



Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

FCC PART 15 SUBPART C TEST REPORT

FCC PART 15.239

Report Reference No..... : GRCTR220302012-01

FCC ID..... : 2A6BQ-YXHT

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Date of issue.....: Apr. 11, 2022

Testing Laboratory Name..... : **Shenzhen GUOREN Certification Technology Service Co., Ltd.**

Address..... : 101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

Applicant's name..... : **Anshan Yuexing Technology electronics Co., LTD**

Address..... : S10, 5th Floor, Building 159, Sifangtai Road, Tiexi District, Anshan city

Test specification..... :

Standard.....: **FCC Part 15.239**

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Equipment description..... : **FM transmitter**

Trade Mark.....: /

Manufacturer.....: Anshan Yuexing Technology electronics Co., LTD

Model/Type reference.....: YXHT-FM

Listed Models: XYHT-FM50W,XYHT-FM100W,XYHT-FM150W,XYHT-FM300W, XYHT-FM500W,XYHT-FM1000W,XYHT-FM1500W,XYHT-FM2000W,XYHT-FM3000W,XYHT-FM5000W

Firmware Version.....: V1.0

Hardware Version.....: V1.0

Modulation: GFSK

Frequency..... 88.1MHz~107.9MHz

Ratings.....: DC 12V From adapter

Result.....: **PASS**

TEST REPORT

Equipment under Test : FM transmitter

Model /Type : YXHT-FM

Listed Models : XYHT-FM50W,XYHT-FM100W,XYHT-FM150W,XYHT-FM300W,XYHT-FM500W,XYHT-FM1000W,XYHT-FM1500W,XYHT-FM2000W,XYHT-FM3000W,XYHT-FM5000W

Applicant : **Anshan Yuexing Technology electronics Co., LTD**

Address : S10, 5th Floor, Building 159, Sifangtai Road, Tiexi District, Anshan city

Manufacturer : **Anshan Yuexing Technology electronics Co., LTD**

Address : S10, 5th Floor, Building 159, Sifangtai Road, Tiexi District, Anshan city

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.

Contents

1 TEST STANDARDS	4
2 SUMMARY	5
2.1 General Remarks.....	5
2.2 Product Description.....	5
2.3 Equipment Under Test.....	5
2.4 Short description of the Equipment under Test (EUT).....	5
2.5 EUT operation mode.....	6
2.6 Block Diagram of Test Setup.....	6
2.7 Related Submittal(s) / Grant (s).....	6
2.8 Modifications.....	6
3 TEST ENVIRONMENT	7
3.1 Address of the test laboratory.....	7
3.2 Test Facility.....	7
3.3 Environmental conditions.....	7
3.4 Summary of measurement results.....	7
3.5 Statement of the measurement uncertainty.....	8
3.6 Equipments Used during the Test.....	9
4 TEST CONDITIONS AND RESULTS	10
4.1 AC Power Conducted Emission.....	10
4.2 RADIATED MEASUREMENT.....	13
4.3 99% AND 20DB BANDWIDTH.....	21
4.4 Antenna Requirement.....	23
5 TEST SETUP PHOTOS OF THE EUT	24
6 PHOTOS OF THE EUT	25

1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB558074 D01 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	:	Mar. 23, 2022
Testing commenced on	:	Mar. 23, 2022
Testing concluded on	:	Apr. 11, 2022

2.2 Product Description

Product Description:	FM transmitter
Model/Type reference:	YXHT-FM
Listed Models:	XYHT-FM50W,XYHT-FM100W,XYHT-FM150W,XYHT-FM300W,XYHT-FM500W,XYHT-FM1000W,XYHT-FM1500W,XYHT-FM2000W,XYHT-FM3000W,XYHT-FM5000W (The products are identical in interior structure, electrical circuits and components, just model names and color are different.)
Power supply:	DC 12.0V From Adapter
Adapter information:	Model:SPS-06C12-2 Input:AC100-240V 50/60Hz, 0.6A Output:DC 12V,2A
Testing sample ID:	GRCTR220302012-1# (Engineer sample) GRCTR220302012-2# (Normal sample)
FM	
Modulation:	FM
Operation frequency:	88.1MHz~107.9MHz
Channel number:	199
Channel separation:	100KHz
Channel frequency	88.1MHz~107.9MHz(Channel Number: 199, Channel Frequency=88.1+0.1(K-1), K=1, 2, 3199)
Antenna type:	External antenna
Antenna gain:	2.0 dBi

2.3 Equipment Under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 120V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 12.0V From Adapter

2.4 Short description of the Equipment under Test (EUT)

This is a FM transmitter.

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

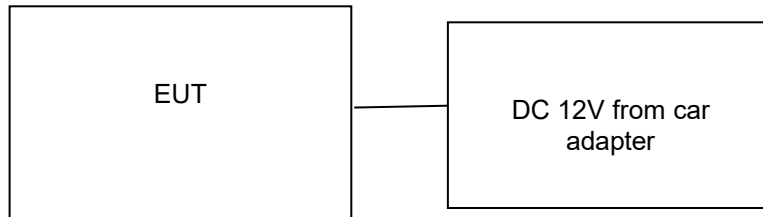
2.5 EUT operation mode

There are 199 channels provided to the EUT and Channel Low/Mid/High were selected to test.

Operation Frequency:

Channel	Frequency (MHz)
001	88.1
100	98.1
199	107.9

2.6 Block Diagram of Test Setup



2.7 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for the device filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.8 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

3.2 Test Facility

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

FCC-Registration No.: 920798 Designation Number: CN1304

Shenzhen GUOREN Certification Technology Service 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.: 6202.01

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

ISED#: 27264 CAB identifier: CN0115

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

CNAS-Lab Code: L15631

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories for the Competence of Testing and Calibration Laboratories.

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:

Normal Temperature	15-35 °C
Relative Humidity	30-60 %
Air Pressure	950-1050mbar

3.4 Summary of measurement results

Applied Standard: FCC CFR 47 PART 15.239		
FCC Rules	Description of Test	Result
§15.239 (a)	Occupied Bandwidth	Compliant
§15.239 (b)	Field Strength of Fundamental frequency	Compliant
§15.205 (a) §15.209 (a)	Radiated Spurious Emissions	Compliant
§15.207 (a)	AC Conducted Emissions	Compliant
§15.203	Antenna Requirements	Compliant

Remark:

1. The measurement uncertainty is not included in the test result.
2. We tested all test mode and recorded worst case in report

3.5 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 GUOREN Certification Technology 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 GUOREN Certification Technology Service Co., Ltd.:

Test	Range	Measurement Uncertainty	Notes
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)

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

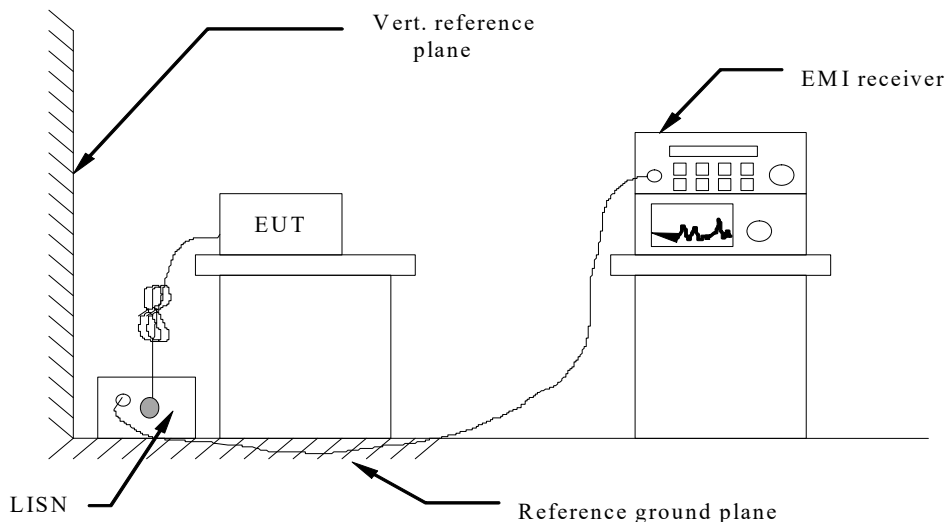
3.6 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	GRCTEE009	2021/10/30	2022/10/29
LISN	R&S	ENV216	GRCTEE010	2021/10/30	2022/10/29
EMI Test Receiver	R&S	ESPI	GRCTEE017	2021/10/30	2022/10/29
EMI Test Receiver	R&S	ESCI	GRCTEE008	2021/10/30	2022/10/29
Spectrum Analyzer	Agilent	N9020A	GRCTEE002	2021/10/30	2022/10/29
Spectrum Analyzer	R&S	FSP	GRCTEE003	2021/10/20	2022/10/19
Vector Signal generator	Agilent	N5181A	GRCTEE007	2021/10/30	2022/10/29
Analog Signal Generator	R&S	SML03	GRCTEE006	2021/10/30	2022/10/29
Climate Chamber	QIYA	LCD-9530	GRCTES016	2021/10/30	2022/10/29
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	GRCTEE018	2020/10/25	2023/10/24
Horn Antenna	Schwarzbeck	BBHA 9120D	GRCTEE019	2020/10/25	2023/10/24
Loop Antenna	Zhinan	ZN30900C	GRCTEE020	2020/10/25	2023/10/24
Horn Antenna	Beijing Hangwei Dayang	OBH100400	GRCTEE049	2021/1/18	2024/1/17
Amplifier	Schwarzbeck	BBV 9745	GRCTEE021	2021/10/30	2022/10/29
Amplifier	Taiwan chengyi	EMC051845B	GRCTEE022	2021/10/30	2022/10/29
Temperature/Humidity Meter	Huaguan	HG-308	GRCTES037	2021/10/30	2022/10/29
Directional coupler	NARDA	4226-10	GRCTEE004	2021/10/30	2022/10/29
High-Pass Filter	XingBo	XBLBQ-GTA18	GRCTEE053	2021/10/30	2022/10/29
High-Pass Filter	XingBo	XBLBQ-GTA27	GRCTEE054	2021/10/30	2022/10/29
Automated filter bank	Tonscend	JS0806-F	GRCTEE055	2021/10/30	2022/10/29
Power Sensor	Agilent	U2021XA	GRCTEE070	2021/10/30	2022/10/29
EMI Test Software	ROHDE & SCHWARZ	ESK1-V1.71	GRCTEE060	N/A	N/A
EMI Test Software	Fera	EZ-EMC	GRCTEE061	N/A	N/A

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 power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz 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

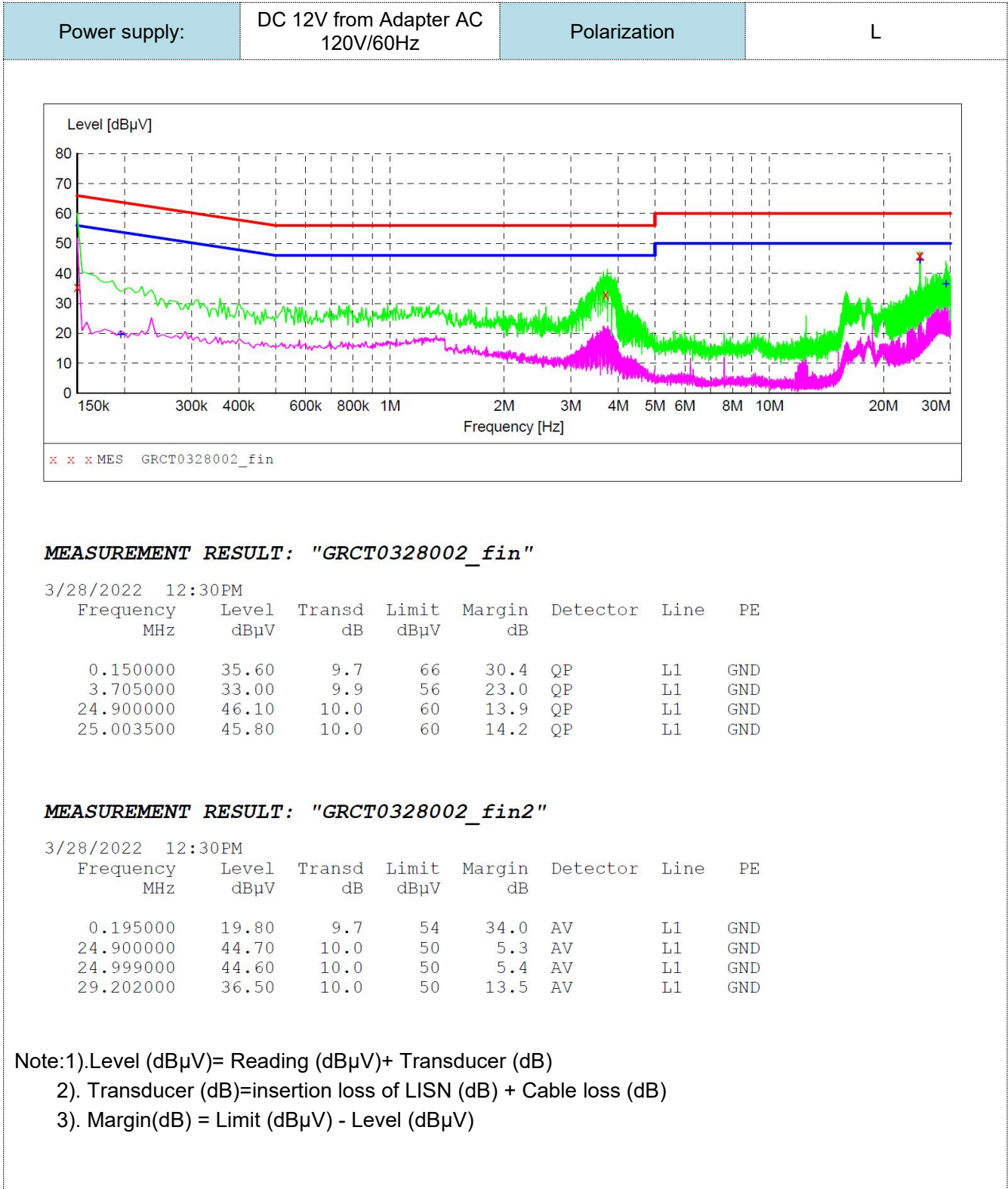
* Decreases with the logarithm of the frequency.

TEST RESULTS

Remark:

1. FM mode were tested at Low, Middle, and High channel, only the worst result of CH00 was reported as below.

2. Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:

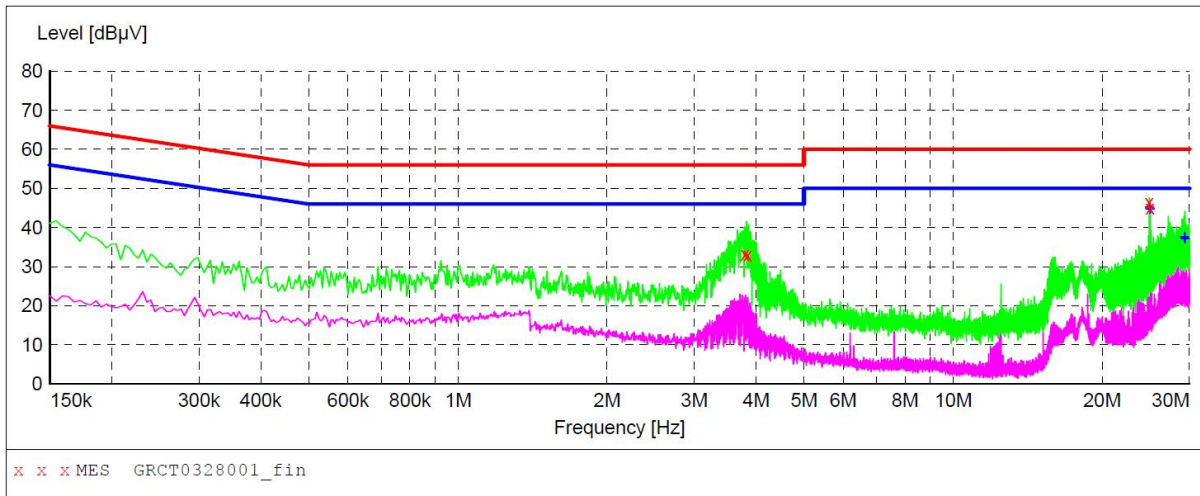


Power supply:

DC 12V from Adapter AC
120V/60Hz

Polarization

N



MEASUREMENT RESULT: "GRCT0328001_fin"

3/28/2022 12:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
3.799500	33.30	9.9	56	22.7	QP	N	GND
3.853500	33.00	10.0	56	23.0	QP	N	GND
24.900000	46.50	10.0	60	13.5	QP	N	GND
25.003500	45.00	10.0	60	15.0	QP	N	GND

MEASUREMENT RESULT: "GRCT0328001_fin2"

3/28/2022 12:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
24.900000	45.10	10.0	50	4.9	AV	N	GND
24.999000	44.90	10.0	50	5.1	AV	N	GND
29.301000	37.60	10.0	50	12.4	AV	N	GND
29.400000	37.10	10.0	50	12.9	AV	N	GND

Note:1).Level (dBµV)= Reading (dBµV)+ Transducer (dB)

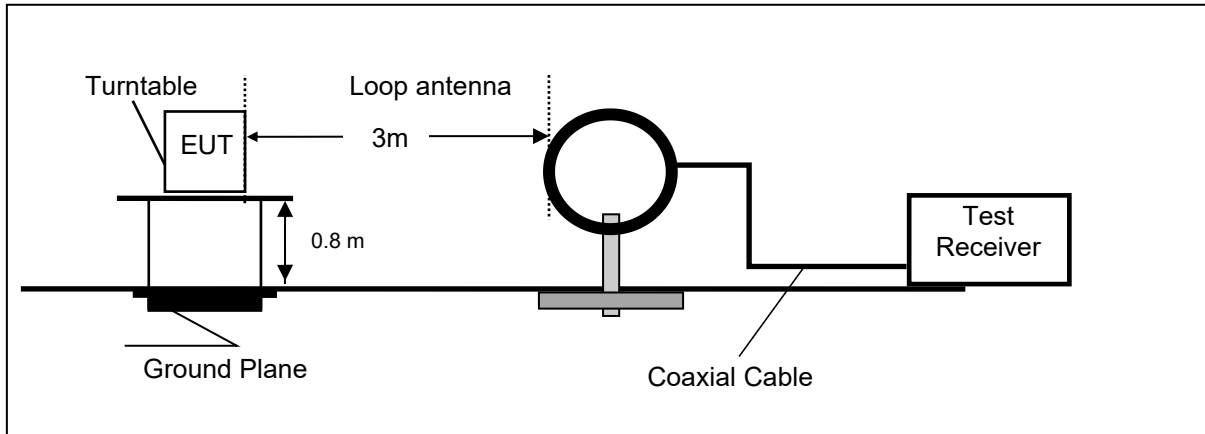
2). Transducer (dB)=insertion loss of LISN (dB) + Cable loss (dB)

3). Margin(dB) = Limit (dBµV) - Level (dBµV)

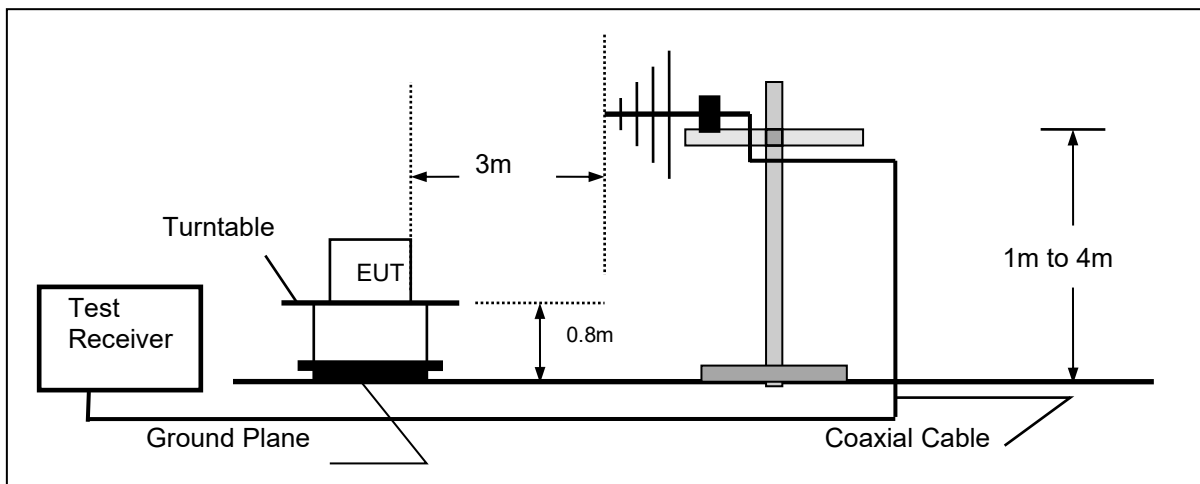
4.2 RADIATED MEASUREMENT

TEST CONFIGURATION

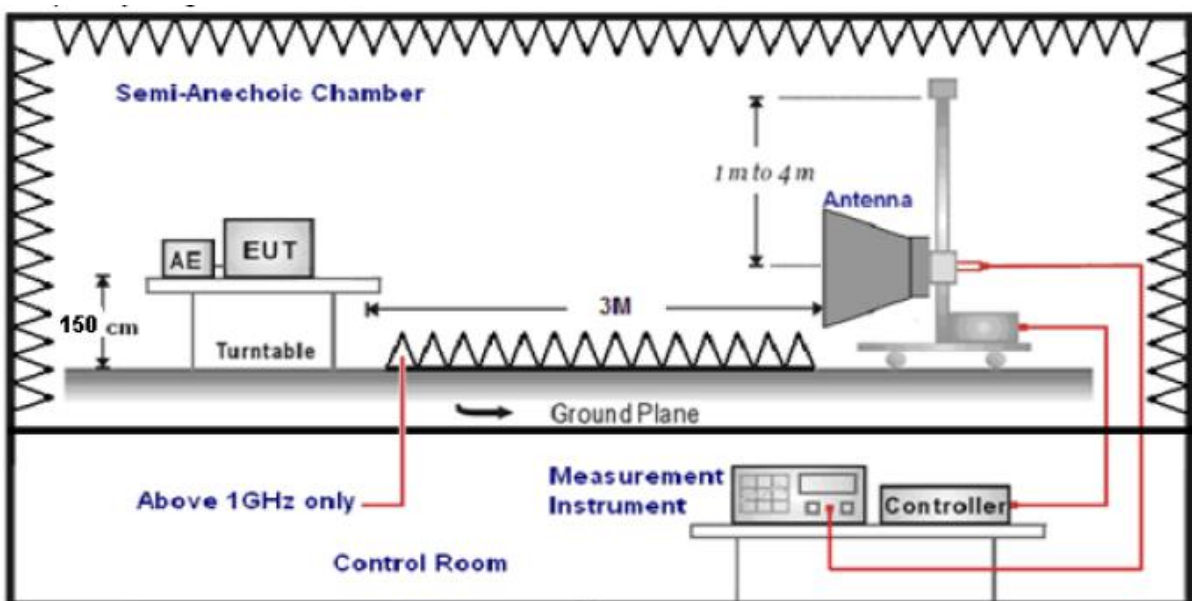
Frequency range 9 KHz – 30MHz



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. The EUT minimum operation frequency was 32.768KHz and maximum operation frequency was 2480MHz.so radiated emission test frequency band from 9KHz 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

According to §15.239 (b): The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

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

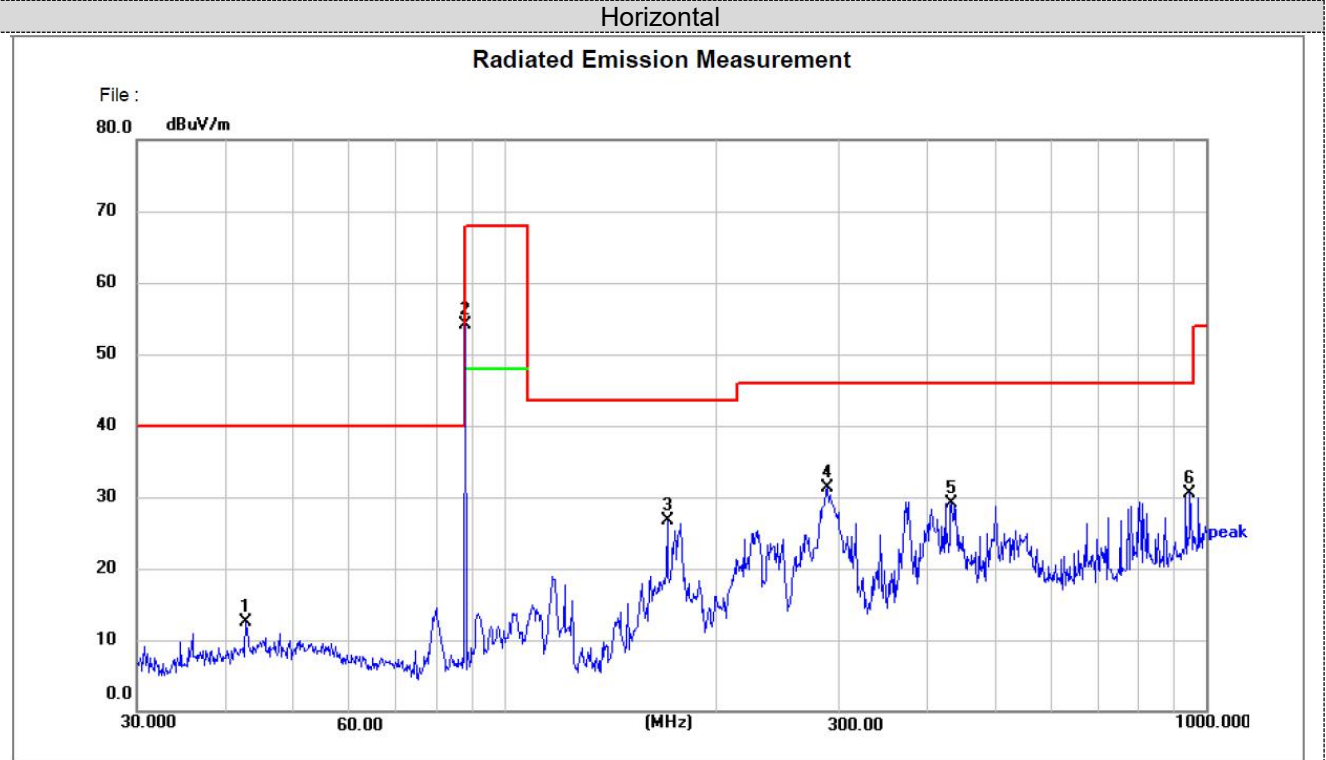
TEST RESULTS

Remark:

1. This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
2. Fm were tested at Low, Middle, and High channel.
3. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.

For 30MHz-1GHz

TX Low Channel:

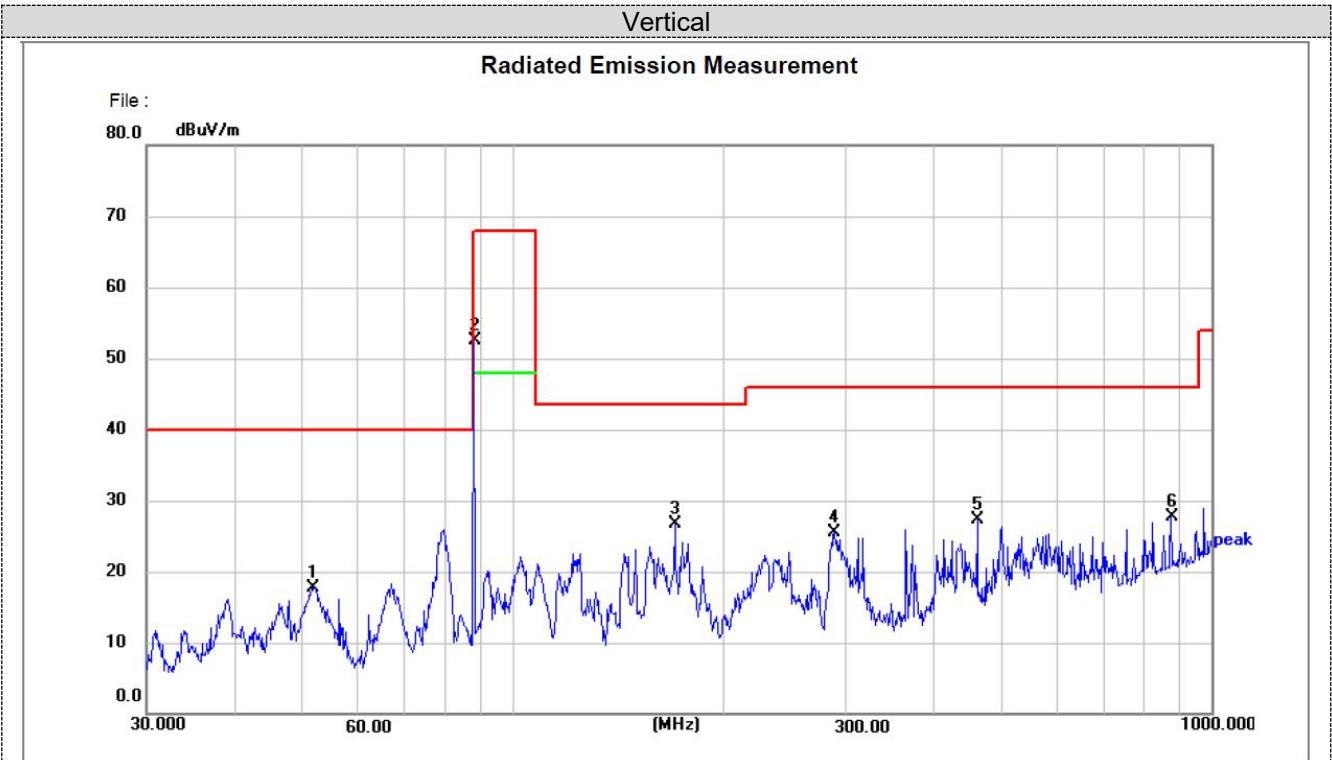


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	42.8997	30.53	12.50	-18.03	40.00	27.50	100	Peak	Horizontal
2	88.1227	75.63	54.53	-21.10	68.00	13.47	100	Peak	Horizontal
/	88.1227	62.42	41.32	-21.10	48.00	6.68	100	AVG	Horizontal
3	170.7923	47.91	26.78	-21.13	43.50	16.72	100	Peak	Horizontal
4	289.0020	48.51	31.24	-17.27	46.00	14.76	100	Peak	Horizontal
5	434.0649	43.96	29.09	-14.87	46.00	16.91	100	Peak	Horizontal
6	948.7608	37.22	30.45	-6.77	46.00	15.55	100	Peak	Horizontal

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

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

3). Margin(dB) = Limit (dBµV/m) - Level (dBµV/m)



Suspected Data List

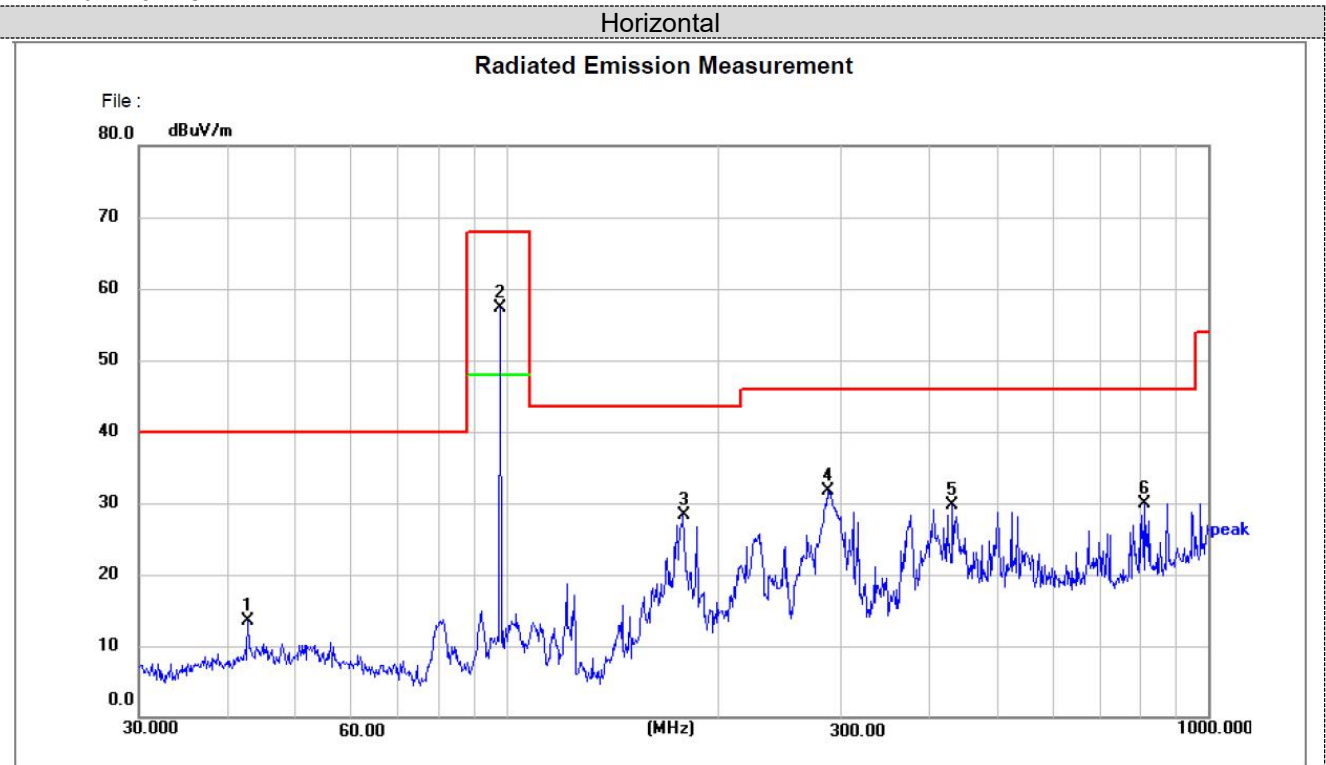
NO.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	52.0251	35.66	17.77	-17.89	40.00	22.23	100	Peak	Vertical
2	88.0329	73.65	52.55	-21.10	68.00	15.45	100	Peak	Vertical
/	88.1227	60.19	39.09	-21.10	48.00	8.91	100	AVG	Vertical
3	170.7926	47.88	26.75	-21.13	43.50	16.75	100	Peak	Vertical
4	289.0020	42.70	25.43	-17.27	46.00	20.57	100	Peak	Vertical
5	462.3455	41.80	27.40	-14.40	46.00	18.60	100	Peak	Vertical
6	875.2469	35.57	27.71	-7.86	46.00	18.29	100	Peak	Vertical

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

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

3). Margin(dB) = Limit (dBµV/m) - Level (dBµV/m)

TX Mid Channel:

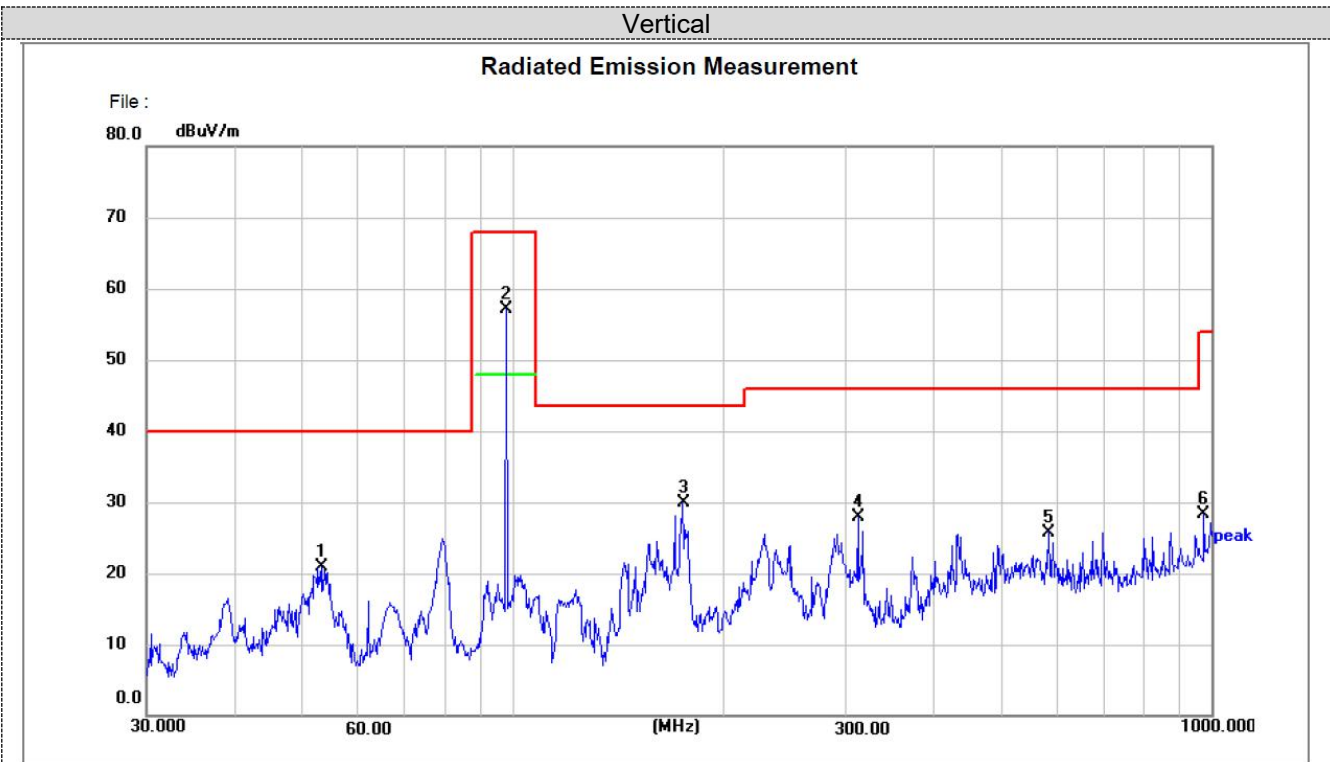


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	42.8997	31.62	13.59	-18.03	40.00	26.41	100	Peak	Horizontal
2	98.1418	76.62	57.34	-19.28	68.00	10.66	100	Peak	Horizontal
/	98.1418	63.37	44.09	-19.28	48.00	3.91	100	AVG	Horizontal
3	178.7583	49.02	28.28	-20.74	43.50	15.22	100	Peak	Horizontal
4	286.9823	49.03	31.71	-17.32	46.00	14.29	100	Peak	Horizontal
5	432.5455	44.55	29.66	-14.89	46.00	16.34	100	Peak	Horizontal
6	813.1114	39.24	29.99	-9.25	46.00	16.01	100	Peak	Horizontal

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

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

3). Margin(dB) = Limit (dBµV/m) - Level (dBµV/m)



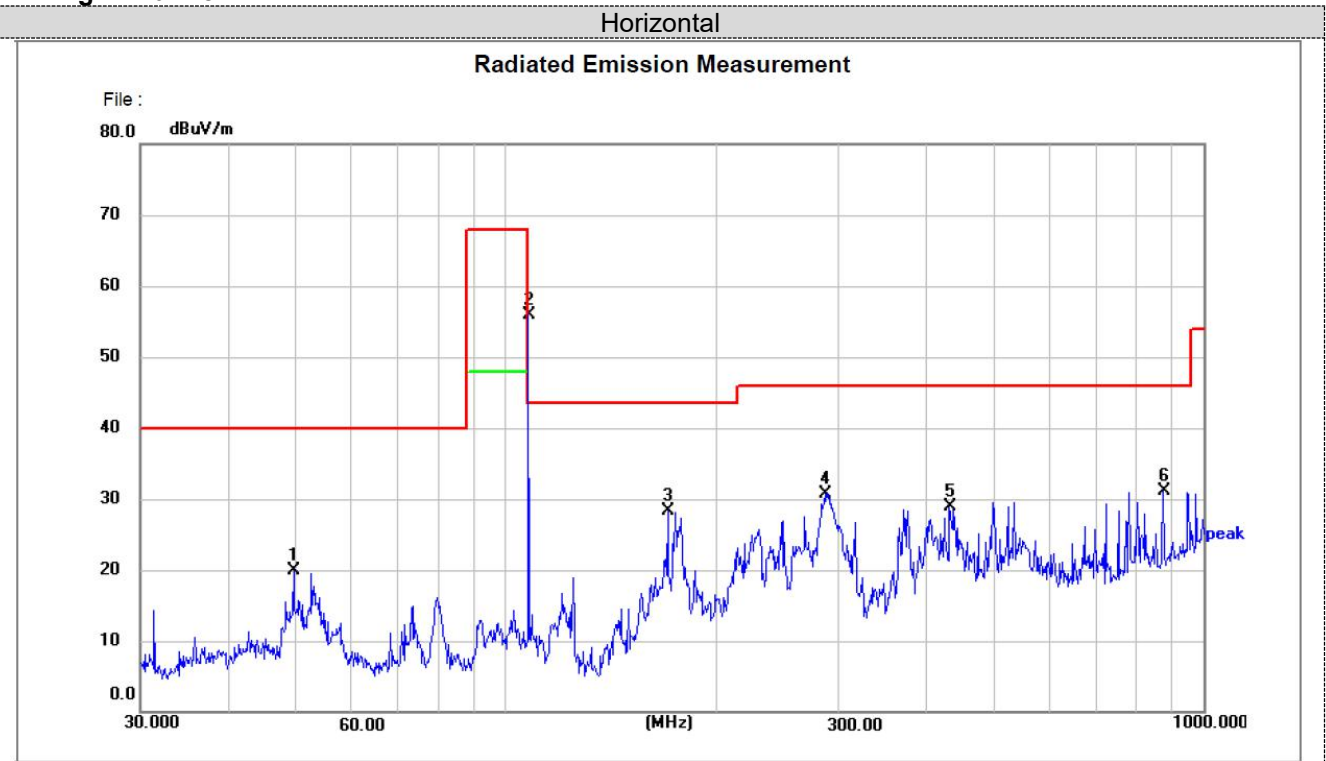
Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	53.5052	38.84	20.85	-17.99	40.00	19.15	100	Peak	Vertical
2	98.1418	76.38	57.10	-19.28	68.00	10.90	100	Peak	Vertical
/	98.1418	62.87	43.59	-19.28	48.00	4.41	100	AVG	Vertical
3	175.0365	50.85	29.89	-20.96	43.50	13.61	100	Peak	Vertical
4	312.1792	44.79	27.95	-16.84	46.00	18.05	100	Peak	Vertical
5	586.8436	37.22	25.80	-11.42	46.00	20.20	100	Peak	Vertical
6	975.7527	34.64	28.30	-6.34	46.00	25.70	100	Peak	Vertical

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

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

3). Margin(dB) = Limit (dBµV/m) - Level (dBµV/m)

TX High Channel:

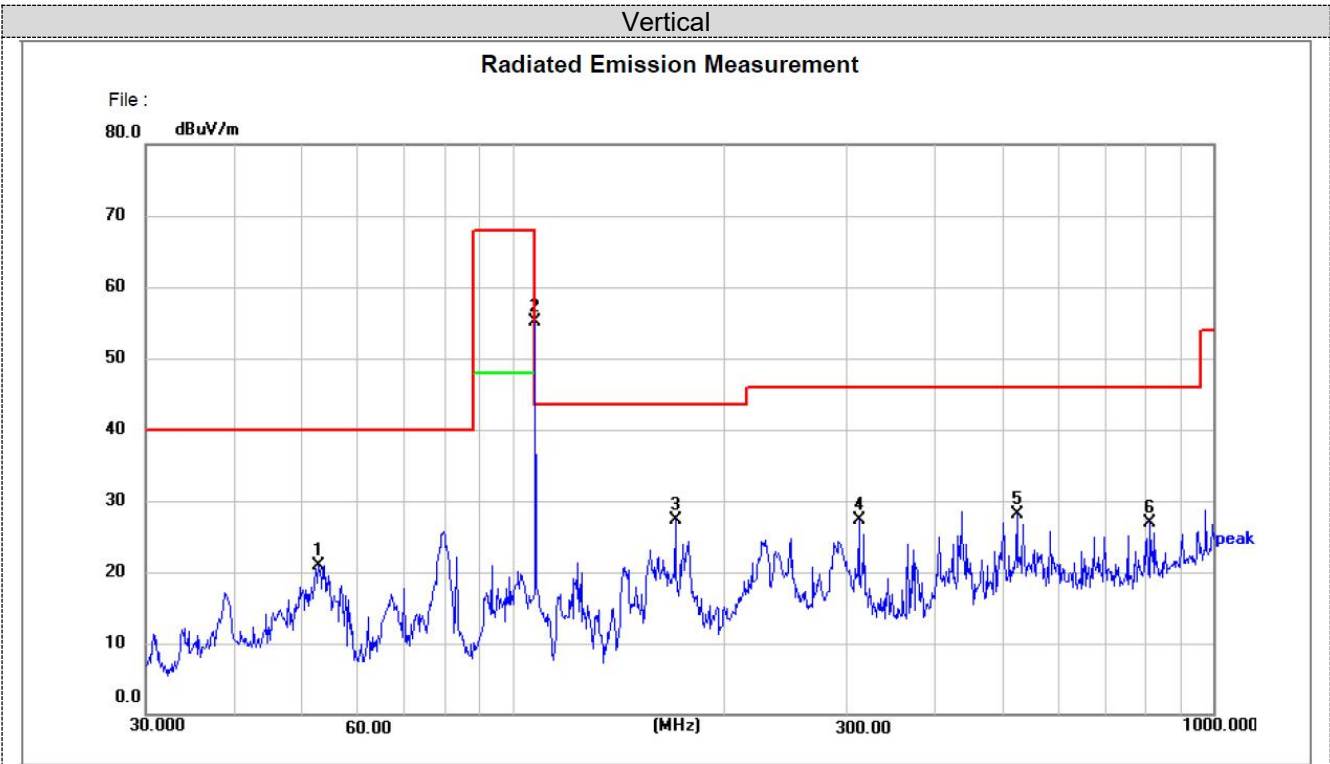


Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	49.7066	37.66	19.90	-17.76	40.00	20.10	100	Peak	Horizontal
2	107.9887	75.19	55.97	-19.22	68.00	12.03	100	Peak	Horizontal
/	107.9887	61.87	42.65	-19.22	48.00	5.35	100	AVG	Horizontal
3	171.0922	49.34	28.22	-21.12	43.50	15.28	100	Peak	Horizontal
4	286.9823	48.07	30.75	-17.32	46.00	15.25	100	Peak	Horizontal
5	432.5456	43.82	28.93	-14.89	46.00	17.07	100	Peak	Horizontal
6	875.2469	38.96	31.10	-7.86	46.00	14.90	100	Peak	Horizontal

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

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

3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)



	Freq. [MHz]	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Det	Polarity
1	52.9453	38.92	20.96	-16.14	40.00	19.07	100	Peak	Vertical
2	107.9887	74.25	55.03	-19.22	68.00	12.97	100	Peak	Vertical
/	107.9887	61.18	41.96	-19.22	48.00	6.04	100	AVG	Vertical
3	170.7925	48.48	27.35	-19.49	43.50	16.15	100	Peak	Vertical
4	312.1792	44.16	27.32	-17.40	46.00	18.68	100	Peak	Vertical
5	524.5540	41.71	28.12	-14.13	46.00	17.88	100	Peak	Vertical
6	813.1114	36.20	26.96	-9.19	46.00	19.05	100	Peak	Vertical

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

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

3). Margin(dB) = Limit (dBµV/m) - Level (dBµV/m)

4.3 99% AND 20DB BANDWIDTH

Limit

According to §15.239 (a) Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108MHz.

Test Procedure

- 1:The transmitter shall be operated at its maximum carrier power measured under normal test conditions
- 2:The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- 3:The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.
- 4:Detector function = peak.
- 5:Trace = max hold.

Test Configuration



Test Results

Type	Channel	20dB Bandwidth (KHz)	99% Bandwidth (KHz)	Limit (KHz)	Result
FM	Low	86.15	79.164	200.00	Pass
	Mid	88.91	81.679		
	High	58.08	61.719		

Test plot as follows:

FM



Low



Mid



High

4.4 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):

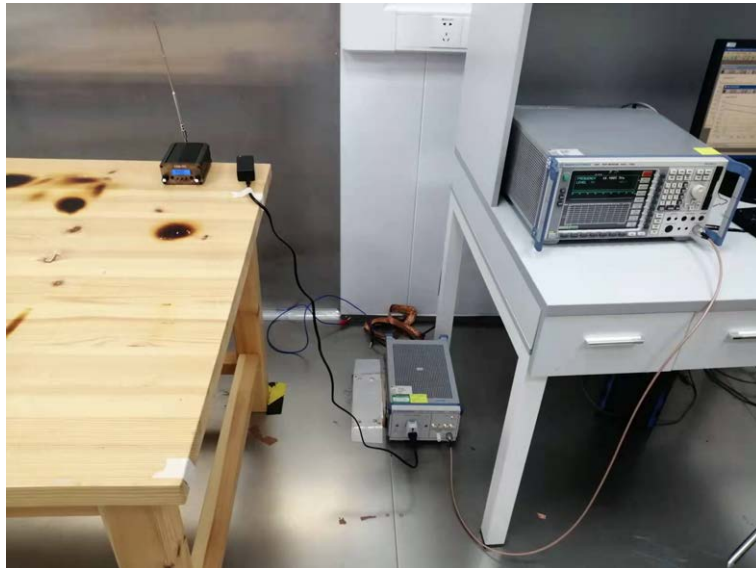
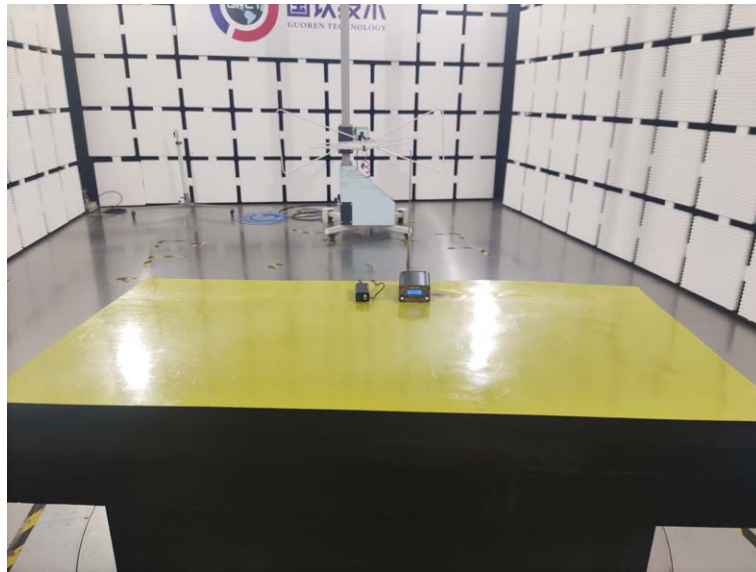
(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Antenna Connected Construction

The maximum gain of antenna was 2.00 dBi.

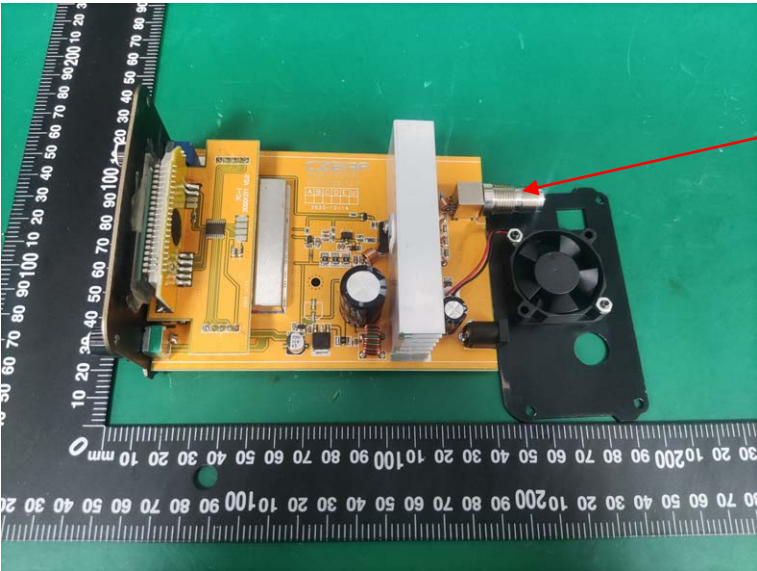
Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Shenzhen GUOREN Certification Technology Service Co., Ltd. does not assume any responsibility.

5 Test Setup Photos of the EUT

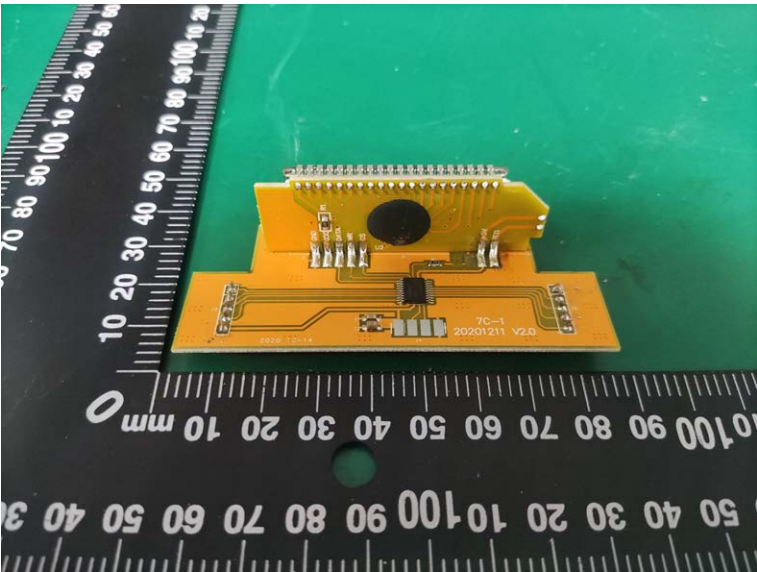


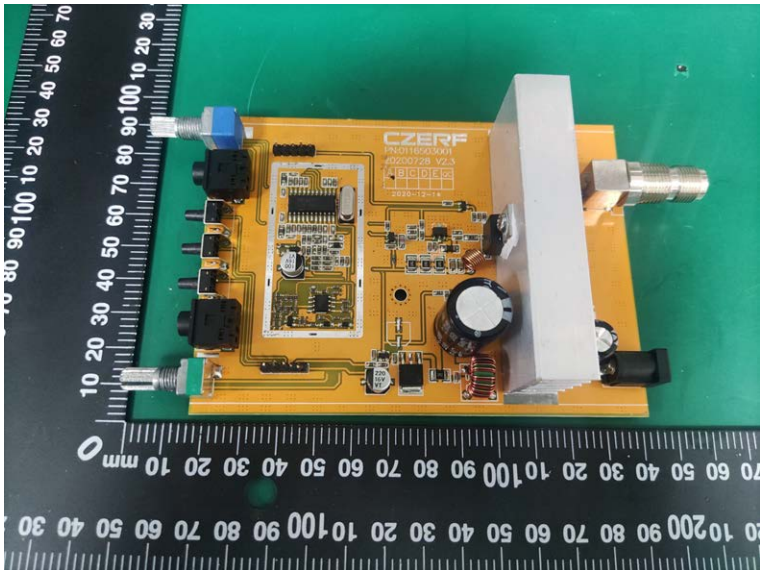
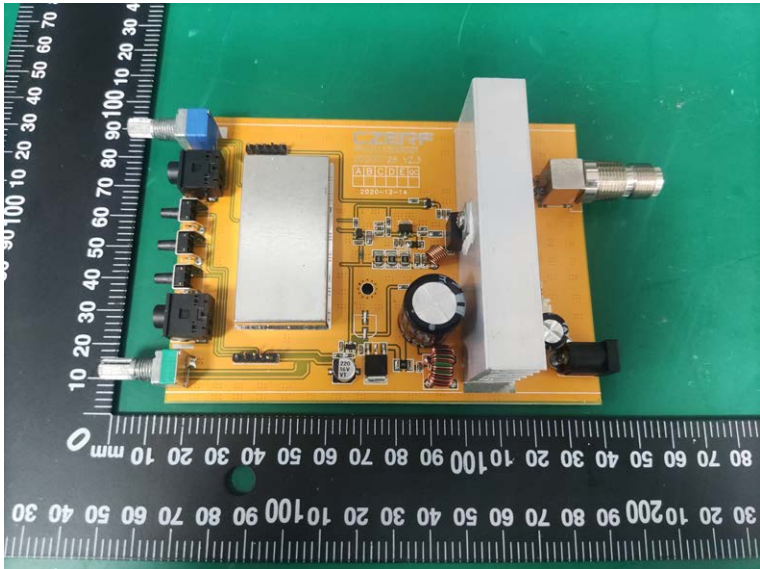
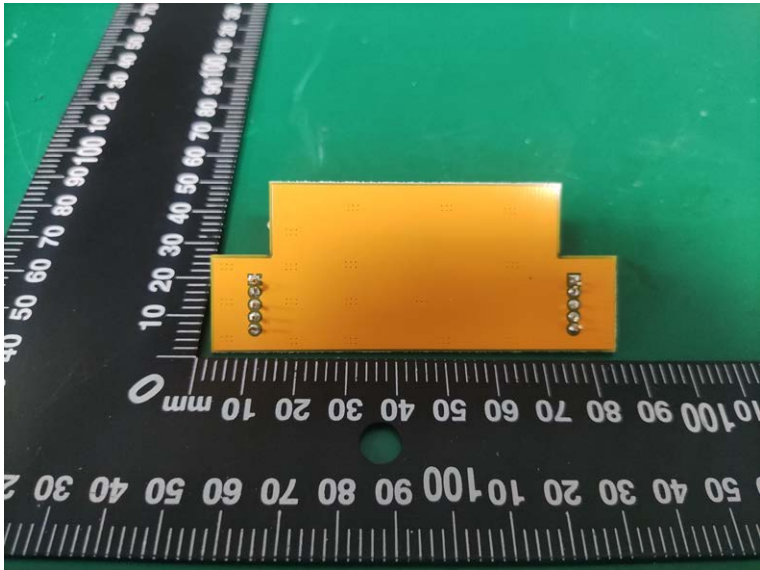
6 Photos of the EUT

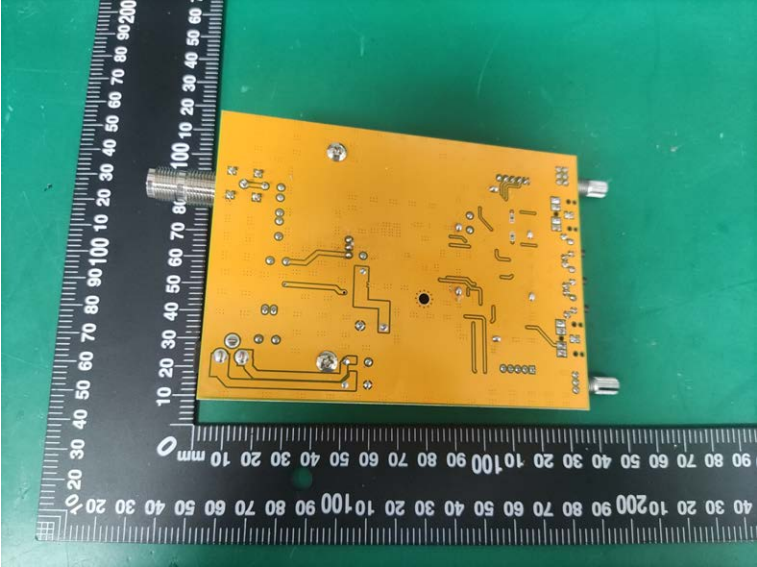




FM Antenna







***** End of Report *****