



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

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Report No.: SZEM170800805303
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TEST REPORT

Application No.: SZEM1711011595CR
Applicant: Lidl US LLC.
Address of Applicant: 3500S. Clark St., Arlington, VA22202
Manufacturer: Wintop Electronics Co. Limited
Address of Manufacturer: Unit 04 7/F, Bright Way Tower 33, Mong Kok RD KL, HONGKONG
Factory: Shenzhen Wintop Electronics Co. Limited
Address of Factory: 2, 3, 4 floor, Huaguan industrial park, 46th Xinhe Road, Baolai Industrial District, Shangmugu, Pinghu Town, Longgang District, Shenzhen City, 518000, China.

Equipment Under Test (EUT):

EUT Name: Wireless Mouse
Model No.: SFMT 2.4 A1
FCC ID: 2AJ9O-SFMT24A1
Trade mark: SILVERCREST
Standard(s) : 47 CFR Part 15, Subpart C 15.249
Date of Receipt: 2017-11-15
Date of Test: 2017-11-16 to 2017-11-21
Date of Issue: 2017-11-23

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

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Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2017-11-23		Original

Authorized for issue by:				
				
		Leo Li /Project Engineer		
				
		Eric Fu /Reviewer		



2 Test Summary

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 (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

Remark:

Model No.: SFMT 2.4 A1

This test report (Ref. No.: SZEM170800805303) is only valid with the original test report (Ref. No.: SZEM170800805302).

Compared with the original report, this report just increased a tantalum capacitor in the original circuit and retested.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report Field Strength of the Fundamental Signal (15.249(a)), Restricted Band Around Fundamental Frequency and Radiated Emissions were fully retested on model SFMT 2.4 A1 and shown the data in this report, other test data please refer to the original report SZEM170800805302.



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4 General Information

4.1 Details of E.U.T.

Power supply:	3.0V DC (1.5Vx2"AAA" Size Batteries)
Test voltage:	DC 3V
Frequency Range:	2408MHz-2474MHz
Channel Number:	34
Modulation Technique:	FSK
Antenna Type:	PCB Antenna
Antenna Gain:	0 dBi

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2408	13	2432	25	2456
2	2410	14	2434	26	2458
3	2412	15	2436	27	2460
4	2414	16	2438	28	2462
5	2416	17	2440	29	2464
6	2418	18	2442	30	2466
7	2420	19	2444	31	2468
8	2422	20	2446	32	2470
9	2424	21	2448	33	2472
10	2426	22	2450	34	2474
11	2428	23	2452		
12	2430	24	2454		

4.2 Description of Support Units

The EUT has been tested as an independent unit.



4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25×10^{-8}
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
9	Temperature test	1 °C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 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:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-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.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Field Strength of the Fundamental Signal (15.249(a))					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-02	2020-05-01
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2017-03-05	2020-03-04
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-13
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
Pre-amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-26
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2016-12-02	2017-12-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A



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Restricted Band Around Fundamental Frequency					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-02	2020-05-01
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2017-03-05	2020-03-04
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-13
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
Pre-amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-26
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2016-12-02	2017-12-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-28
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-17



6 Radio Spectrum Matter Test Results

6.1 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 (2013) Section 6.5&6.6

Measurement Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value

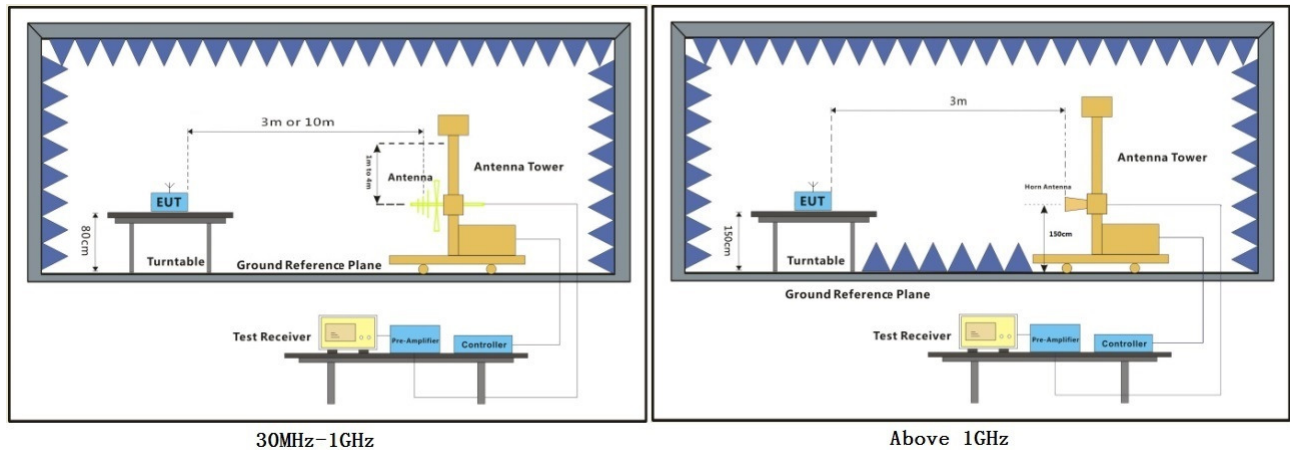
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

6.1.2 Test Setup Diagram

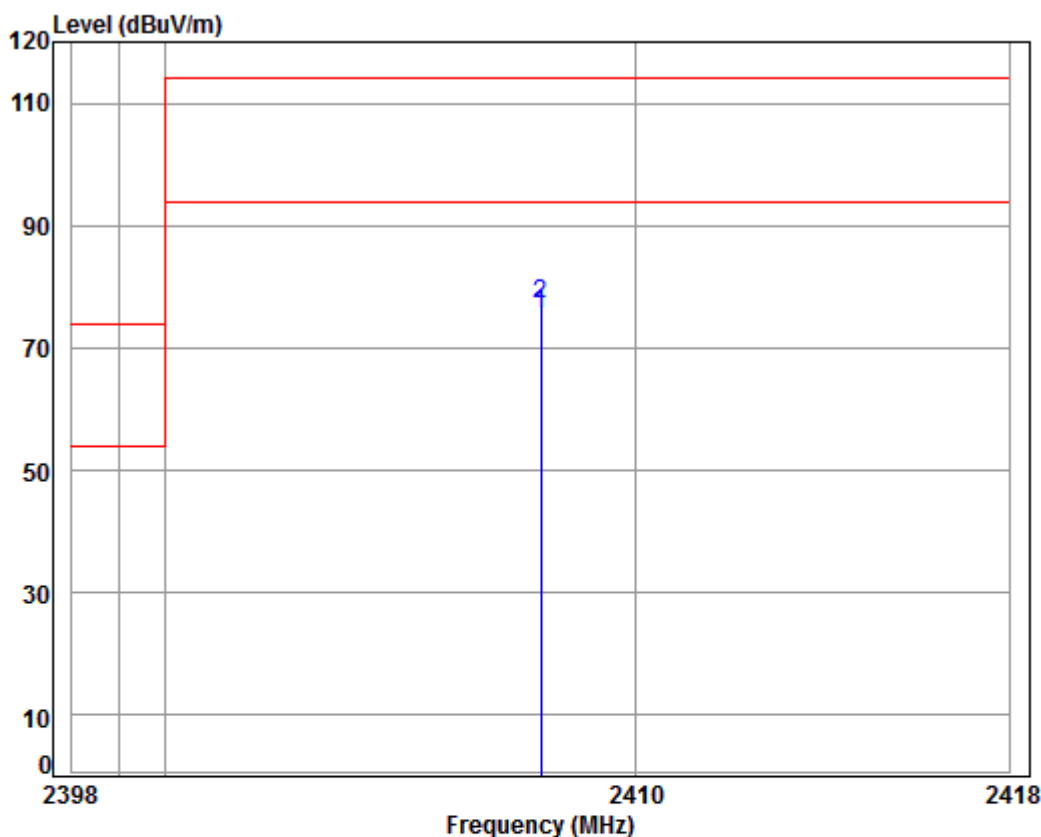


6.1.3 Measurement Procedure and Data

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:a; Polarization:Horizontal; Modulation:GFSK; Channel:Low



Condition: 3m HORIZONTAL

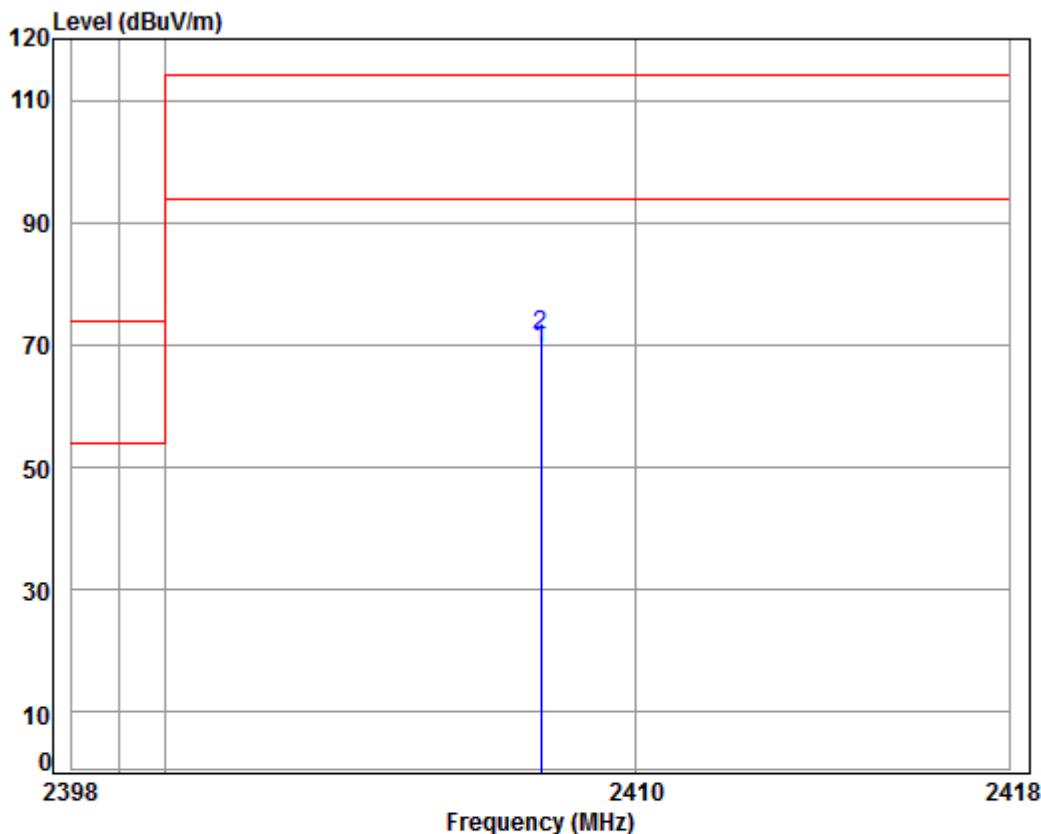
Job No : 11595CR

Mode : 2408 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2408.000	5.50	29.13	37.65	78.67	75.65	94.00	-18.35 Average
2 pk	2408.000	5.50	29.13	37.65	80.22	77.20	114.00	-36.80 Peak



Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:Low



Condition: 3m VERTICAL

Job No : 11595CR

Mode : 2408 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2408.000	5.50	29.13	37.65	72.40	69.38	94.00	-24.62 Average
2 pk	2408.000	5.50	29.13	37.65	74.64	71.62	114.00	-42.38 Peak

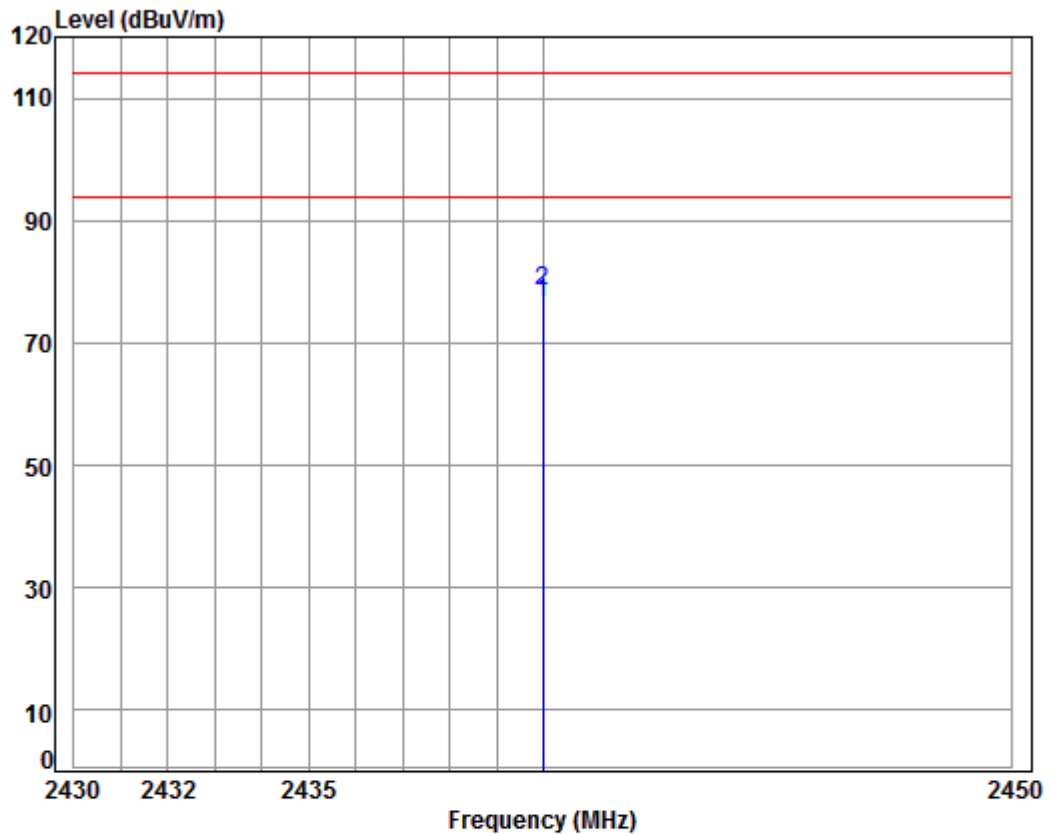


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Mode:a; Polarization:Horizontal; Modulation:GFSK; Channel:middle



Condition: 3m HORIZONTAL

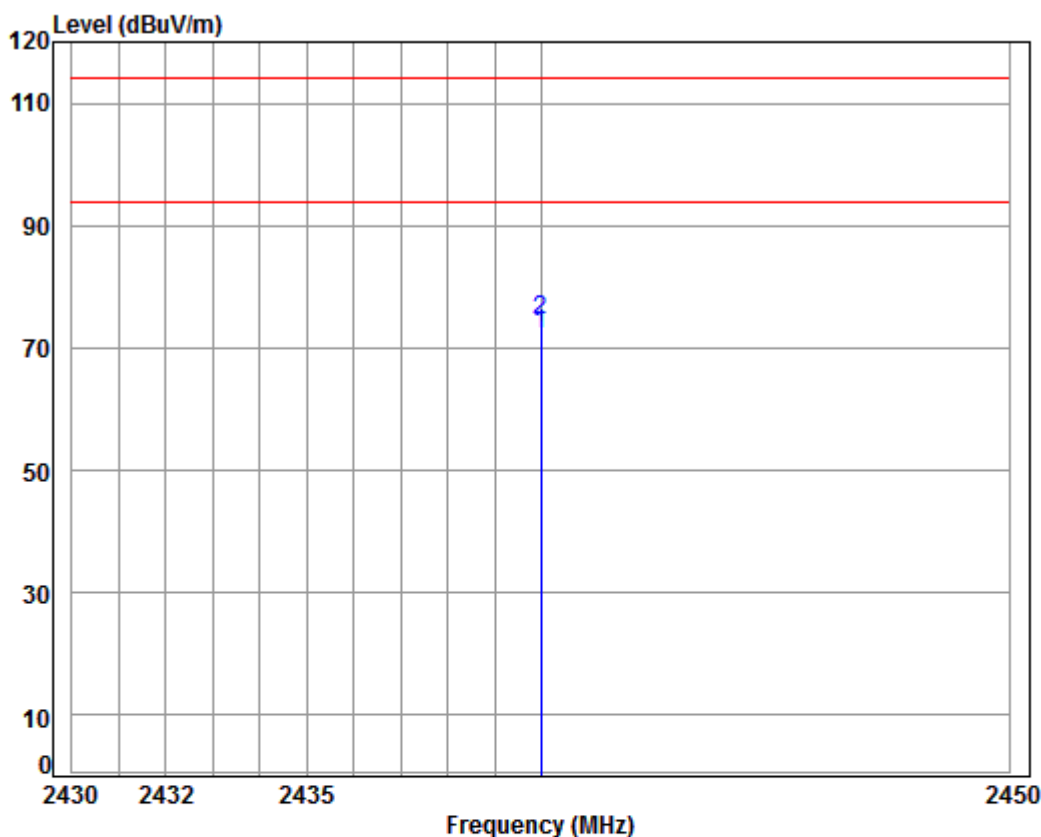
Job No : 11595CR

Mode : 2440 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2440.000	5.54	29.22	37.65	79.37	76.48	94.00	-17.52 Average
2 pk	2440.000	5.54	29.22	37.65	81.44	78.55	114.00	-35.45 Peak



Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:middle



Condition: 3m VERTICAL

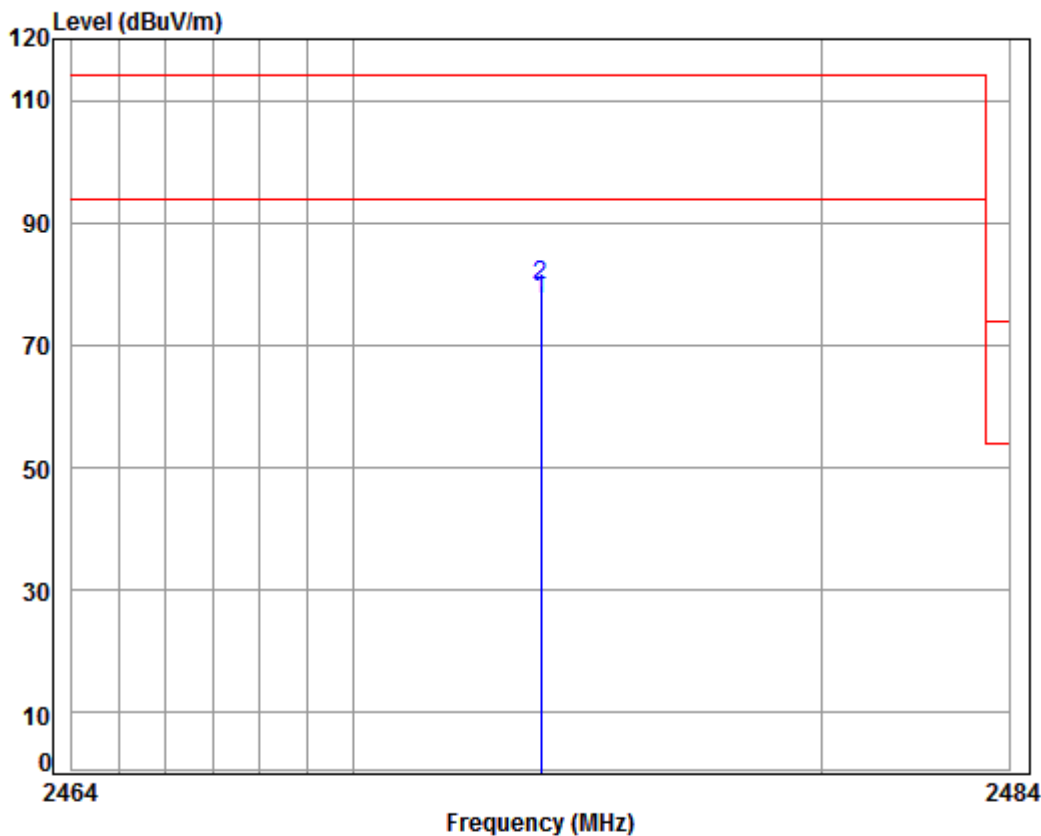
Job No : 11595CR

Mode : 2440 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2440.000	5.54	29.23	37.65	75.28	72.40	94.00	-21.60 Average
2 pk	2440.000	5.54	29.23	37.65	77.32	74.44	114.00	-39.56 Peak



Mode:a; Polarization:Horizontal; Modulation:GFSK; Channel:High



Condition: 3m HORIZONTAL

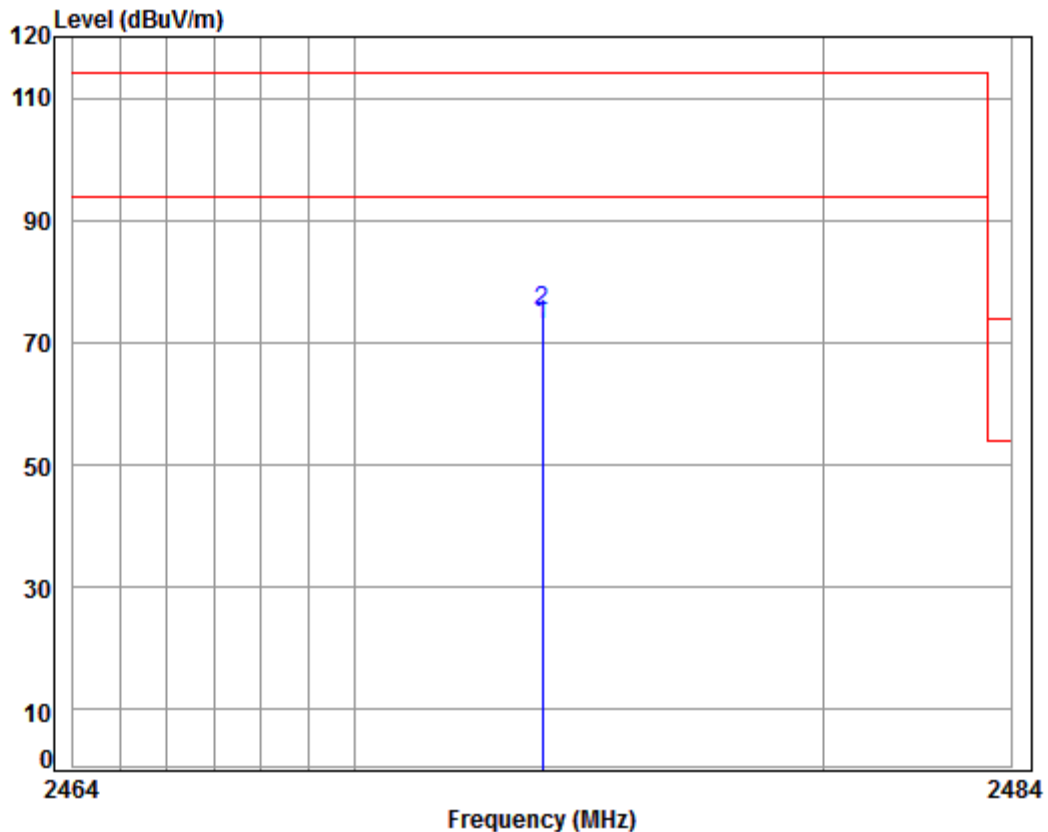
Job No : 11595CR

Mode : 2474 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2474.000	5.59	29.32	37.65	80.33	77.59	94.00	-16.41 Average
2 pk	2474.000	5.59	29.32	37.65	82.50	79.76	114.00	-34.24 Peak



Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:High



Condition: 3m VERTICAL

Job No : 11595CR

Mode : 2474 Field Strength

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2474.000	5.59	29.32	37.65	75.71	72.97	94.00	-21.03 Average
2 pk	2474.000	5.59	29.32	37.65	77.99	75.25	114.00	-38.75 Peak

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 20 dB under any condition of modulation. So, only the above measurement data were shown in the report.



6.2 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 (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.		

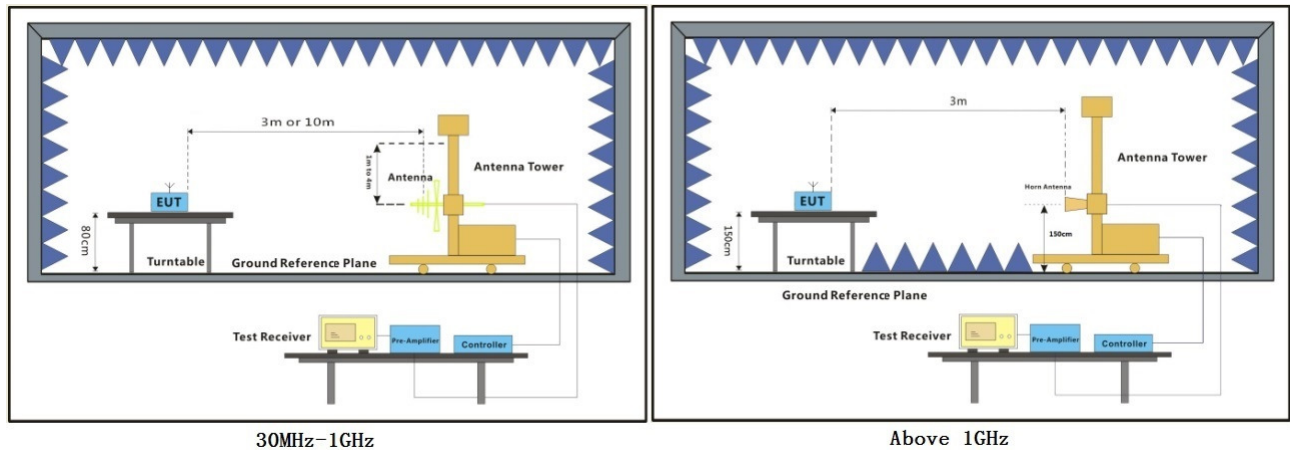
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

6.2.2 Test Setup Diagram

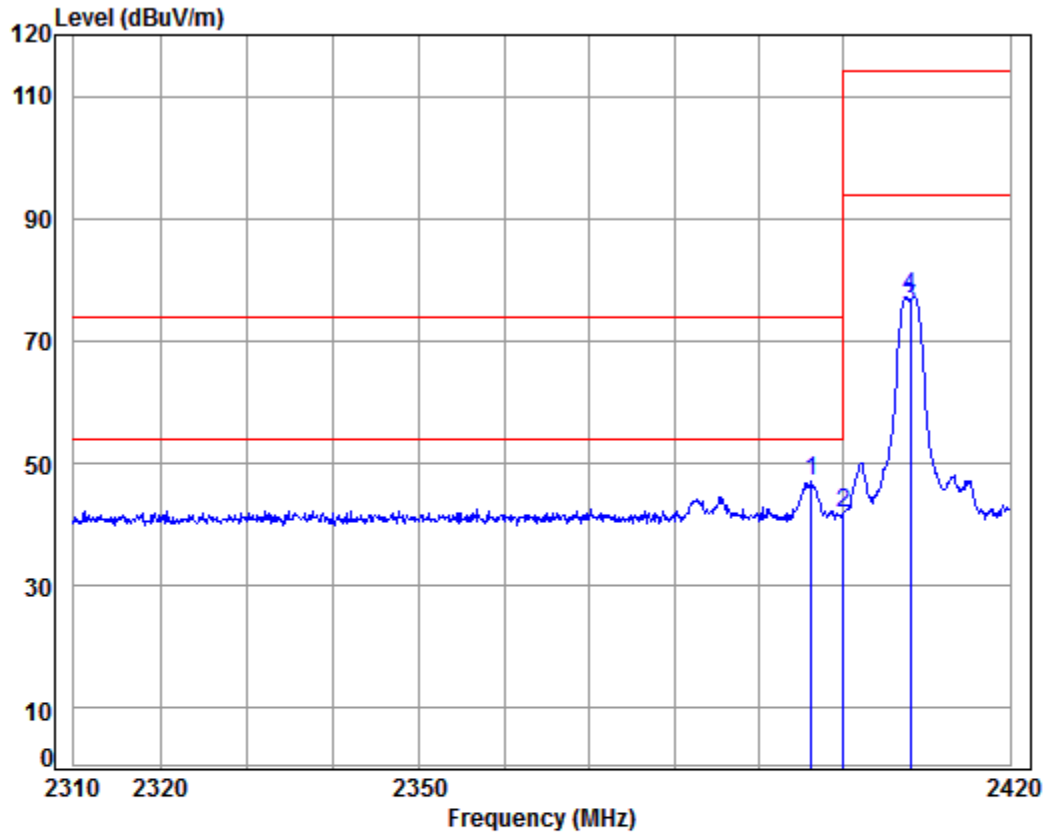


6.2.3 Measurement Procedure and Data

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:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



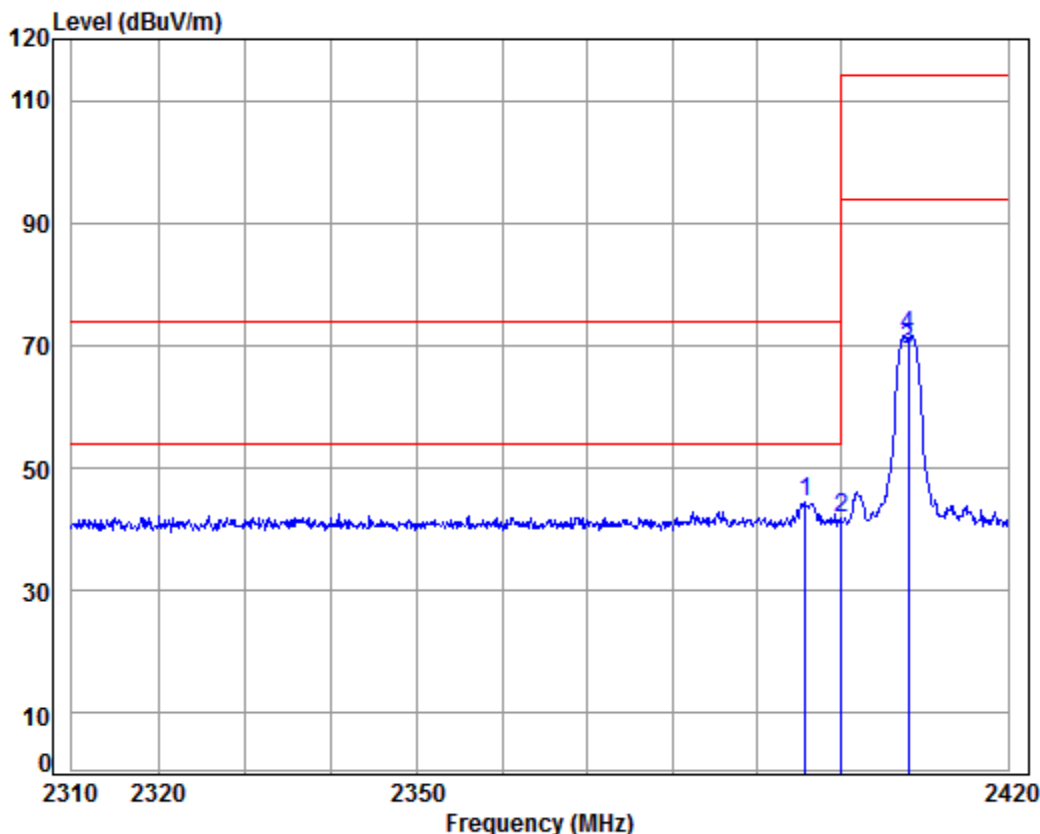
Condition: 3m HORIZONTAL

Job No : 11595CR

Mode : 2408 Band edge

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pk	2396.251	5.48	29.10	37.66	50.04	46.96	74.00	-27.04 Peak
2	2400.000	5.49	29.11	37.66	44.93	41.87	74.00	-32.13 Peak
3 pp	2408.000	5.50	29.13	37.65	78.67	75.65	94.00	-18.35 Average
4	2408.000	5.50	29.13	37.65	80.22	77.20	114.00	-36.80 Peak

Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



Condition: 3m VERTICAL

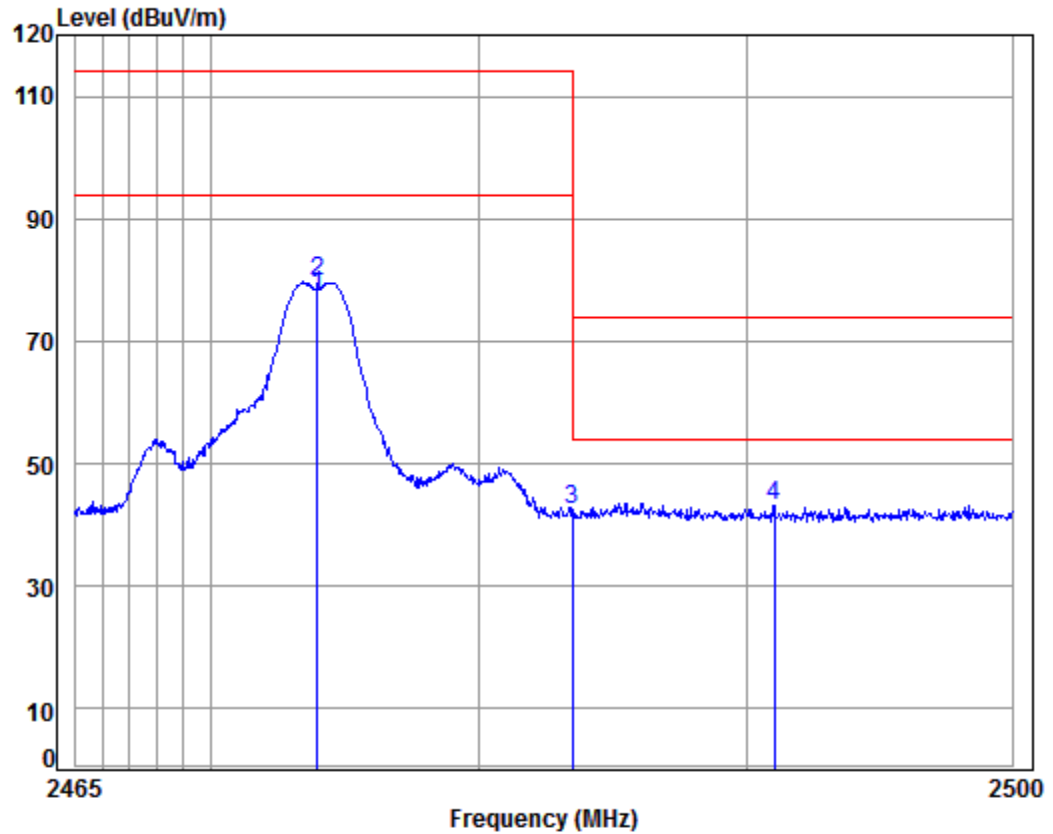
Job No : 11595CR

Mode : 2408 Band edge

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pk	2395.805	5.48	29.09	37.66	47.48	44.39	74.00	-29.61 Peak
2	2400.000	5.49	29.11	37.66	44.88	41.82	74.00	-32.18 Peak
3 pp	2408.000	5.50	29.13	37.65	72.40	69.38	94.00	-24.62 Average
4	2408.000	5.50	29.13	37.65	74.64	71.62	114.00	-42.38 Peak



Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



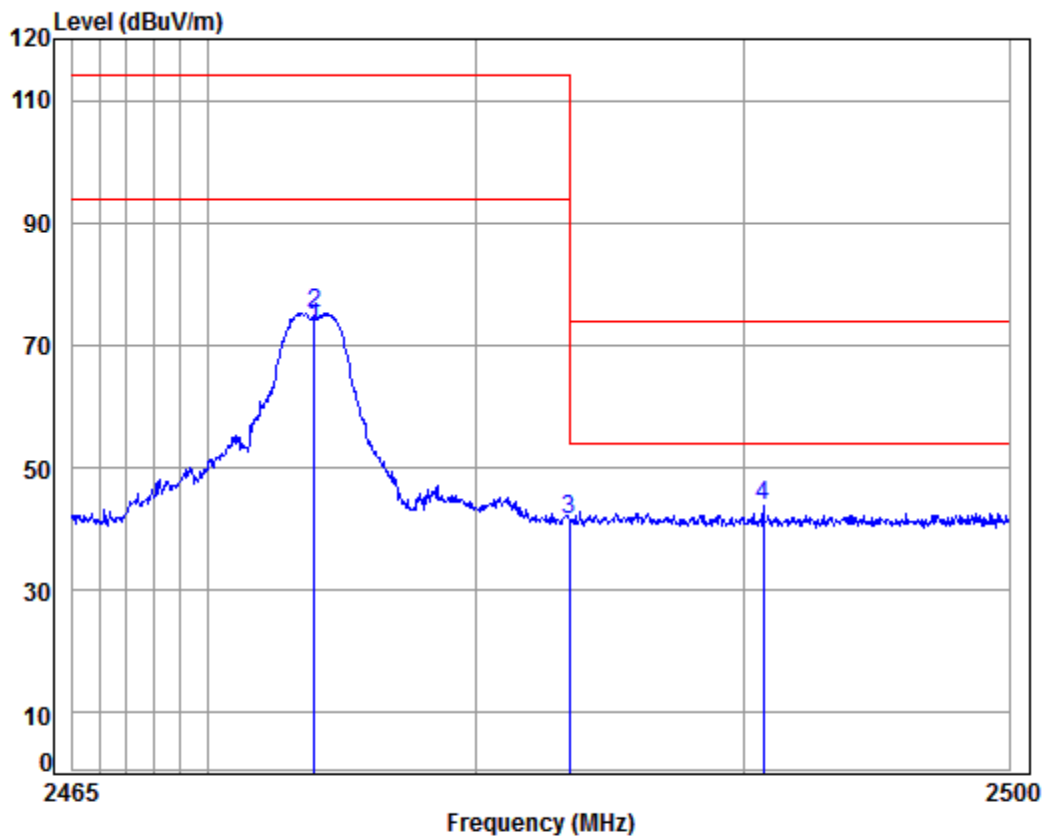
Condition: 3m HORIZONTAL

Job No : 11595CR

Mode : 2474 Band edge

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2474.000	5.59	29.32	37.65	80.33	77.59	94.00	-16.41 Average
2	2474.000	5.59	29.32	37.65	82.50	79.76	114.00	-34.24 Peak
3	2483.489	5.60	29.35	37.65	45.08	42.38	114.00	-71.62 Peak
4 pk	2491.063	5.61	29.37	37.65	45.89	43.22	74.00	-30.78 Peak

Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Condition: 3m VERTICAL

Job No : 11595CR

Mode : 2474 Band edge

		Cable	Ant	Preamp	Read	Limit	Over	
	Freq	Loss	Factor	Factor	Level	Level	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2474.000	5.59	29.32	37.65	75.71	72.97	94.00	-21.03 Average
2	2474.000	5.59	29.32	37.65	77.99	75.25	114.00	-38.75 Peak
3	2483.500	5.60	29.35	37.65	44.16	41.46	74.00	-32.54 Peak
4 pk	2490.782	5.61	29.37	37.65	46.56	43.89	74.00	-30.11 Peak



6.3 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

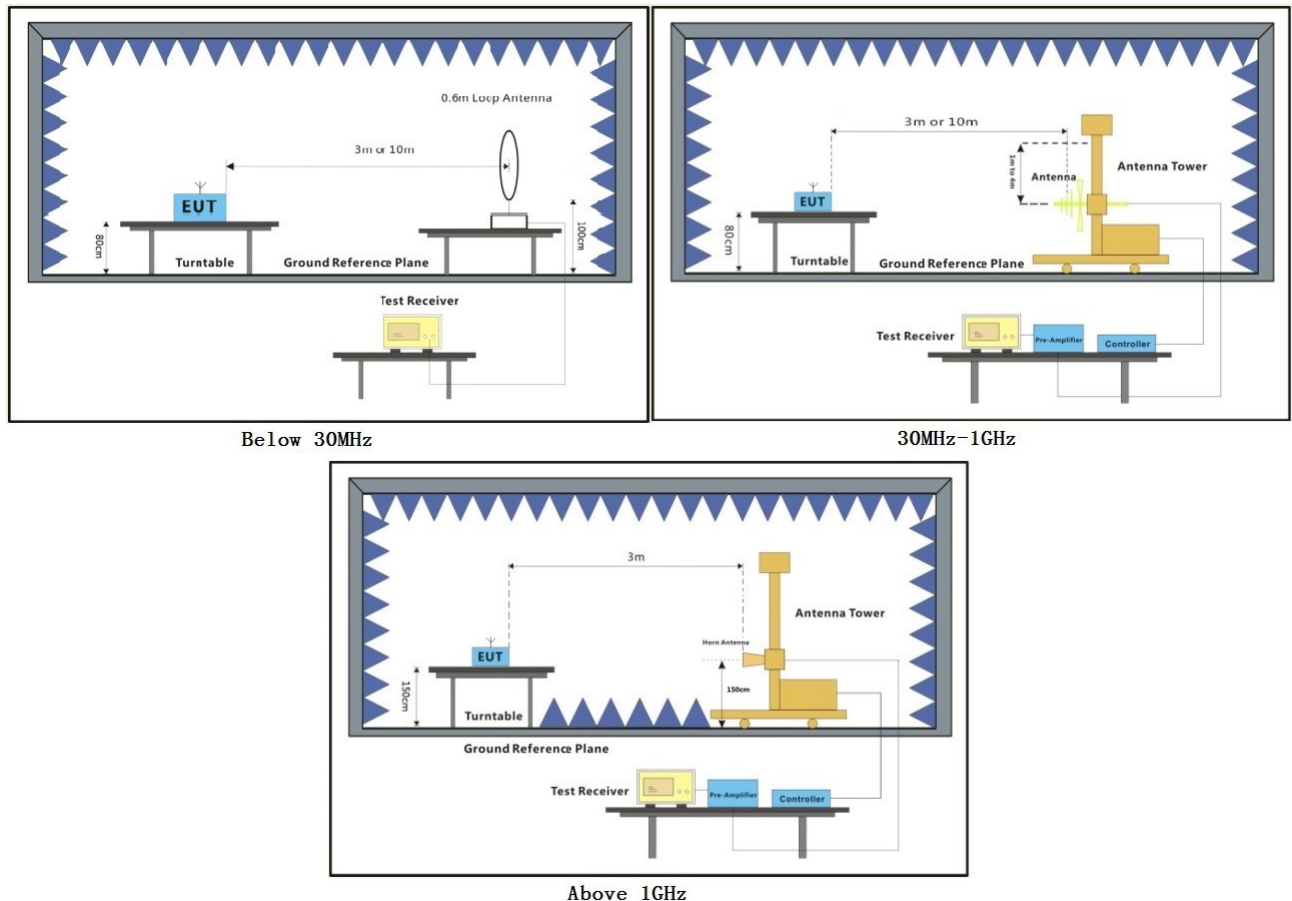
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

6.3.2 Test Setup Diagram



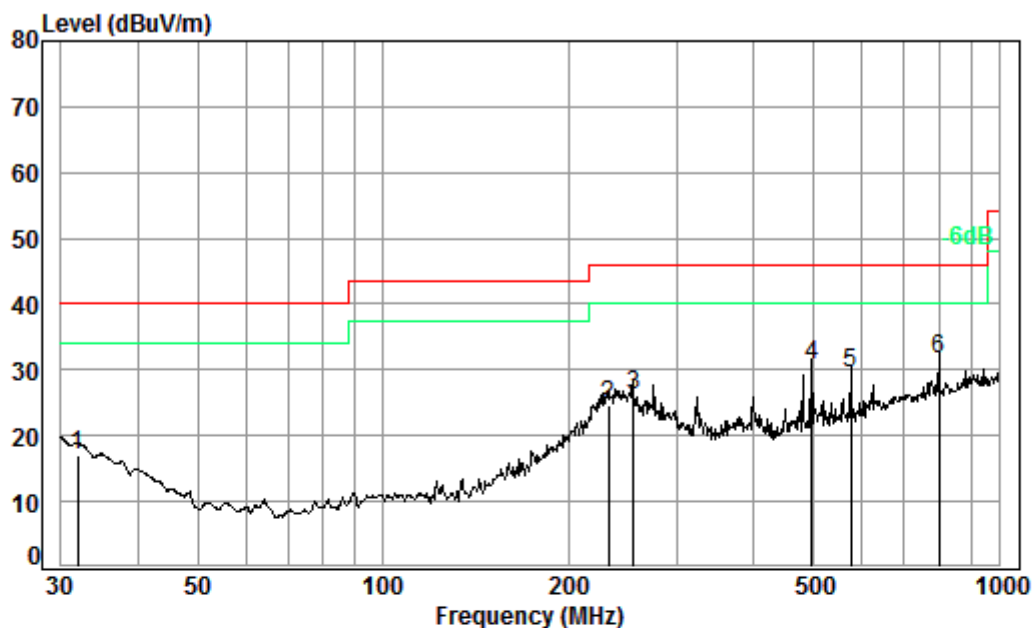
6.3.3 Measurement Procedure and Data

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.

30MHz~1GHz

QP value:

Mode: a; Polarization: Horizontal;



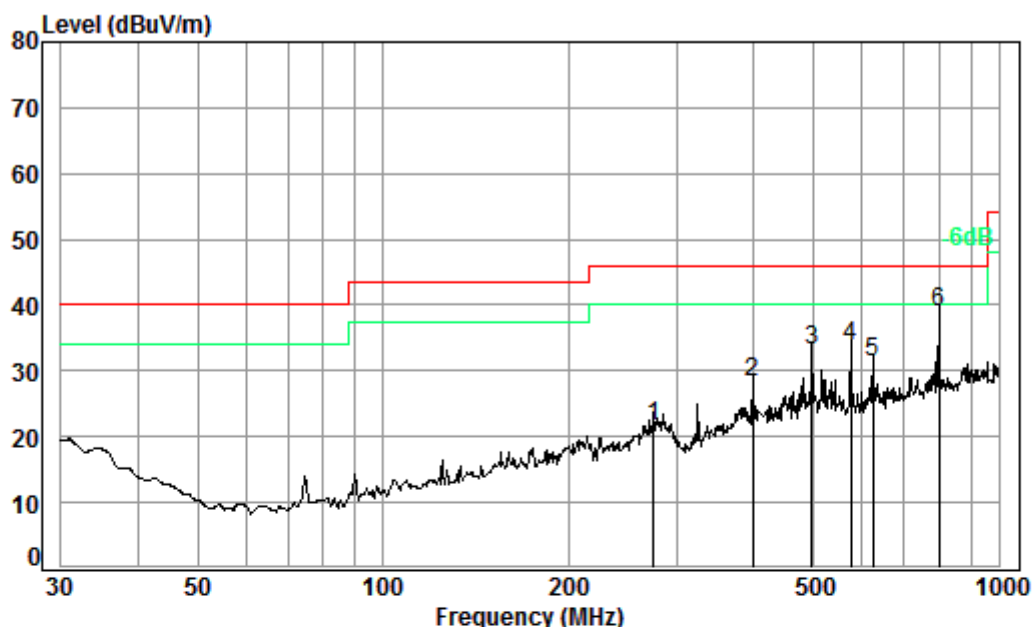
Condition: 3m HORIZONTAL

Job No. : 11595CR

Test Mode: a

	Freq	Cable	Ant	Preamp	Read	Limit	Over
	MHz	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m
1	31.95	0.60	17.61	27.35	26.04	16.90	40.00 -23.10
2	232.53	1.59	11.74	26.59	37.90	24.64	46.00 -21.36
3	254.73	1.70	12.39	26.52	38.70	26.27	46.00 -19.73
4	497.68	2.59	17.80	27.70	38.06	30.75	46.00 -15.25
5	574.63	2.68	19.10	27.58	35.21	29.41	46.00 -16.59
6 pp	798.98	3.20	22.10	27.30	33.63	31.63	46.00 -14.37

Mode :a; Polarization: Vertical



Condition: 3m VERTICAL

Job No. : 11595CR

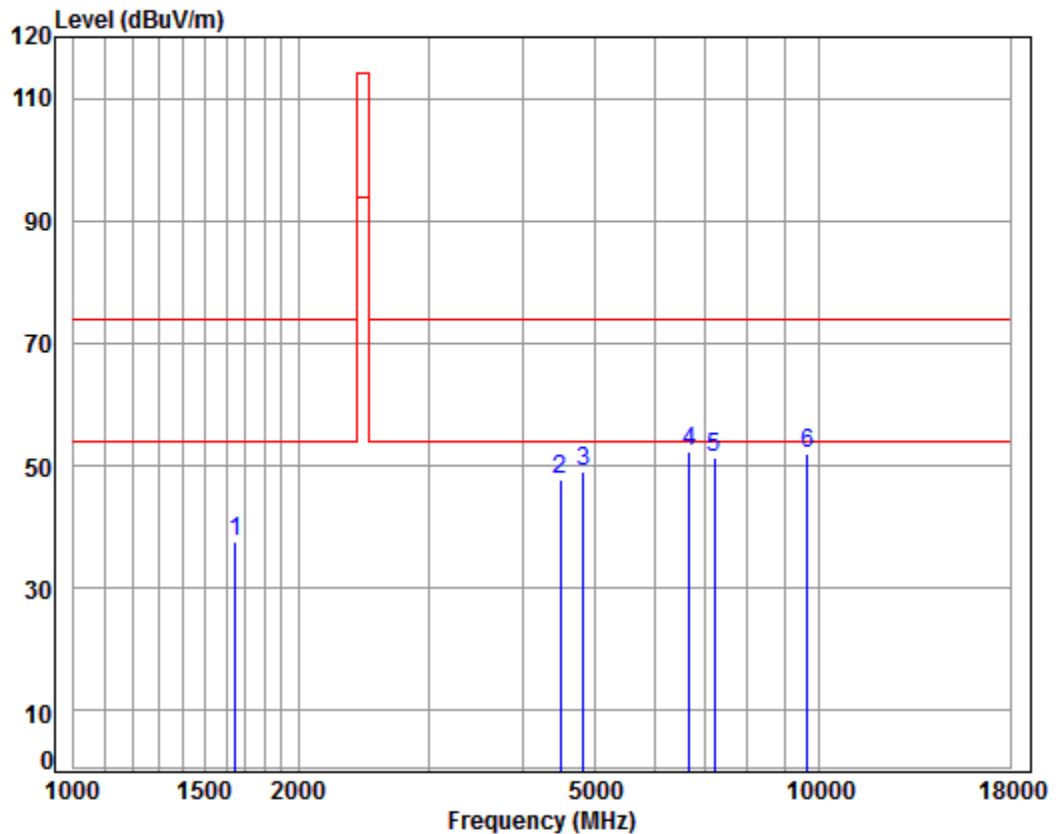
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	275.16	1.79	12.81	26.46	33.48	21.62	46.00	-24.38
2	399.03	2.20	16.29	27.13	36.95	28.31	46.00	-17.69
3	497.68	2.59	17.80	27.70	40.49	33.18	46.00	-12.82
4	574.63	2.68	19.10	27.58	39.51	33.71	46.00	-12.29
5	625.08	2.75	20.50	27.51	35.72	31.46	46.00	-14.54
6 pp	798.98	3.20	22.10	27.30	40.95	38.95	46.00	-7.05



Above 1GHz

Mode:a; Polarization:Horizontal; Modulation:GFSK; Channel:Low



Condition: 3m HORIZONTAL

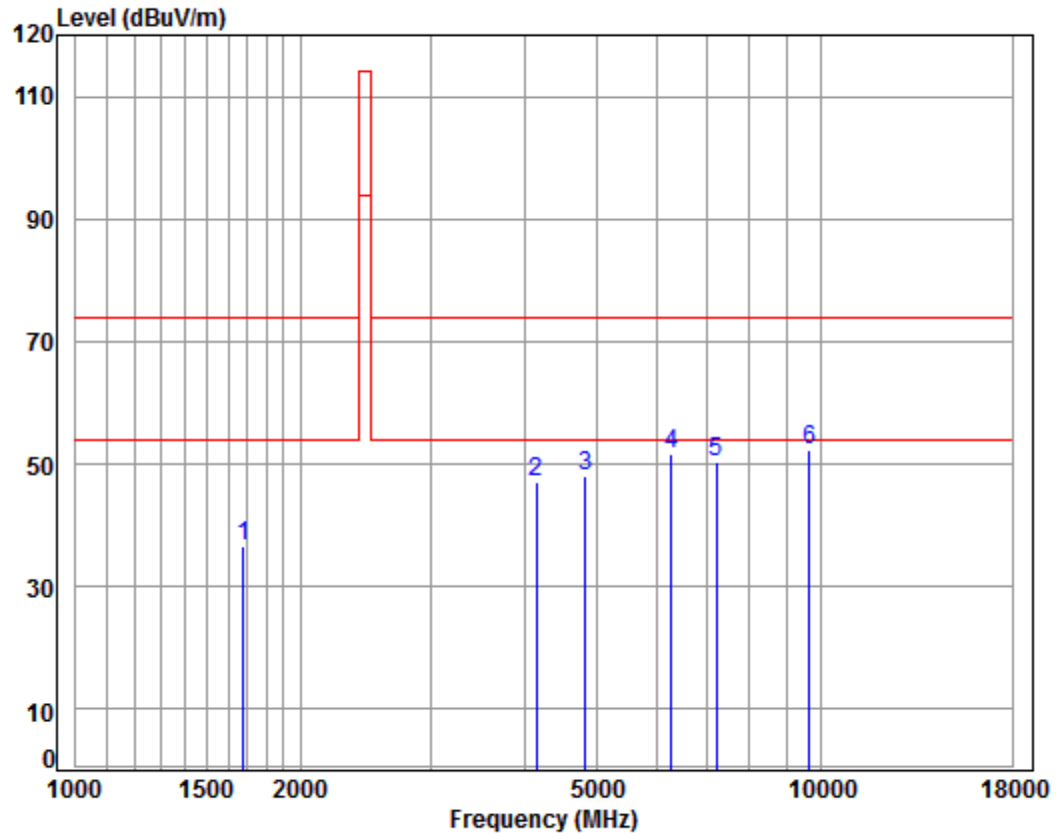
Job No : 11595CR

Mode : 2408 TX RSE

	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	1648.778	5.29	26.46	37.73	43.60	37.62	74.00	-36.38	peak
2	4495.125	7.55	33.60	37.20	43.76	47.71	74.00	-26.29	peak
3	4816.000	7.90	34.18	37.27	44.38	49.19	74.00	-24.81	peak
4 pp	6679.040	11.02	35.61	37.69	43.35	52.29	74.00	-21.71	peak
5	7224.000	10.07	36.41	37.55	42.31	51.24	74.00	-22.76	peak
6	9632.000	10.76	37.53	35.78	39.51	52.02	74.00	-21.98	peak



Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:Low



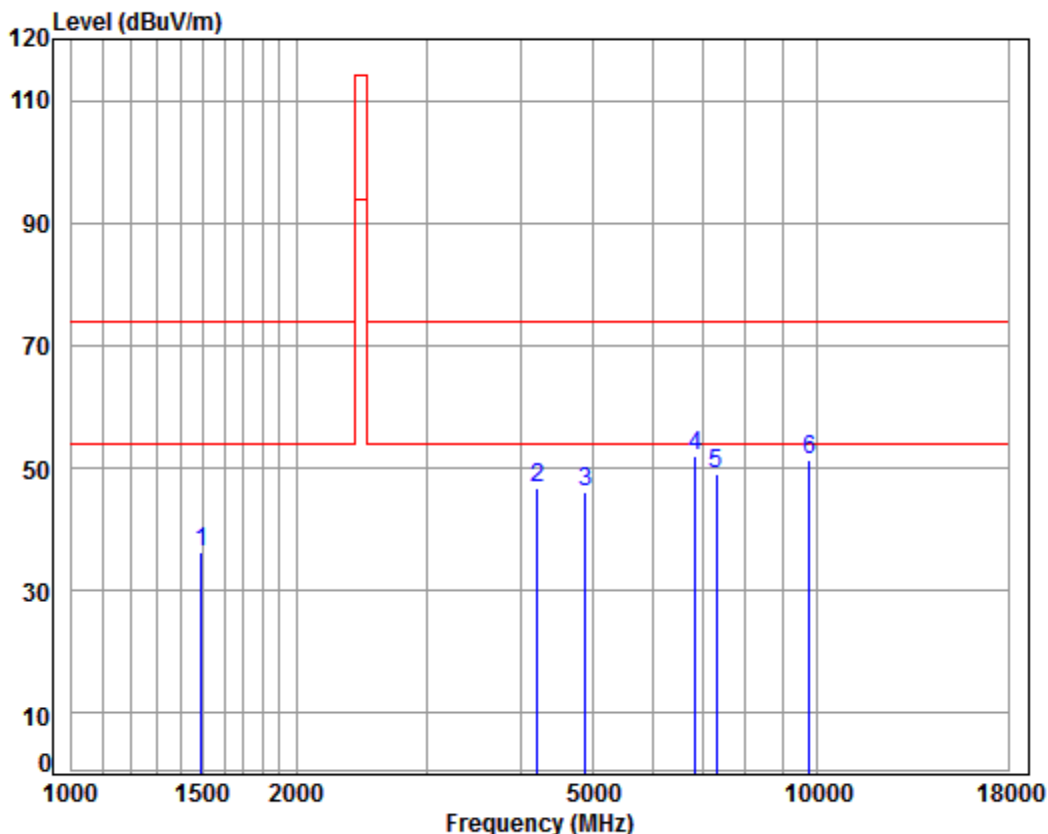
Condition: 3m VERTICAL

Job No : 11595CR

Mode : 2408 TX RSE

	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	1677.621	5.25	26.58	37.73	42.57	36.67	74.00	-37.33	peak
2	4145.664	7.16	33.60	37.13	43.60	47.23	74.00	-26.77	peak
3	4816.000	7.90	34.18	37.27	43.29	48.10	74.00	-25.90	peak
4	6285.695	11.13	34.93	37.81	43.31	51.56	74.00	-22.44	peak
5	7224.000	10.07	36.41	37.55	41.26	50.19	74.00	-23.81	peak
6 pp	9632.000	10.76	37.53	35.78	39.88	52.39	74.00	-21.61	peak

Mode:a; Polarization:Horizontal; Modulation:GFSK; Channel:middle



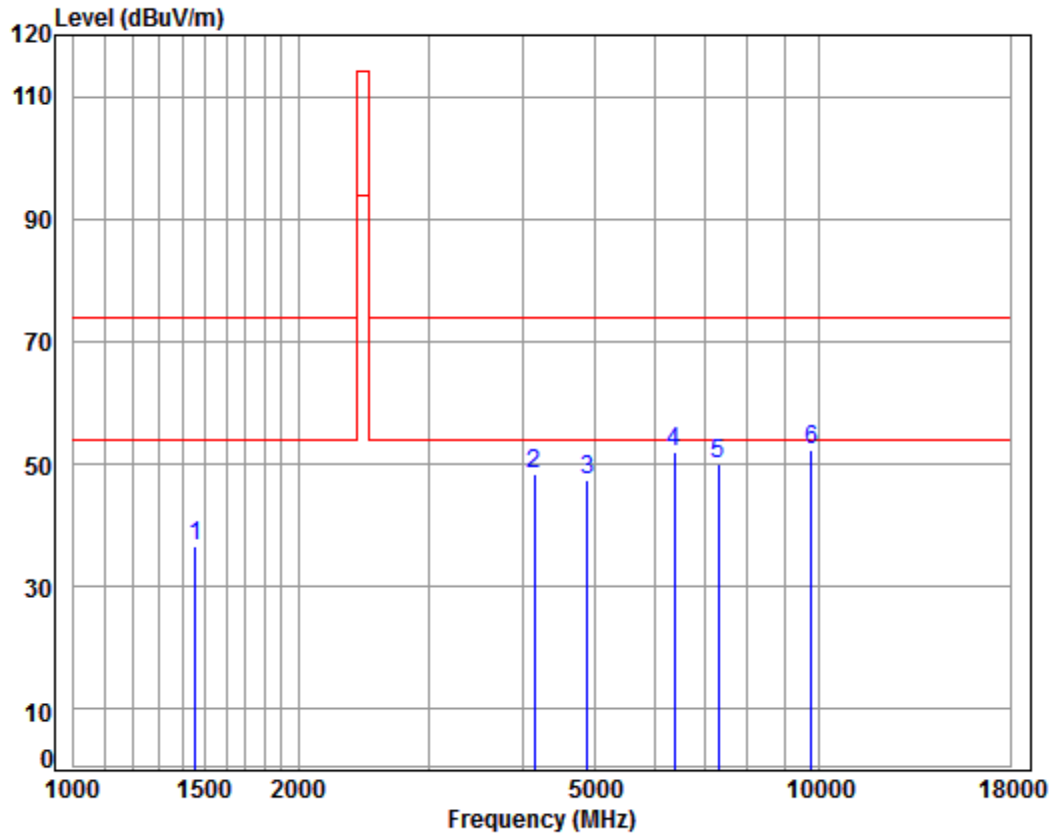
Condition: 3m HORIZONTAL

Job No : 11595CR

Mode : 2440 TX RSE

	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	1494.455	5.46	25.78	37.74	42.71	36.21	74.00	-37.79	peak
2	4206.011	7.23	33.60	37.15	43.02	46.70	74.00	-27.30	peak
3	4880.000	7.97	34.29	37.28	41.18	46.16	74.00	-27.84	peak
4 pp	6855.063	10.53	36.10	37.64	43.13	52.12	74.00	-21.88	peak
5	7320.000	10.05	36.37	37.53	40.22	49.11	74.00	-24.89	peak
6	9760.000	10.82	37.55	35.68	38.53	51.22	74.00	-22.78	peak

Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:middle



Condition: 3m VERTICAL

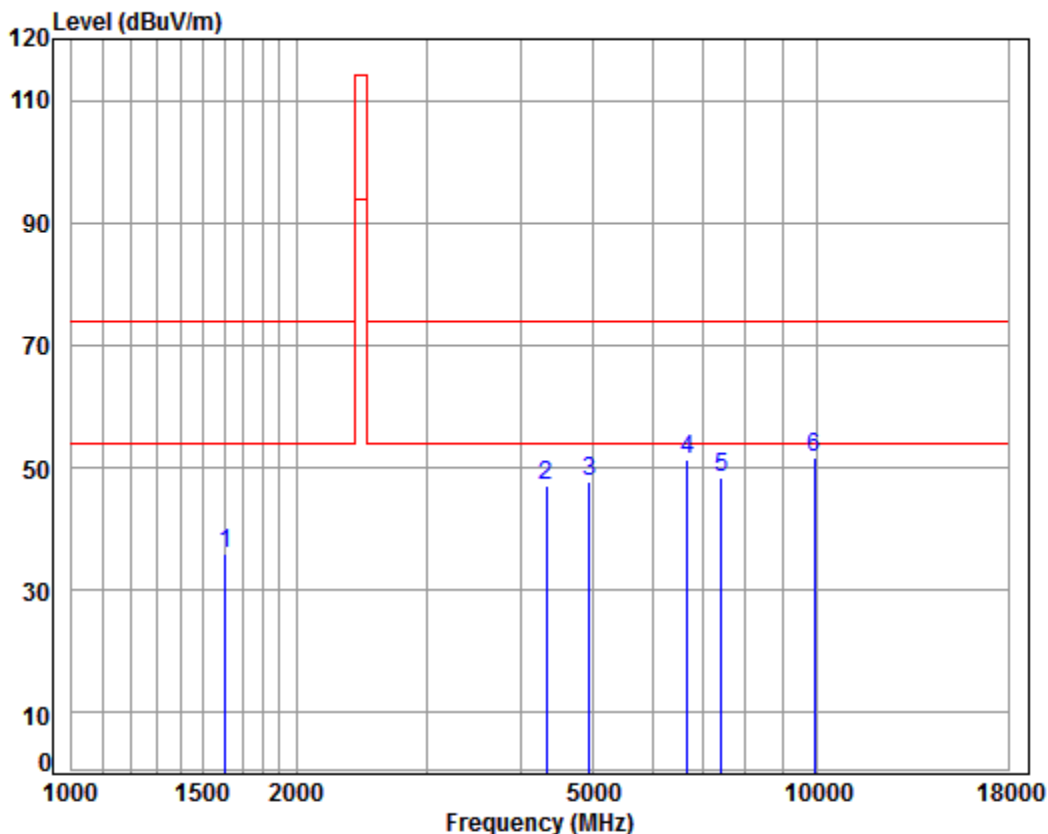
Job No : 11595CR

Mode : 2440 TX RSE

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1456.081	5.34	25.62	37.75	43.34	36.55	74.00	-37.45	peak
2	4145.664	7.16	33.60	37.13	44.64	48.27	74.00	-25.73	peak
3	4880.000	7.97	34.29	37.28	42.56	47.54	74.00	-26.46	peak
4	6395.654	11.34	35.02	37.78	43.56	52.14	74.00	-21.86	peak
5	7320.000	10.05	36.37	37.53	41.17	50.06	74.00	-23.94	peak
6 pp	9760.000	10.82	37.55	35.68	39.51	52.20	74.00	-21.80	peak



Mode:a; Polarization:Horizontal; Modulation:GFSK; Channel:High



Condition: 3m HORIZONTAL

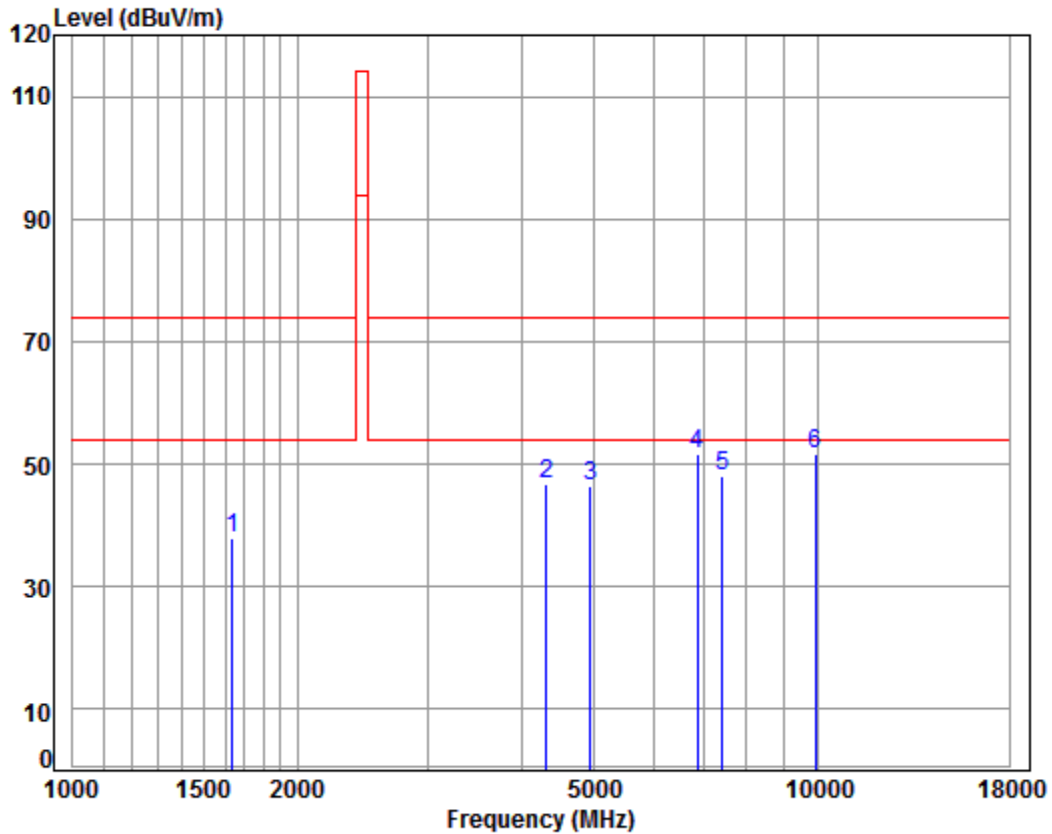
Job No : 11595CR

Mode : 2474 TX RSE

	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	1606.441	5.34	26.28	37.73	42.06	35.95	74.00	-38.05	peak
2	4329.354	7.37	33.60	37.17	43.36	47.16	74.00	-26.84	peak
3	4948.000	8.04	34.41	37.29	42.58	47.74	74.00	-26.26	peak
4	6679.040	11.02	35.61	37.69	42.24	51.18	74.00	-22.82	peak
5	7422.000	10.02	36.33	37.51	39.52	48.36	74.00	-25.64	peak
6 pp	9896.000	10.89	37.58	35.58	38.88	51.77	74.00	-22.23	peak



Mode:a; Polarization:Vertical; Modulation:GFSK; Channel:High



Condition: 3m VERTICAL
Job No : 11595CR
Mode : 2474 TX RSE

	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	1639.274	5.30	26.42	37.73	43.83	37.82	74.00	-36.18	peak
2	4316.859	7.36	33.60	37.17	42.88	46.67	74.00	-27.33	peak
3	4948.000	8.04	34.41	37.29	41.26	46.42	74.00	-27.58	peak
4 pp	6874.906	10.47	36.16	37.64	42.54	51.53	74.00	-22.47	peak
5	7422.000	10.02	36.33	37.51	39.32	48.16	74.00	-25.84	peak
6	9896.000	10.89	37.58	35.58	38.61	51.50	74.00	-22.50	peak



Remark:

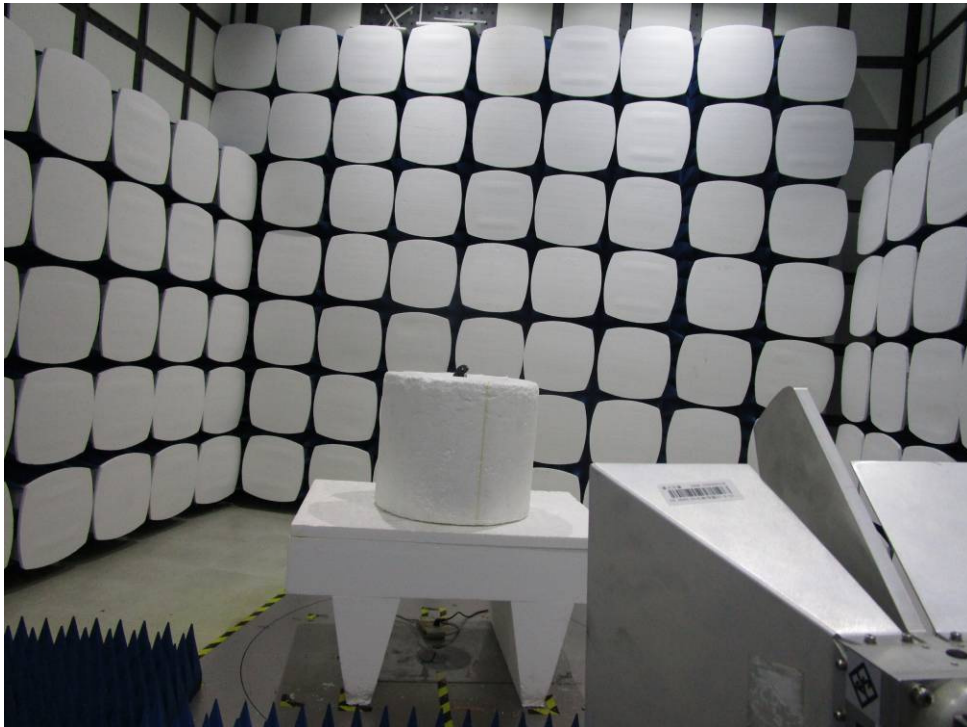
- 3) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 4) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 5) 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. So, only above measurement data were shown in the report.

7 Photographs

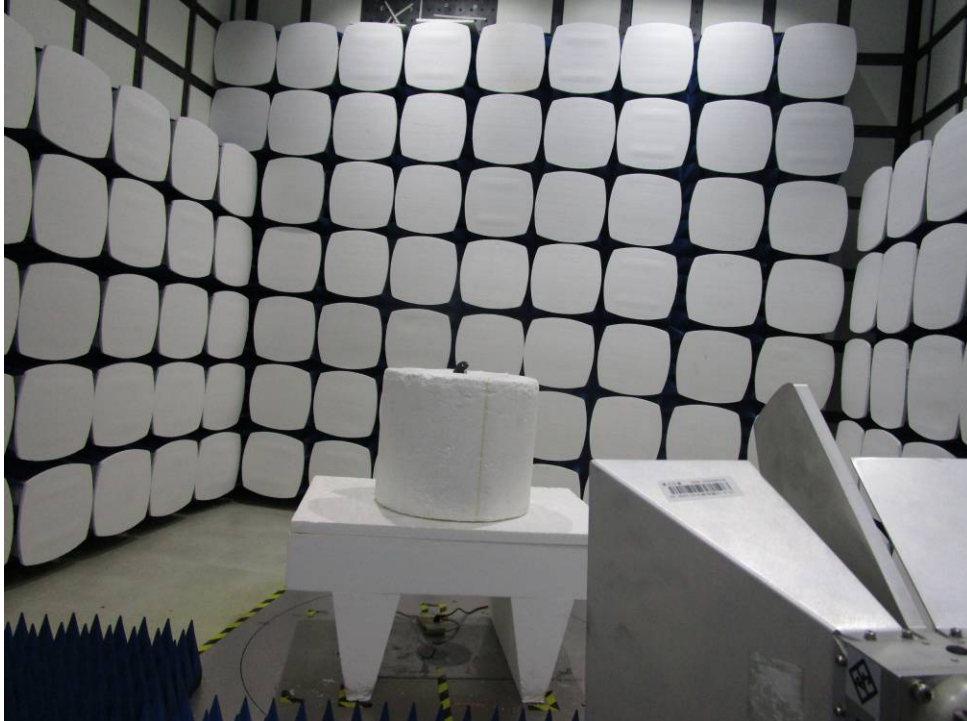
7.1 Field Strength of the Fundamental Signal (15.249(a)) Test Setup



7.2 Restricted Band Around Fundamental Frequency Test Setup



7.3 Radiated Emissions Test Setup





7.4 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1711011595CR

- End of report -