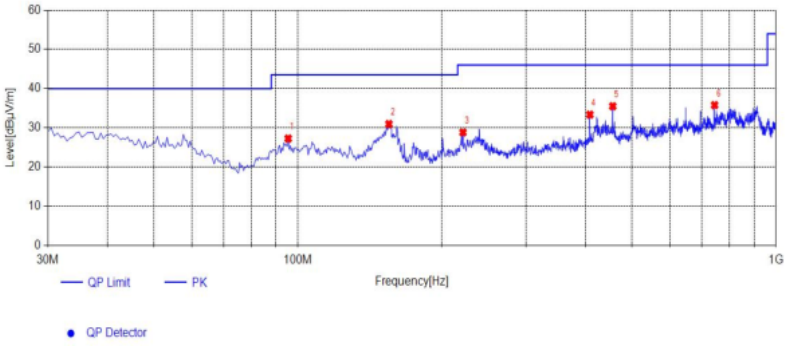
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	177.44	32.73	-6.58	26.15	43.50	17.35	100	62	PK	Horizonta	PASS
2	223.515	31.60	-4.36	27.24	46.00	18.76	100	72	PK	Horizonta	PASS
3	408.3	38.43	0.69	39.12	46.00	6.88	100	275	PK	Horizonta	PASS
4	455.83	34.40	1.11	35.51	46.00	10.49	100	75	PK	Horizonta	PASS
5	503.845	32.13	2.37	34.50	46.00	11.50	100	279	PK	Horizonta	PASS
6	912.215	27.82	8.31	36.13	46.00	9.87	100	226	PK	Horizonta	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List

NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	95.475	32.36	-5.11	27.25	43.50	16.25	100	236	PK	Vertical	PASS
2	155.13	38.81	-7.86	30.95	43.50	12.55	100	322	PK	Vertical	PASS
3	221.575	33.14	-4.32	28.82	46.00	17.18	100	32	PK	Vertical	PASS
4	408.3	32.66	0.69	33.35	46.00	12.65	100	2	PK	Vertical	PASS
5	455.83	34.39	1.11	35.50	46.00	10.50	100	29	PK	Vertical	PASS
6	744.405	29.09	6.69	35.78	46.00	10.22	100	226	PK	Vertical	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

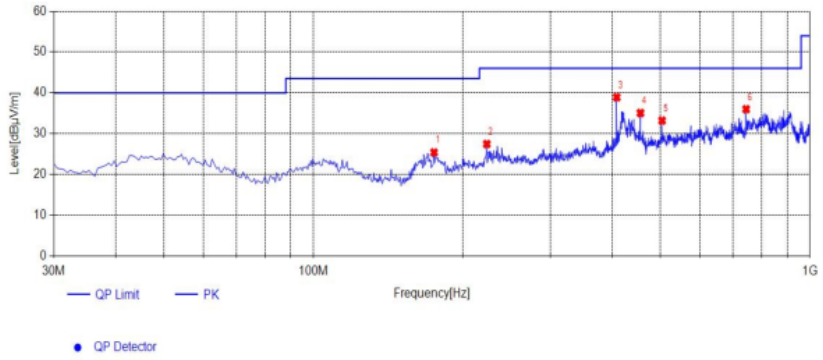
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Adapter: DCT07W050100US-C1

For 30MHz-1GHz

Horizontal

Test Graph



Suspected List

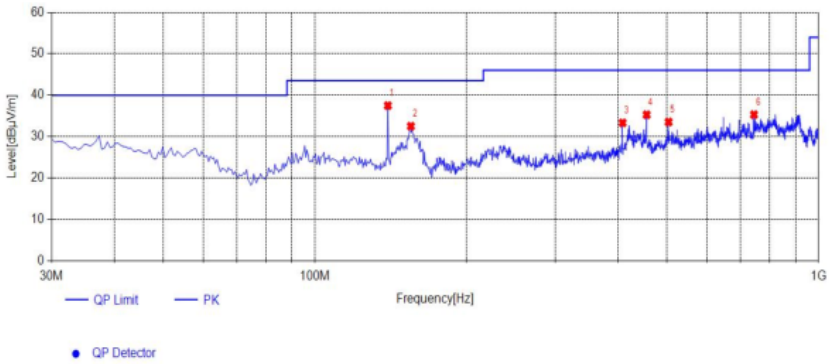
NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	175.015	31.81	-6.43	25.38	43.50	18.12	100	98	PK	Horizonta	PASS
2	223.515	31.80	-4.36	27.44	46.00	18.56	100	72	PK	Horizonta	PASS
3	408.3	38.22	0.69	38.91	46.00	7.09	100	269	PK	Horizonta	PASS
4	455.83	33.94	1.11	35.05	46.00	10.95	100	91	PK	Horizonta	PASS
5	503.845	30.83	2.37	33.20	46.00	12.80	100	98	PK	Horizonta	PASS
6	743.92	29.32	6.66	35.98	46.00	10.02	100	72	PK	Horizonta	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical

Test Graph



Suspected List

NO.	Frequency [MHz]	Reading [dBµV/m]	Factor [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	139.61	45.82	-8.34	37.48	43.50	6.02	100	209	PK	Vertical	PASS
2	155.13	40.37	-7.86	32.51	43.50	10.99	100	232	PK	Vertical	PASS
3	408.3	32.62	0.69	33.31	46.00	12.69	100	358	PK	Vertical	PASS
4	455.83	34.17	1.11	35.28	46.00	10.72	100	1	PK	Vertical	PASS
5	503.845	31.16	2.37	33.53	46.00	12.47	100	236	PK	Vertical	PASS
6	744.405	28.62	6.69	35.31	46.00	10.69	100	279	PK	Vertical	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .

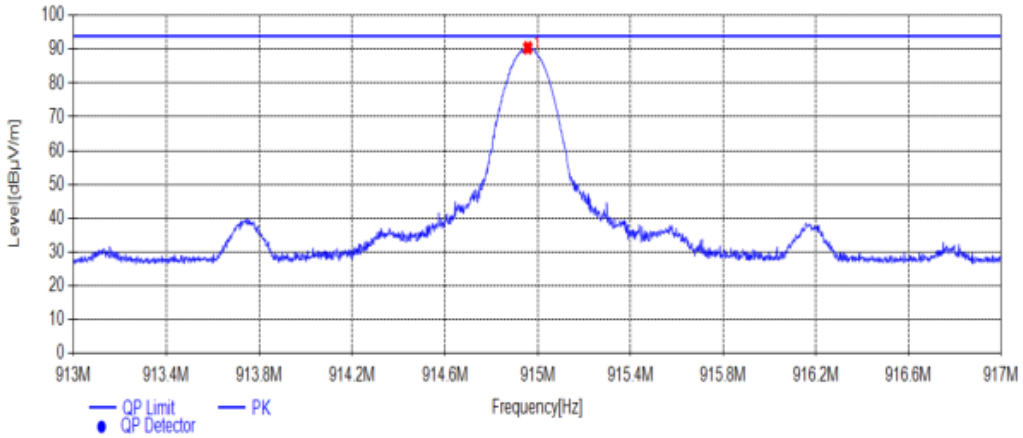
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Field strength of fundamental:

Frequency (MHz)	Pol.	Measure Result(QP, dBuV/m)	EIRP(dBm)	Limit (dBuV/m)	Result
915	H	90.52	-4.64	94	Pass
915	V	85.81	-9.35	94	Pass

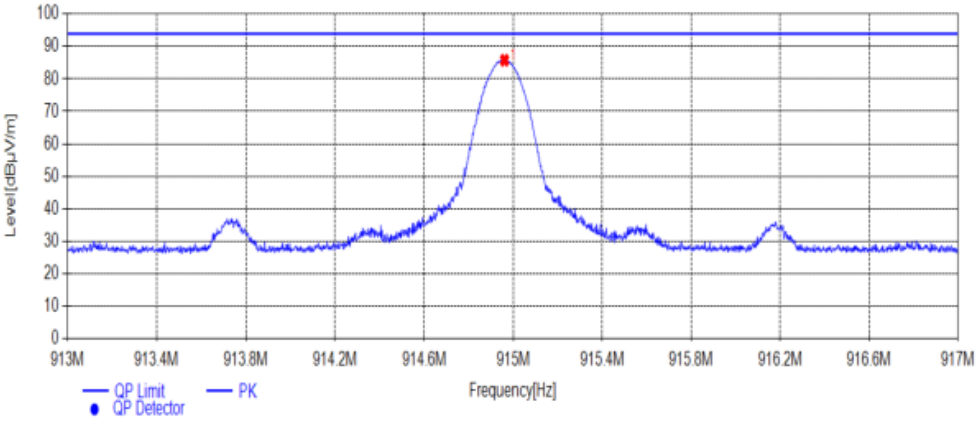
Horizontal

Test Graph



Vertical

Test Graph



Notes:

EIRP = EMeas + 20log (dMeas) −104.7

EIRP: is the equivalent isotropically radiated power, in dBm

EMeas: is the field strength of the emission at the measurement distance, in dBuV/m

dMeas: is the measurement distance, in m

Above 1G（The worst test result for Tx）:

Freq. MHz	Reading dBuv	Ant. Fac dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuv/m	Limit dBuv/m	Margin dB	Remark	Pol.
1830.0	50.64	33.01	35	3.86	52.51	74.00	-21.49	Peak	Horizontal
1830.0	34.93	33.01	35	3.86	36.80	54.00	-17.20	Average	Horizontal
2745.0	53.60	33.03	35.02	3.91	55.52	74.00	-18.48	Peak	Horizontal
2745.0	35.57	33.03	35.02	3.91	37.49	54.00	-16.51	Average	Horizontal
1830.0	49.87	33.01	35	3.86	51.74	74.00	-22.26	Peak	Vertical
1830.0	35.03	33.01	35	3.86	36.90	54.00	-17.10	Average	Vertical
2745.0	54.15	33.03	35.02	3.91	56.07	74.00	-17.93	Peak	Vertical
2745.0	35.23	33.03	35.02	3.91	37.15	54.00	-16.85	Average	Vertical

Notes:

1. Measuring frequencies from 9k~10th harmonic (ex. 10GHz), No emission found between lowest internal used/generated frequency to 30 MHz.

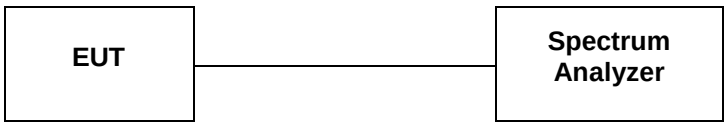
2. Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 10GHz) were made with an instrument using Peak detector mode.

3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.3. 20dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

Use the following spectrum analyzer settings:
Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel
RBW = 1% to 5% of the 20 dB bandwidth
VBW =3 RBW
Sweep = auto
Detector function = peak
Trace = max hold
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

LIMIT

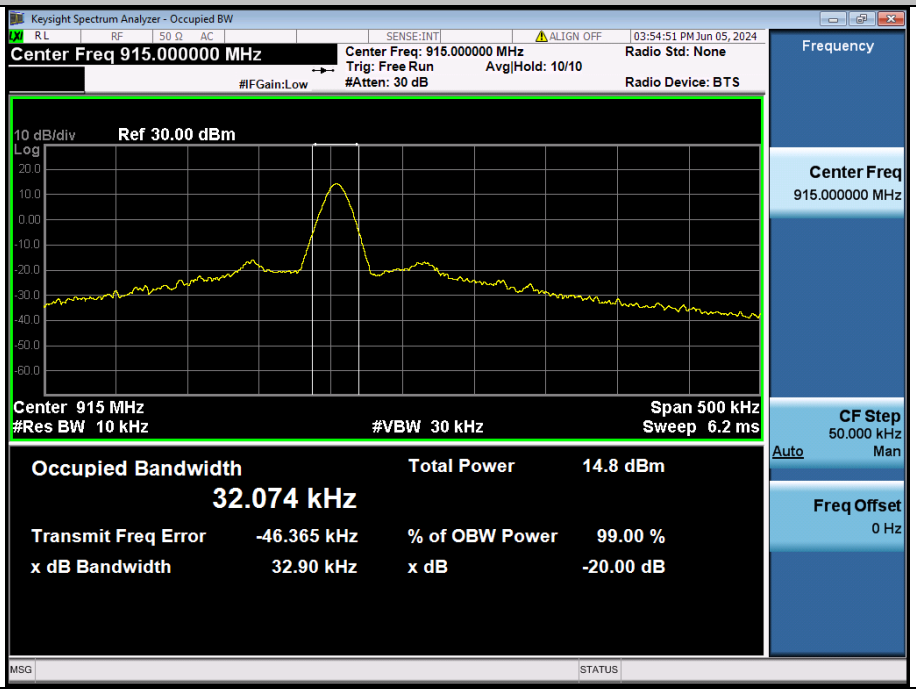
Non-Specified

TEST RESULTS

Temperature	24.2℃	Humidity	54.9%
Test Engineer	Lushan Kong	Configurations	SRD

Modulation	Channel	20dB Bandwidth (KHz)	Limit (KHz)	Result
OOK	1	32.90	Non-Specified	Pass

CH1

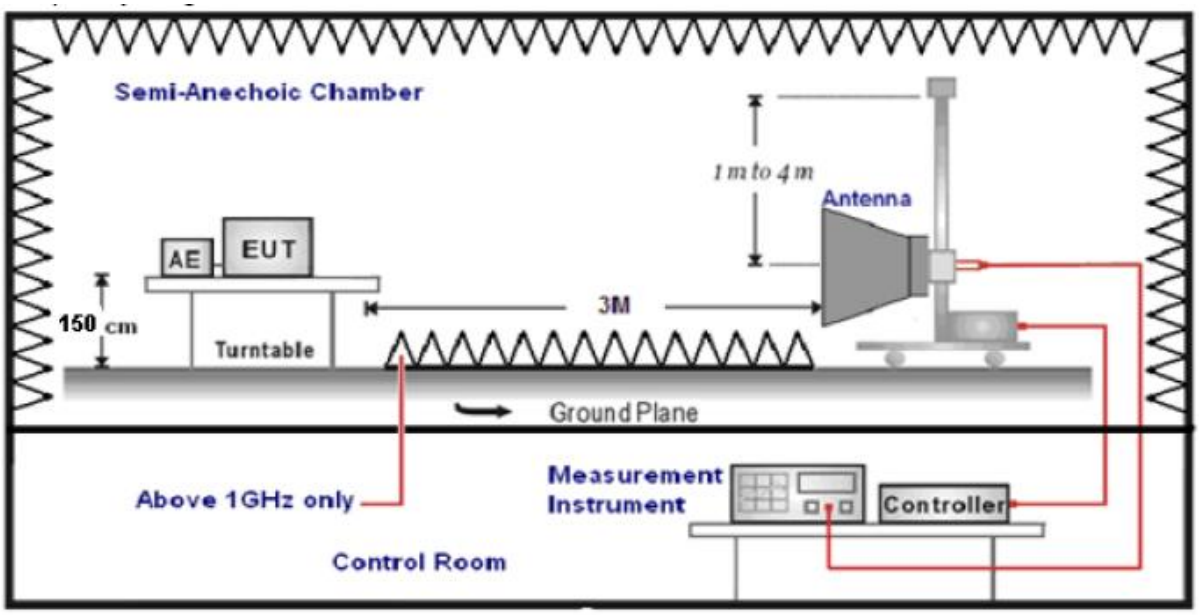


4.4. Band Edge Compliance of RF Emission

TEST REQUIREMENT

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

TEST CONFIGURATION



TEST PROCEDURE

The EUT is placed on a turntable, which is 0.8m above the ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
Peak: RBW=120MHz, RBW=300MHz / Sweep=AUTO
Repeat the procedures until the peak versus polarization are measured.

LIMIT

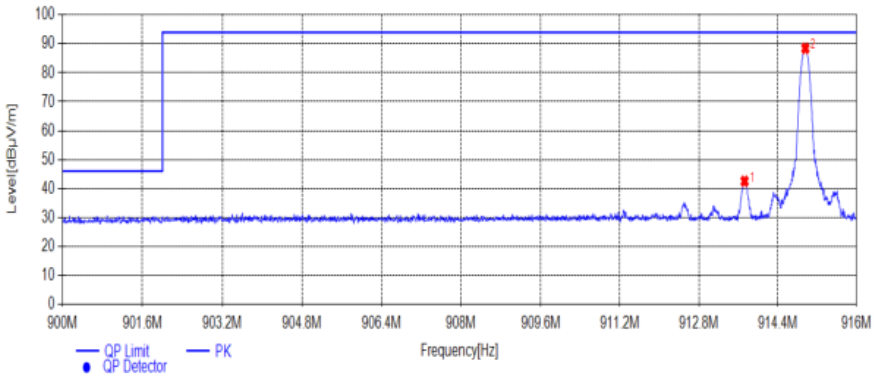
Below -20dB of the highest emission level in operating band.
Radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)

TEST RESULTS

Test Mode	Frequency	Limit	Result
	MHz	dBuV/dBc	
Lowest	902.0	<46dBuV	Pass
Highest	928.0	<46dBuV	Pass

Lowest:
Horizontal:

Test Graph

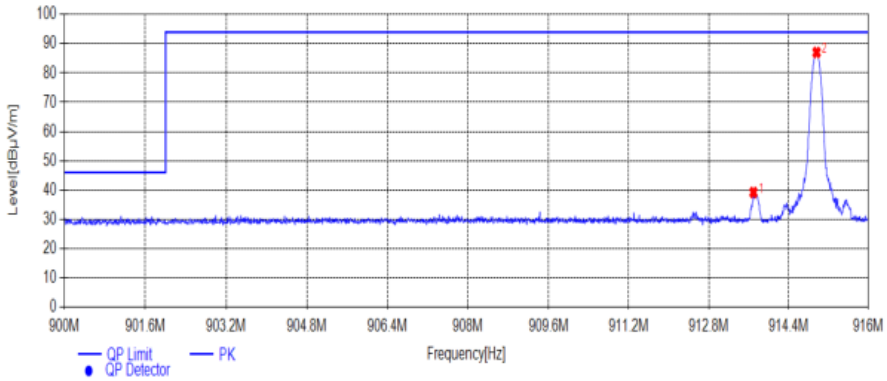


Suspected List								
NO.	Frequency [MHz]	Factor [dB]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	913.7269	3.50	51.50	100	233	PK	Horizontal	PASS
2	914.9595	3.53	5.52	100	105	PK	Horizontal	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical:

Test Graph

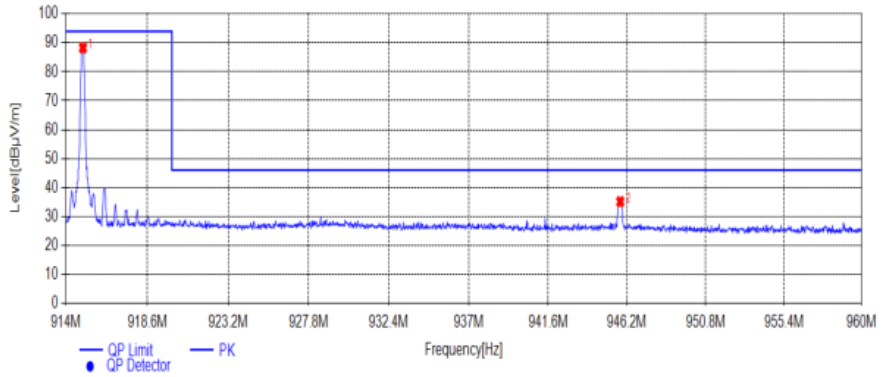


Suspected List								
NO.	Frequency [MHz]	Factor [dB]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	913.6948	3.50	54.86	100	21	PK	Vertical	PASS
2	914.9595	3.53	6.92	100	37	PK	Vertical	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Highest:
Horizontal:

Test Graph

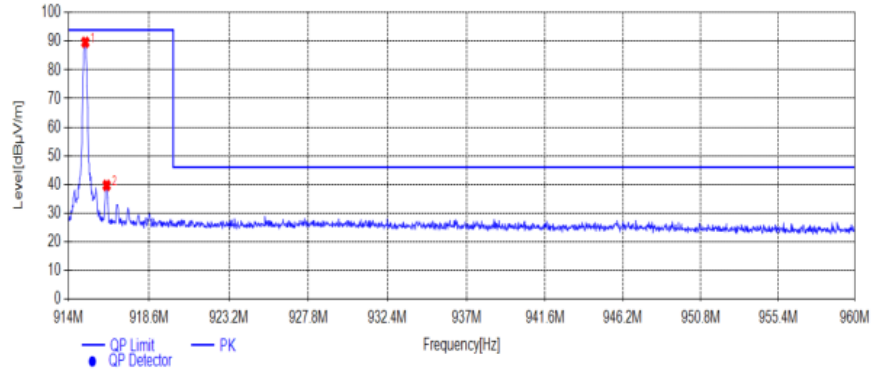


Suspected List								
NO.	Frequency [MHz]	Factor [dB]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	914.9665	3.53	5.68	100	109	PK	Horizontal	PASS
2	945.8019	2.10	10.94	100	95	PK	Horizontal	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

Vertical:

Test Graph



Suspected List								
NO.	Frequency [MHz]	Factor [dB]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	914.9665	3.53	4.30	100	36	PK	Vertical	PASS
2	916.1861	3.43	54.36	100	26	PK	Vertical	PASS

Note:1. Result (dBµV/m) = Reading(dBµV/m) + Factor (dB) .
2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).

4.5. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The antenna used for this product is FPC Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.00dBi.

Reference to the **Internal photos**.

5. TEST SETUP PHOTOS OF THE EUT

Adapter: TPA-46B050100UU

Photo of Radiated Emissions Measurement

Fig. 1

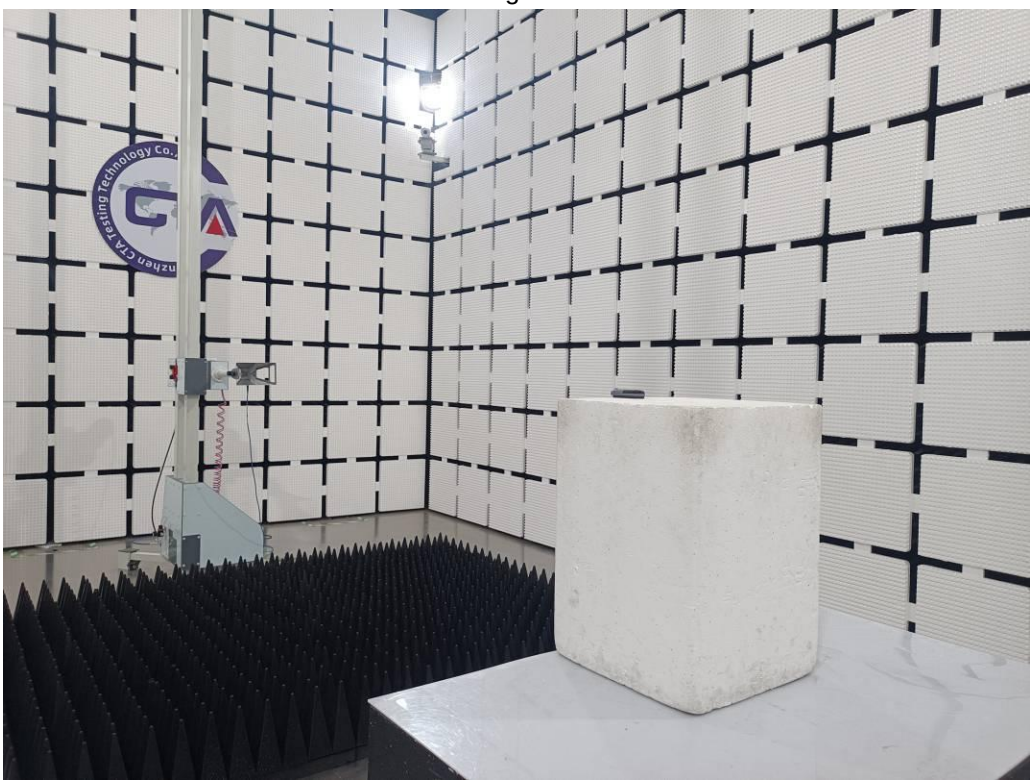


Fig. 2

Photo of Conducted Emission Measurement

Fig. 3

Adapter:DCT07W050100US-C1

Photo of Radiated Emissions Measurement

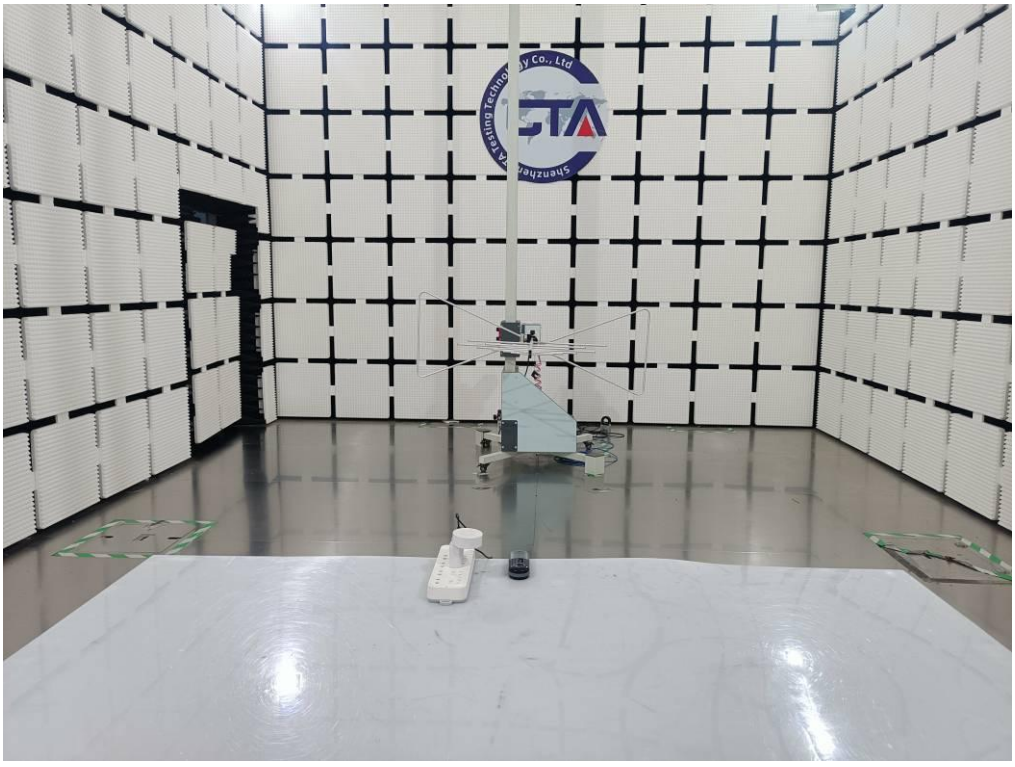


Fig. 1

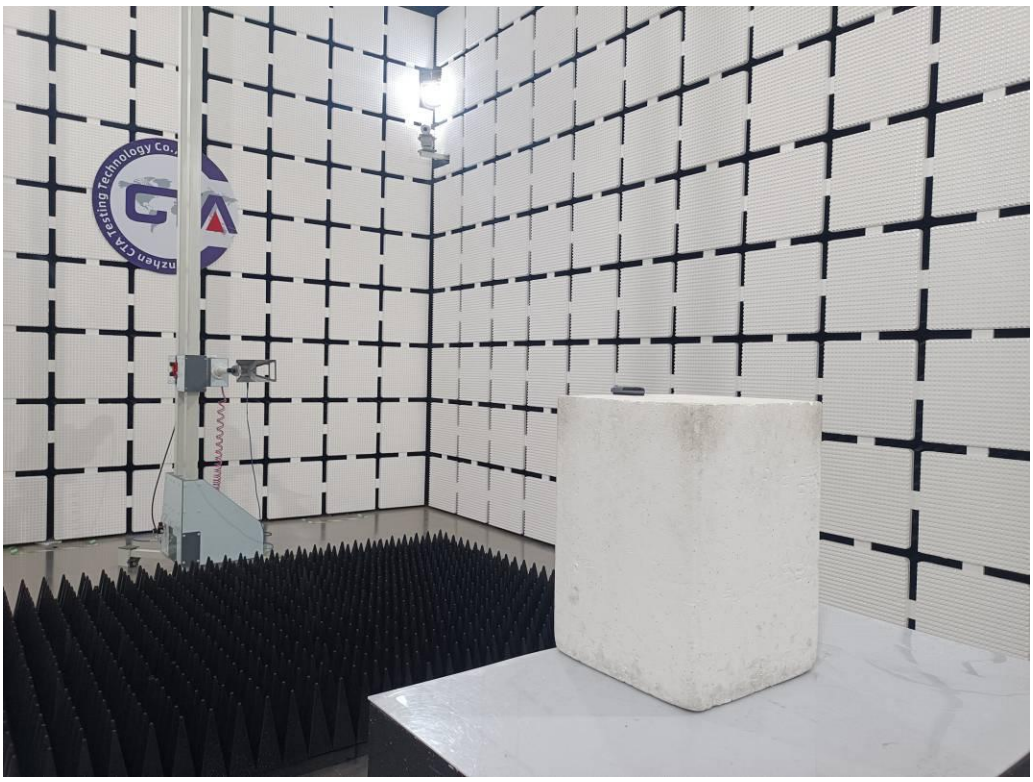


Fig. 2

Photo of Conducted Emission Measurement

Fig. 3

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7


Switching Adapter
Model: TPA-46B050100UU
Input:100-240V ~ 50/60Hz 0.2A
Output:5.0V ⎓ 1000mA
EFFICIENCY LEVEL: VI
LPS
SHENZHEN TIANYIN ELECTRONICS CO., LTD.
Made in China

Fig. 8


AC/DC ADAPTOR
Model:DCT07W050100US-C1
Input:100-240V~50/60Hz 250mA
Output:5.0V⎓1.0A
Conforms to UL Std.62368-1
Certified to CSA Std.C22.2
No.62368-1
S/N: PPPPPPPYYMMDDXXXXXX Made in China
Zhuzhou Dachuan Electronic Technology Co.,Ltd.
Intertek
5013076
US

Fig. 9

Fig. 10

Fig. 11

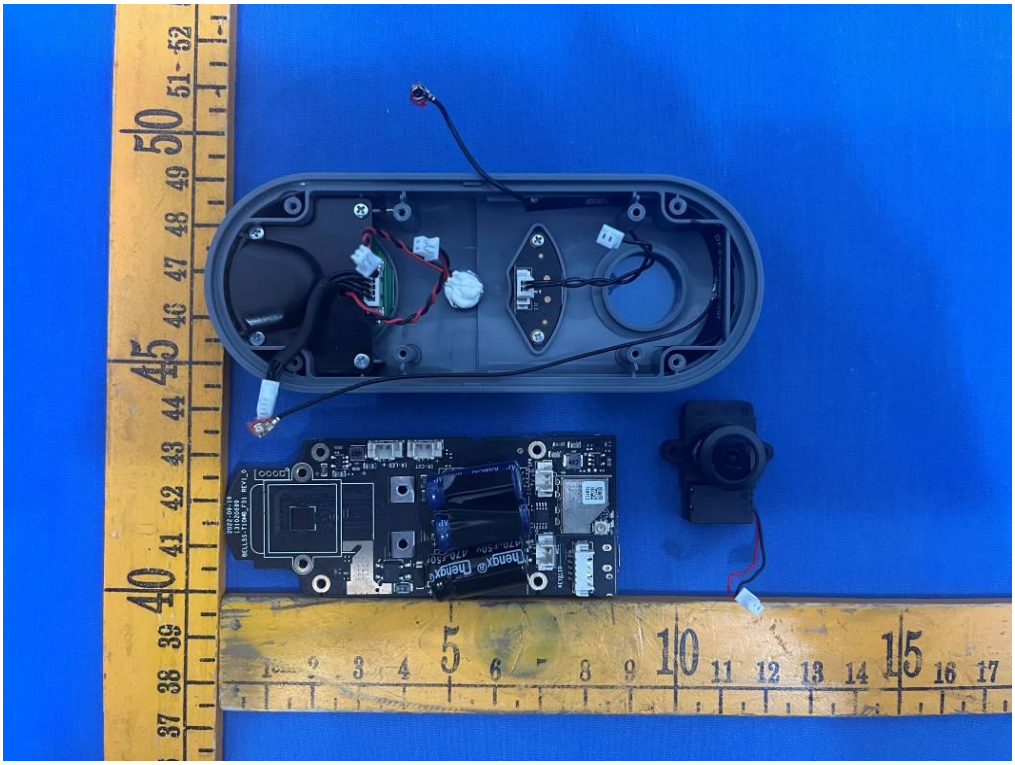


Fig. 12

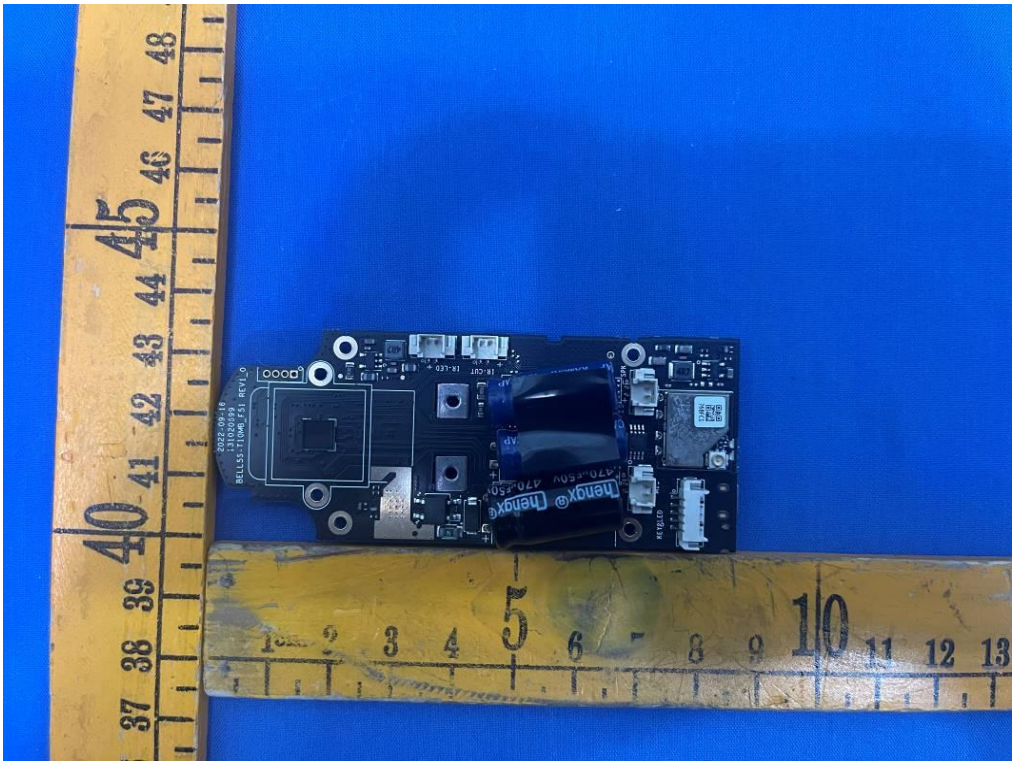


Fig. 13

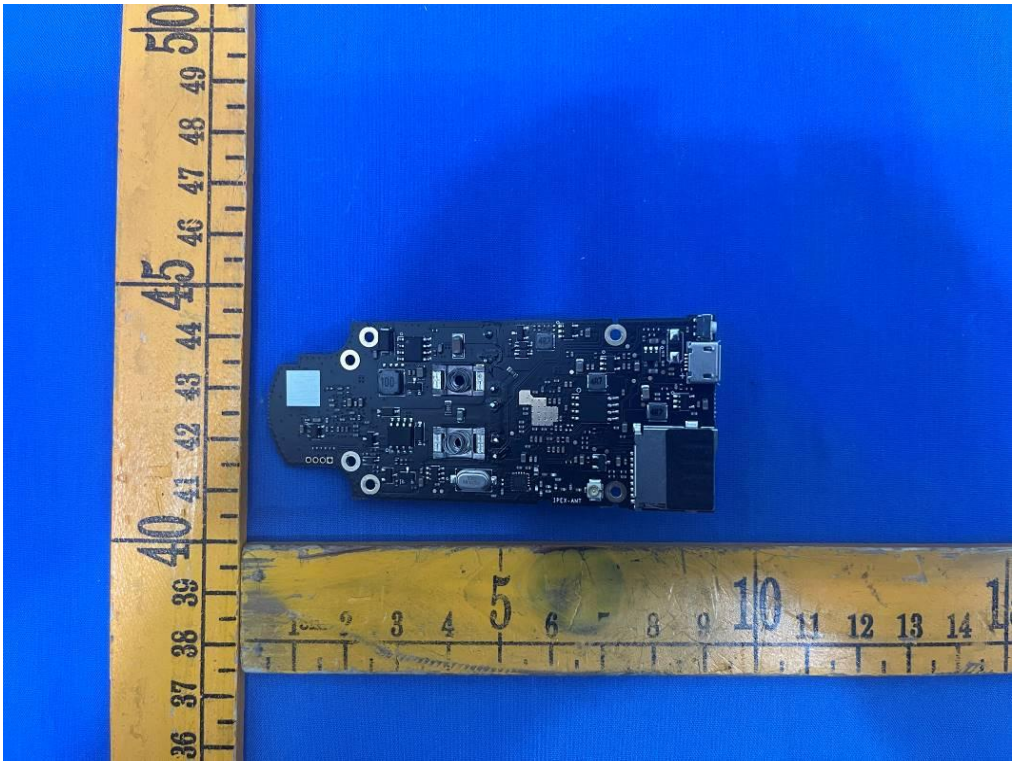


Fig. 14

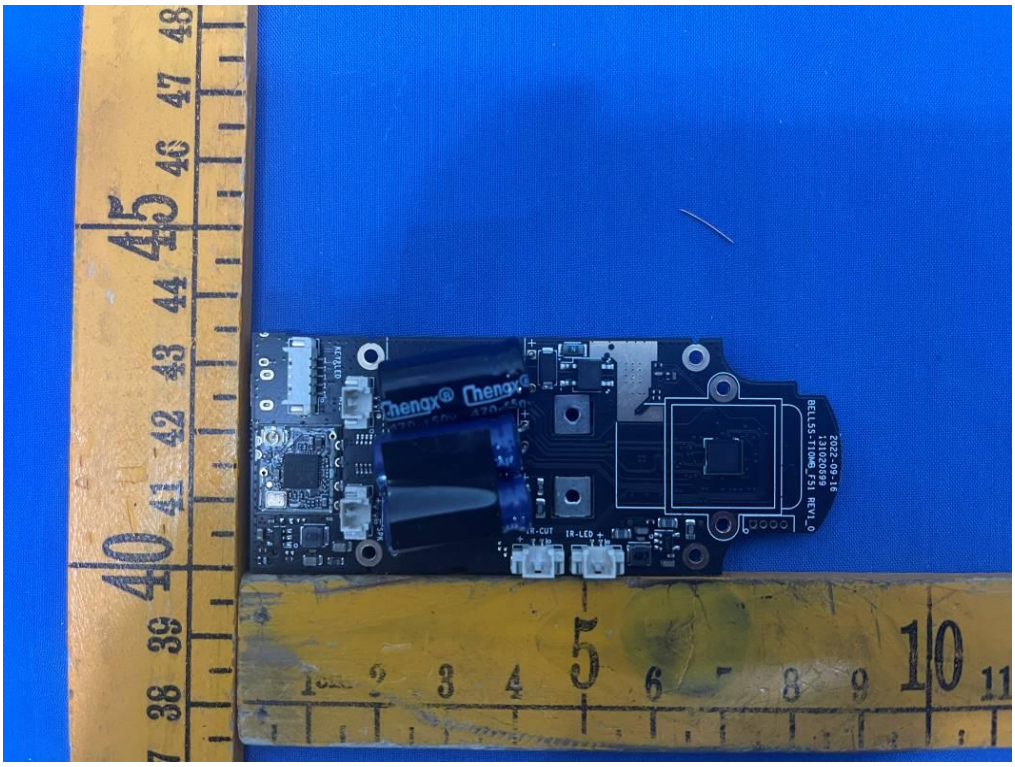


Fig. 15

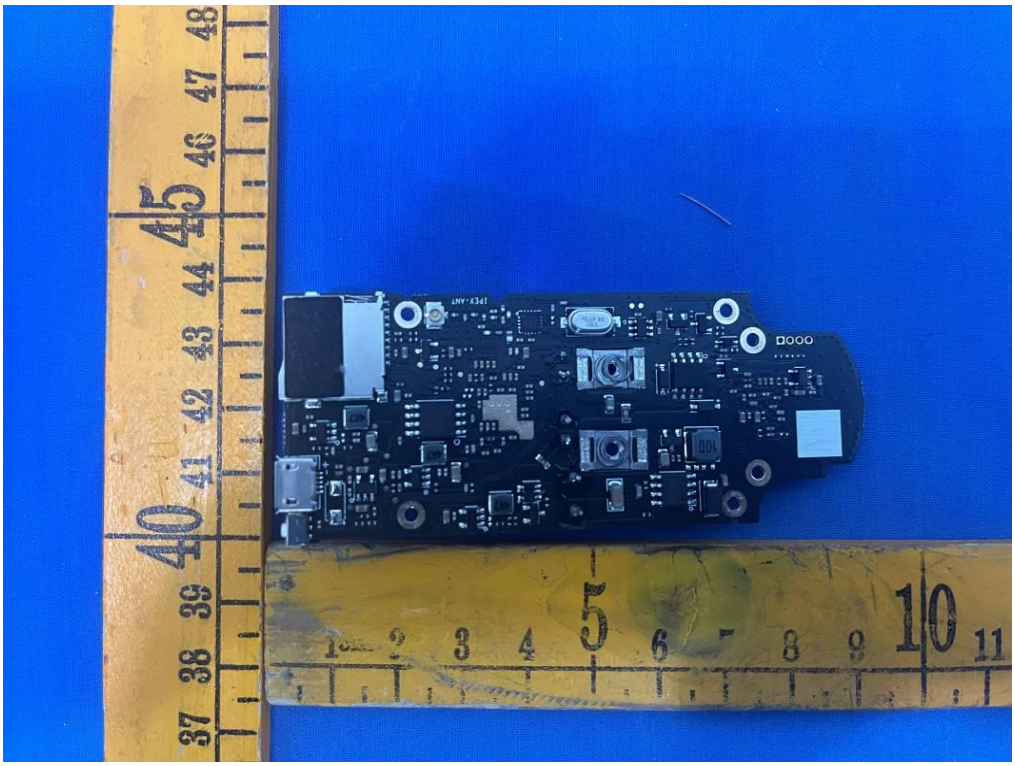


Fig. 16

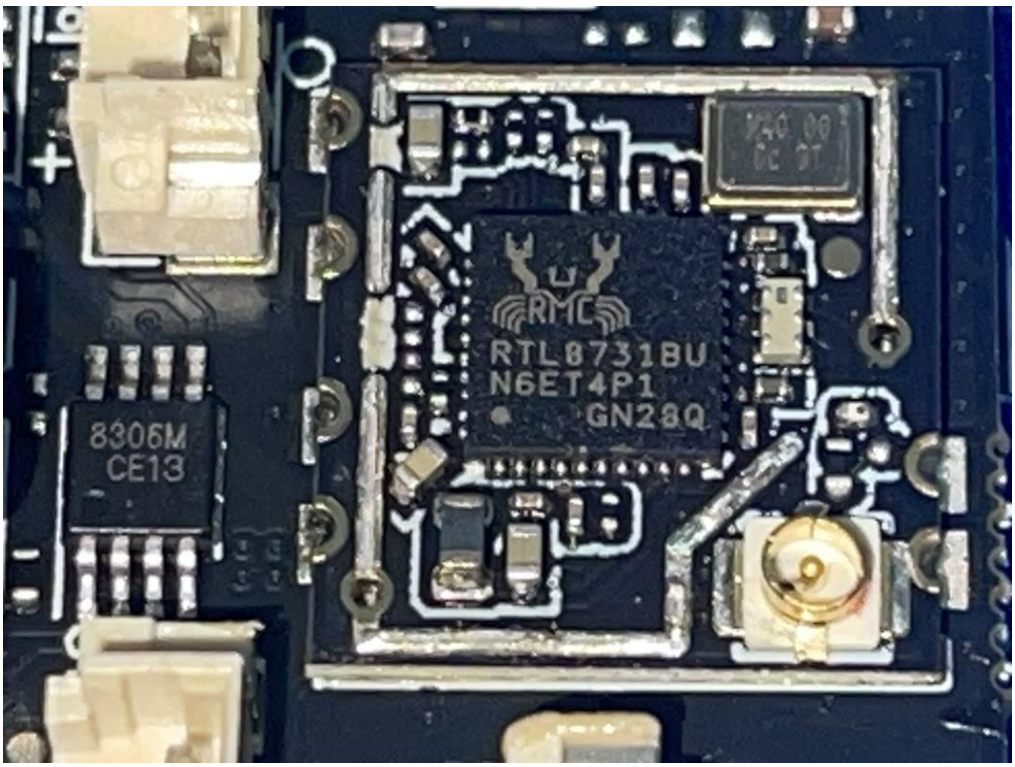


Fig. 17

Fig. 18

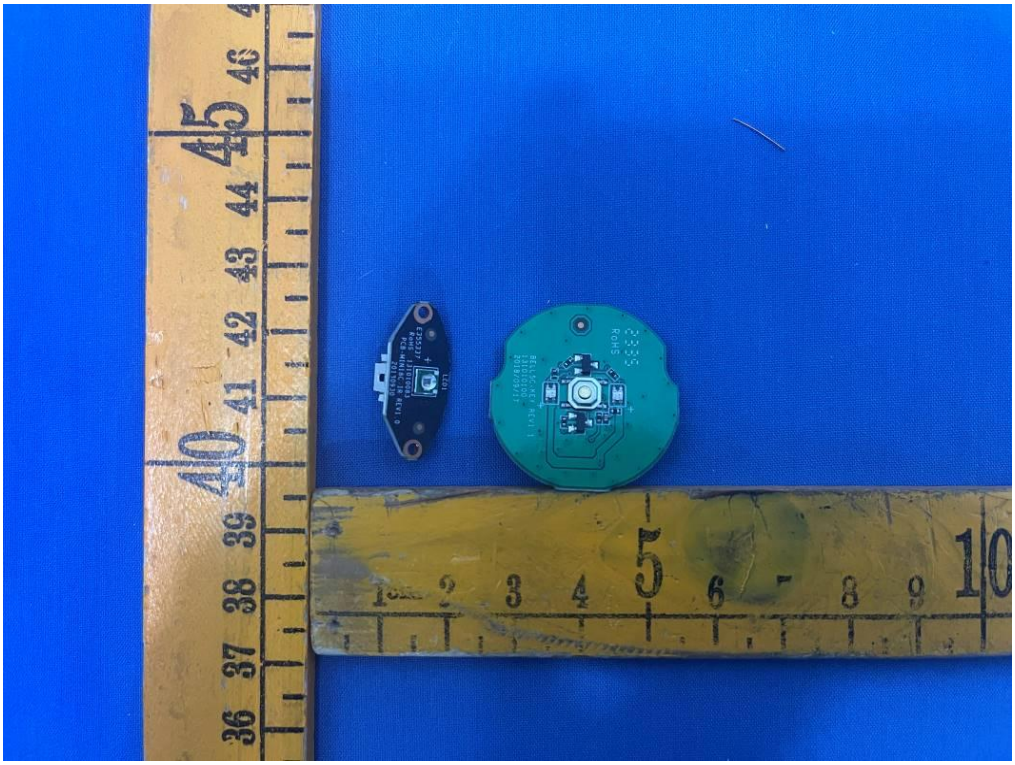


Fig. 19

Fig. 20

Fig. 21

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