

**Shenzhen Global Test Service Co., Ltd**

Room No. 101, Building 1, and Room No. 101, Building 3, No. 88 Jinkang Road, Jinsha Community, Kengzi Sub-district, Pingshan District, Shenzhen City, Guangdong, China

FCC PART 15 SUBPART C TEST REPORT**FCC PART 15 C(15.249)****Report Reference No. : GTS20250616018-2-01****FCC ID. : 2BVWW-B28**

Compiled by

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Date of issue : Jun.16, 2026

Representative Laboratory Name : Shenzhen Global Test Service Co., Ltd.

Address : Room No. 101, Building 1, and Room No. 101, Building 3, No. 88 Jinkang Road, Jinsha Community, Kengzi Sub-district, Pingshan District, Shenzhen City, Guangdong, China

Applicant's name : Zefeng Audio Technology (Shenzhen) Co., Ltd

Address : A3 Building, 2th Lixin Road, Fuyong, Baoan, Shenzhen, Guangdong, China

Test specification..... :**FCC CFR 47 PART 15 C(15.249)**

Standard..... : **ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024**

TRF Originator : Shenzhen Global Test Service Co.,Ltd.

Master TRF : Dated 2014-12

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Test item description..... : subwoofer

Trade Mark..... : N/A

Manufacturer : Zefeng Audio Technology (Shenzhen) Co., Ltd

Model/Type reference : B28

Listed Models : QY-D400S, QY-D400S II, QY-D400R, QY-D400R II, QY-D400E, QY-D400E II, B28 V1, B28 V2, B28 V3, B28 V4, B28 V5, B28 V6, B28 V7, B28 V8, B28 V9, SJ-M-C28r, SJ-M-C28r V1, SJ-M-C28r V2, SJ-M-C28r V3, SJ-M-C28r V4, SJ-M-C28r V5, B10R, B10R V1, B10R V2, B10R V3, B10R V4, B10R V5, B10R V6, B10R V7, B10R V8, B10R V9, WS-D10, WS-D10 V1, WS-D10 V2, C28R, C28R V1, C28R V2, C28R V3, C28R V4, C28R V5, C28R V6, C28R V7, C28R V8, C28R V9, A10R, A10R V1, A10R V2, A10R V3, A10R V4, A10R V5, A10R V6, A10R V7, A10R V8, A10R V9

Modulation Type : DSSS,OFDM

Operation Frequency : From 5727MHz ~ 5848MHz

Hardware Version : W2273_M_V3.0

Software Version..... : N/A

Rating..... : AC 100V-120V, 60Hz/ AC 220V-240V, 50Hz

Result..... : PASS

TEST REPORT

Test Report No. :	GTS20250616018-2-01	Jun.16, 2026
		Date of issue

Equipment under Test : subwoofer

Model /Type : B28

Listed model : QY-D400S, QY-D400S II, QY-D400R, QY-D400R II, QY-D400E, QY-D400E II, B28 V1, B28 V2, B28 V3, B28 V4, B28 V5, B28 V6, B28 V7, B28 V8, B28 V9, SJ-M-C28r, SJ-M-C28r V1, SJ-M-C28r V2, SJ-M-C28r V3, SJ-M-C28r V4, SJ-M-C28r V5, B10R, B10R V1, B10R V2, B10R V3, B10R V4, B10R V5, B10R V6, B10R V7, B10R V8, B10R V9, WS-D10, WS-D10 V1, WS-D10 V2, C28R, C28R V1, C28R V2, C28R V3, C28R V4, C28R V5, C28R V6, C28R V7, C28R V8, C28R V9, A10R, A10R V1, A10R V2, A10R V3, A10R V4, A10R V5, A10R V6, A10R V7, A10R V8, A10R V9

Applicant : **Zefeng Audio Technology (Shenzhen) Co., Ltd**

Address : A3 Building, 2th Lixin Road, Fuyong, Baoan, Shenzhen, Guangdong, China

Manufacturer : **Zefeng Audio Technology (Shenzhen) Co., Ltd**

Address : A3 Building, 2th Lixin Road, Fuyong, Baoan, Shenzhen, Guangdong, China

Test Result:	PASS
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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.

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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+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024](#): American National Standard for Testing Unlicensed Wireless Devices

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar. 16, 2026
	:	
Testing commenced on	:	Mar. 16, 2026
	:	
Testing concluded on	:	Apr. 15, 2026

2.2. Product Description

Product Name	subwoofer
Trade Mark	N/A
Model/Type reference	B28
List Models	QY-D400S, QY-D400S II, QY-D400R, QY-D400R II, QY-D400E, QY-D400E II, B28 V1, B28 V2, B28 V3, B28 V4, B28 V5, B28 V6, B28 V7, B28 V8, B28 V9, SJ-M-C28r, SJ-M-C28r V1, SJ-M-C28r V2, SJ-M-C28r V3, SJ-M-C28r V4, SJ-M-C28r V5, B10R, B10R V1, B10R V2, B10R V3, B10R V4, B10R V5, B10R V6, B10R V7, B10R V8, B10R V9, WS-D10, WS-D10 V1, WS-D10 V2, C28R, C28R V1, C28R V2, C28R V3, C28R V4, C28R V5, C28R V6, C28R V7, C28R V8, C28R V9, A10R, A10R V1, A10R V2, A10R V3, A10R V4, A10R V5, A10R V6, A10R V7, A10R V8, A10R V9
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:	AC 100V-120V, 60Hz/ AC 220V-240V, 50Hz
Sample ID	GTS20250616018-2-S0001-1#GTS20250616018-2-S0001-2#
SRD(5.8G)	
Operation frequency	5727-5848MHz
Modulation Type	DSSS,OFDM
Channel Number	122 channels
Antenna Description	PCB Antenna, 2.0dBi

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)	

AC 120V

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

This is a subwoofer.

For more details, refer to the user's manual of the EUT.

2.5. EUT operation mode

Channel	Frequency Range (MHz)	Channel	Frequency Range (MHz)	Channel	Frequency Range (MHz)
1	5727	42	5768	83	5809
2	5728	43	5769	84	5810
3	5729	44	5770	85	5811
4	5730	45	5771	86	5812
5	5731	46	5772	87	5813
6	5732	47	5773	88	5814
7	5733	48	5774	89	5815
8	5734	49	5775	90	5816
9	5735	50	5776	91	5817
10	5736	51	5777	92	5818
11	5737	52	5778	93	5819
12	5738	53	5779	94	5820
13	5739	54	5780	95	5821
14	5740	55	5781	96	5822
15	5741	56	5782	97	5823
16	5742	57	5783	98	5824
17	5743	58	5784	99	5825
18	5744	59	5785	100	5826
19	5745	60	5786	101	5827
20	5746	61	5787	102	5828
21	5747	62	5788	103	5829
22	5748	63	5789	104	5830
23	5749	64	5790	105	5831
24	5750	65	5791	106	5832
25	5751	66	5792	107	5833
26	5752	67	5793	108	5834
27	5753	68	5794	109	5835
28	5754	69	5795	110	5836
29	5755	70	5796	111	5837
30	5756	71	5797	112	5838
31	5757	72	5798	113	5839
32	5758	73	5799	114	5840
33	5759	74	5800	115	5841
34	5760	75	5801	116	5842
35	5761	76	5802	117	5843
36	5762	77	5803	118	5844
37	5763	78	5804	119	5845
38	5764	79	5805	120	5846
39	5765	80	5806	121	5847
40	5766	81	5807	122	5848
41	5767	82	5808		

For Conducted Emission	
Test Mode	TX Mode
For Radiated Emission	
Test Mode	TX Mode

Channel	Frequency(MHz)
1	5727
61	5787
122	5848

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

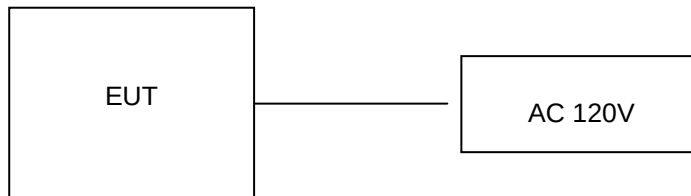
The EUT has been tested under operating condition.

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

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 5.8G(MCH) 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 5.8G(MCH) 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
-	-	-	-	SDOC

2.9. External I/O Cable

I/O Port Description	Quantity	Cable
-	-	-

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

This submittal(s) (test report) is intended for **FCC ID: 2BVWW-B28** filing to comply with Section 15.249 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 Global Test Service Co.,Ltd.

Room No. 101, Building 1, and Room No. 101, Building 3, No. 88 Jinkang Road, Jinsha Community, Kengzi Sub-district, Pingshan District, Shenzhen City, Guangdong, China

3.2. Test Facility

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

CNAS (No. CNAS L8169)

Shenzhen Global Test Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2019 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA (Certificate No. 4758.01)

Shenzhen Global Test Service Co., Ltd. has been assessed by the American Association for Laboratory Accreditation (A2LA). Certificate No. 4758.01.

Industry Canada Registration Number. is 24189.

FCC Designation Number is CN1401.

FCC Registered Test Site Number is 684561.

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 CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service 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 GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 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	/	N/A	
§15.205(a) §15.209(a) §15.249(a) §15.249(c)	Radiated Emissions Measurement	GTS20250616018-2-S0001-1# GTS20250616018-2-S0001-2#	Compliant	Note 1
§15.249	Band Edges Measurement	GTS20250616018-2-S0001-1#	Compliant	Note 1
§15.249, §15.215	20 dB Bandwidth	GTS20250616018-2-S0001-1#	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

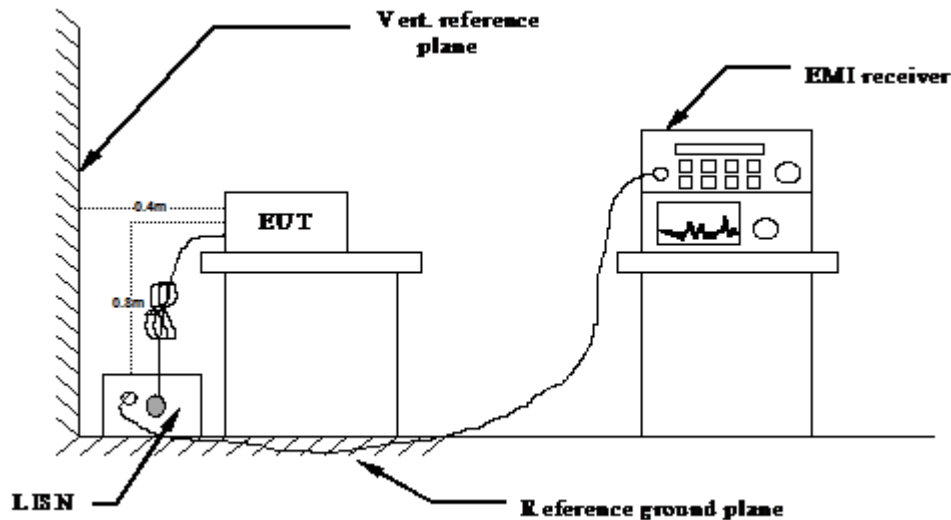
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Artificial Mains	CYBERTEK	EM5040A	E1850400205	2025/07/07	2026/07/06
LISN	R&S	ESH2-Z5	893606/008	2025/07/07	2026/07/06
EMI Test Receiver	R&S	ESPI 3	/	2025/07/04	2026/07/03
Test Receiver	R&S	ESCI 7	101102	2025/07/04	2026/07/03
Spectrum Analyzer	Agilent	N9020A	MY48010425	2025/07/04	2026/07/03
Spectrum Analyzer	R&S	FSV40-N	101800	2025/07/04	2026/07/03
Vector Signal generator	Agilent	N5181A	MY49060502	2025/07/15	2026/07/14
Signal generator	Agilent	N5182A	MY50141550	2025/07/04	2026/07/03
Climate Chamber	ESPEC	EL-10KA	A20120523	2025/07/15	2026/07/14
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2025/12/01	2026/11/30
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	/	2025/07/04	2026/07/03
By-log Antenna	SCHWARZBECK	VULB9163	00976	2025/07/15	2026/07/14
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2025/07/15	2026/07/14
Amplifier	SKET	LAPA_30M01G-32	SK20240104001	2025/12/01	2026/11/30
Amplifier	EMCI	EMC012645SE	980340	2025/12/01	2026/11/30
Amplifier	Schwarzbeck	BBV9179	9719-025	2025/12/01	2026/11/30
Temperature/Humidity Meter	HUATU	HTC-1	/	2025/07/16	2026/07/15
High-Pass Filter	Stest	1	/	2025/07/04	2026/07/03
High-Pass Filter	Stest	2	/	2025/07/04	2026/07/03
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2025/07/15	2026/07/14
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2025/07/15	2026/07/14
Data acquisition card	Agilent	U2531A	TW53323507	2025/07/15	2026/07/14
Power Sensor	Keysight	E9301A	MY41495308	2025/07/04	2026/07/03
Control Unit	Tonscend	JS0806-2	/	2025/07/07	2026/07/06
Control Unit	Tonscend	JS0806-2	/	2025/07/07	2026/07/06
integrated measuring instrument	R&S	CMW500	107519	2025/07/04	2026/07/03
EMI Test Software	Tonscend	JS1120-1	Ver 2.6.8.0518	/	/
EMI Test Software	Tonscend	JS1120-3	Ver 2.5.77.0418	/	/
EMI Test Software	Tonscend	JS32-CE	Ver 2.5	/	/
EMI Test Software	Tonscend	JS32-RE	Ver 2.5.1.8	/	/

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 C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
- 4 All support equipments received AC power from a second LISN, if any.
- 5 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.
- 6 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 7 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:

$$CD \text{ (dBuV)} = RA \text{ (dBuV)} + PL \text{ (dB)} + CL \text{ (dB)}$$

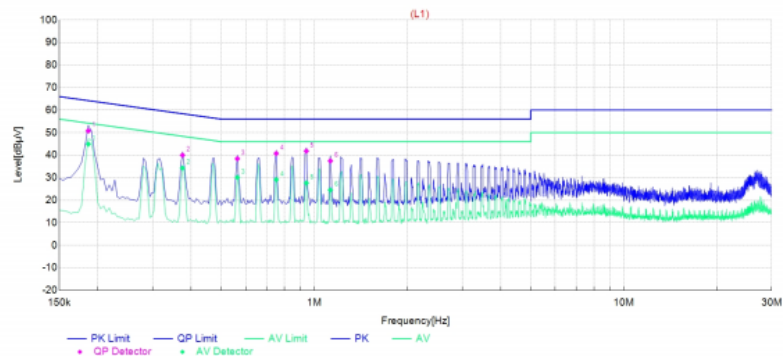
Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

TEST RESULTS

Remark: We measured Conducted Emission at 5.8G mode in AC 120V/60Hz and AC 240V/50Hz, the worst case was recorded.

Temperature	24℃	Humidity	48%
Test Engineer	Evan Ouyang	Configurations	5.8G(MCH)

Power supply:	AC 120V/60Hz	Polarization	L
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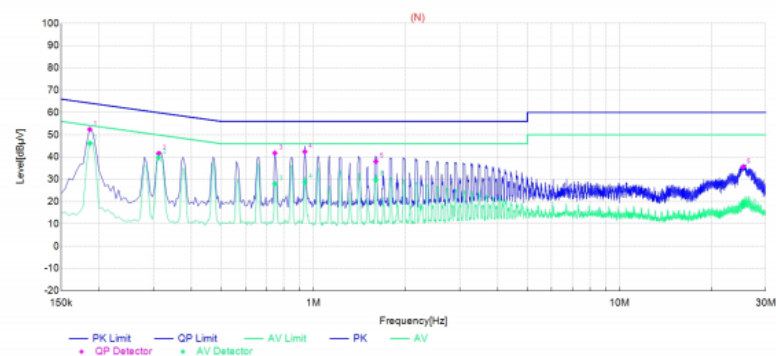
Test Graph**Final Data List**

NO.	Frequency [MHz]	QP Reading [dBμV]	AVG. Reading [dBμV]	Factor [dB]	QP Result [dBμV]	AVG. Result [dBμV]	QP Limit [dBμV]	AVG. Limit [dBμV]	QP Margin [dB]	AVG. Margin [dB]	Line	Remark
1	0.186	40.59	34.75	10.18	50.77	44.93	64.21	54.21	13.44	9.28	L1	PASS
2	0.375	29.84	24.14	10.15	39.99	34.29	58.39	48.39	18.40	14.10	L1	PASS
3	0.564	28.22	19.91	10.21	38.43	30.12	56.00	46.00	17.57	15.88	L1	PASS
4	0.753	30.50	18.90	10.24	40.74	29.14	56.00	46.00	15.26	16.86	L1	PASS
5	0.942	31.60	17.44	10.21	41.81	27.65	56.00	46.00	14.19	18.35	L1	PASS
6	1.1265	27.25	14.32	10.21	37.46	24.53	56.00	46.00	18.54	21.47	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
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Test Graph**Final Data List**

NO.	Frequency [MHz]	QP Reading [dBμV]	AVG. Reading [dBμV]	Factor [dB]	QP Result [dBμV]	AVG. Result [dBμV]	QP Limit [dBμV]	AVG. Limit [dBμV]	QP Margin [dB]	AVG. Margin [dB]	Line	Remark
1	0.186	42.23	35.92	10.18	52.41	46.10	64.21	54.21	11.80	8.11	N	PASS
2	0.312	31.49	29.81	10.11	41.60	39.92	59.92	49.92	18.32	10.00	N	PASS
3	0.7485	31.56	17.74	10.24	41.80	27.98	56.00	46.00	14.20	18.02	N	PASS
4	0.9375	32.19	18.54	10.21	42.40	28.75	56.00	46.00	13.60	17.25	N	PASS
5	1.599	27.79	19.53	10.24	38.03	29.77	56.00	46.00	17.97	16.23	N	PASS
6	25.314	24.04	7.03	11.55	35.59	18.58	60.00	50.00	24.41	31.42	N	PASS

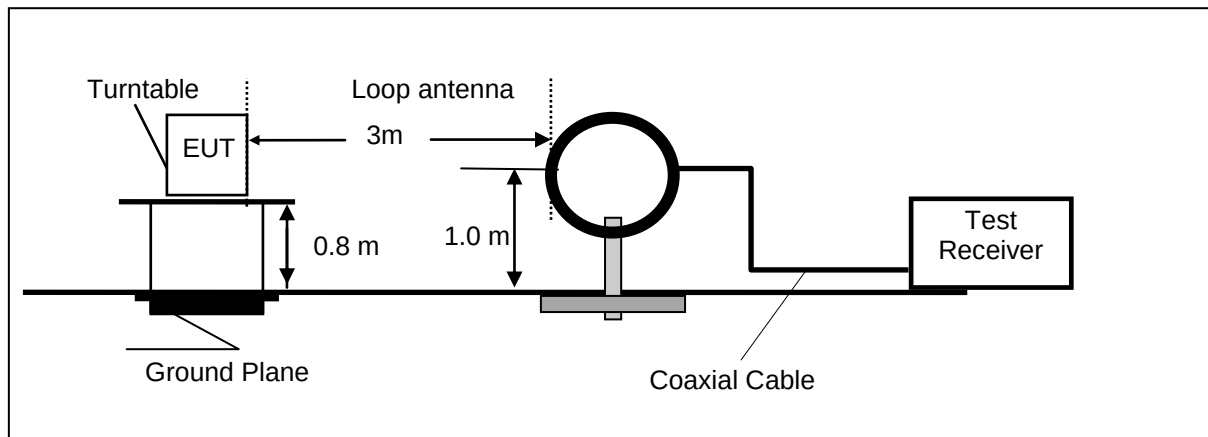
Note: 1. Result (dBμV) = Reading (dBμV) + Factor (dB).

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

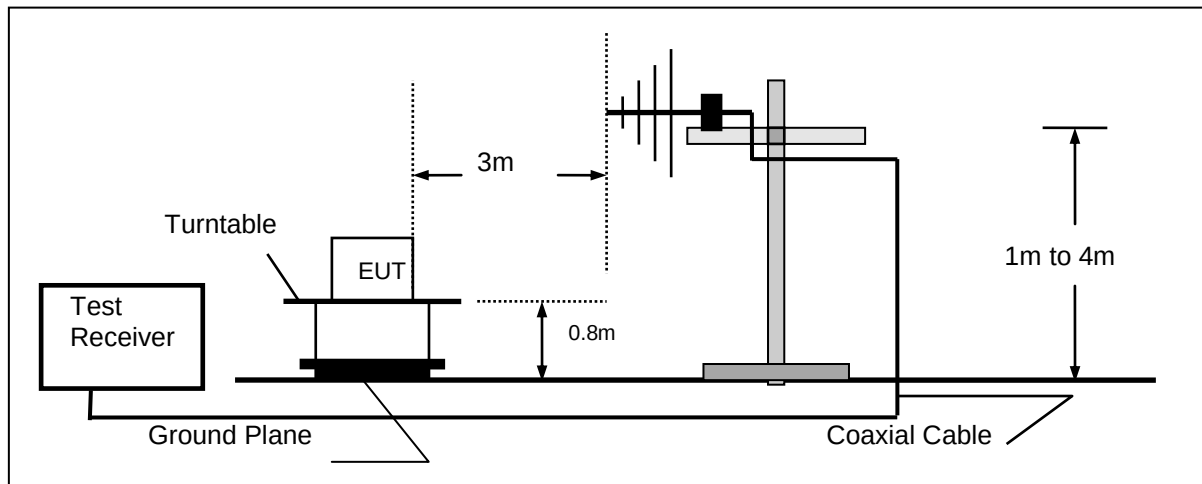
4.2. Radiated Emission

TEST CONFIGURATION

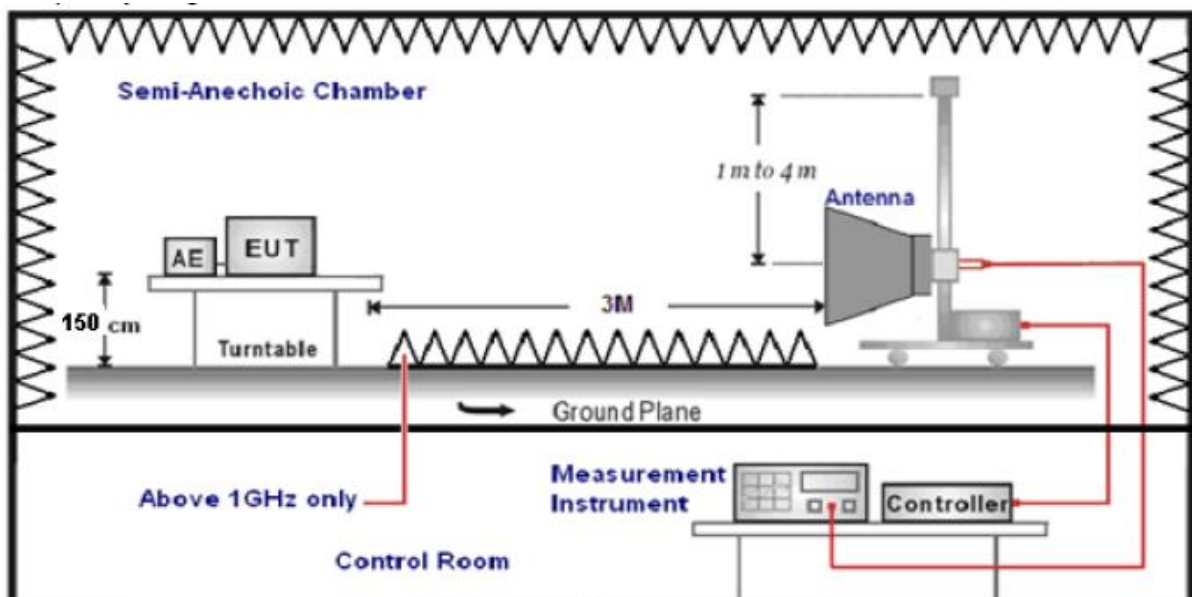
Frequency range 9 KHz – 30MHz



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 degrees to 360 degrees 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 Antenna	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 the 100kHz bandwidth within the band that contains the highest level of desired power.

1. The pre-test has been 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	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	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

2. According to §15.249 (a) & RSS-210§B.10(a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	millivolts/meter	dBuV/m	microvolts/meter	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

The field strength limits shall be measured using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using an International Special Committee on Radio Interference (CISPR) quasi-peak detector.

TEST RESULTS

Remark: We measured Radiated Emission at 5.8G mode in AC 120V/60Hz and AC 240V/50Hz, the worst case was recorded.

Temperature	24°C	Humidity	48%
Test Engineer	Evan Ouyang	Configurations	5.8G(MCH)

For 9 KHz~30MHz

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

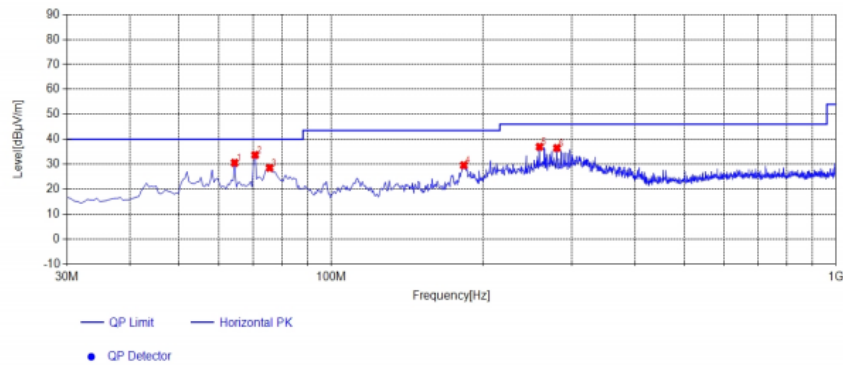
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

For 30MHz-1GHz

Horizontal

Test Graph



Suspected List

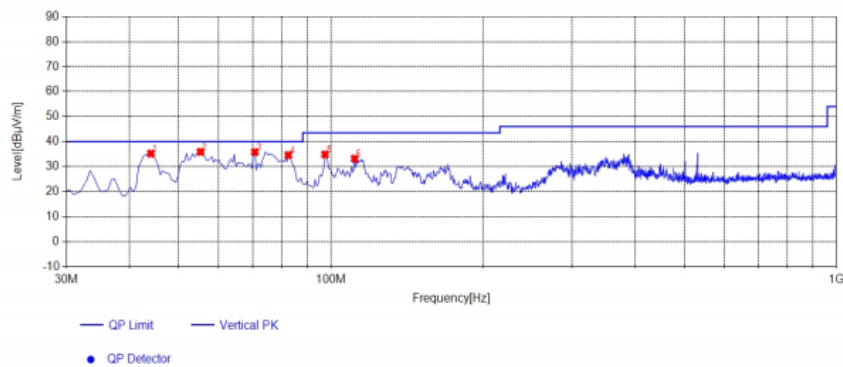
NO.	Frequency [MHz]	Reading [dBμV/m]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	64.435	43.01	-12.48	30.53	40.00	9.47	100	342	PK	Horizontal	PASS
2	70.74	47.65	-13.98	33.67	40.00	6.33	100	357	PK	Horizontal	PASS
3	75.59	42.73	-14.21	28.52	40.00	11.48	100	335	PK	Horizontal	PASS
4	183.26	41.37	-11.81	29.56	43.50	13.94	100	294	PK	Horizontal	PASS
5	258.92	45.26	-8.31	36.95	46.00	9.05	100	95	PK	Horizontal	PASS
6	280.26	44.24	-7.78	36.46	46.00	9.54	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]	Reading [dBμV/m]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	44.065	46.62	-11.45	35.17	40.00	4.83	100	30	PK	Vertical	PASS
2	55.22	47.08	-11.22	35.86	40.00	4.14	100	183	PK	Vertical	PASS
3	70.74	49.78	-13.98	35.80	40.00	4.20	100	254	PK	Vertical	PASS
4	82.38	48.67	-14.10	34.57	40.00	5.43	100	228	PK	Vertical	PASS
5	97.415	46.89	-12.04	34.85	43.50	8.65	100	356	PK	Vertical	PASS
6	111.48	44.89	-11.75	33.14	43.50	10.36	100	247	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(PK, dBuV/m)	Measure Result(AV, dBuV/m)	Limit PK (dBuV/m)	Limit AV (dBuV/m)	Margin PK dB	Margin AV dB	Result
5727	H	94.62	91.25	114.00	94.00	19.38	2.75	Pass
5727	V	94.48	91.33	114.00	94.00	19.52	2.67	Pass
5787	H	94.23	91.73	114.00	94.00	19.77	2.27	Pass
5787	V	94.77	91.69	114.00	94.00	19.23	2.31	Pass
5848	H	94.90	91.82	114.00	94.00	19.10	2.18	Pass
5848	V	94.51	91.16	114.00	94.00	19.49	2.84	Pass

For 1GHz to 25GHz

Channel 26 / 5727 MHz

Freq. MHz	Reading dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
11454.00	50.76	32.44	30.25	7.95	60.90	74.00	-13.10	Peak	Horizontal
11454.00	35.78	32.44	30.25	7.95	45.92	54.00	-8.08	Average	Horizontal
11454.00	49.55	31.60	36.50	7.00	51.65	74.00	-22.35	Peak	Vertical
11454.00	35.54	31.60	36.50	7.00	37.64	54.00	-16.36	Average	Vertical

Channel 29 / 5787 MHz

Freq. MHz	Reading dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
11574.00	49.89	32.52	30.31	8.12	60.22	74.00	-13.78	Peak	Horizontal
11574.00	37.57	32.52	30.31	8.12	47.90	54.00	-6.10	Average	Horizontal
11574.00	50.00	31.02	36.50	7.60	52.12	74.00	-21.88	Peak	Vertical
11574.00	35.74	31.02	36.50	7.60	37.86	54.00	-16.14	Average	Vertical

Channel 31 / 5848 MHz

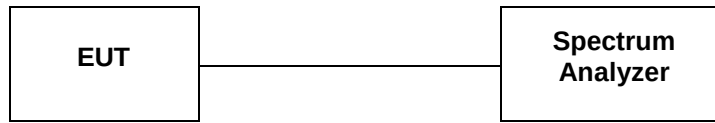
Freq. MHz	Reading dBuV	Ant. Fac. dB/m	Pre. Fac. dB	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
11696.00	51.24	32.68	30.27	7.88	61.53	74.00	-12.47	Peak	Horizontal
11696.00	35.41	32.68	30.27	7.88	45.70	54.00	-8.30	Average	Horizontal
11696.00	52.62	31.58	36.20	7.82	55.82	74.00	-18.18	Peak	Vertical
11696.00	37.19	31.58	36.20	7.82	40.39	54.00	-13.61	Average	Vertical

Notes:

- 1). Measuring frequencies from 9 KHz~10th harmonic or 26.5GHz (which is less), No emission found between lowest internal used/generated frequency to 30MHz.
- 2). Radiated emissions measured in frequency range from 9 KHz~10th harmonic or 26.5GHz (which is less) were made with an instrument using Peak detector mode.
- 3). Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4). Measured= Reading- Pre. Fac.+ Ant. Fac.+ Cab. Loss
- 5). Margin = Measured- Limit

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

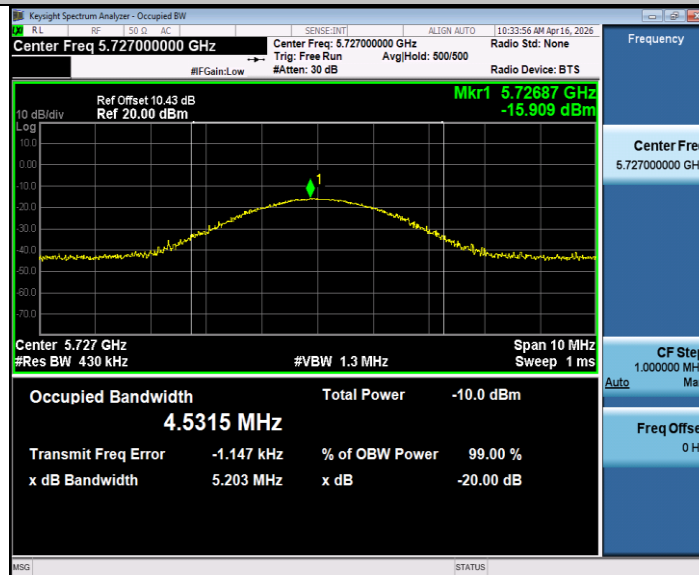
TEST RESULTS

Temperature	24.2°C	Humidity	54.9%
Test Engineer	Evan Ouyang	Configurations	5.8G

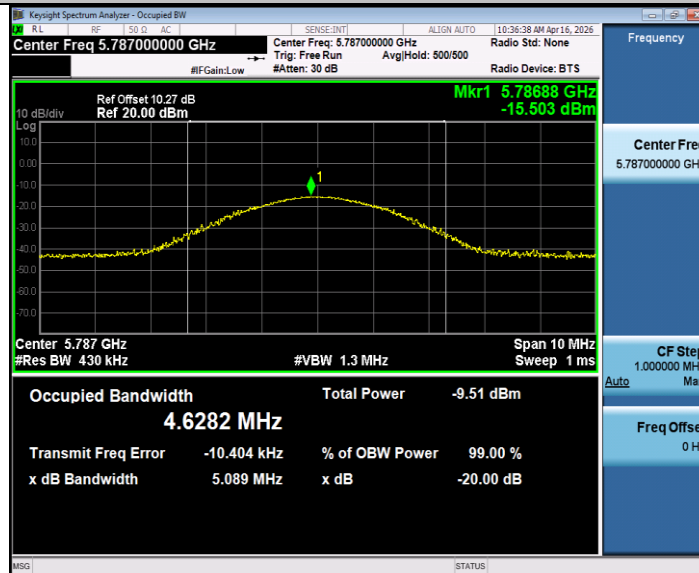
Mode	Channel	20dB Bandwidth (MHz)	Result
5.8G	1	5.203	Pass
	61	5.089	Pass
	122	4.851	Pass

20dB Bandwidth

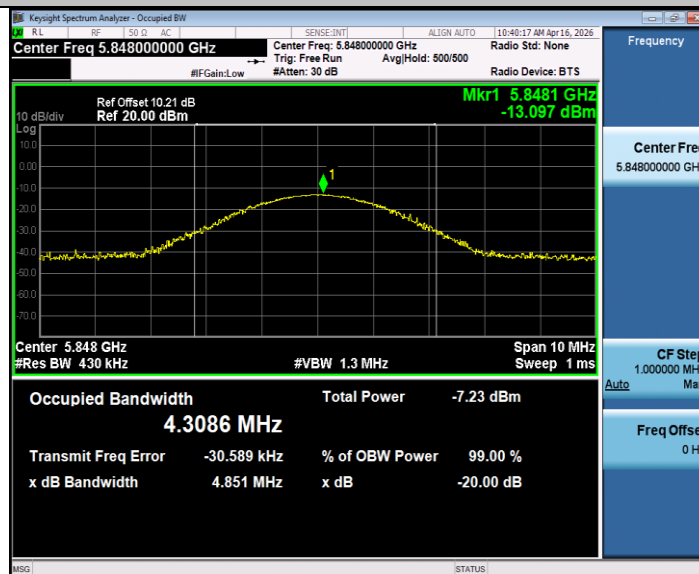
CH26



CH29



CH31

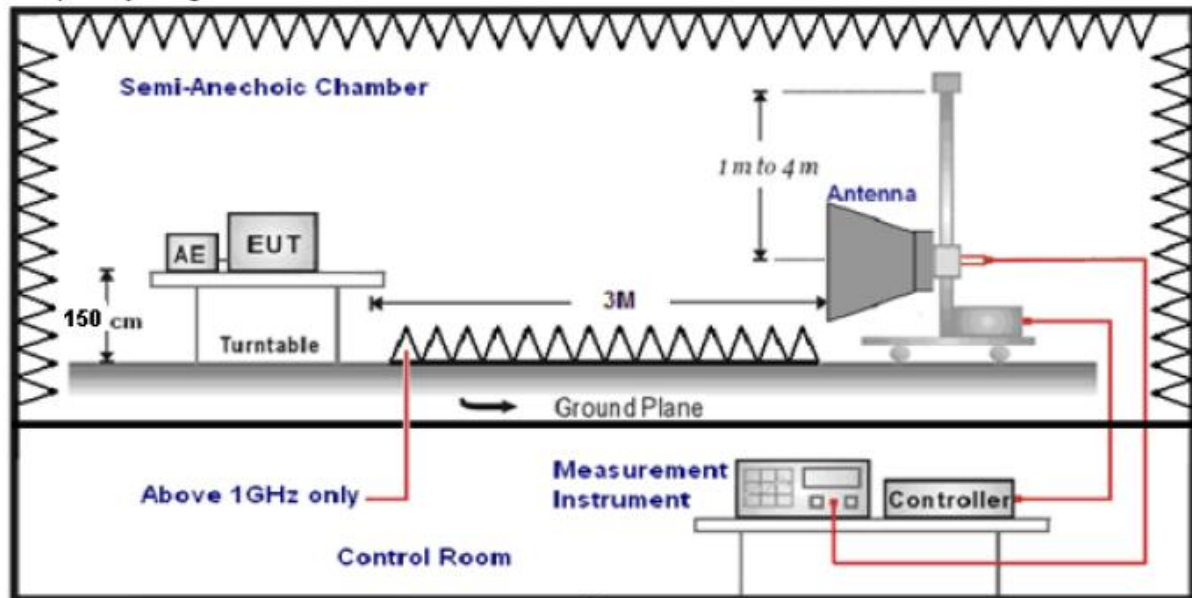


4.4. Band Edge Compliance of RF Emission

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**4.4.1 For Radiated Bandedge Measurement**

Temperature	23.8°C	Humidity	53.7%
Test Engineer	Evan Ouyang	Configurations	5.8G

Channel 1 :5727 MHz									
Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5650.0	45.89	35.29	29.18	8.8	60.80	68.20	-7.40	Peak	Horizontal
5700.0	35.01	35.29	29.18	8.8	49.92	68.20	-18.28	Peak	Horizontal
5720.0	47.25	35.29	29.18	8.8	62.16	68.20	-6.04	Peak	Horizontal
5725.0	35.63	35.29	29.18	8.8	50.54	68.20	-17.66	Peak	Horizontal

Channel 1 :5727 MHz									
Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5650.0	46.18	33.21	35.82	9.52	53.09	68.20	-15.11	Peak	Vertical
5700.0	35.61	33.21	35.82	9.52	42.52	68.20	-25.68	Peak	Vertical
5720.0	47.16	32.82	35.82	9.52	53.68	68.20	-14.52	Peak	Vertical
5725.0	35.69	32.82	35.82	9.52	42.21	68.20	-25.99	Peak	Vertical

Channel 122 :5848 MHz									
Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5850.0	45.94	35.29	29.18	8.8	60.85	68.20	-7.35	Peak	Horizontal
5855.0	34.94	35.29	29.18	8.8	49.85	68.20	-18.35	Peak	Horizontal
5875.0	47.18	35.29	29.18	8.8	62.09	68.20	-6.11	Peak	Horizontal
5925.0	35.54	35.29	29.18	8.8	50.45	68.20	-17.75	Peak	Horizontal

Channel 122 :5848 MHz									
Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector	Polarization
5850.0	46.03	33.21	35.82	9.52	52.94	68.20	-15.26	Peak	Vertical
5855.0	35.56	33.21	35.82	9.52	42.47	68.20	-25.73	Peak	Vertical
5875.0	47.24	32.82	35.82	9.52	53.76	68.20	-14.44	Peak	Vertical
5925.0	35.71	32.82	35.82	9.52	42.23	68.20	-25.97	Peak	Vertical

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.

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 PCB 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 2.0 dBi.

Reference to the **Internal photos**.

5. TEST SETUP PHOTOS OF THE EUT

Photo of Radiated Emissions Measurement

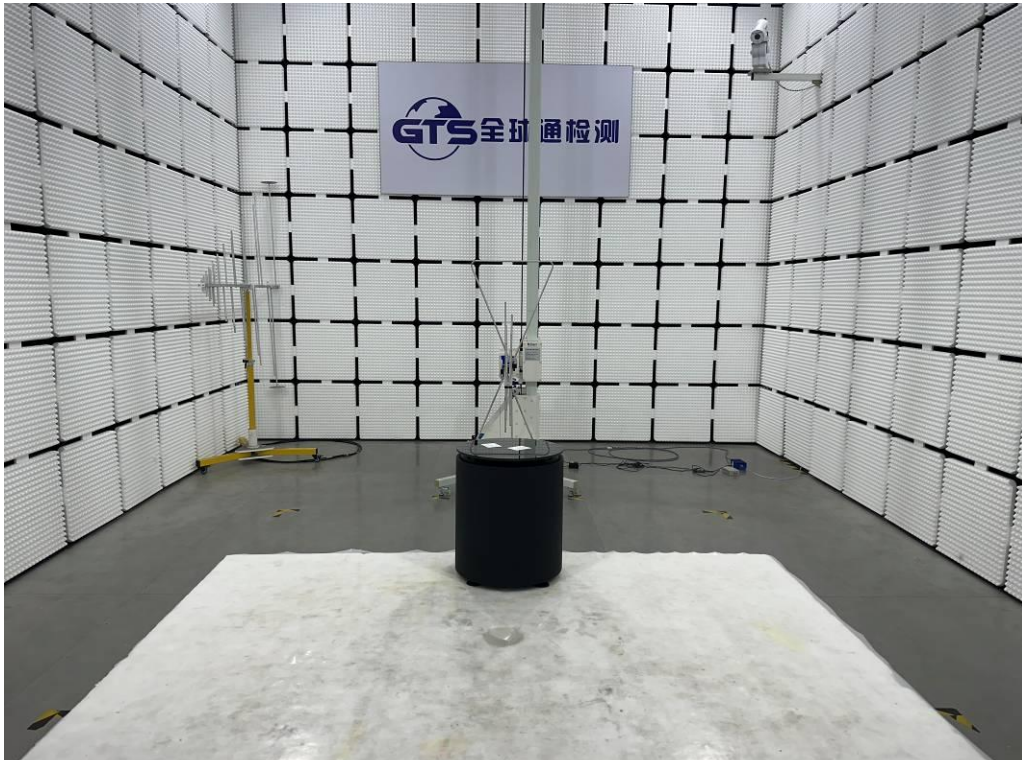


Fig. 1

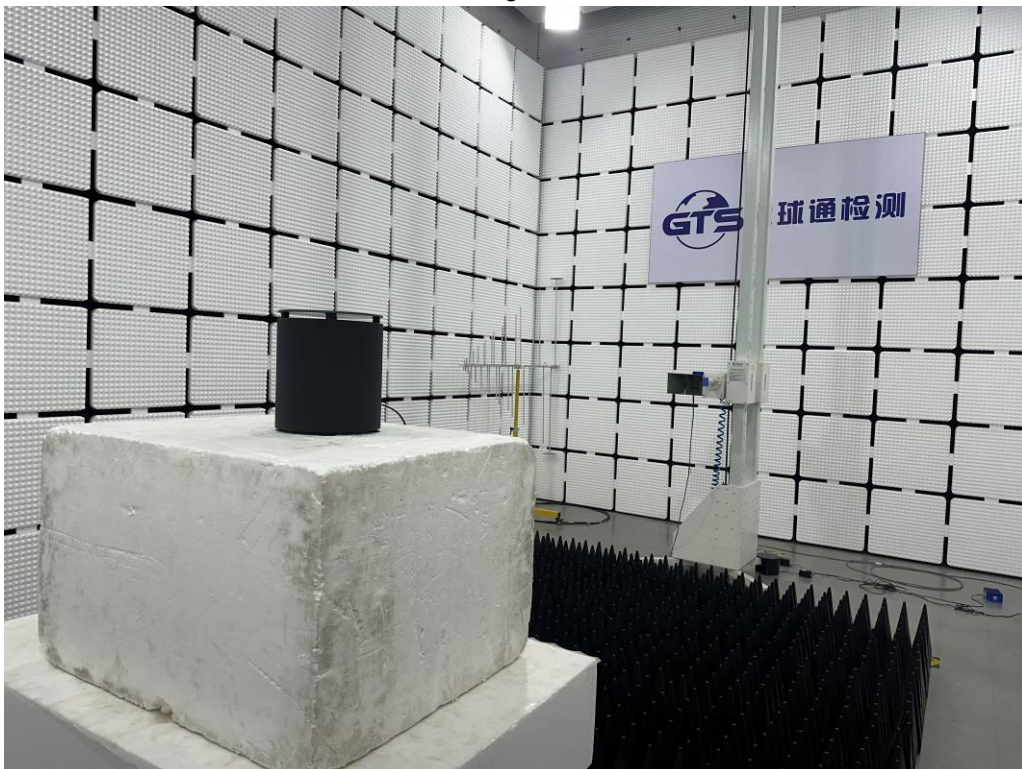


Fig. 2

Photo of Conducted Emission Measurement



Fig. 3

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

6.1.External photos of the EUT

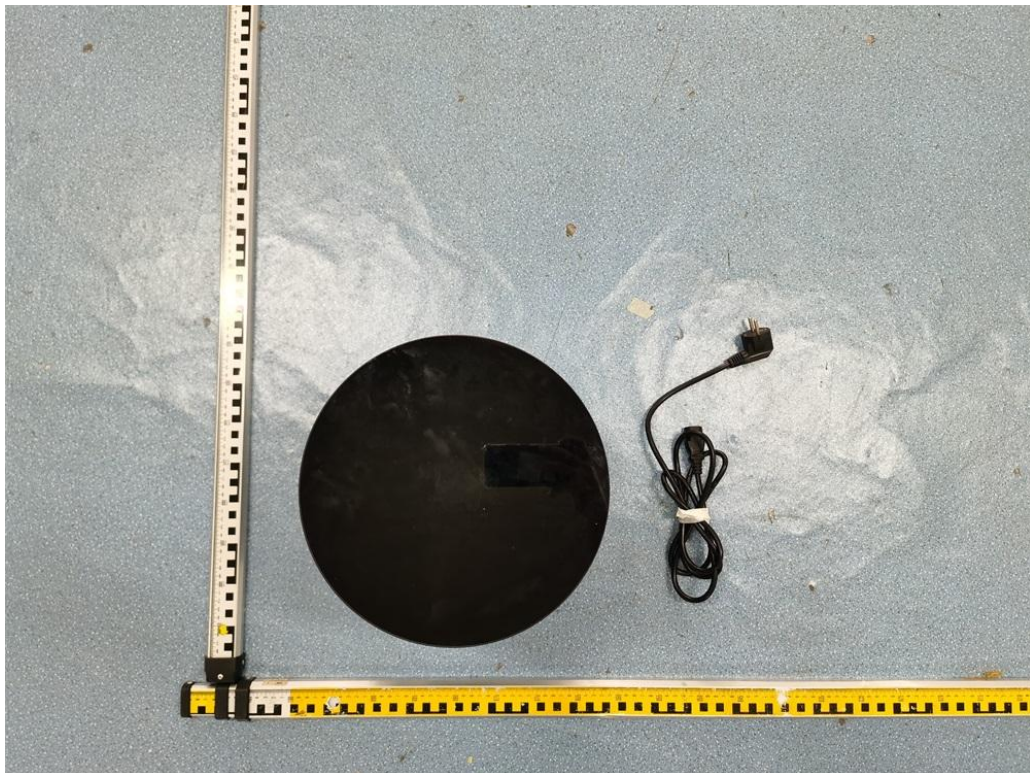


Fig. 1

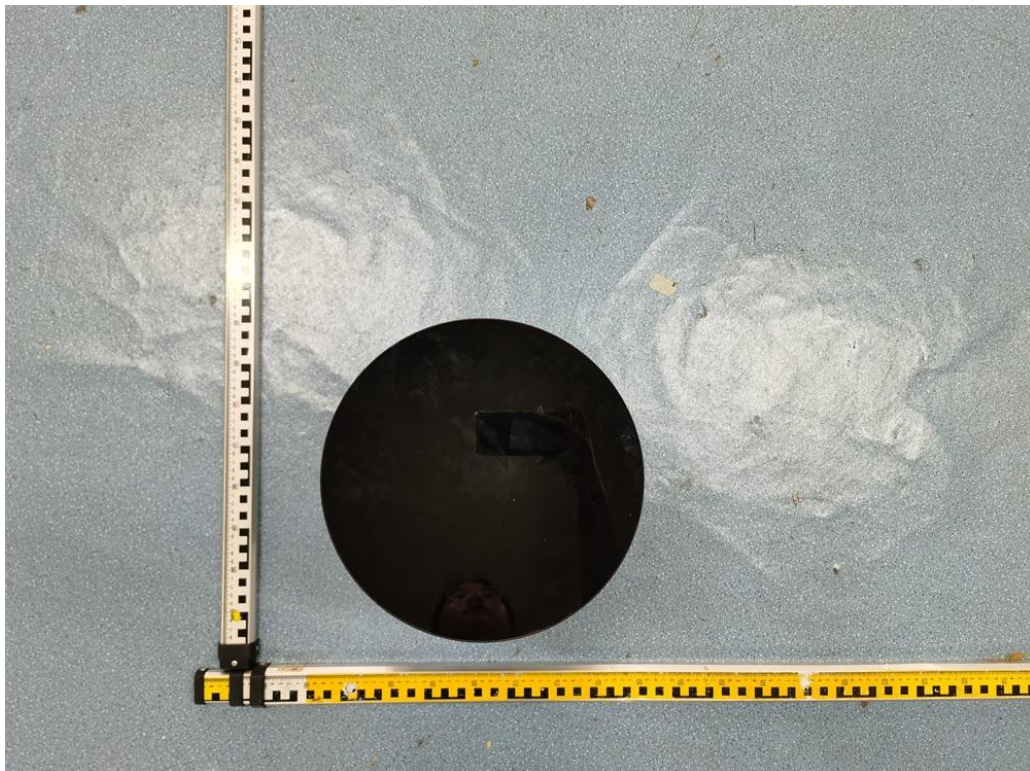


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8

6.2.Internal photos of the EUT

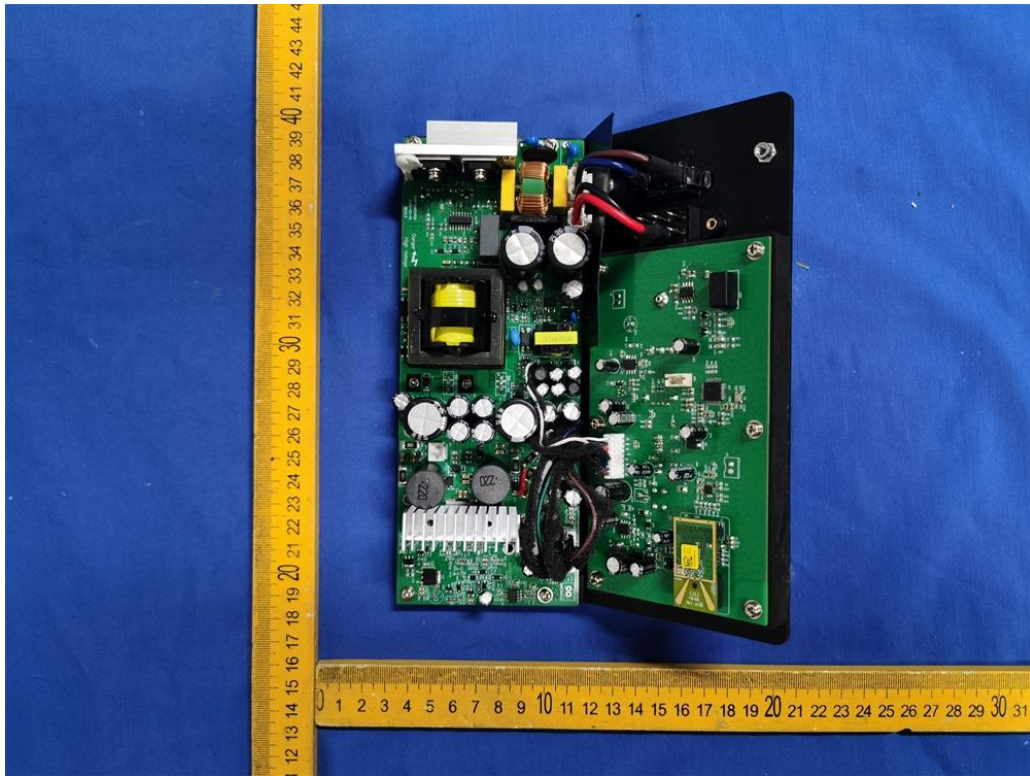


Fig. 9

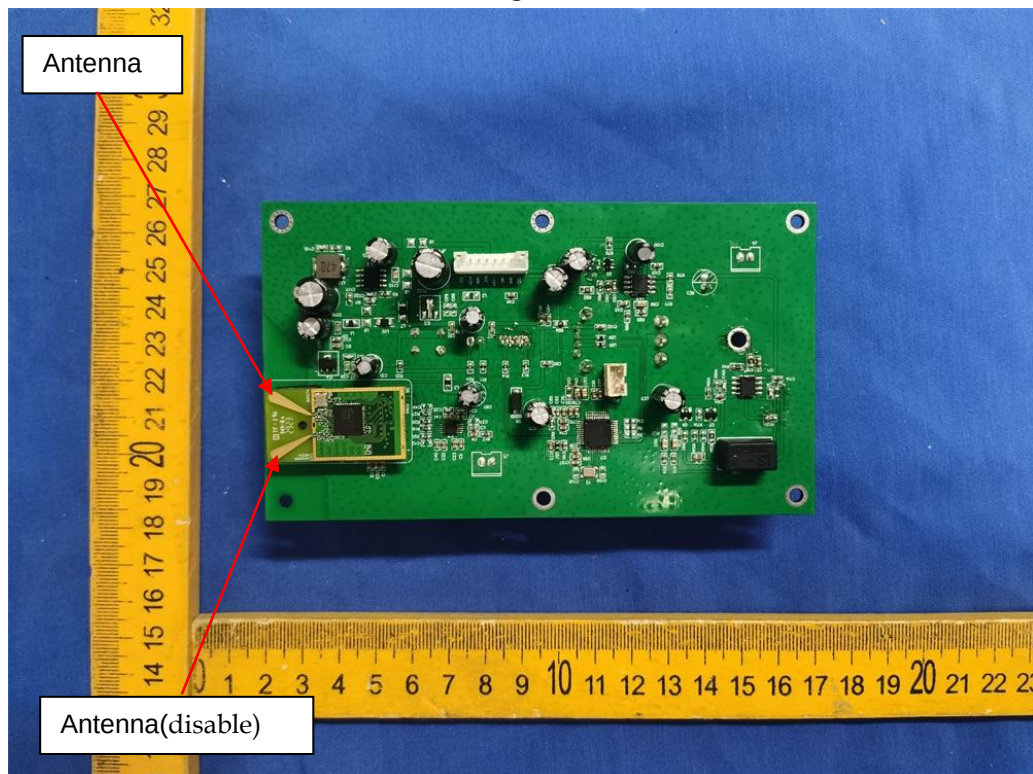


Fig. 10

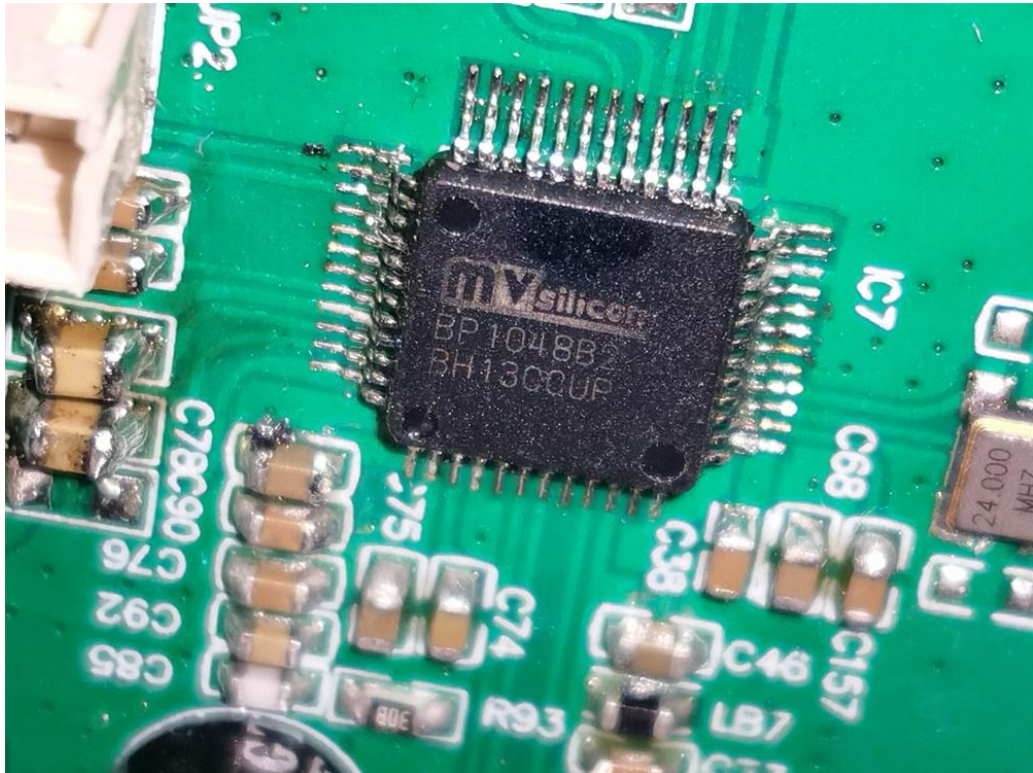


Fig. 11

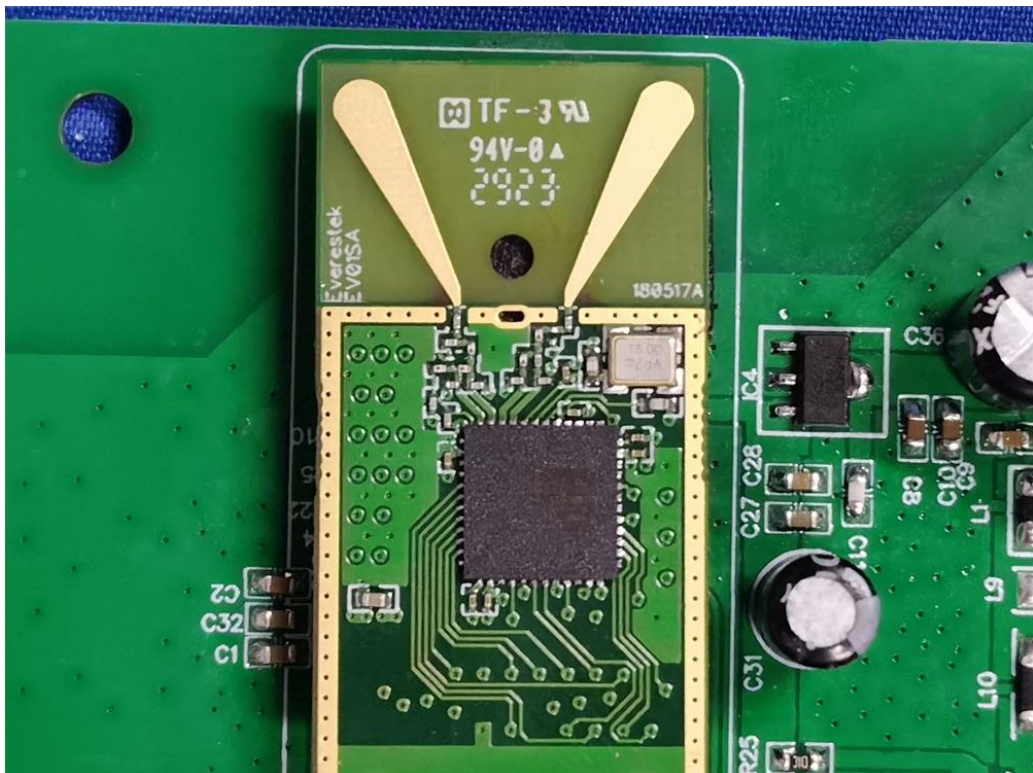


Fig. 12



Fig. 13

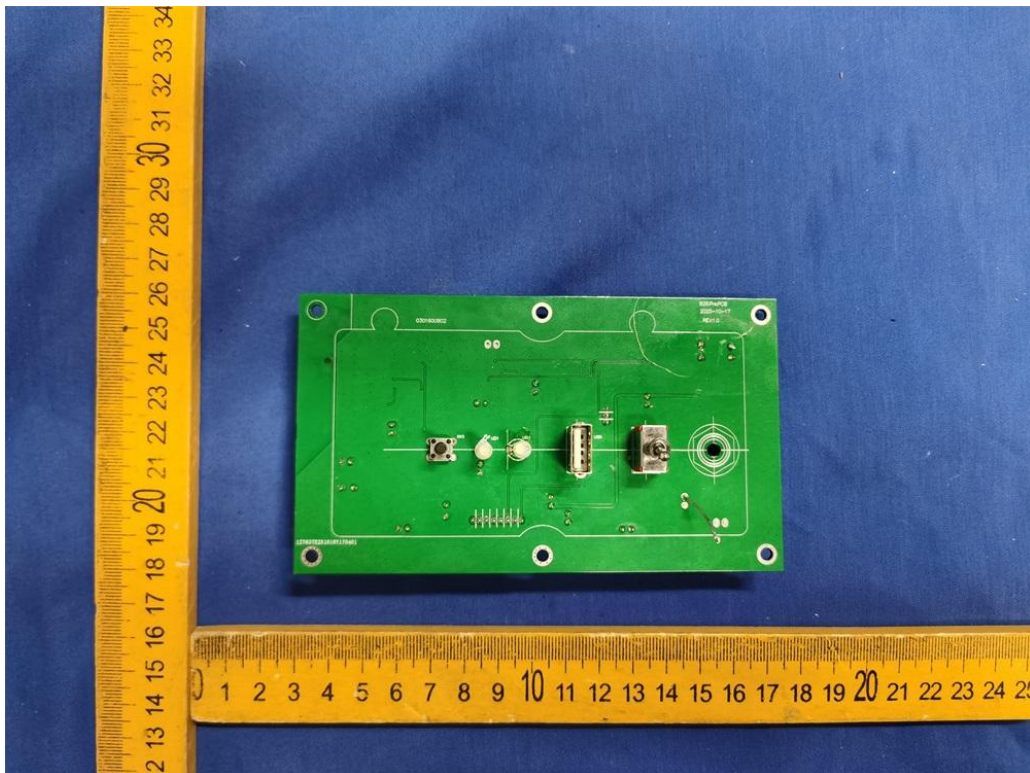


Fig. 14

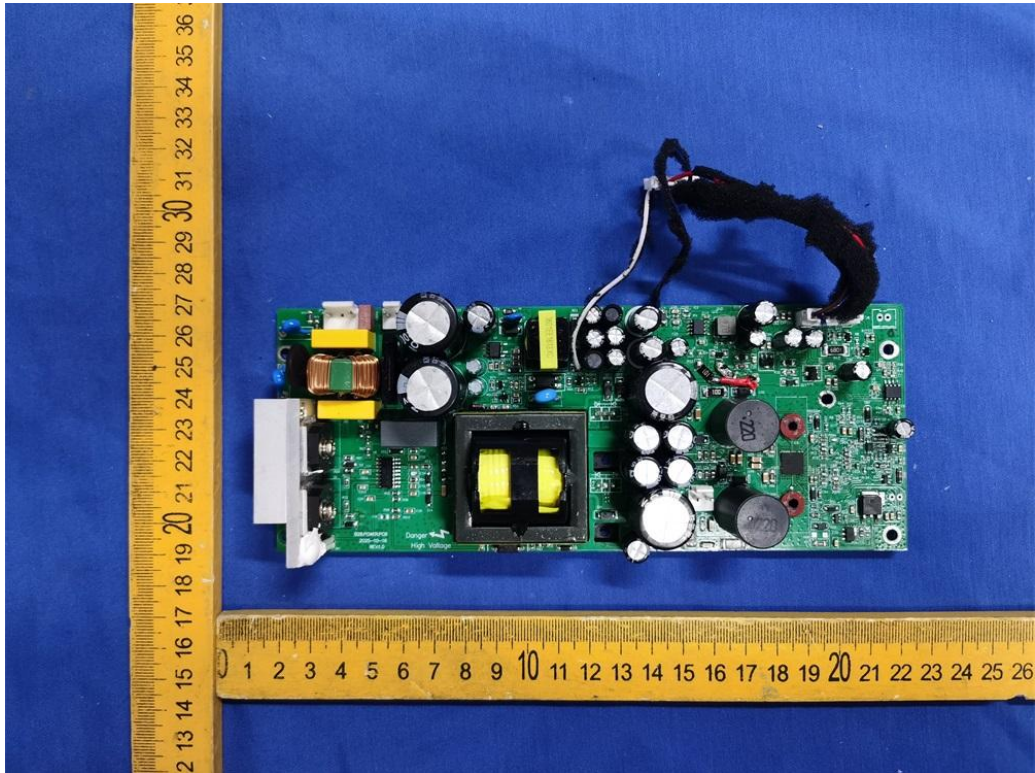


Fig. 15

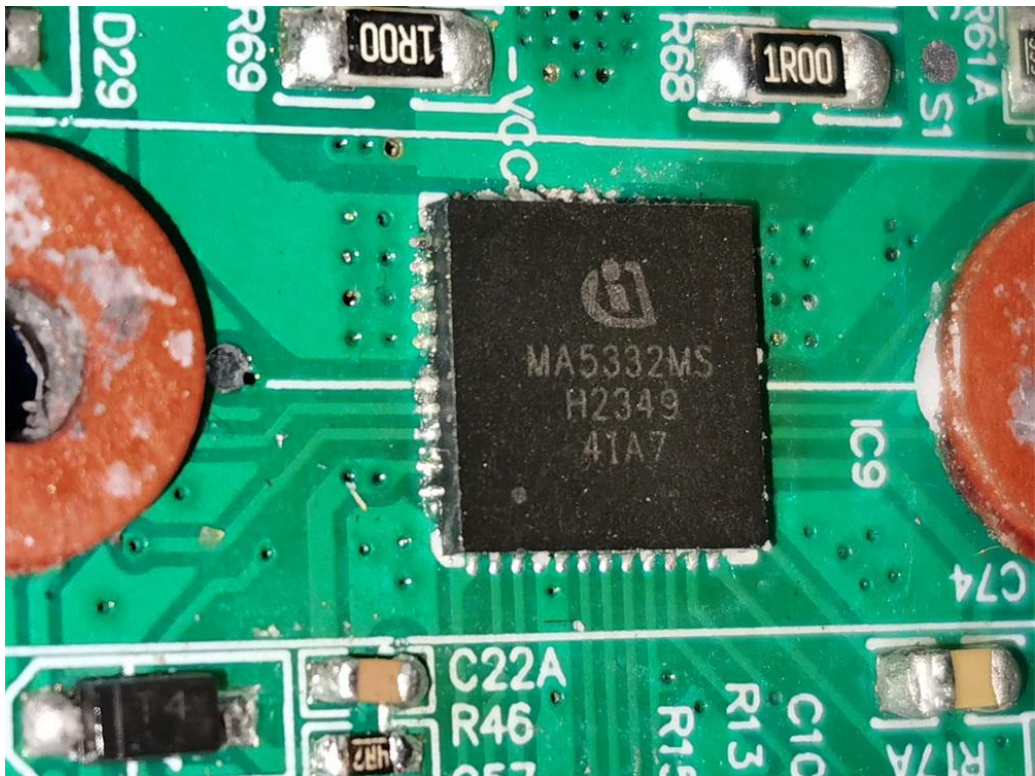


Fig. 16

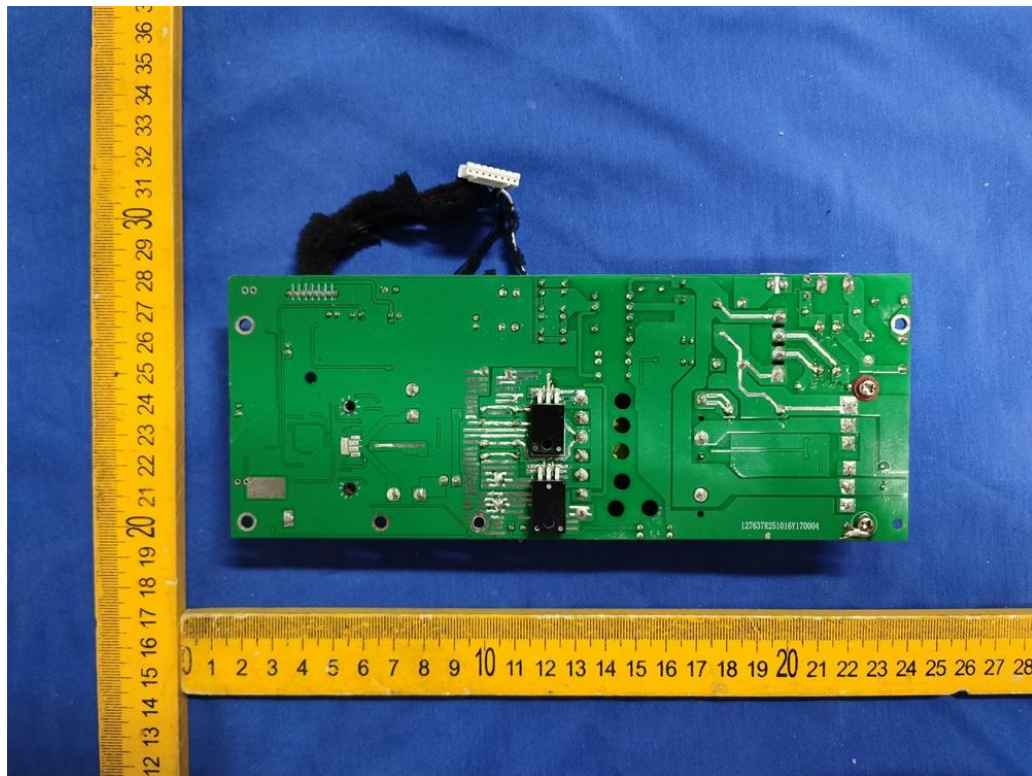


Fig. 17

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