TEST REPORT

Application No.:	GZCR2105020238HS
Applicant:	Beijing Kingsmith Technology Co., Ltd
Address of Applicant:	Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China
Manufacturer:	Beijing Kingsmith Technology Co., Ltd
Address of Manufacturer:	Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China
Factory:	Beijing Kingsmith Technology Co., Ltd
Address of Factory:	Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China
Equipment Under Test (EUT):	
EUT Name:	Motorized Treadmill
Model No.:	TRFxFB, TRFxFB-H ("X"represent 0~9)
¤	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Trade Mark:	KINGSMITH
Standard(s) :	47 CFR Part 15, Subpart C 15.249
Date of Receipt:	2021-05-13
Date of Test:	2021-05-18 to 2021-05-31
Date of Issue:	2021-07-28
Test Result:	**Pass***

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

Kobe Jian
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2021-07-28*		*Original*

Authorized for issue by:				
		Jim Li **Jim Li /Project Engineer**		
		Ricky Liu **Ricky_Liu /Reviewer**		

No.198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn
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2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

¤ Declaration of EUT Family Grouping:

Model No.: TRFxFB, TRFxFB-H ("X"represent 0~9)

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the outer color, vignette and model name.

Therefore, only the model TRF0FB was tested in this report.

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4 General Information

4.1 Details of E.U.T.

Power supply:	AC 100-127V~, 50/60Hz for main unit. DC 3V= size 'AAA' battery x 2 for 2.4 GHz remote control. Rated Power:746W
Cable(s):	AC mains, 3 wires, 2.0M, unshielded.
Operation Frequency:	2450MHz
Modulation Type:	GFSK
Number of Channels:	1
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi declared by applicant.
Firmware Version:	SW01
Hardware Version:	F0/F1-D V1
Testing Software:	FCC Test
Sample NO.:	CUMK002101211116
Power Setting:	Default.
Function:	Treadmill with Low Power Device (2400–2483.5 MHz).

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Mobile Phone	SAMSUNG	SM-G9810	RFCN309Q9QF
Note Book PC	LENOVO	Lenovo Xiaoxinchao 5000	PF0TLJX7

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	±3.12dB
Minimum 20dB Bandwidth	± 3%
Field Strength of the Fundamental Signal (15.249(a))	±5.08dB (1GHz-6GHz);±5.14dB(above 6GHz)
Restricted Band Around Fundamental Frequency	±5.08dB (1GHz-6GHz);±5.14dB(above 6GHz)
Radiated Emissions (Below 1GHz)	±5.06dB (3m); ±4.46dB (10m)
Radiated Emissions (Above 1GHz)	±5.08dB (1GHz-6GHz);±5.14dB(above 6GHz)

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.1 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.2 Deviation from Standards

None

4.3 Abnormalities from Standard Conditions

None

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5 Equipment List

20dB Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer	AgilentTechnologies	N9010A	EMC2138	2020-11-19	2021-11-18
6dB Attenuator	HP	8491A	EMC2062	2020-04-04	2022-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS	0.8M	EMC2137	2019-11-02	2021-11-01

Field Strength of the Fundamental Signal (15.249(a))					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-20	2022-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-20	2022-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2020-05-04	2023-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-07	2022-01-08
Amplifier	HP	8447F	EMC2065	2021-05-29	2022-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-19	2021-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2020-03-05	2022-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-11	2022-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-11	2022-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2020-12-08	2021-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2019-12-19	2021-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-19	2021-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-11-19	2021-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

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Restricted Band Around Fundamental Frequency					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-20	2022-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-20	2022-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2020-05-04	2023-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2020-01-07	2022-01-08
Amplifier	HP	8447F	EMC2065	2021-05-29	2022-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-19	2021-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2020-03-05	2022-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-11	2022-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-11	2022-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2020-12-08	2021-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2019-12-19	2021-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-19	2021-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-11-19	2021-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiated Emissions					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-20	2022-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-20	2022-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2020-05-04	2023-05-03
Horn Antenna 1GHz-18GHz	R& S	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-07	2022-01-08
Amplifier	HP	8447F	EMC2065	2021-05-29	2022-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-19	2021-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2020-03-05	2022-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-11	2022-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-11	2022-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2020-12-08	2021-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2019-12-19	2021-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-19	2021-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-11-19	2021-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2020-07-16	2021-07-15
DMM	Fluke	73	EMC0007	2020-07-16	2021-07-15

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

Limit: 15.203 requirement

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.

6.1.2 Conclusion

Standard Requirement:

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.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0 dBi.

Please refer to internal photos.

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

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
*Decreases with the logarithm of the frequency.		
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz		

7.1.1 E.U.T. Operation

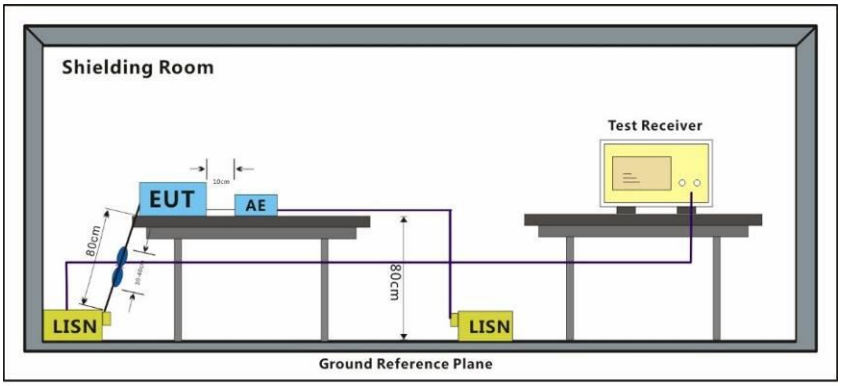
Operating Environment:

Temperature: 23 °C Humidity: 58.8 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Measured Level=Read Level+ Cable Loss+ LISN Factor

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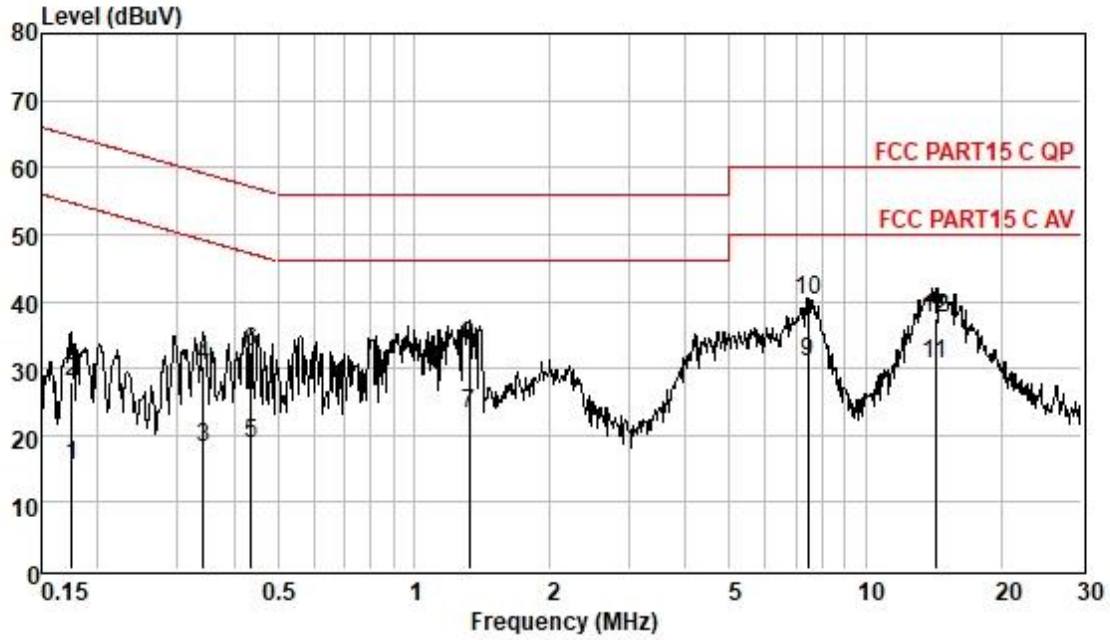
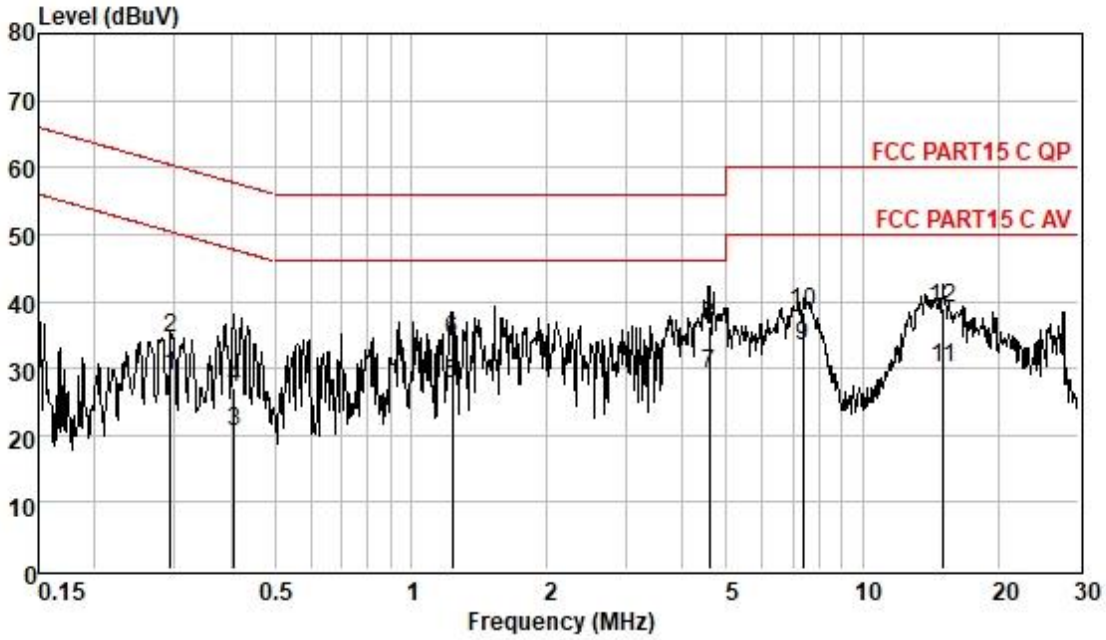
Test Mode: 02; Line: Live line



Pol :LINE
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.17	5.70	0.06	9.62	15.38	54.72	-39.34	Average
0.17	18.36	0.06	9.62	28.04	64.72	-36.68	QP
0.34	8.57	0.06	9.63	18.26	49.13	-30.87	Average
0.34	20.66	0.06	9.63	30.35	59.13	-28.78	QP
0.44	9.19	0.06	9.62	18.87	47.11	-28.24	Average
0.44	22.84	0.06	9.62	32.52	57.11	-24.59	QP
1.32	13.49	0.09	9.61	23.19	46.00	-22.81	Average
1.32	23.61	0.09	9.61	33.31	56.00	-22.69	QP
7.45	21.00	0.21	9.67	30.88	50.00	-19.12	Average
7.45	30.22	0.21	9.67	40.10	60.00	-19.90	QP
14.29	20.58	0.30	9.73	30.61	50.00	-19.39	Average
14.29	27.50	0.30	9.73	37.53	60.00	-22.47	QP

Test Mode: 02; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.29	19.38	0.06	9.54	28.98	50.41	-21.43	Average
0.29	24.81	0.06	9.54	34.41	60.41	-26.00	QP
0.41	10.77	0.06	9.56	20.39	47.73	-27.34	Average
0.41	17.44	0.06	9.56	27.06	57.73	-30.67	QP
1.24	18.02	0.09	9.55	27.66	46.00	-18.34	Average
1.24	24.68	0.09	9.55	34.32	56.00	-21.68	QP
4.57	19.45	0.18	9.56	29.19	46.00	-16.81	Average
4.57	26.42	0.18	9.56	36.16	56.00	-19.84	QP
7.37	23.50	0.21	9.58	33.29	50.00	-16.71	Average
7.37	28.60	0.21	9.58	38.39	60.00	-21.61	QP
15.07	20.08	0.31	9.64	30.03	50.00	-19.97	Average
15.07	29.05	0.31	9.64	39.00	60.00	-21.00	QP

7.2 20dB Bandwidth

Test Requirement	47 CFR Part 15, Subpart C 15.215
Test Method:	ANSI C63.10 (2013) Section 6.9
Limit:	N/A

7.2.1 E.U.T. Operation

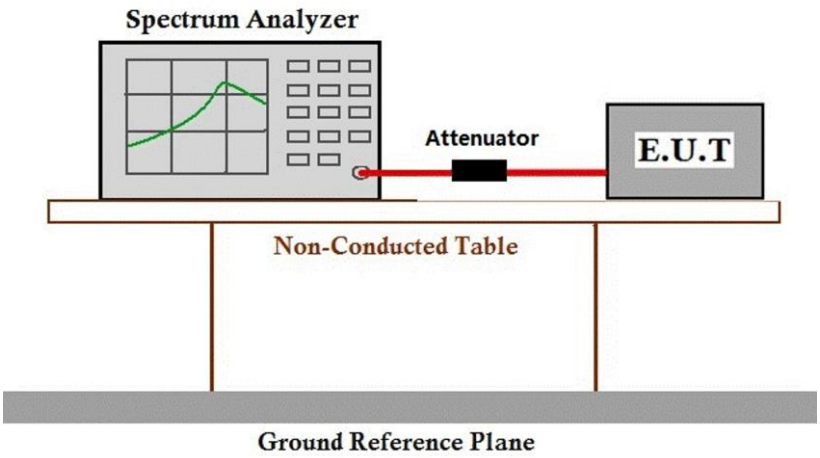
Operating Environment:

Temperature: 25.4 °C Humidity: 64.6 % RH Atmospheric Pressure: 1020 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Mode: 02;

7.3 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)

Test Method: ANSI C63.10 (2013) Section 6.5&6.6

Measurement Distance: 3m

Limit:

Fundamental frequency(MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500
Remark: The frequencies above 1000MHz 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.		

7.3.1 E.U.T. Operation

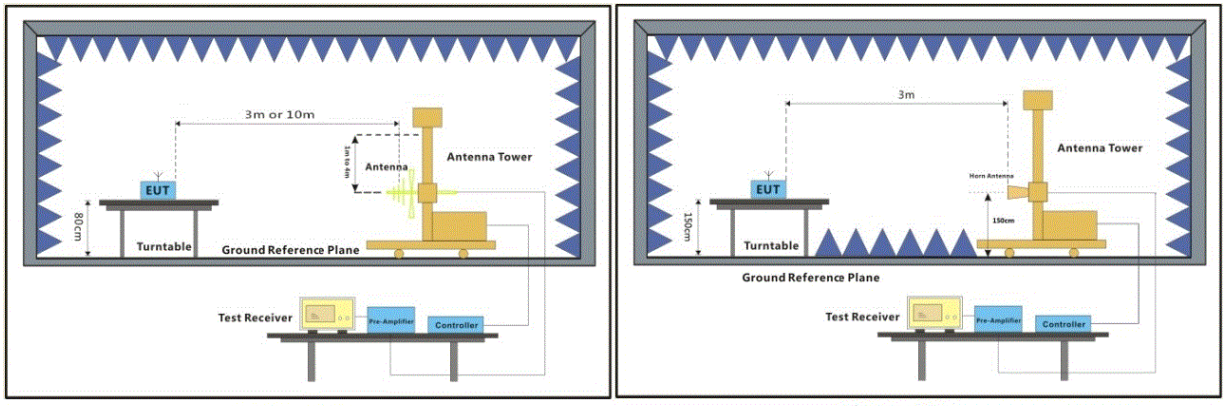
Operating Environment:

Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.3.3 Test Setup Diagram



30MHz-1GHz Above 1GHz

7.3.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

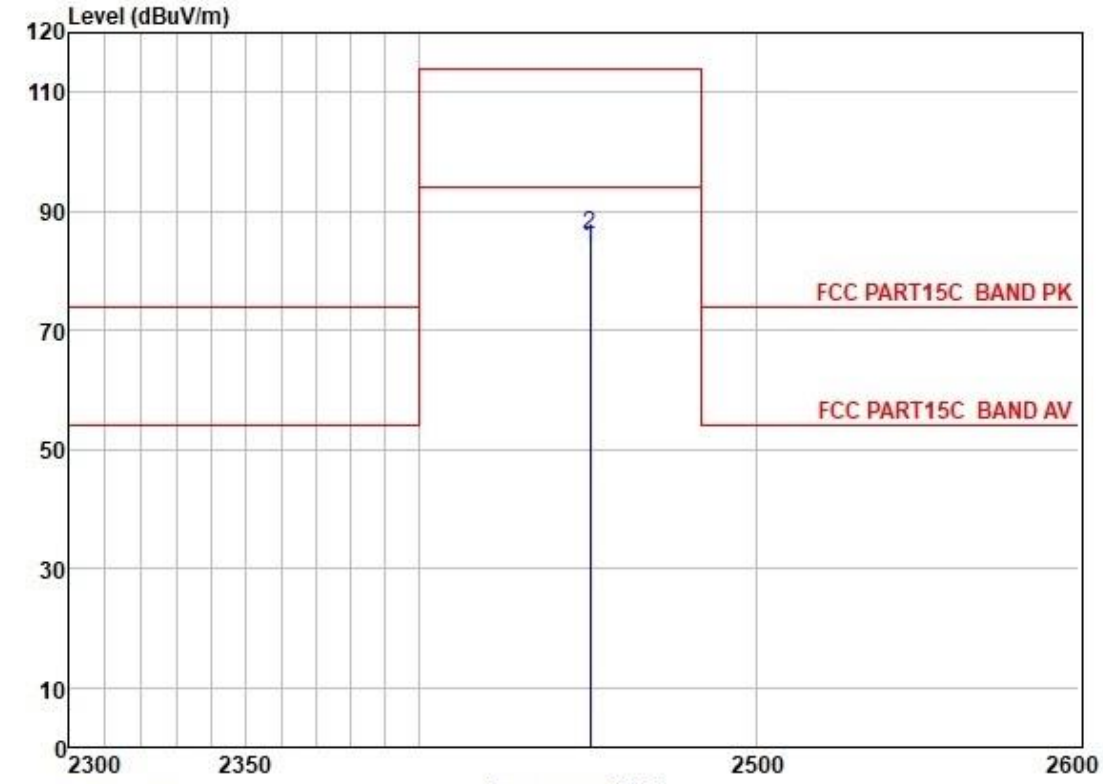
h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

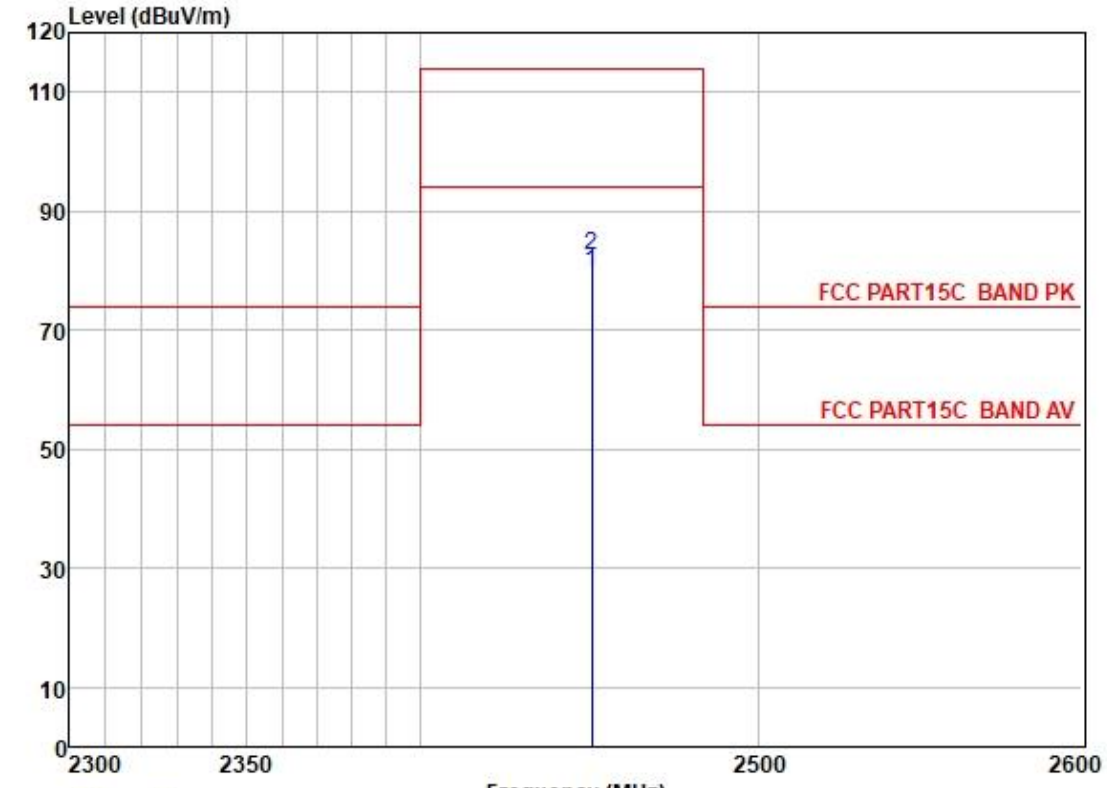
Mode:02; Polarization: Horizontal; Modulation: GFSK;



race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2450.206	91.38	26.53	3.40	37.41	83.90	94.00	-10.10	HORIZONTAL	Average
2	2450.206	93.44	26.53	3.40	37.41	85.96	114.00	-28.04	HORIZONTAL	Peak

Mode:02; Polarization: Vertical; Modulation: GFSK;



race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2450.206	87.25	26.53	3.40	37.41	79.77	94.00	-14.23	VERTICAL	Average
2	2450.206	89.98	26.53	3.40	37.41	82.50	114.00	-31.50	VERTICAL	Peak

7.4 Restricted Band Around Fundamental Frequency

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6

Measurement Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
Above 1GHz	74.0	Peak Value
Emission 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.		

7.4.1 E.U.T. Operation

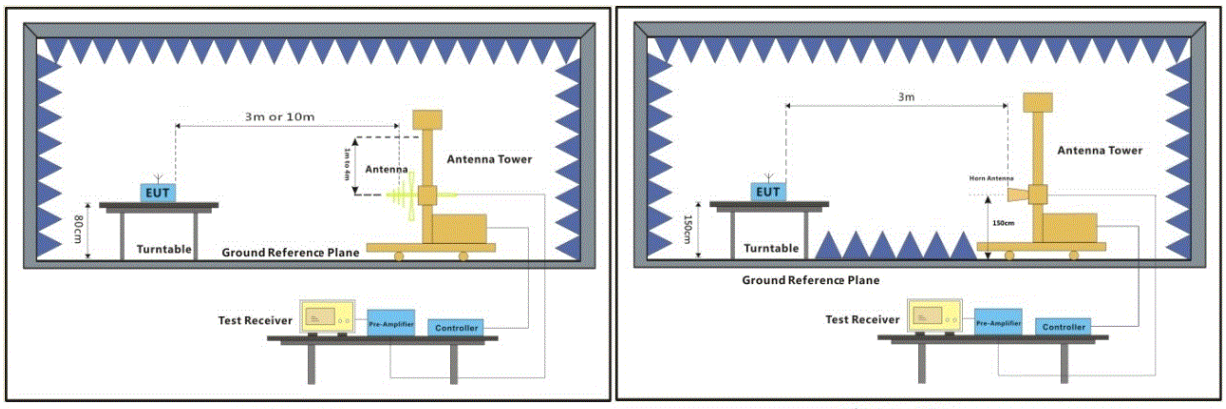
Operating Environment:

Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.4.3 Test Setup Diagram



30MHz-1GHz Above 1GHz

7.4.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

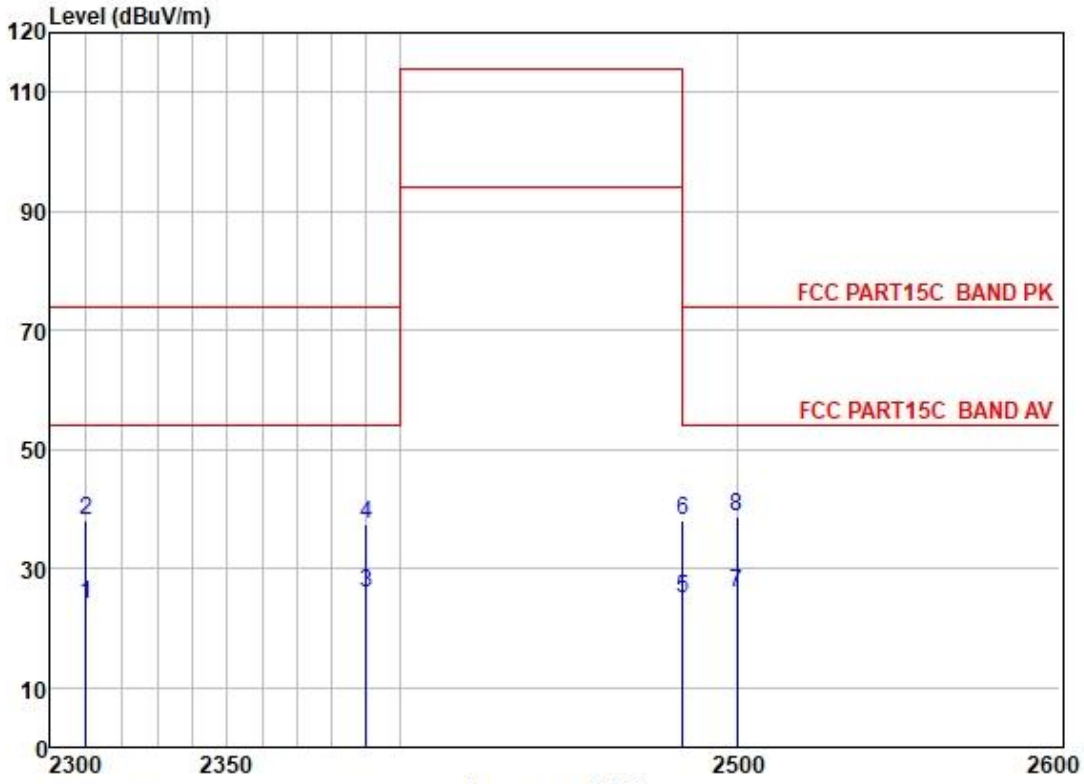
h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

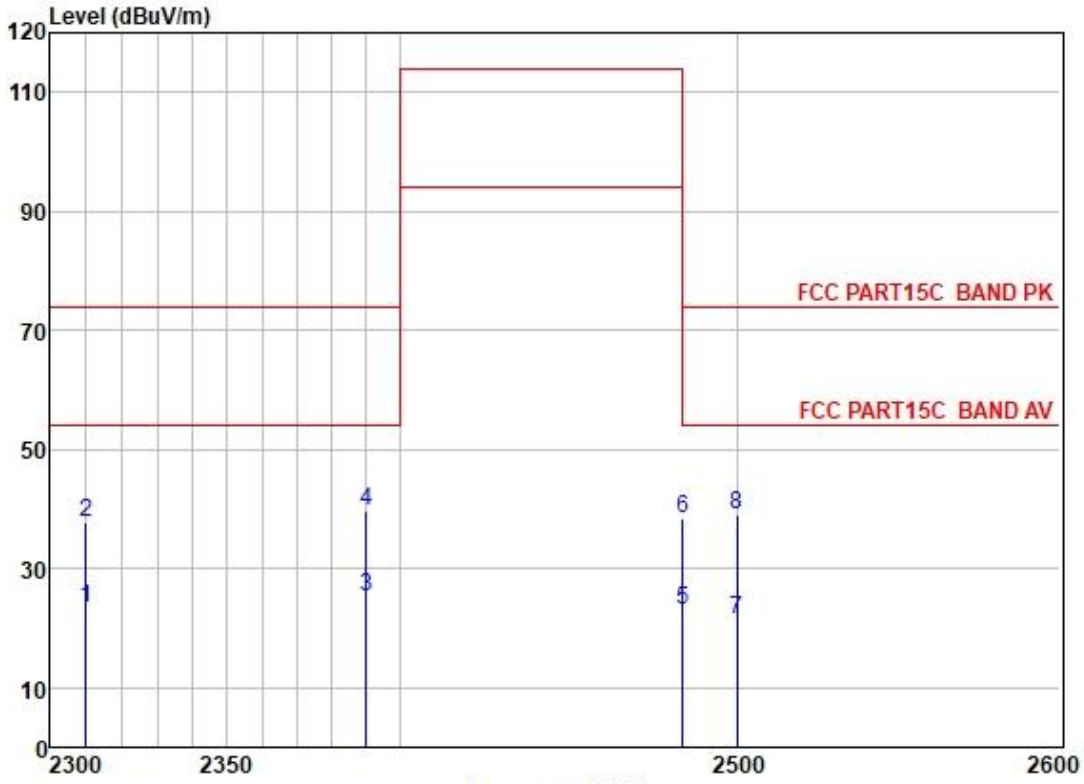
Mode:02; Polarization: Vertical; Modulation: GFSK;



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	31.74	26.25	3.32	37.44	23.87	54.00	-30.13	VERTICAL	Average
2	2310.000	46.07	26.25	3.32	37.44	38.20	74.00	-35.80	VERTICAL	Peak
3	2390.000	33.58	26.43	3.48	37.42	26.07	54.00	-27.93	VERTICAL	Average
4	2390.000	45.04	26.43	3.48	37.42	37.53	74.00	-36.47	VERTICAL	Peak
5	2483.500	32.38	26.58	3.53	37.40	25.09	54.00	-28.91	VERTICAL	Average
6	2483.500	45.43	26.58	3.53	37.40	38.14	74.00	-35.86	VERTICAL	Peak
7	2500.000	33.21	26.60	3.40	37.39	25.82	54.00	-28.18	VERTICAL	Average
8	2500.000	46.11	26.60	3.40	37.39	38.72	74.00	-35.28	VERTICAL	Peak

Mode:02; Polarization: Horizontal; Modulation: GFSK;



race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	31.21	26.25	3.32	37.44	23.34	54.00	-30.66	HORIZONTAL	Average
2	2310.000	45.74	26.25	3.32	37.44	37.87	74.00	-36.13	HORIZONTAL	Peak
3	2390.000	32.79	26.43	3.48	37.42	25.28	54.00	-28.72	HORIZONTAL	Average
4	2390.000	47.21	26.43	3.48	37.42	39.70	74.00	-34.30	HORIZONTAL	Peak
5	2483.500	30.44	26.58	3.53	37.40	23.15	54.00	-30.85	HORIZONTAL	Average
6	2483.500	45.56	26.58	3.53	37.40	38.27	74.00	-35.73	HORIZONTAL	Peak
7	2500.000	28.85	26.60	3.40	37.39	21.46	54.00	-32.54	HORIZONTAL	Average
8	2500.000	46.49	26.60	3.40	37.39	39.10	74.00	-34.90	HORIZONTAL	Peak

7.5 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3

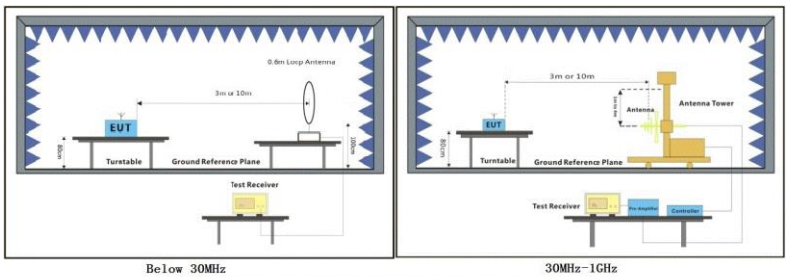
7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 23 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.5.3 Test Setup Diagram

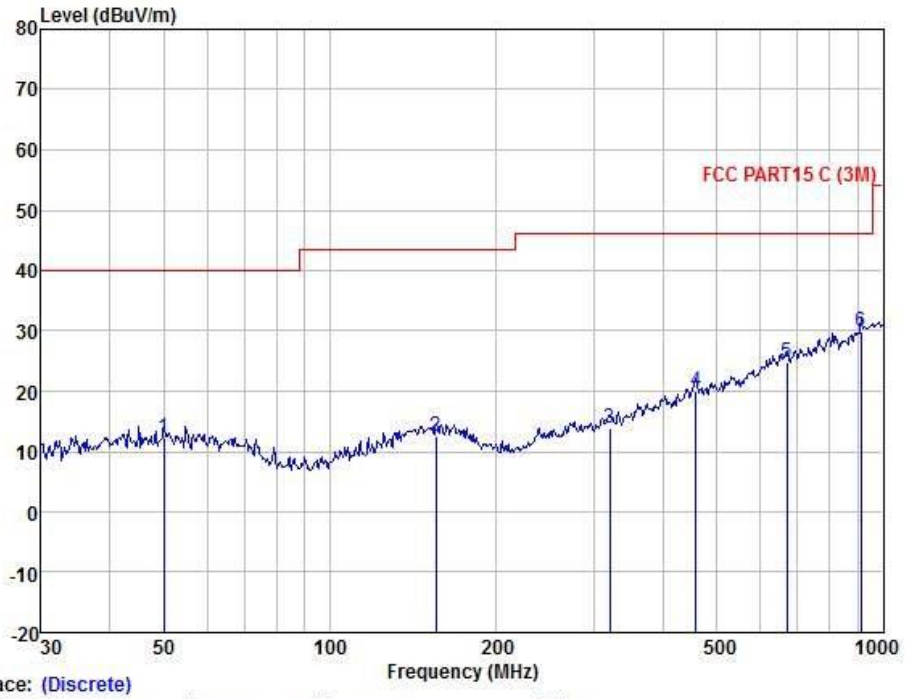


7.5.4 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Measured Level l=Read Level + Antenna Factor + Cable Loss - Preamp Factor

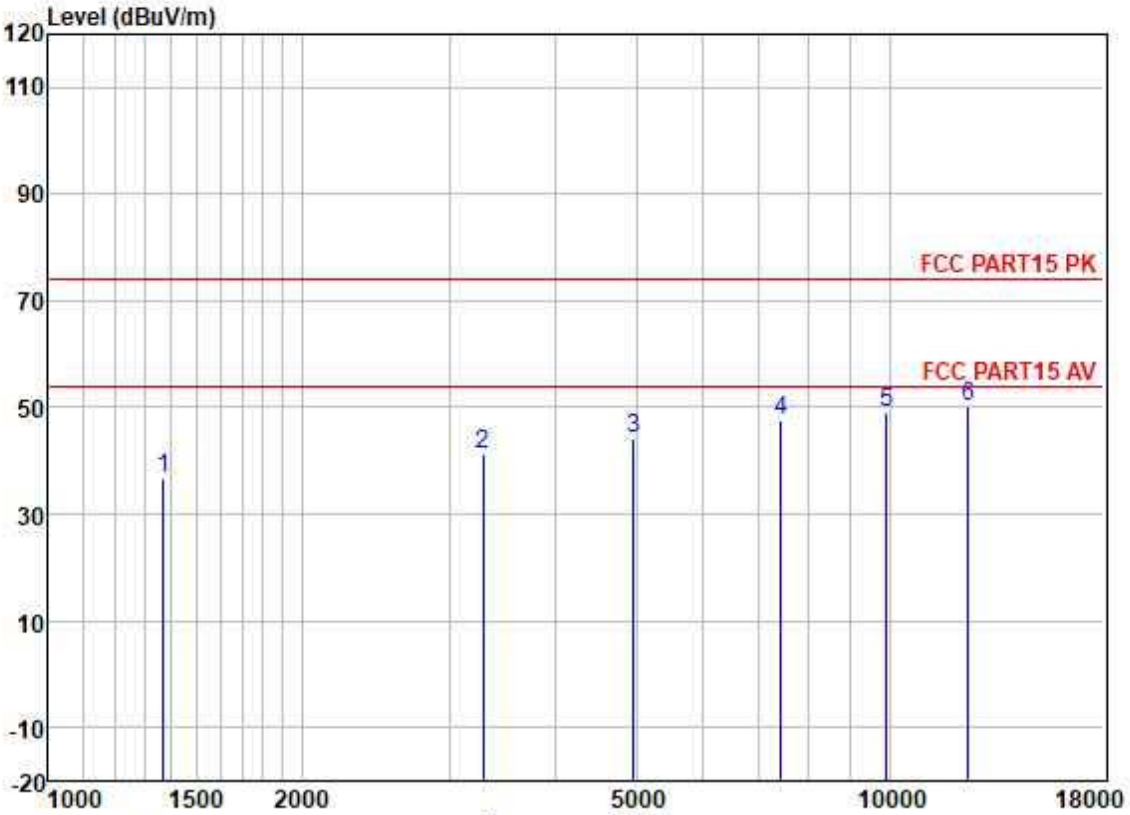
Mode:02; Polarization: Horizontal; Modulation:GFSK



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	50.057	23.75	13.90	1.19	26.50	12.34	40.00	-27.66	HORIZONTAL	QP
2	155.364	23.27	13.72	2.10	26.44	12.65	43.50	-30.85	HORIZONTAL	QP
3	319.937	23.66	14.30	3.01	27.01	13.96	46.00	-32.04	HORIZONTAL	QP
4	459.114	25.78	17.48	4.18	27.43	20.01	46.00	-25.99	HORIZONTAL	QP
5	670.489	26.42	20.70	4.89	27.34	24.67	46.00	-21.33	HORIZONTAL	QP
6	912.862	27.06	23.47	6.44	26.99	29.98	46.00	-16.02	HORIZONTAL	QP

Mode:02; Polarization: Horizontal; Modulation:GFSK;



race: (Discrete)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1370.328	47.07	25.35	2.60	38.25	36.77	74.00	-37.23	HORIZONTAL	Peak
2	3289.821	45.34	28.74	4.05	37.03	41.10	74.00	-32.90	HORIZONTAL	Peak
3	4960.151	43.71	31.65	5.65	36.84	44.17	74.00	-29.83	HORIZONTAL	Peak
4	7440.040	42.64	36.27	6.22	37.47	47.66	74.00	-26.34	HORIZONTAL	Peak
5	9920.049	40.74	38.65	6.96	37.40	48.95	74.00	-25.05	HORIZONTAL	Peak
6	12400.160	40.42	38.57	7.97	36.88	50.08	74.00	-23.92	HORIZONTAL	Peak

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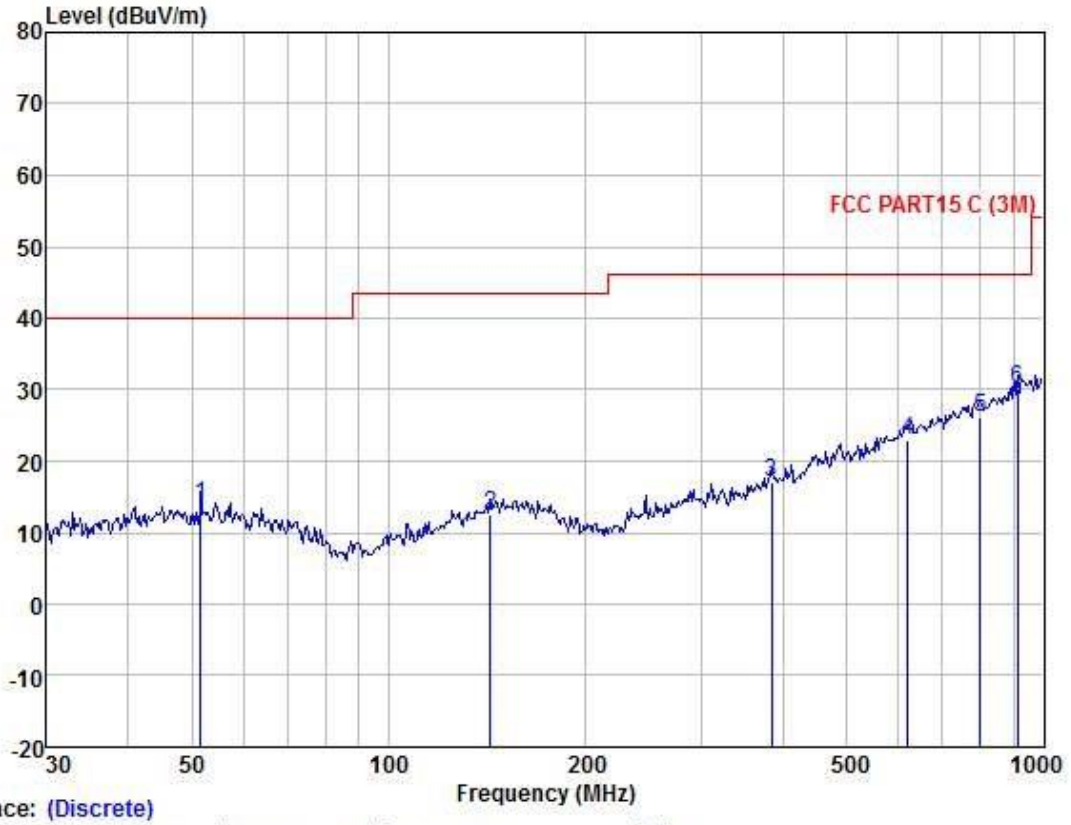
Mode:02; Polarization:Vertical; Modulation:GFSK



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	51.481	25.10	13.97	1.22	26.50	13.79	40.00	-26.21	VERTICAL	QP
2	142.824	23.45	13.55	1.99	26.43	12.56	43.50	-30.94	VERTICAL	QP
3	383.932	25.20	15.50	3.57	27.32	16.95	46.00	-29.05	VERTICAL	QP
4	620.710	25.04	20.40	4.91	27.40	22.95	46.00	-23.05	VERTICAL	QP
5	798.980	24.90	22.60	5.99	27.29	26.20	46.00	-19.80	VERTICAL	QP
6	912.862	27.10	23.47	6.44	26.99	30.02	46.00	-15.98	VERTICAL	QP

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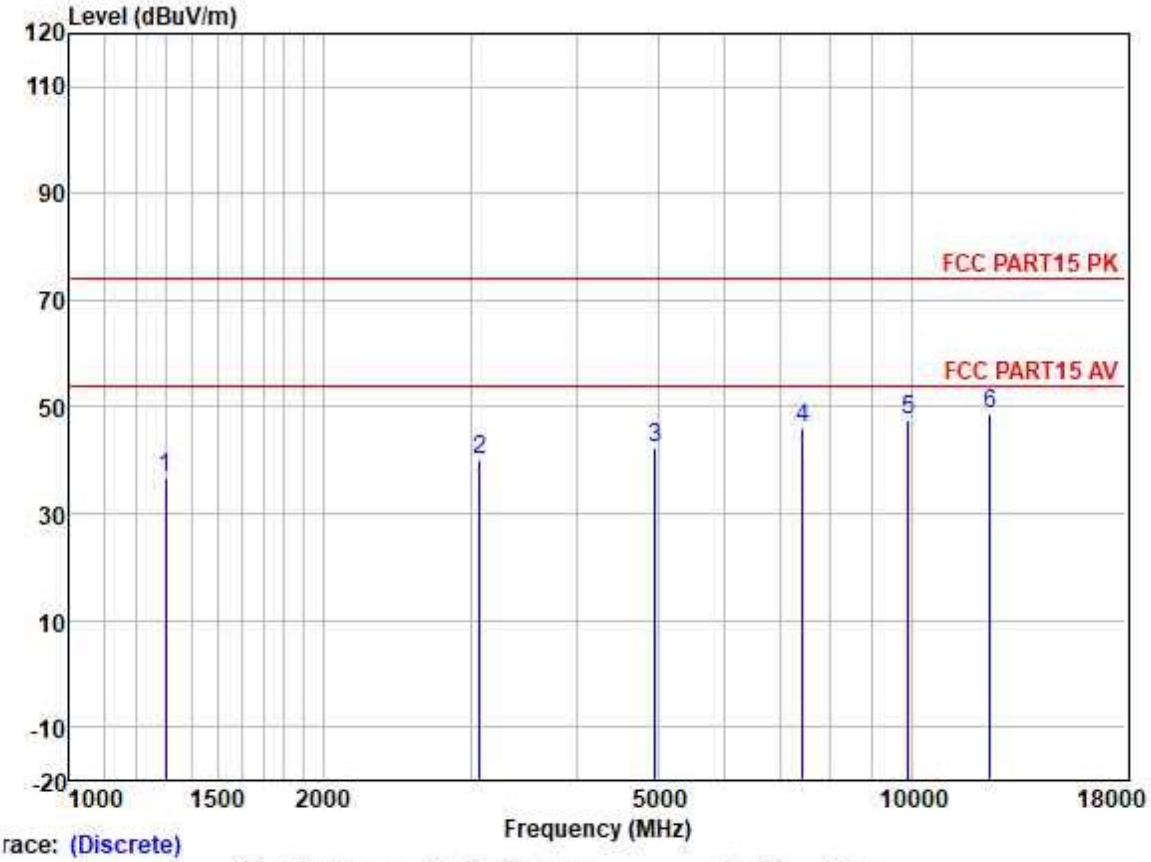
Mode:02; Polarization:Vertical; Modulation:GFSK;



race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1300.858	47.25	25.20	2.60	38.31	36.74	74.00	-37.26	VERTICAL	Peak
2	3069.345	45.14	28.45	3.86	37.18	40.27	74.00	-33.73	VERTICAL	Peak
3	4960.011	41.78	31.65	5.65	36.84	42.24	74.00	-31.76	VERTICAL	Peak
4	7440.633	41.22	36.27	6.22	37.47	46.24	74.00	-27.76	VERTICAL	Peak
5	9920.300	39.23	38.65	6.96	37.40	47.44	74.00	-26.56	VERTICAL	Peak
6	12400.760	39.05	38.57	7.97	36.88	48.71	74.00	-25.29	VERTICAL	Peak

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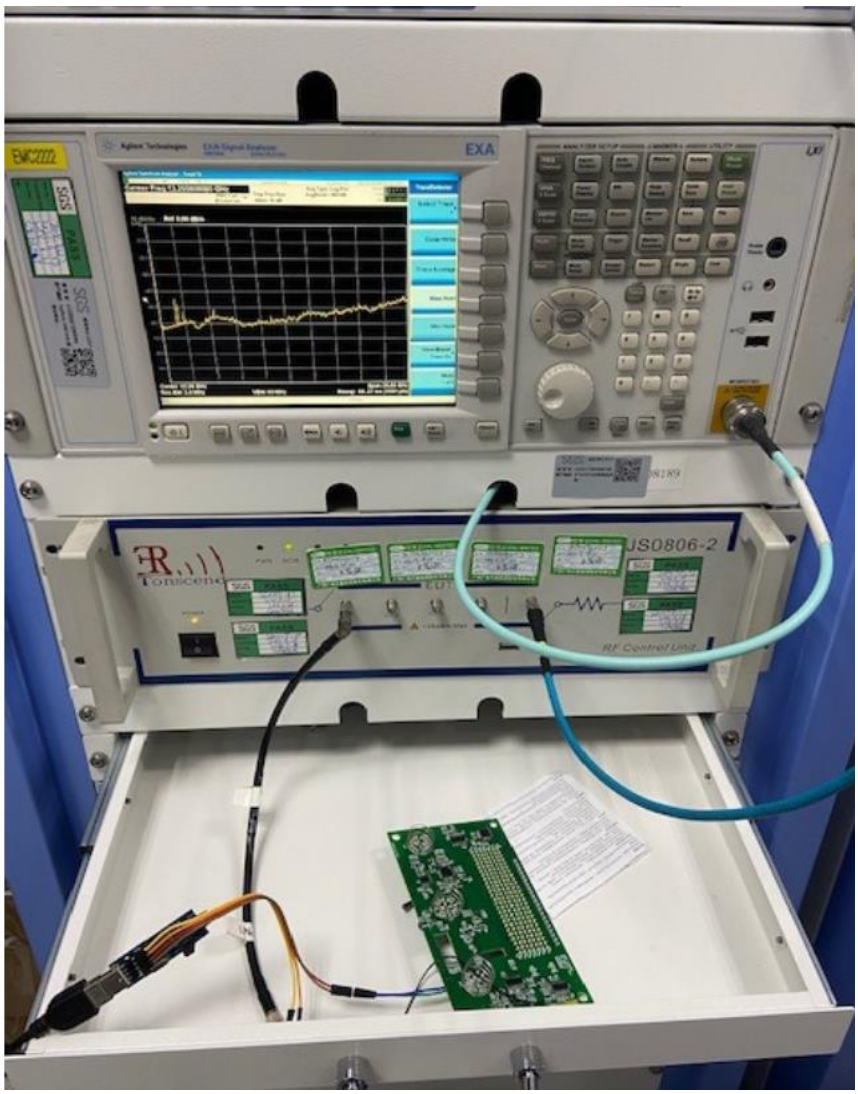
8 Photographs

8.1 20dB Bandwidth Test Setup



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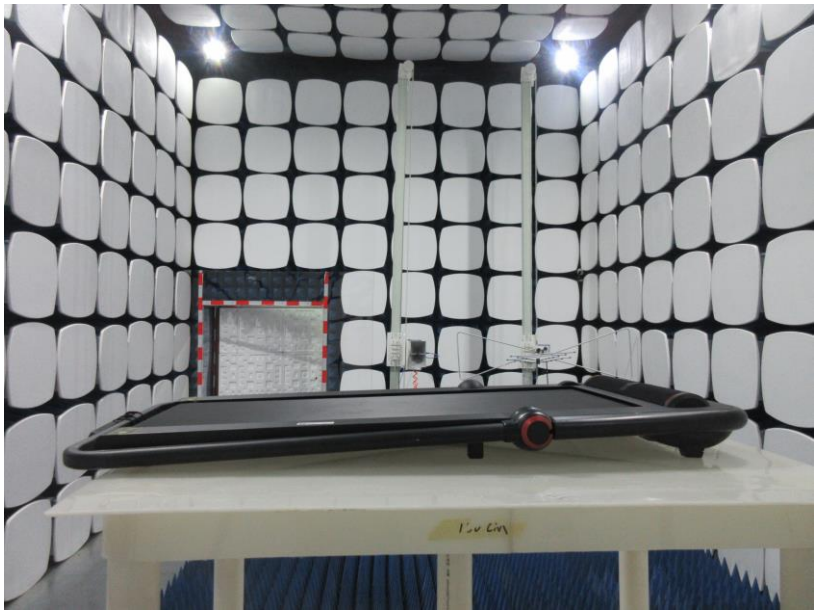
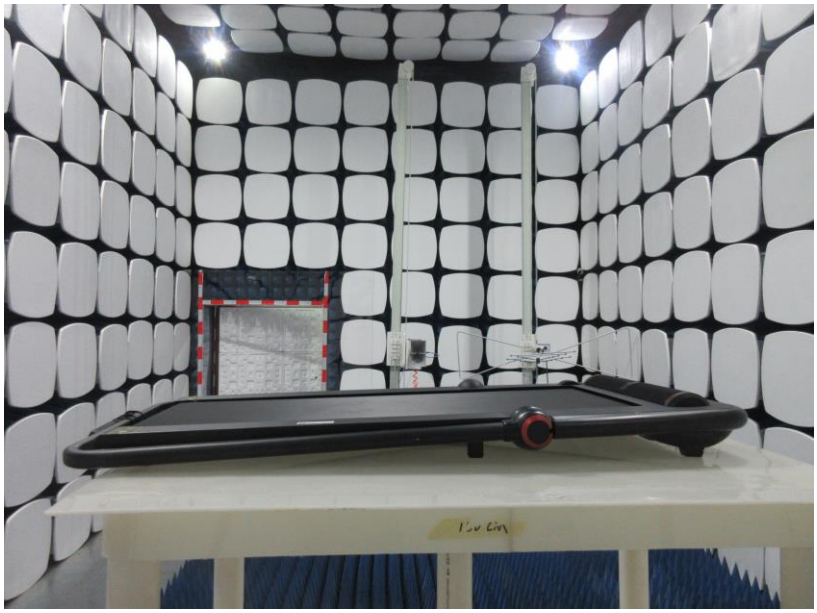
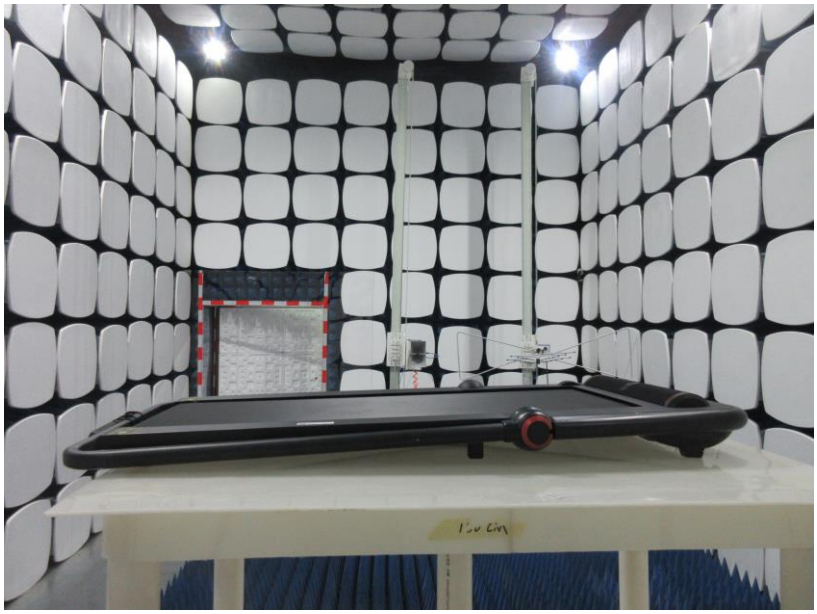
8.2 Field Strength of the Fundamental Signal (15.249(a)) Test Setup

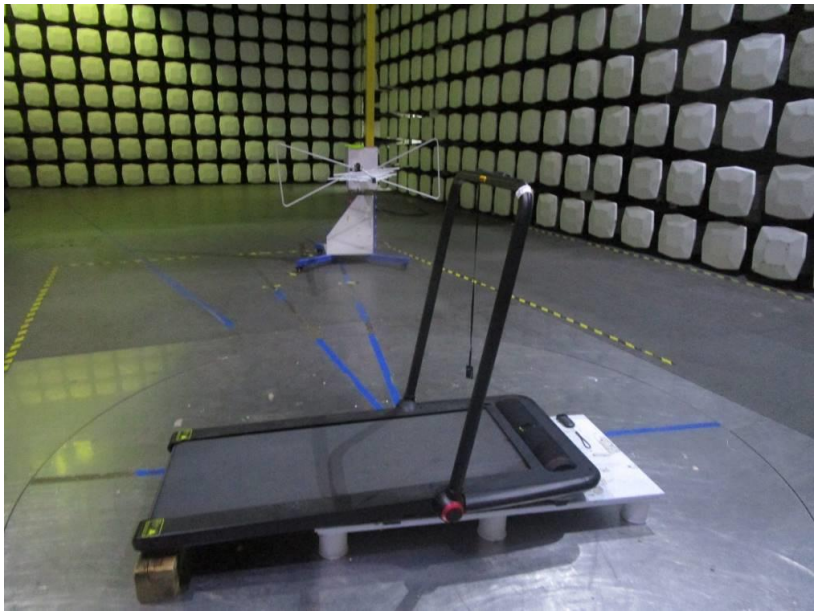


8.3 Restricted Band Around Fundamental Frequency Test Setup



8.4 Radiated Emissions Test Setup





8.5 EUT Constructional Details

Refer to external and internal photos for GZCR2105020238HS

--End of Report--

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