TEST REPORT

Application No.:	FYCR2607000263ET(SZHL260703249401EM)
Applicant:	Guangdong Hengguan Technology Industry Co., Ltd.
Address of Applicant:	FLOOR 4, BUILDING 1, JIADA BUILDING, FENGXIN INDUSTRIAL ZONE, CHENGHAI, SHANTOU, CHINA
Manufacturer:	Guangdong Hengguan Technology Industry Co., Ltd.
Address of Manufacturer:	FLOOR 4, BUILDING 1, JIADA BUILDING, FENGXIN INDUSTRIAL ZONE, CHENGHAI, SHANTOU, CHINA
Equipment Under Test (EUT):	
EUT Name:	Fun toys
Item No.:	HG4-79, HG4-80, HG4-138, HG4-140, HG4-144, HG4-161, HG4-162, HG4-163, HG4-164, HG4-165, HG4-166, HG4-189, HG4-194, HG4-197, HG4-221, HG4-222, HG4-225, HG4-226, HG4-236, HG4-237, HG4-247, HG4-248, HG4-249, HG4-250, HG4-335, HG4-335, HG4-411, HG4-432, HG4-457, HG4-469 ♣
♣	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Country of Origin:	China
Request Age Grading:	6+
FCC ID:	2BHED-D1Y
Standard(s) :	47 CFR Part 15, Subpart C 15.249
Date of Receipt:	2026-07-06
Date of Test:	2026-08-07 to 2026-09-02
Date of Issue:	2026-09-15
Test Result:	**Pass***

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

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2026-09-15		Original

Authorized for issue by:				
		Byron Liang		
		Byron Liang/Project Engineer		
		Tree Zhan		
		Tree Zhan/Reviewer		

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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**
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10-2020+Cor.1-2023 Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Restricted Band Around Fundamental Frequency		ANSI C63.10-2020+Cor.1-2023 Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions Below 1GHz		ANSI C63.10-2020+Cor.1-2023 Section 6.4&6.5	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
Radiated Emissions Above 1GHz		ANSI C63.10-2020+Cor.1-2023 Section 6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass
20dB Bandwidth		ANSI C63.10-2020+Cor.1-2023 Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass

Declaration of EUT Family Grouping:

Item No.: HG4-79, HG4-80, HG4-138, HG4-140, HG4-144, HG4-161, HG4-162, HG4-163, HG4-164, HG4-165, HG4-166, HG4-189, HG4-194, HG4-197, HG4-221, HG4-222, HG4-225, HG4-226, HG4-236, HG4-237, HG4-247, HG4-248, HG4-249, HG4-250, HG4-335, HG4-335, HG4-411, HG4-432, HG4-457, HG4-469

Only the item HG4-457 was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above items, with only difference on item No., colour and decorations.

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4 General Information

4.1 Details of E.U.T.

Power Supply:	3.0V DC (3V x 1 "CR2032" Button Cell) for remote
Cable(s):	USB cable: 30.5cm length, unshielded
Cable Loss (for RF conducted test):	0.5 dB
Operation Frequency:	2415MHz to 2470MHz
Modulation Type:	GFSK
Number of Channels:	56
Channel Spacing:	1MHz
Antenna Type:	PCB Antenna
Antenna Gain:	0.59 dBi

Remark:The information in this section is provided by the applicant or manufacturer, CCS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Field Strength of the Fundamental Signal (15.249(a))	± 5.7dB (Below 1GHz),± 4.7dB (Above
Restricted Band Around Fundamental Frequency	± 5.7dB (Below 1GHz),± 4.7dB (Above
Radiated Emissions Below 1GHz	± 5.7dB
Radiated Emissions Above 1GHz	± 4.7dB (1-18GHz); ± 4.7dB (18-40GHz)
20dB Bandwidth	2.4G: ± 0.34%; 5G: ± 0.27%

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results

– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

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

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4.4 Test Location

All tests were performed at:

Compliance Certification Services（Kunshan）Inc. Shenzhen branch.

Fuyong lab. Xinlong TechnoPark,Fengtang Road, Fuyong Subdistrict, Bao'an, Shenzhen, China

Tel: +86 755 8866 3988 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

• A2LA (Certificate No. 6606.01)

Compliance Certification Services（Kunshan）Inc. Shenzhen branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6606.01.

• FCC –Designation Number: CN1322

Compliance Certification Services（Kunshan）Inc. Shenzhen branch has been recognized as an accredited testing laboratory.

Designation Number: CN1322. Test Firm Registration Number: 718073

• Innovation, Science and Economic Development Canada

Compliance Certification Services（Kunshan）Inc. Shenzhen branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0129.

IC#: 28189.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

Field Strength of the Fundamental Signal (15.249(a))					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Anechoic Chamber	CRT	N/A	SEM001-13	2025/10/13	2028/10/12
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2025/8/29	2027/8/28
MXE EMI receiver	Agilent	N9038A	SEM004-05	2026/7/03	2027/7/02
Pre-amplifier	HP	8447D	SEM005-02	2026/7/07	2027/7/06
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-54	2025/5/24	2027/5/23
Pre-amplifier	TST PASS	LNA180400G40	SEM005-39	2026/4/29	2027/4/28
Pre-amplifier	TST PASS	LNA10180G60	SEM005-32	2026/4/4	2027/4/3
Coaxial Cable	CCS	N/A	SEM035-01	2026/5/12	2027/5/11
Coaxial Cable	CCS	N/A	SEM035-02	2026/5/12	2027/5/11
Pre-amplifier	TST PASS	LNA04080G30	SEM005-27	2026/2/5	2027/2/4
Pre-amplifier	TST PASS	LNA10180G45	SEM005-28	2026/2/5	2027/2/4
Signal Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2026/3/4	2027/3/3
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

Restricted Band Around Fundamental Frequency					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Anechoic Chamber	CRT	N/A	SEM001-13	2025/10/13	2028/10/12
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2025/8/29	2027/8/28
MXE EMI receiver	Agilent	N9038A	SEM004-05	2026/7/03	2027/7/02
Pre-amplifier	HP	8447D	SEM005-02	2026/7/07	2027/7/06
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2025/7/29	2027/7/28
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-54	2025/5/24	2027/5/23
Pre-amplifier	TST PASS	LNA180400G40	SEM005-39	2026/4/29	2027/4/28
Pre-amplifier	TST PASS	LNA10180G60	SEM005-32	2026/4/4	2027/4/3
Coaxial Cable	CCS	N/A	SEM035-01	2026/5/12	2027/5/11
Coaxial Cable	CCS	N/A	SEM035-02	2026/5/12	2027/5/11
Pre-amplifier	TST PASS	LNA04080G30	SEM005-27	2026/2/5	2027/2/4
Pre-amplifier	TST PASS	LNA10180G45	SEM005-28	2026/2/5	2027/2/4
Signal Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2026/3/4	2027/3/3

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Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

Radiated Emissions Below 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Anechoic Chamber	CRT	N/A	SEM001-13	2025/10/13	2028/10/12
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2025/8/29	2027/8/28
MXE EMI receiver	Agilent	N9038A	SEM004-05	2026/7/03	2027/7/02
Pre-amplifier	HP	8447D	SEM005-02	2026/7/07	2027/7/06
Coaxial Cable	CCS	N/A	SEM035-01	2026/5/12	2027/5/11
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

Radiated Emissions Above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Anechoic Chamber	CRT	N/A	SEM001-13	2025/10/13	2028/10/12
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2025/7/29	2027/7/28
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-54	2025/5/24	2027/5/23
Pre-amplifier	TST PASS	LNA180400G40	SEM005-39	2026/4/29	2027/4/28
Pre-amplifier	TST PASS	LNA10180G60	SEM005-32	2026/4/4	2027/4/3
Coaxial Cable	CCS	N/A	SEM035-02	2026/5/12	2027/5/11
Coaxial Cable	CCS	N/A	SEM035-03	2026/5/12	2027/5/11
Pre-amplifier	TST PASS	LNA04080G30	SEM005-27	2026/2/5	2027/2/4
Pre-amplifier	TST PASS	LNA10180G45	SEM005-28	2026/2/5	2027/2/4
Signal Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2026/3/4	2027/3/3
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A

RF Conducted Test					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2026/2/3	2027/2/2
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-25	2026/2/3	2027/2/2
Power Sensor	Erika Fiedler	U2021XA	SEM009-16	2026/2/4	2027/2/3
Programmable DC Source	Chroma	62024P-80-60	SEM011-09	2026/2/5	2027/2/4
Attenuator	Huber+Suhner	6620_SMA-50-	SEM021-09	2026/2/2	2027/2/1

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		1			
Coaxial Cable	CCS	N/A	SEM037-01	2026/5/12	2027/5/11
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
MXA Signal Analyzer	KEYSIGHT	N9020B	SEM004-24	2026/2/3	2027/2/2

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	deli	8838	SEM002-52	2026/7/8	2027/7/7
Humidity/ Temperature Indicator	deli	8838	SEM002-53	2026/7/8	2027/7/7
Barometer	DUMAI	DYM3	SEM002-24	2026/7/10	2027/7/9

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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

6.1.2 Conclusion

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.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement.

Antenna location: Refer to internal photos

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7 Radio Spectrum Matter Test Results

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

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.5&6.6
Measurement Distance: 3m
Test Engineer: Rex Liu

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. For fundamental frequency in “902-928MHz”, the field strength of fundamental is based on Quasi-Peak.		

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 51.7 % RH Atmospheric Pressure: 1000 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT(remote) in transmitting with modulation mode.

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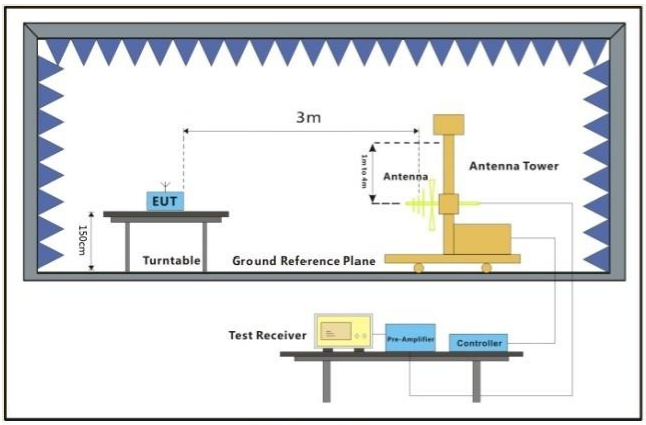
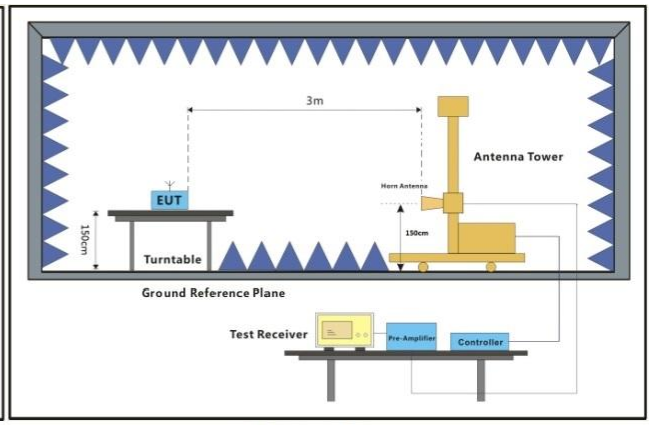
7.1.3 Test Setup Diagram



30MHz-1GHz



Above 1GHz

7.1.4 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

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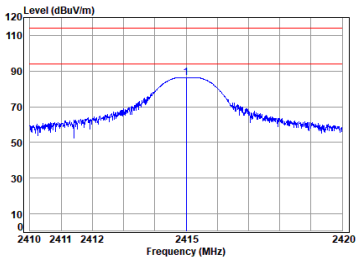
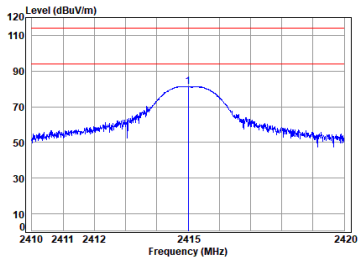
2.4G_SRD_LOW_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2415 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2415.000	7.05	27.22	32.95	85.06	86.38	114.00	-27.62	Peak	0.00

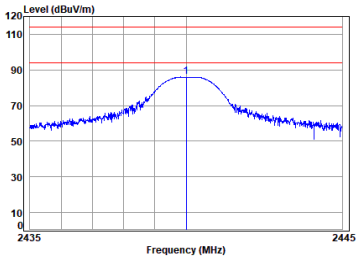
2.4G_SRD_LOW_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2415 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2415.000	7.05	27.22	32.95	80.09	81.41	114.00	-32.59	Peak	0.00

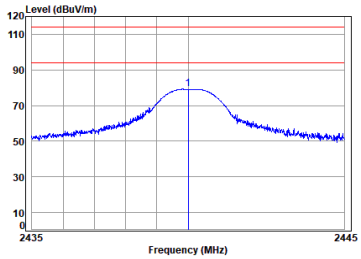
2.4G_SRD_MID_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2440 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2440.000	7.06	27.42	32.93	84.46	86.01	114.00	-27.99	Peak	0.00

2.4G_SRD_MID_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2440 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2440.000	7.06	27.42	32.93	77.73	79.28	114.00	-34.72	Peak	0.00

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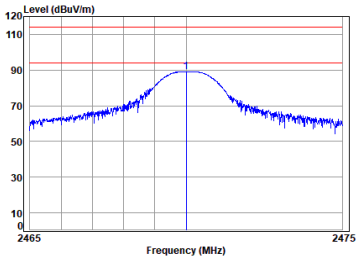
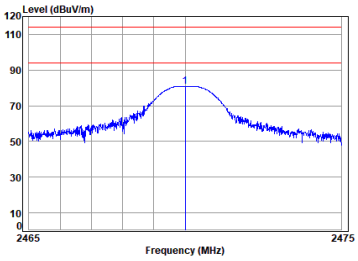
2.4G_SRD_HIGH_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2470 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2470.000	7.07	27.62	32.92	87.28	89.05	114.00	-24.95	Peak	0.00

2.4G_SRD_HIGH_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2470 Field Strength

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2470.000	7.07	27.62	32.92	79.13	80.90	114.00	-33.10	Peak	0.00

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) The peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation. So, only the above measurement data were shown in the report.

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7.2 Restricted Band Around Fundamental Frequency

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.10.5
Measurement Distance: 3m
Test Engineer: Rex Liu

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.		

7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 20.5 °C Humidity: 52.3 % RH Atmospheric Pressure: 1000 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT(remote) in transmitting with modulation mode.

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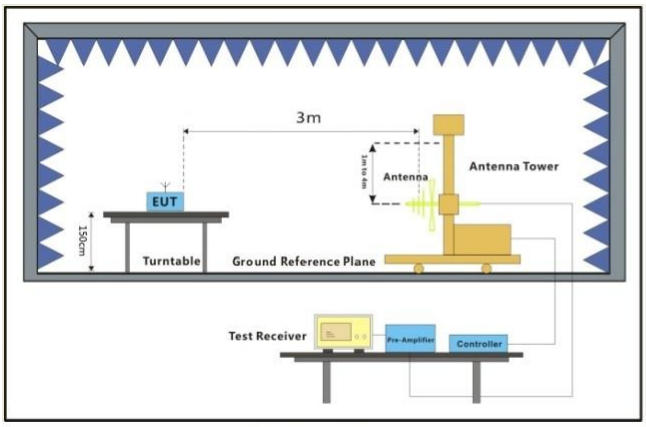
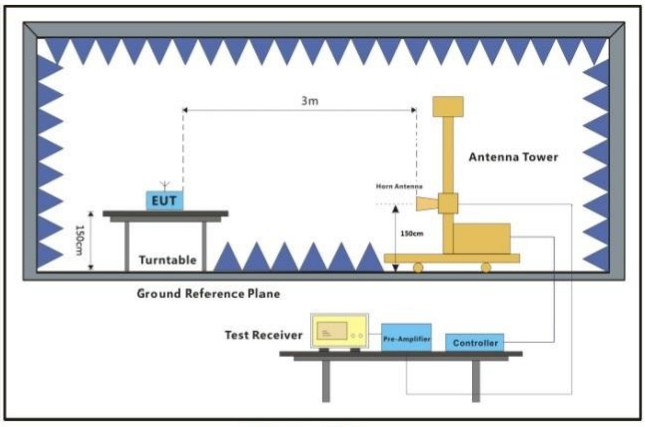
7.2.3 Test Setup Diagram



30MHz-1GHz



Above 1GHz

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7.2.4 Measurement Procedure and Data

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

b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.

c. The antenna height is varied from 1m to 4m 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.

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

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

f. 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 quasi-peak method as specified and then reported in a data sheet.

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

h. 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.

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

Remark:

1. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is 40log(3/300) = -80dB (for 3m test distance).

EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is 20log(10/3) = 10.46dB (for 10m test distance).

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

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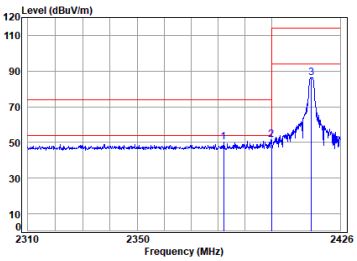
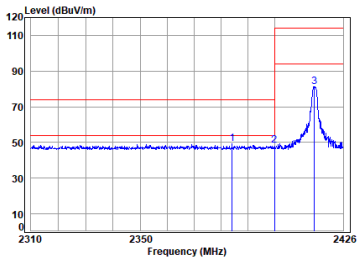
2.4G_SRD_LOW_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2415 Band edge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	2382.066	7.04	27.14	32.96	49.00	50.22	74.00	-23.78	Peak	0.00
2 pp	2400.000	7.04	27.10	32.96	50.50	51.68	74.00	-22.32	Peak	0.00
3	2415.000	7.05	27.22	32.95	85.05	86.37	114.00	-27.63	Peak	0.00

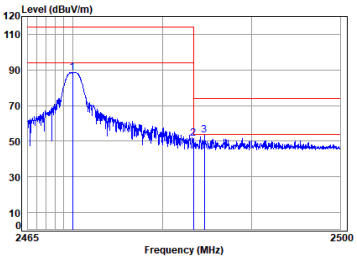
2.4G_SRD_LOW_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2415 Band edge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	2384.051	7.04	27.13	32.96	47.97	49.18	74.00	-24.82	Peak	0.00
2	2400.000	7.04	27.12	32.96	47.25	48.45	74.00	-25.55	Peak	0.00
3	2415.000	7.05	27.22	32.95	79.84	81.16	114.00	-32.84	Peak	0.00

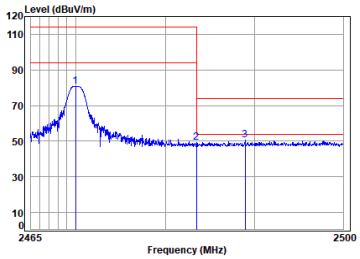
2.4G_SRD_HIGH_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2470 Band edge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	2470.000	7.07	27.62	32.92	86.89	88.66	114.00	-25.34	Peak	0.00
2	2483.500	7.07	27.70	32.91	49.66	51.52	74.00	-22.48	Peak	0.00
3 pp	2484.714	7.07	27.71	32.91	51.29	53.16	74.00	-20.84	Peak	0.00

2.4G_SRD_HIGH_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2470 Band edge

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	2470.000	7.07	27.62	32.92	79.13	80.90	114.00	-33.10	Peak	0.00
2	2483.500	7.07	27.70	32.91	47.58	49.44	74.00	-24.56	Peak	0.00
3 pp	2488.957	7.08	27.73	32.91	48.61	50.51	74.00	-23.49	Peak	0.00

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7.3 Radiated Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.4&6.5
Measurement Distance: 3m
Test Engineer: Rex Liu

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

Note

1. The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

2. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is 40log(3/300) = -80dB (for 3m test distance).

EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is 20log(10/3) = 10.46dB (for 10m test distance).

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 20.5 °C Humidity: 51.6 % RH Atmospheric Pressure: 1000 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT(remote) in transmitting with modulation mode.

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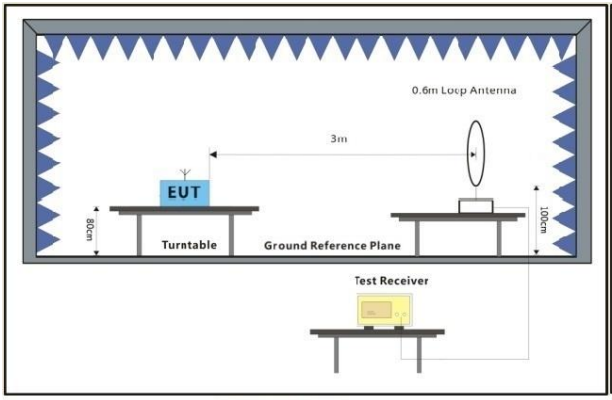
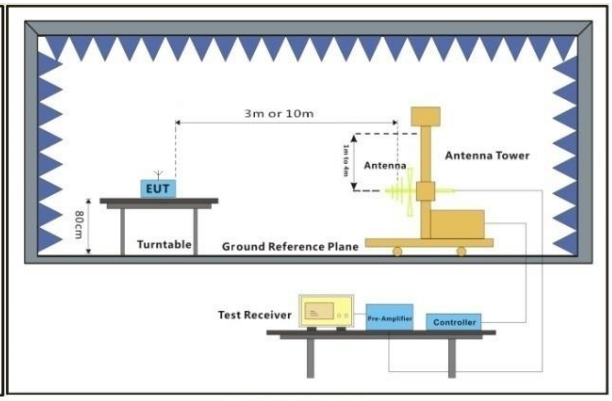
7.3.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz

7.3.4 Measurement Procedure and Data

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

b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.

c. The antenna height is varied from 1m to 4m 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.

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

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

f. 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 quasi-peak method as specified and then reported in a data sheet.

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

h. 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.

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

Remark:

1. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only below points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

2. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

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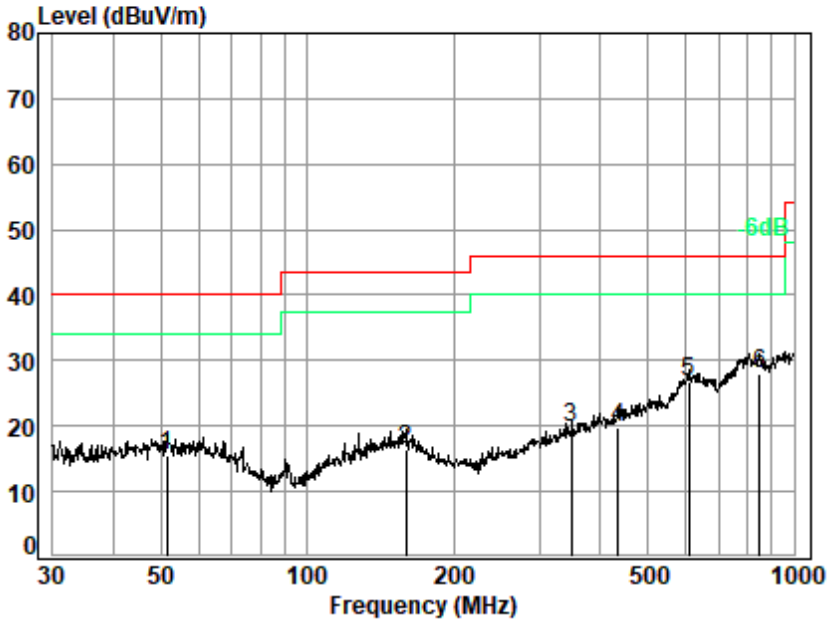
Test Mode: 00; Polarity: Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	51.48	0.66	17.78	26.10	23.28	15.62	40.00	-24.38	QP
2	159.78	1.22	17.42	25.60	23.34	16.38	43.50	-27.12	QP
3	349.25	1.43	18.45	25.62	25.52	19.78	46.00	-26.22	QP
4	435.59	1.12	20.73	26.22	24.26	19.89	46.00	-26.11	QP
5	607.79	3.40	24.21	26.56	25.62	26.67	46.00	-19.33	QP
6	851.04	2.96	26.84	26.44	24.73	28.09	46.00	-17.91	QP

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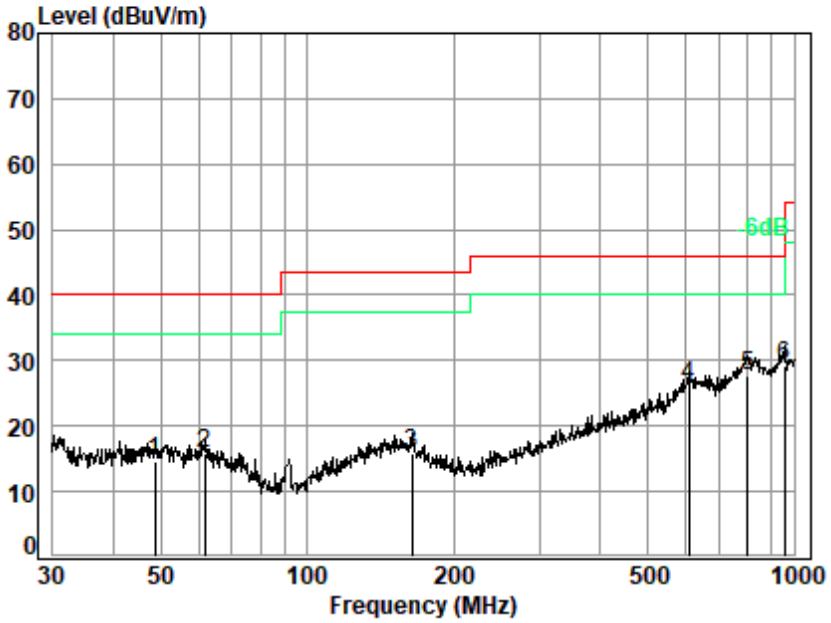
Test Mode: 00; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 00263ET
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	48.67	0.76	17.77	26.10	22.19	14.62	40.00	-25.38	QP
2	61.56	0.82	17.11	26.10	24.05	15.88	40.00	-24.12	QP
3	163.76	1.10	17.17	25.59	23.04	15.72	43.50	-27.78	QP
4	607.79	3.40	24.21	26.56	25.20	26.25	46.00	-19.75	QP
5	804.60	3.42	26.84	26.49	23.91	27.68	46.00	-18.32	QP
6	955.44	2.88	28.07	26.34	24.68	29.29	46.00	-16.71	QP

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7.4 Radiated Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.6
Measurement Distance: 3m
Test Engineer: Rex Liu

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

Note:

At Above 18GHz, measurements may be performed at a distance shorter than that specified in the regulations

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Above 18GHz, Aux Factor = 20 dB/decade of distance, the aux factor is 20log(1/3) = -9.54dB (for 1m test distance).

7.4.1 E.U.T. Operation

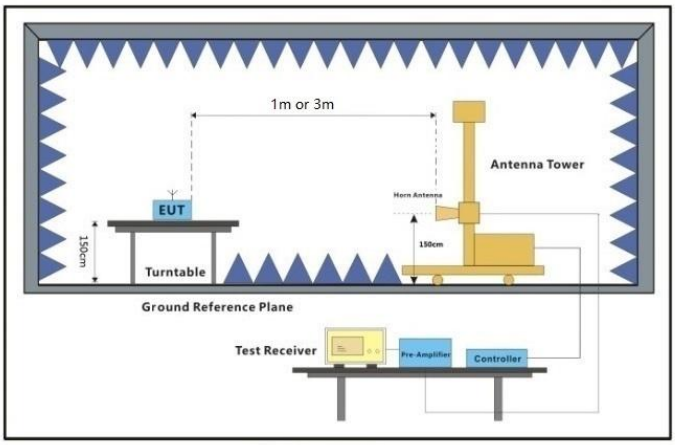
Operating Environment:

Temperature: 20.4 °C Humidity: 51.7 % RH Atmospheric Pressure: 1000 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT(remote) in transmitting with modulation mode.

7.4.3 Test Setup Diagram



Above 1GHz

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7.4.4 Measurement Procedure and Data

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5m above the ground at a 3m fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3m away from the interference-receiving antenna from 1GHz to 18GHz, and 1m away from the interference-receiving antenna above 18GHz.

b. The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.

c. The antenna height is varied from 1m to 4m 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.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1m to 4m and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

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

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

g. 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.

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

Remark:

1. Scan from 1GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.

2. As shown in this section, for frequencies above 1GHz, the field strength limits 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 the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

3. For the frequency above 18GHz, testing had been executed under all test modes, only the worst-case test curve is displayed in the report.

4. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst-case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

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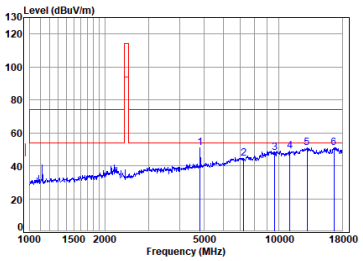
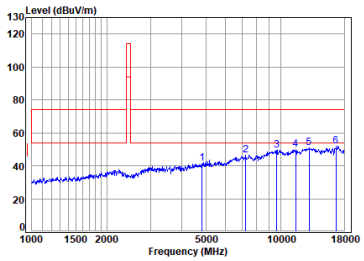
2.4G_SRD_LOW_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2415 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	4830.000	8.27	31.82	53.15	64.15	51.09	74.00	-22.91	Peak	0.00
2	7245.000	8.88	36.45	53.46	52.74	44.61	74.00	-29.39	Peak	0.00
3	9660.000	11.92	38.50	54.03	51.48	47.87	74.00	-26.13	Peak	0.00
4	11076.100	11.32	39.10	53.64	52.02	48.80	74.00	-25.20	Peak	0.00
5	12984.540	13.12	39.36	54.10	52.38	50.76	74.00	-23.24	Peak	0.00
6	16696.880	14.95	39.28	52.06	48.87	51.04	74.00	-22.96	Peak	0.00

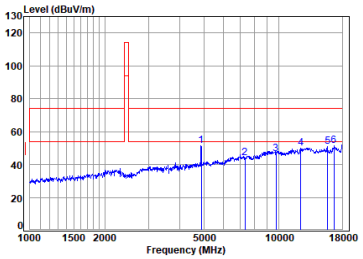
2.4G_SRD_LOW_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2415 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	4830.000	8.27	31.82	53.15	54.80	41.74	74.00	-32.26	Peak	0.00
2	7245.000	8.88	36.45	53.46	54.76	46.63	74.00	-27.37	Peak	0.00
3	9660.000	11.92	38.50	54.03	53.24	49.63	74.00	-24.37	Peak	0.00
4	11500.200	12.26	39.20	53.86	52.26	49.86	74.00	-24.14	Peak	0.00
5	12984.540	13.12	39.36	54.10	52.42	50.80	74.00	-23.20	Peak	0.00
6	pp16696.880	14.95	39.28	52.06	49.78	51.95	74.00	-22.05	Peak	0.00

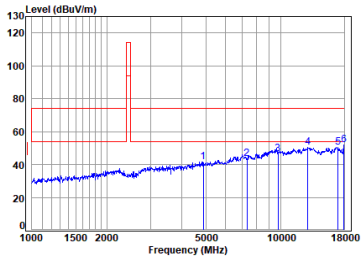
2.4G_SRD_MID_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2440 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1 pp	4880.000	8.29	32.06	53.17	64.23	51.41	74.00	-22.59	Peak	0.00
2	7320.000	8.98	36.14	53.53	52.36	43.95	74.00	-30.05	Peak	0.00
3	9760.000	11.90	38.32	54.05	50.31	46.48	74.00	-27.52	Peak	0.00
4	12290.700	12.66	38.70	54.10	52.67	49.93	74.00	-24.07	Peak	0.00
5	15713.560	13.35	38.69	53.04	51.70	50.70	74.00	-23.30	Peak	0.00
6	16696.880	14.95	39.28	52.06	49.02	51.19	74.00	-22.81	Peak	0.00

2.4G_SRD_MID_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2440 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	4880.000	8.29	32.06	53.17	54.52	41.70	74.00	-32.30	Peak	0.00
2	7320.000	8.98	36.14	53.53	51.89	43.48	74.00	-30.52	Peak	0.00
3	9760.000	11.90	38.32	54.05	50.36	46.53	74.00	-27.47	Peak	0.00
4	12835.290	13.21	39.44	54.10	51.77	50.32	74.00	-23.68	Peak	0.00
5	17038.150	14.38	39.25	51.69	48.67	50.61	74.00	-23.39	Peak	0.00
6	pp17948.050	14.48	42.37	51.51	46.63	51.97	74.00	-22.03	Peak	0.00

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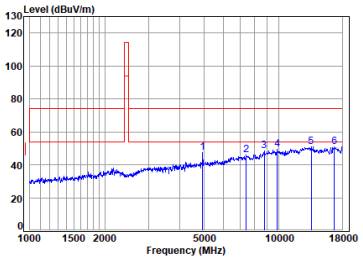
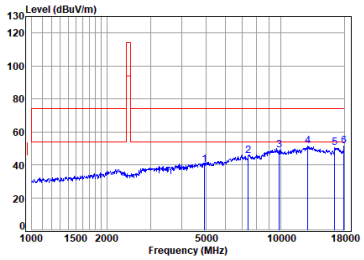
2.4G_SRD_HIGH_TX_Horizontal



Condition: 3m HORIZONTAL
Job No : 00263ET
Mode : 2470 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	4940.000	8.31	32.14	53.18	60.33	47.60	74.00	-26.40	Peak	0.00
2	7410.000	9.10	36.90	53.63	53.55	45.92	74.00	-28.08	Peak	0.00
3	8738.852	10.25	38.34	53.98	53.88	48.49	74.00	-25.51	Peak	0.00
4	9880.000	11.87	38.78	54.08	52.95	49.52	74.00	-24.48	Peak	0.00
5	pp13520.740	11.83	40.50	53.99	52.78	51.12	74.00	-22.88	Peak	0.00
6	16745.210	14.86	39.07	52.00	48.96	50.89	74.00	-23.11	Peak	0.00

2.4G_SRD_HIGH_TX_Vertical



Condition: 3m VERTICAL
Job No : 00263ET
Mode : 2470 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark	Aux Factor
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		dB
1	4940.000	8.31	32.14	53.18	52.87	40.14	74.00	-33.86	Peak	0.00
2	7410.000	9.10	36.90	53.63	53.13	45.50	74.00	-28.50	Peak	0.00
3	9880.000	11.87	38.78	54.08	52.31	48.88	74.00	-25.12	Peak	0.00
4	pp12872.440	13.19	39.59	54.10	52.69	51.37	74.00	-22.63	Peak	0.00
5	16504.960	15.32	38.51	52.28	48.86	50.41	74.00	-23.59	Peak	0.00
6	17948.050	14.48	42.37	51.51	45.93	51.27	74.00	-22.73	Peak	0.00

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7.5 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215
Test Method: ANSI C63.10-2020+Cor.1-2023 Section 6.9
Test Engineer: Ian Li

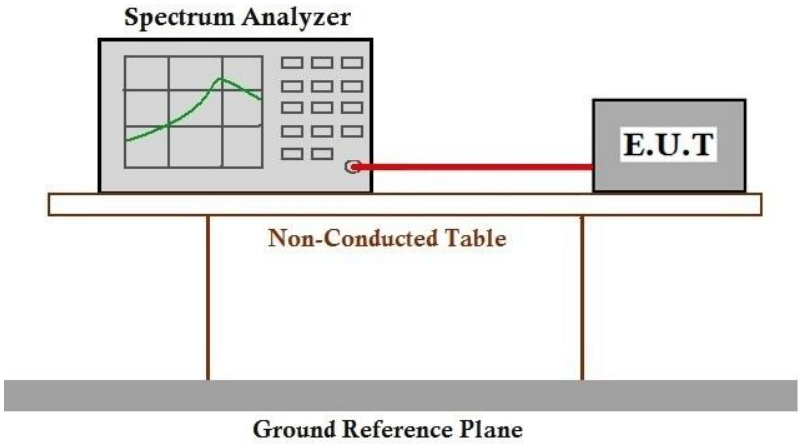
7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 26.5 °C Humidity: 45.2 % RH Atmospheric Pressure: 1000 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT(remote) in transmitting with modulation mode.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.081	Pass
Middle	1.103	Pass
Highest	1.083	Pass

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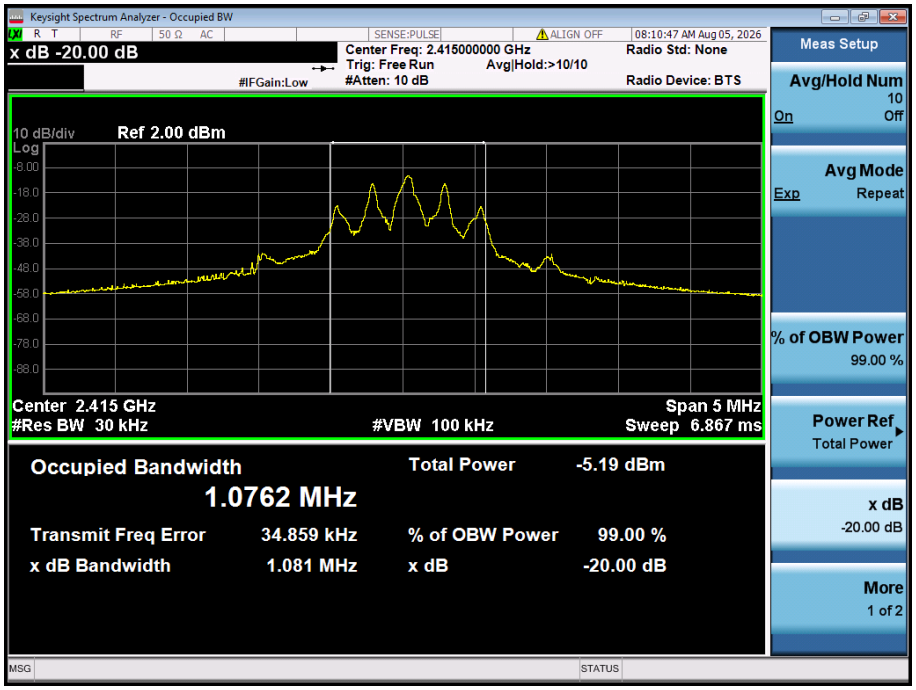
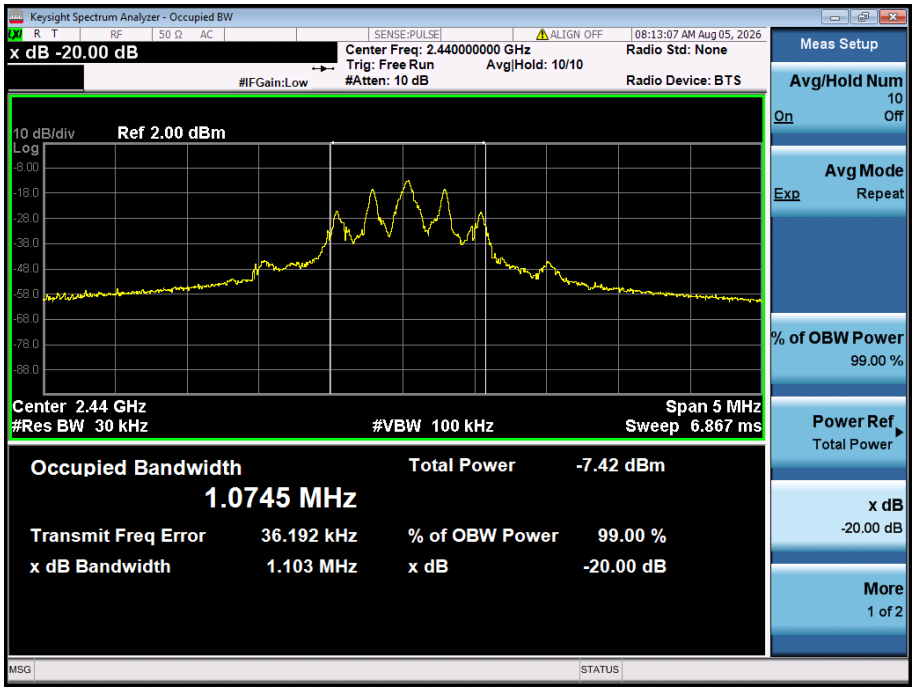
2415MHz



2440MHz



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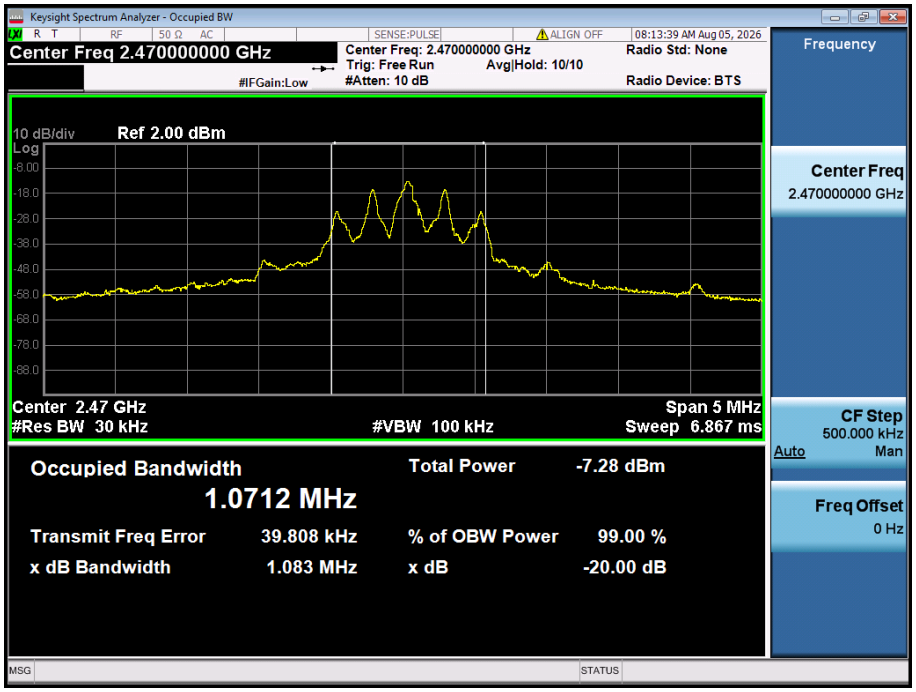
2470MHz



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for FYCR2607000263ET

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_ external and internal photos for FYCR2607000263ET

- End of the Report -

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