EMC TEST REPORT

Product Name	TV antenna
FCC ID:	2BGRG-T808
Trade mark	新宏羽 nomexin
Model No.	T808, T809, T900, ANT250, T160, T210
Report No.	CTB240529093EX
Applicant	Shenzhen xinhongyu Electronic Technology Co., Ltd.
Address:	301, 88-1 Longxing Road, Dakang community, Yuanshan street, Longgang District, Shenzhen
Manufacturer	Shenzhen xinhongyu Electronic Technology Co., Ltd.
Address:	301, 88-1 Longxing Road, Dakang community, Yuanshan street, Longgang District, Shenzhen
Prepared by	Shenzhen CTB Testing Technology Co., Ltd.
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Date of Receipt	May. 08, 2024
Date of Test(s)	May. 08, 2024 ~ May. 29, 2024
Date of Issue	May. 29, 2024
Test Standard(s)	CFR47, FCC Part 15 Subpart B, ANSI C63.4: 2014
Test Result:	Pass

In the configuration tested, the EUT complied with the standards specified above.

Compiled by:	Reviewed by:	Approved by:
Michael Niu	Bin Mei	Rita Xiao

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "★" indicates the testing items were fulfilled by subcontracted lab. "※" indicates the items are not in CNAS accreditation scope.

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1. Description of version

Report No.	Issue Date	Description	Approved
CTB240529093EX	May. 29, 2024	Original	Valid

2. Test summary

Test procedures according to the technical standards:

Standard	Test Item	Test Result
§15.107	Conducted Emission	PASS
§15.109	Radiated Emission	PASS

3. Measurement uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %

Test Item	Frequency	Expanded Uncertainty (U_{Lab})
Conducted Emission	150 kHz to 30 MHz	±3.1 dB
Radiated Emission	30 MHz to 1000 MHz	±4.1 dB
Radiated Emission	1000 MHz to 6000 MHz	±4.8 dB

4. General information

4.1. Description of EUT

Product name	TV antenna
Trade mark	新宏羽 nomexin
Model No.	T808
Serial No.	T809, T900, ANT250, T160, T210
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: T808.
Power Supply	DC 5V by adapter
Configuration	☒ Table-top ☐ Floor-standing
The highest frequency of the internal sources of the EUT :	☐ below 1.705 MHz, the measurement shall only be made up to 30 MHz. ☒ between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz. ☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. ☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. ☐ above 1 GHz, the measurement shall be made up to 5th harmonic of the highest frequency or 40 GHz, whichever is lower.
Adapter Information:	/

Note: The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

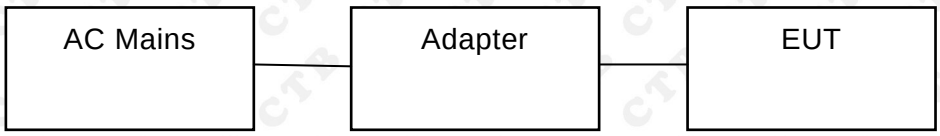
4.2. Description of accessory device

No.	Device Type	Brand	Model	Specification	Note
1	ADAPTER	JIYIN	JY-05100C	/	/

4.3. Test conditions

Temperature: 15-25℃
Relative Humidity: 30-60 %
Atmospheric pressure: 800hPa-1060hPa

4.4. Block diagram of EUT configuration



4.5. Operating condition of EUT

Operating condition	Mode 1*	Working	Test Voltage	DC5V
Note:This test covers all possible operating modes of the device, only the worst data are list in report. The worst data are shows (*)is the nearest standard limit which were recorded in this report.				

5. List of Test and Measurement Instruments

Continuous disturbance					
No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	843 Shield Room	C/ R/ T	843	/	2024/8/11
2	AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	2024/7/04
3	Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	2024/7/04
4	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCS30	834115/006	2024/7/04
5	Coaxial cable	ZDECL	Z302S	18091904	2024/7/04
6	AAN	Schwarzbeck	NTFM8158	183	2024/7/07
7	EZ-EMC	Frad	EMC-con3A1.1	/	/

Radiated emission					
No.	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	966 Chamber	C/ R/ T	966	/	2024/8/11
2	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	1911	2026/7/07
3	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	869	2024/7/07
4	Amplifier	Agilent	8449B	3008A01838	2024/7/04
5	Amplifier	HP	8447E	2945A02747	2024/7/04
6	EMI TEST RECEIVER	ROHDE&SCHWARZ	ESPI7	100362	2024/7/04
7	Coaxial cable	ETS	RFC-SNS-100-NMS-80 NI	/	2024/7/04
8	Coaxial cable	ETS	RFC-SNS-100-NMS-20 NI	/	2024/7/04
9	Coaxial cable	ETS	RFC-SNS-100-SMS-20 NI	/	2024/7/04
10	Coaxial cable	ETS	RFC-NNS-100-NMS-300 NI	/	2024/7/04
11	EZ-EMC	Frad	EMC-con3A1.1	/	/

6. Conducted Emission

6.1. Limit

☒ Except for Class A devices:

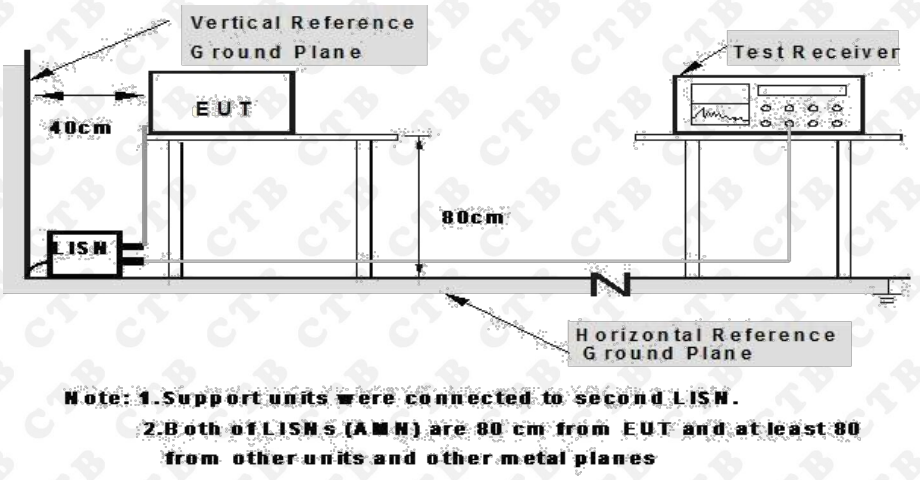
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Note: Decreases with the logarithm of the frequency.

☐ For Class A devices:

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

6.2. Test setup



The setup of EUT is according with ANSI C63.4 measurement procedure. Specification used with FCC Part 15 limits.

6.3. EMI test receiver setup

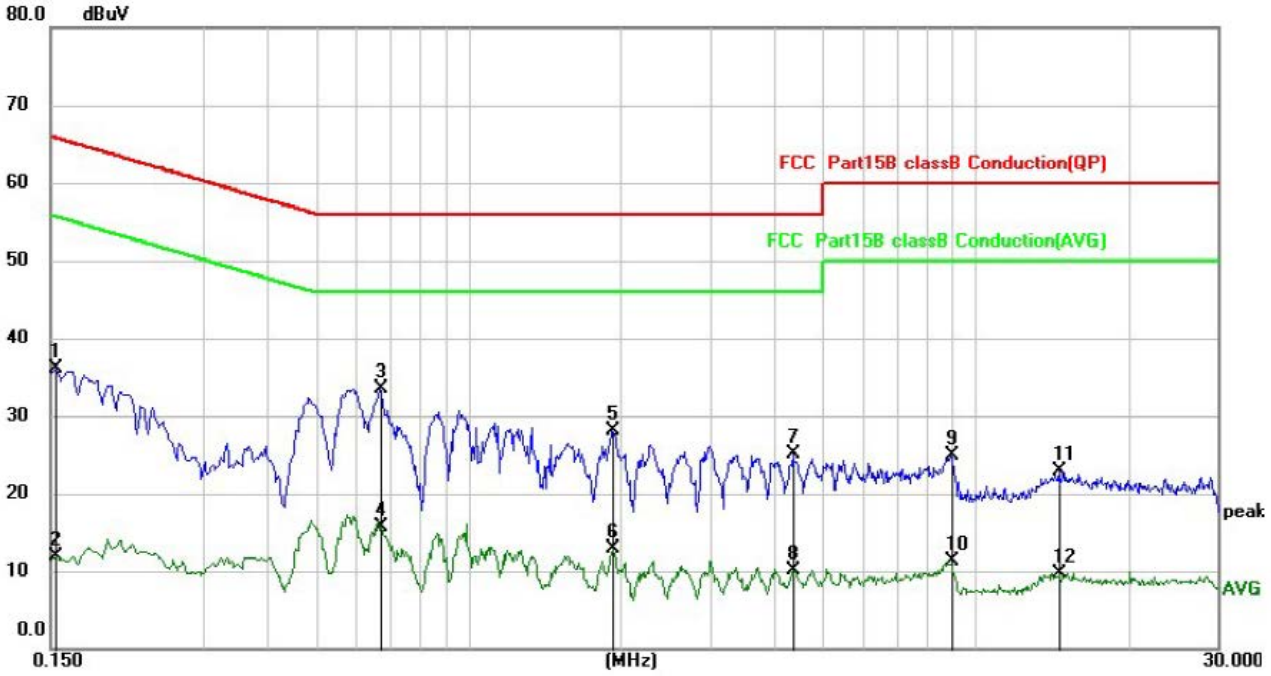
Frequency Range	9kHz-30MHz
Resolution Bandwidth	200Hz (9kHz-150kHz) 9kHz (150kHz-30MHz)

6.4. Test procedure

1. Measurement was performed in shielded room, and instruments used were followed clause 4 of ANSI C63.4.
2. Detailed test procedure was following clause 7 of ANSI C63.4.
3. Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

6.5. Test results

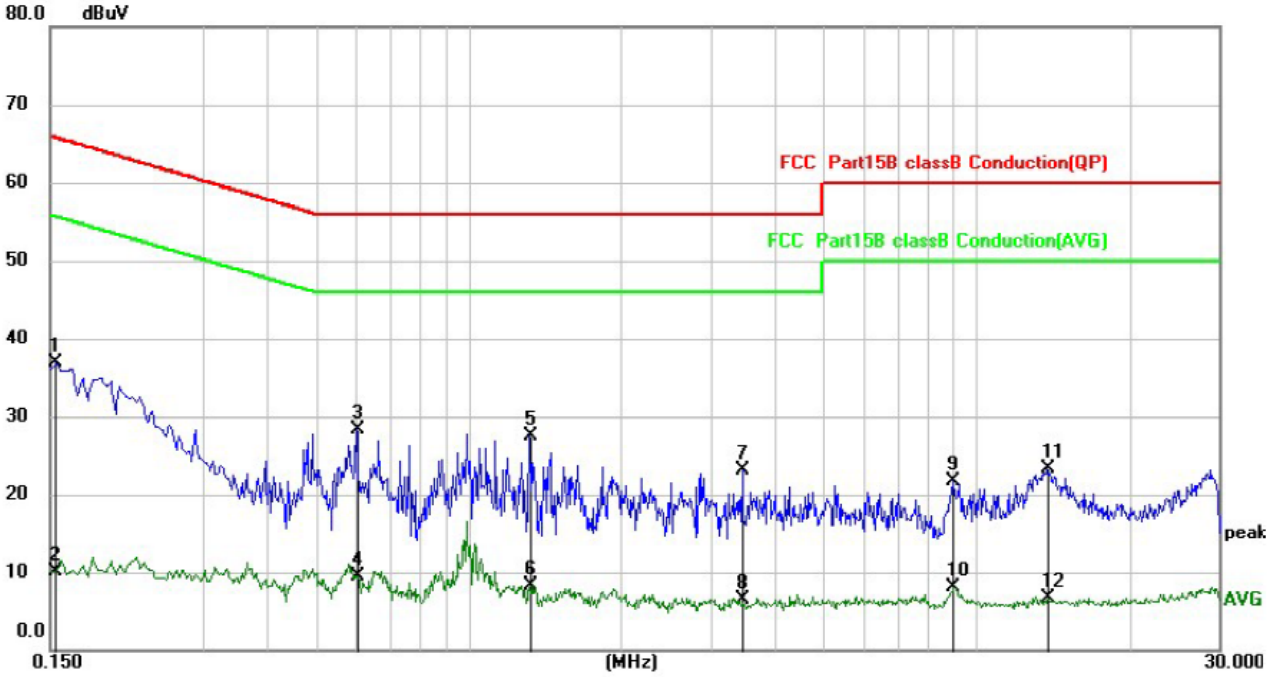
Temperature:	23℃	Relative Humidity:	54 %
Pressure:	101kPa	Phase :	Line
Test Voltage :	DC 5V	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	25.39	10.72	36.11	65.79	-29.68	QP
2		0.1539	1.28	10.72	12.00	55.79	-43.79	AVG
3	*	0.6700	23.01	10.55	33.56	56.00	-22.44	QP
4		0.6700	5.16	10.55	15.71	46.00	-30.29	AVG
5		1.9220	17.46	10.63	28.09	56.00	-27.91	QP
6		1.9220	2.18	10.63	12.81	46.00	-33.19	AVG
7		4.3820	14.48	10.65	25.13	56.00	-30.87	QP
8		4.3820	-0.58	10.65	10.07	46.00	-35.93	AVG
9		8.9620	14.07	10.78	24.85	60.00	-35.15	QP
10		8.9620	0.53	10.78	11.31	50.00	-38.69	AVG
11		14.6340	11.92	10.90	22.82	60.00	-37.18	QP
12		14.6340	-1.23	10.90	9.67	50.00	-40.33	AVG

Note: Result=Reading + Factor
Over Limit=Result - Limit

Temperature:	23℃	Relative Humidity:	54 %
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	DC 5V	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	26.24	10.72	36.96	65.79	-28.83	QP
2		0.1539	-0.64	10.72	10.08	55.79	-45.71	AVG
3	*	0.6020	17.78	10.54	28.32	56.00	-27.68	QP
4		0.6020	-1.03	10.54	9.51	46.00	-36.49	AVG
5		1.3220	16.91	10.62	27.53	56.00	-28.47	QP
6		1.3220	-2.30	10.62	8.32	46.00	-37.68	AVG
7		3.4540	12.40	10.64	23.04	56.00	-32.96	QP
8		3.4540	-4.10	10.64	6.54	46.00	-39.46	AVG
9		8.9819	10.82	10.79	21.61	60.00	-38.39	QP
10		8.9819	-2.65	10.79	8.14	50.00	-41.86	AVG
11		13.8300	12.43	10.89	23.32	60.00	-36.68	QP
12		13.8300	-4.15	10.89	6.74	50.00	-43.26	AVG

Note: Result=Reading + Factor
Over Limit=Result – Limit

7. Radiated emissions

7.1. Limit

☒ Except for Class A devices (at 3m):

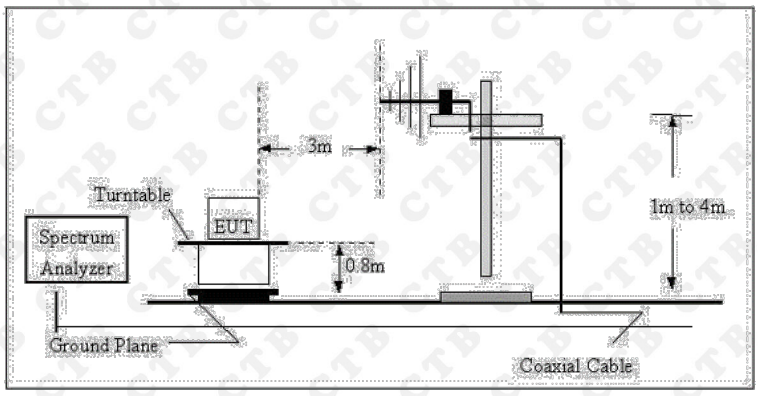
Frequency of emission (MHz)	Field strength (microvolts/meter)	
	(microvolts/meter)	(dBμV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

☐ For Class A devices (at 10m):

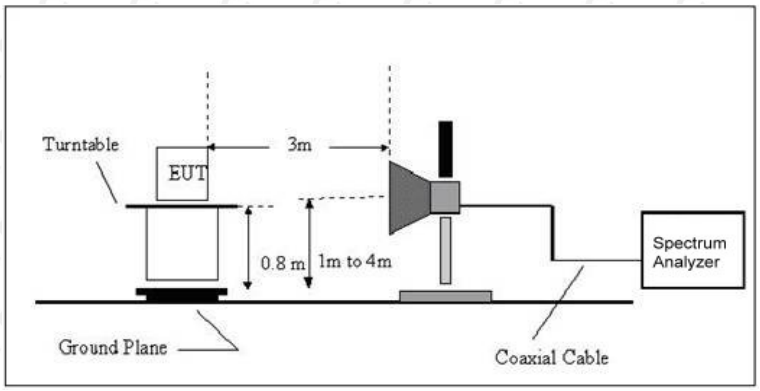
Frequency of emission (MHz)	Field strength (microvolts/meter)	
	(microvolts/meter)	(dBμV/m)
30-88	90	39
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

7.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz



Radiated Emission Test Set-Up Frequency Above 1GHz



The radiated tests wer performed in 3 meter Charmber test site, using the setup accordance with the ANSI C63.4:2014.

7.3. EMI test receiver setup and spectrum analyzer setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz-1000MHz	100kHz	300kHz	120kHz	QP
Above 1GHz	1MHz	3MHz	/	PK
	1MHz	10Hz	/	AVG

7.4. Test procedure

1. The measurement was performed in a semi-anechoic chamber, and instruments used were followed clause 4 of ANSI C63.4

2. Detailed test procedure was following clause 8 of ANSI C63.4.

7.5. Corrected Amplitude & Margin Calculation

1. The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

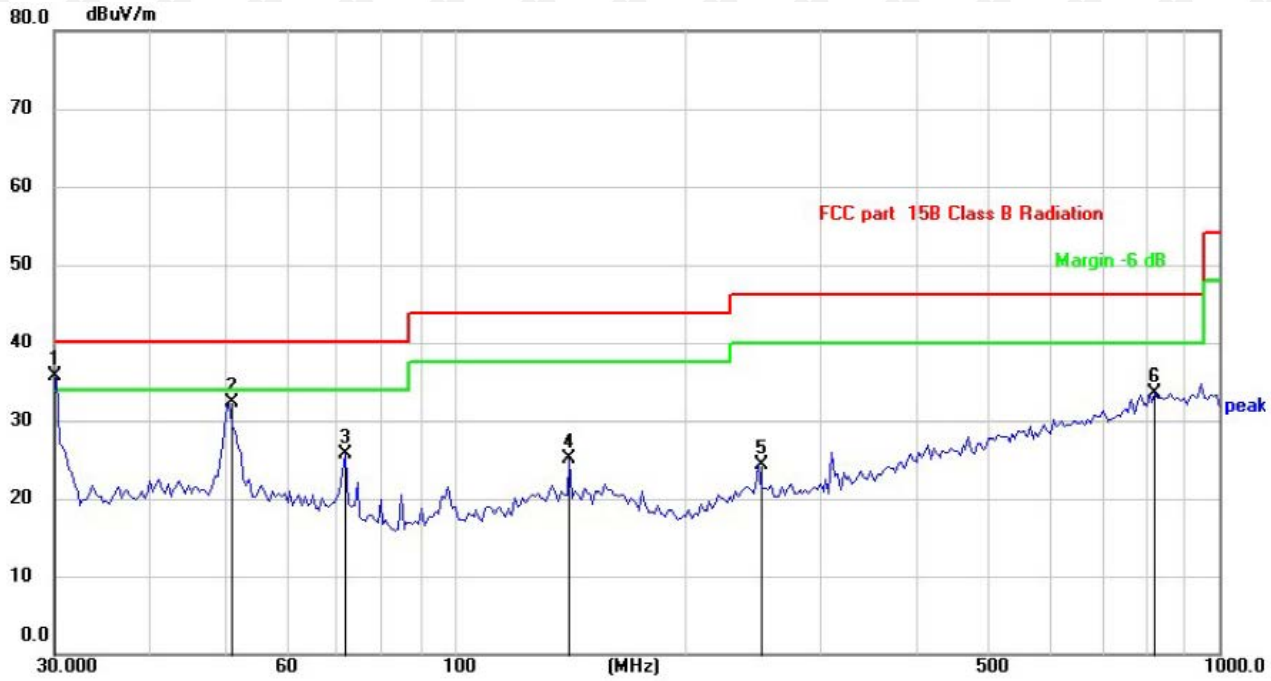
   Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

2. The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

   Margin = Limit – Corrected Amplitude

7.6. Test results

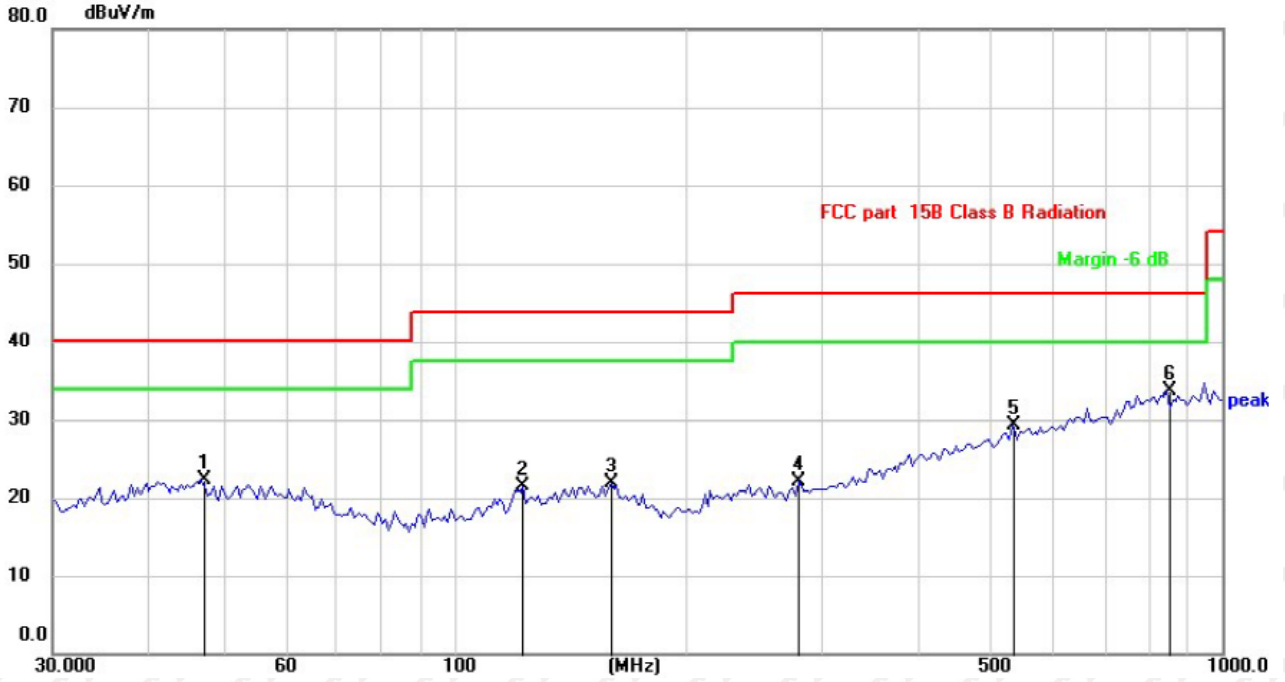
Temperature:	23℃	Relative Humidity:	54 %
Pressure:	101kPa	Polarization :	Horizontal
Test Voltage :	DC 5V	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	30.2641	43.12	-7.48	35.64	40.00	-4.36	QP
2		50.7637	37.95	-5.68	32.27	40.00	-7.73	QP
3		72.0843	34.09	-8.31	25.78	40.00	-14.22	QP
4		141.5777	30.53	-5.45	25.08	43.50	-18.42	QP
5		250.3012	30.05	-5.70	24.35	46.00	-21.65	QP
6		824.5968	27.51	6.07	33.58	46.00	-12.42	QP

Note: Result=Reading+Factor
Over Limit=Result-Limit

Temperature:	23℃	Relative Humidity:	54 %
Pressure:	101kPa	Polarization :	Vertical
Test Voltage :	DC 5V	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		46.9125	27.83	-5.53	22.30	40.00	-17.70	QP
2		123.0495	28.16	-6.66	21.50	43.50	-22.00	QP
3		160.0648	27.42	-5.57	21.85	43.50	-21.65	QP
4		280.5152	27.47	-5.41	22.06	46.00	-23.94	QP
5		531.9635	28.08	1.30	29.38	46.00	-16.62	QP
6	*	846.5708	27.63	6.11	33.74	46.00	-12.26	QP

Note: Result=Reading+Factor
Over Limit=Result-Limit

8. Photographs of test setup

RE

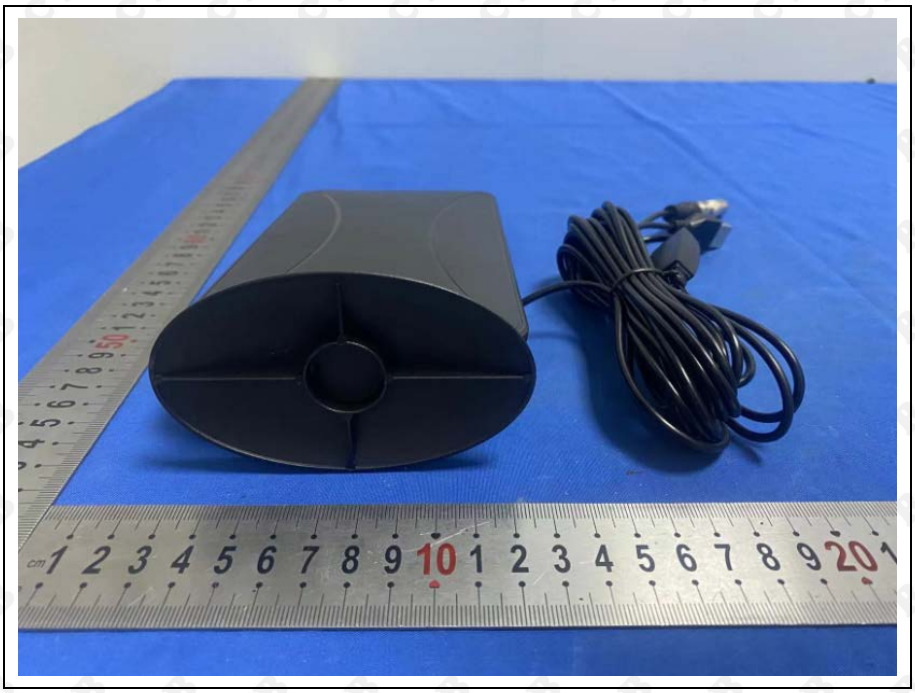
CE

9. Photographs of EUT

EUT photo 1

EUT photo 2

EUT photo 3



EUT photo 4

EUT photo 5

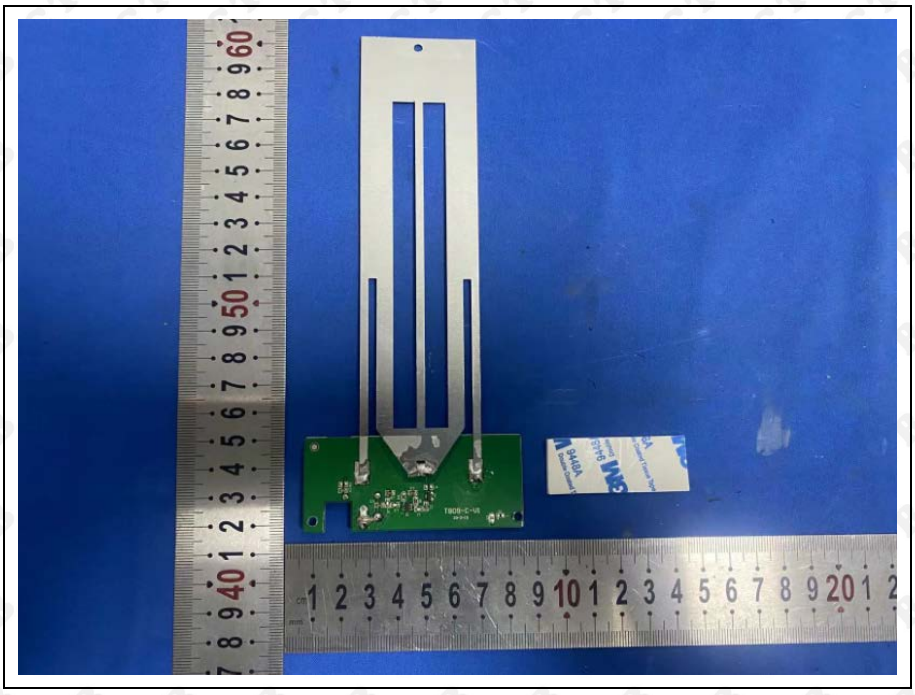
EUT photo 6

EUT photo 7

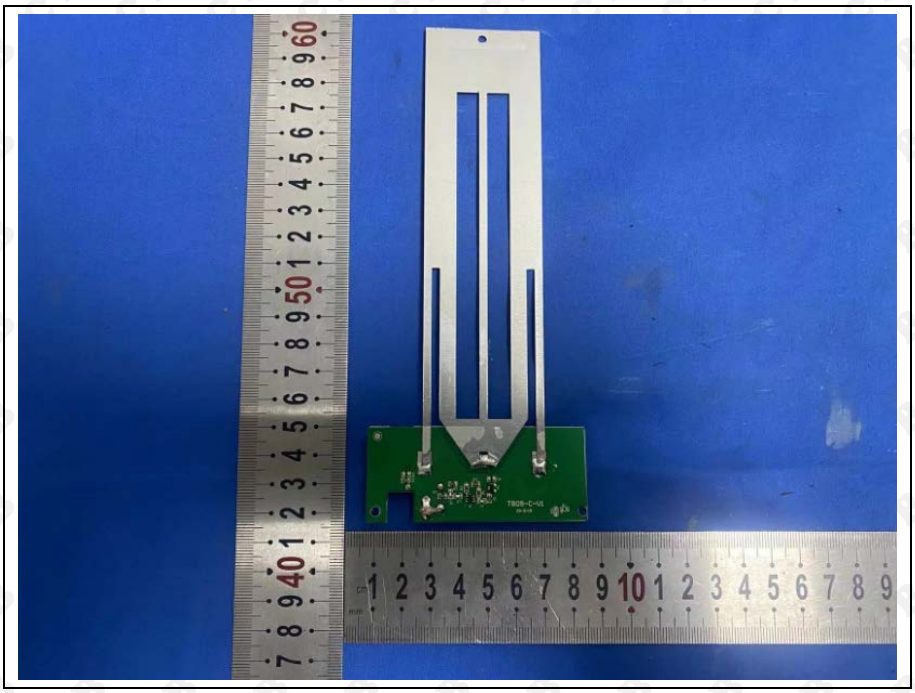
EUT photo 8

EUT photo 9

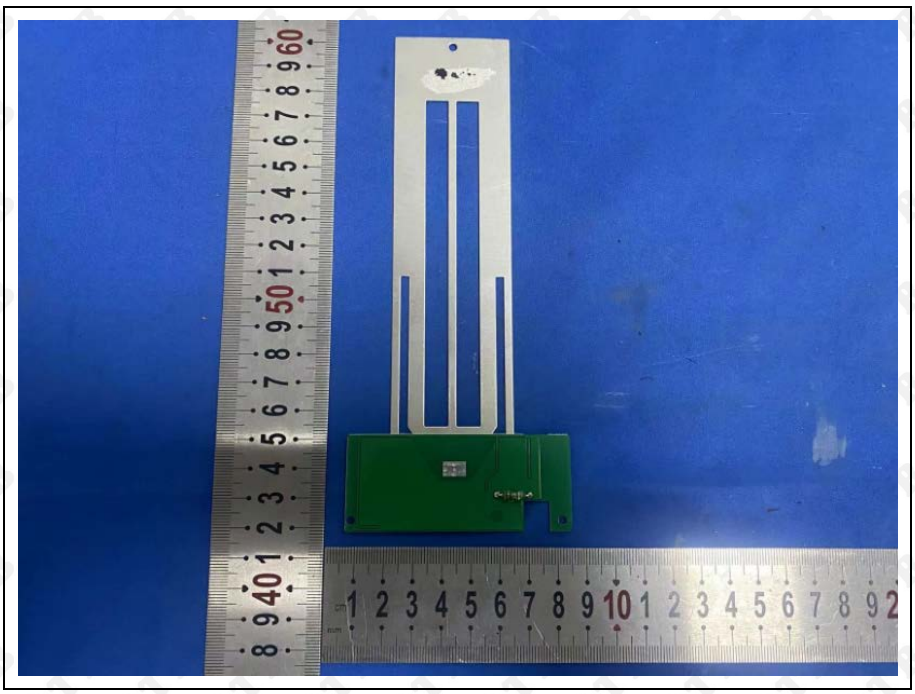
EUT photo 10



EUT photo 11



EUT photo 12



End of report