



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

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

Telephone: +86 (0) 755 2601 2053
Fax: +86 (0) 755 2671 0594
Email: ee.shenzhen@sgs.com

Report No.: SZEM170300242002
Page: 1 of 25

TEST REPORT

Application No.: SZEM1703002420CR(GZEM1703001602CR)
Applicant: Mattel Asia Pacific Sourcing Limited
Address of Applicant: Room 1301, South Tower, World Finance Centre, Harbour City Tsim Sha Tsui
Kowloon Hong Kong
Manufacturer: Wah Shing Toys Co., Ltd.
Address of Manufacturer: 5/F, Wah Shing Centre, 5 Fung Yip Street, Chai Wan, Hong Kong
Factory: EverWin Toys(DongGuan) Co., Ltd
Address of Factory: Xikeng Industrial Area Qingxi Town, Dongguan Guangdong.
Equipment Under Test (EUT):
EUT Name: BRB VG RC ROLLER SKATER
Model No.: FDN00
FCC ID: PIYFDN00-16A5T
Standards: 47 CFR Part 15, Subpart C 15.249
Date of Receipt: 2017-03-28
Date of Test: 2017-03-30 to 2017-04-11
Date of Issue: 2017-04-17

Test Result :	Pass*
----------------------	--------------

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




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.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2017-04-17		Original

Authorized for issue by:			
Tested By			2017-04-11
	<hr/>		<hr/>
	Peter Geng /Project Engineer		Date
Checked By			2017-04-17
	<hr/>		<hr/>
	Eric Fu /Reviewer		Date



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
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
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

Remark: According to the delaration of client, the MCU of the device is changed from NY5P055A to NY5B055B. Radiated emission tests were conducted for discrepancy based on the delaration above.



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION.....	5
4.1 DETAILS OF E.U.T.	5
4.2 DESCRIPTION OF SUPPORT UNITS.....	5
4.3 MEASUREMENT UNCERTAINTY.....	5
4.4 TEST LOCATION	6
4.5 TEST FACILITY	6
4.6 DEVIATION FROM STANDARDS.....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5 EQUIPMENT LIST.....	7
6 RADIO SPECTRUM MATTER TEST RESULTS	9
6.1 FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL(15.249(A))	9
6.1.1 <i>E.U.T. Operation</i>	10
6.1.2 <i>Measurement Data</i>	10
6.2 RADIATED EMISSIONS	12
6.2.1 <i>E.U.T. Operation</i>	12
6.2.2 <i>Measurement Data</i>	12
6.3 RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY	18
6.3.1 <i>E.U.T. Operation</i>	19
6.3.2 <i>Measurement Data</i>	19
7 PHOTOGRAPHS.....	24
7.1 RADIATED EMISSIONS TEST SETUP	24
7.2 EUT CONSTRUCTIONAL DETAILS	25

4 General Information

4.1 Details of E.U.T.

Power supply:	Remote: DC 3V by 2×1.5V "AAA" batteries
Antenna type:	Integral antenna
Antenna gain	0dBi
Operation frequency:	2408MHz, 2436MHz, 2464MHz
Number of channels	3
Modulation type:	GFSK

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 x 10 ⁻⁸
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
5	Temperature test	1 °C
6	Humidity test	3%
7	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 – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **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

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13



RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-09	2016-07-19	2017-07-19
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24
Horn Antenna(26GHz-40GHz)	A.H.Systems, inc.	SAS-573	SEM003-13	2015-02-12	2018-02-12
Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2016-10-09	2017-10-09
Band filter	Amindeon	Asi 3314	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	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2016-05-18	2017-05-18



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: 25.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Pretest these mode to find the worst case: b:TX mode_Keep the EUT in transmitting mode(for remote)

The worst case for final test: b:TX mode_Keep the EUT in transmitting mode(for remote)

6.1.2 Measurement 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.



Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:Low

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2408.251	29.13	5.35	37.96	86.62	83.14	114	-30.86

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:Low

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2408.043	29.13	5.35	37.96	90.42	86.94	114	-27.06

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:middle

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2436.241	29.21	5.37	37.96	84.9	81.52	114	-32.48

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:middle

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2436.201	29.21	5.37	37.96	84.12	87.74	114	-33.26

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:High

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2464.249	29.3	5.39	37.95	84.52	81.26	114	-32.74

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:High

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB V)	Level (dB V/m)	Limit (dB V/m)	Over limit (dB)
2464.408	29.3	5.39	37.95	89.2	85.94	114	-28.06



6.2 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

6.2.1 E.U.T. Operation

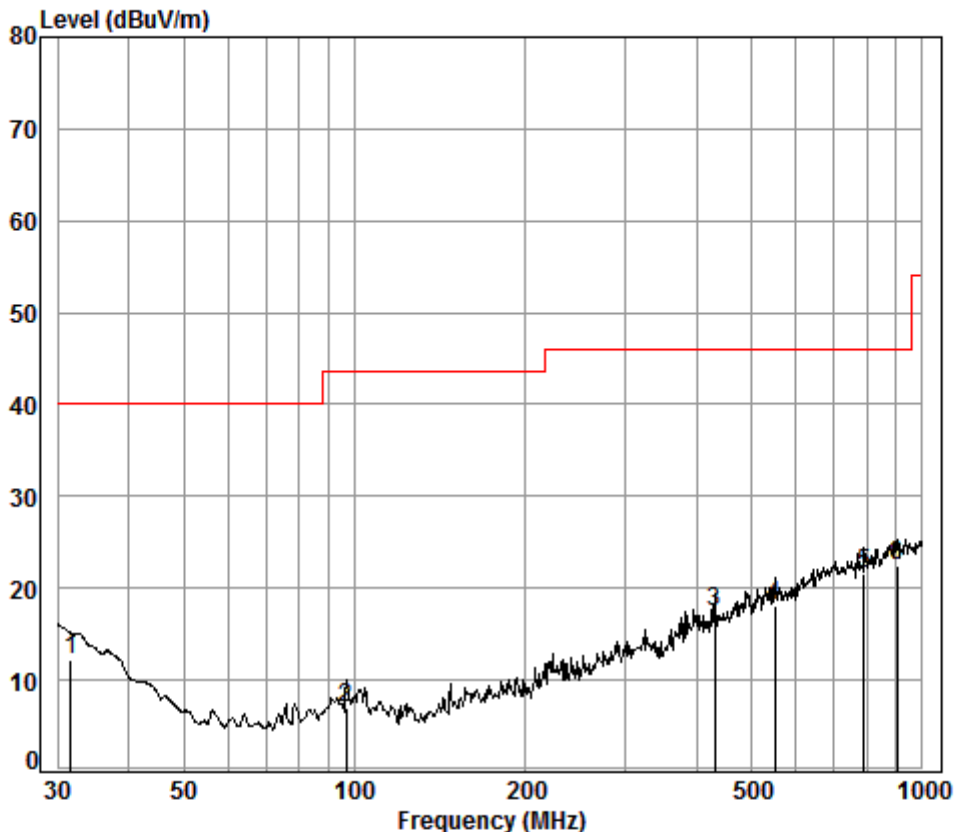
Operating Environment:
Temperature: 25.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar
Pretest these mode to find the worst case: b:TX mode_Keep the EUT in transmitting mode(for remote)
The worst case for final test: b:TX mode_Keep the EUT in transmitting mode(for remote)

6.2.2 Measurement 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:

Mode:b; Polarization:Horizontal;



Condition: 3m HORIZONTAL

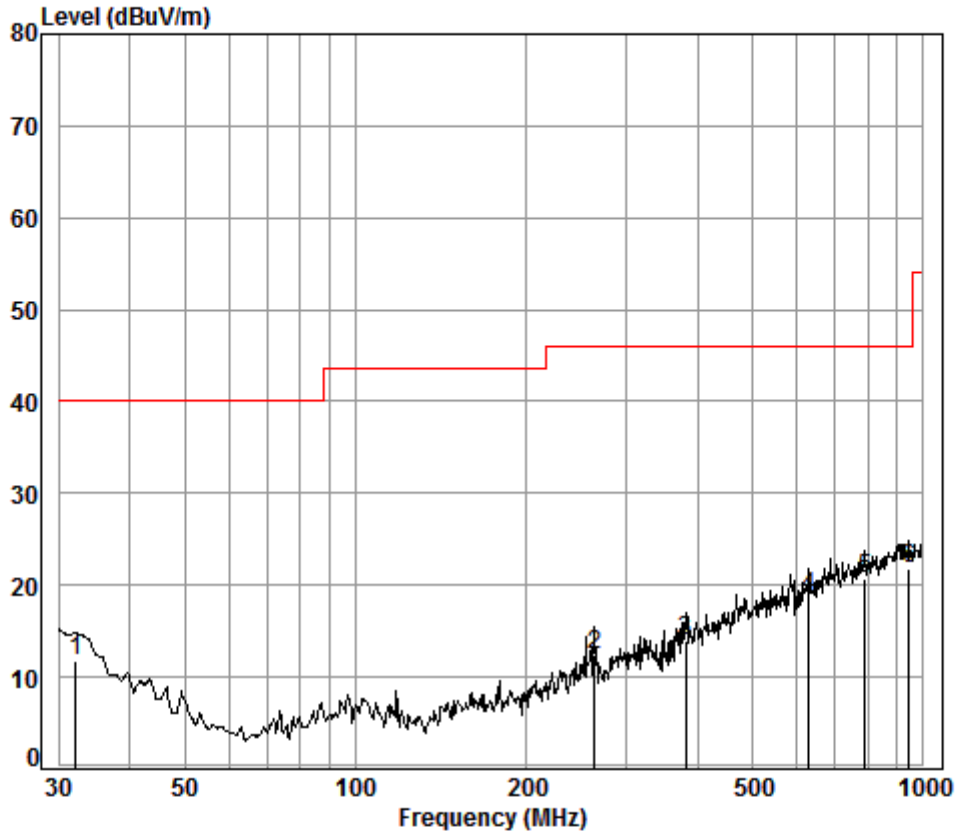
Job No. : 02420CR

Test mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	31.62	0.60	17.79	27.40	21.13	12.12	40.00	-27.88
2	96.77	1.17	8.97	27.30	24.16	7.00	43.50	-36.50
3	431.03	2.33	16.52	27.23	25.88	17.50	46.00	-28.50
4	549.02	2.65	18.88	27.65	24.18	18.06	46.00	-27.94
5	790.62	3.18	22.06	27.42	23.69	21.51	46.00	-24.49
6 pp	903.31	3.60	23.21	26.91	22.47	22.37	46.00	-23.63



Mode:b; Polarization:Vertical



Condition: 3m VERTICAL
Job No. : 02420CR
Test mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	32.18	0.60	17.48	27.40	21.06	11.74	40.00	-28.26
2	263.82	1.74	12.58	26.68	24.78	12.42	46.00	-33.58
3	381.25	2.15	16.07	27.01	22.81	14.02	46.00	-31.98
4	629.48	2.76	20.52	27.73	23.19	18.74	46.00	-27.26
5	787.85	3.17	22.05	27.42	22.97	20.77	46.00	-25.23
6 pp	945.44	3.65	23.30	26.73	21.64	21.86	46.00	-24.14



Above 1GHz:

Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:Low

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB μ V)	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
3647.151	32.63	7.69	37.96	43.07	45.43	74	-28.57
4816.000	34.18	8.88	38.41	48.66	53.31	74	-20.69
6043.124	34.74	10.50	38.26	43.27	50.25	74	-23.75
7224.000	36.41	10.69	37.10	41.73	51.73	74	-22.27
9632.000	37.53	12.51	35.08	37.32	52.28	74	-21.72
12226.070	38.74	14.37	36.14	36.76	53.73	74	-20.27

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:Low;

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB μ V)	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
3579.190	32.43	7.66	37.96	43.21	45.34	74	-28.66
4816.000	34.18	8.88	38.41	48.5	53.15	74	-20.85
6016.949	34.71	10.54	38.28	44.26	51.23	74	-22.77
7224.000	36.41	10.69	37.10	42.46	52.46	74	-21.54
9632.000	37.53	12.51	35.08	37.38	52.34	74	-21.66
12137.940	38.68	14.45	35.93	36.43	53.63	74	-20.37



Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:middle;

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB μ V)	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
3610.398	32.53	7.67	37.96	45.18	47.42	74	-26.58
4872.000	34.28	8.96	38.44	47.58	52.38	74	-21.62
6069.413	34.76	10.47	38.23	44.62	51.62	74	-22.38
7308.000	36.38	10.72	37.02	42.39	52.47	74	-21.53
9744.000	37.55	12.57	35.03	37.29	52.38	74	-21.62
12067.890	38.64	14.50	35.76	36.24	53.62	74	-20.38

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:middle;

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dB μ V)	Level (dB μ V/m)	Limit (dB μ V/m)	Over limit (dB)
3579.190	32.43	7.66	37.96	44.5	46.63	74	-27.37
4872.000	34.28	8.96	38.44	48.73	53.53	74	-20.47
6025.661	34.72	10.53	38.27	44.59	51.57	74	-22.43
7308.000	36.38	10.72	37.02	42.54	52.62	74	-21.38
9744.000	37.55	12.57	35.03	37.49	52.58	74	-21.42
12050.440	38.63	14.52	35.72	36.2	53.63	74	-20.37



Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:High;

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over limit (dB)
3781.495	33.01	7.73	37.98	45.04	47.8	74	-26.2
4928.000	34.38	9.04	38.46	47.56	52.52	74	-21.48
6051.874	34.74	10.49	38.25	44.97	51.95	74	-22.05
7392.000	36.34	10.75	36.95	41.59	51.73	74	-22.27
9856.000	37.57	12.63	34.97	37.64	52.87	74	-21.13
12120.390	38.67	14.46	35.89	36.1	53.34	74	-20.66

Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:High;

Frequency (MHz)	Antenna factors (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Reading Level (dBμV)	Level (dBμV/m)	Limit (dBμV/m)	Over limit (dB)
3631.354	32.59	7.68	37.96	44.33	46.64	74	-27.36
4928.000	34.38	9.04	38.46	47.5	52.46	74	-21.54
6175.716	34.84	10.33	38.12	44.07	51.12	74	-22.88
7392.000	36.34	10.75	36.95	41.39	51.53	74	-22.47
9856.000	37.57	12.63	34.97	37.24	52.47	74	-21.53
12261.500	38.76	14.34	36.23	36.36	53.23	74	-20.77

Remark:

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

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Pre-amplifier Factor}$$

2) Scan from 9kHz to 25GHz, The disturbance above 13GHz 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 .



6.3 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.



6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 54 % RH Atmospheric Pressure: 1020 mbar

Pretest these mode to find the worst case: b:TX mode_Keep the EUT in transmitting mode(for remote)

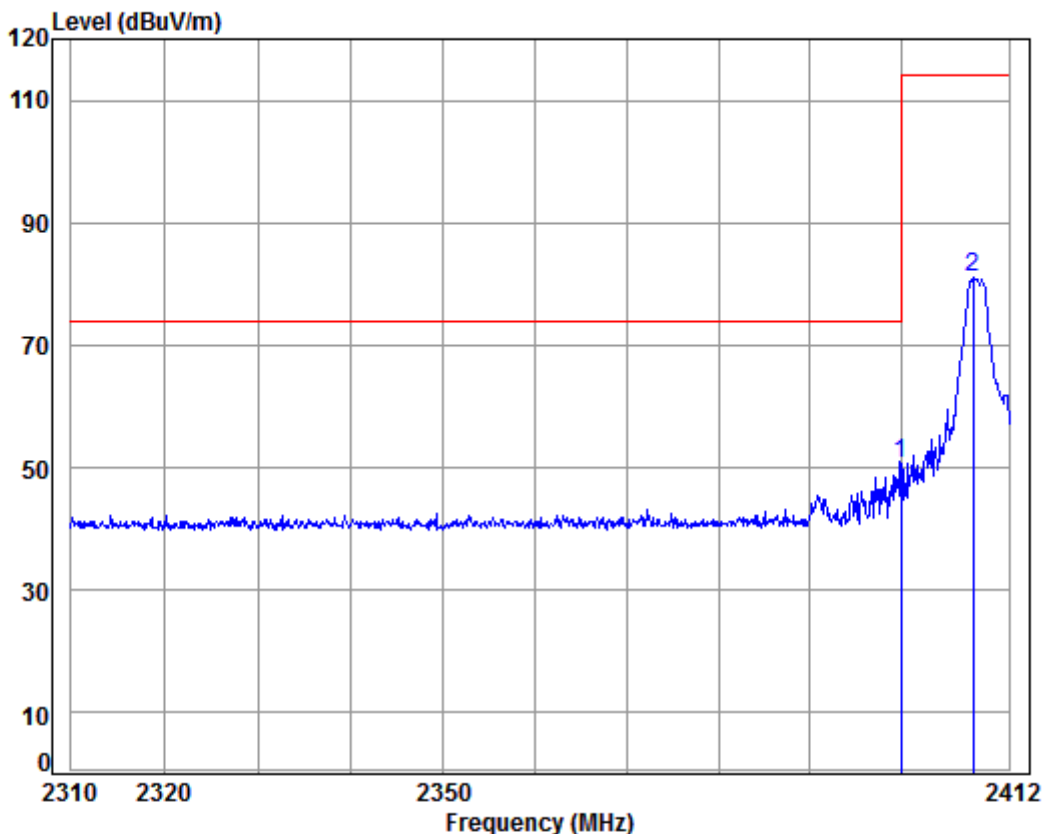
The worst case for final test: b:TX mode_Keep the EUT in transmitting mode(for remote)

6.3.2 Measurement 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.



Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:Low

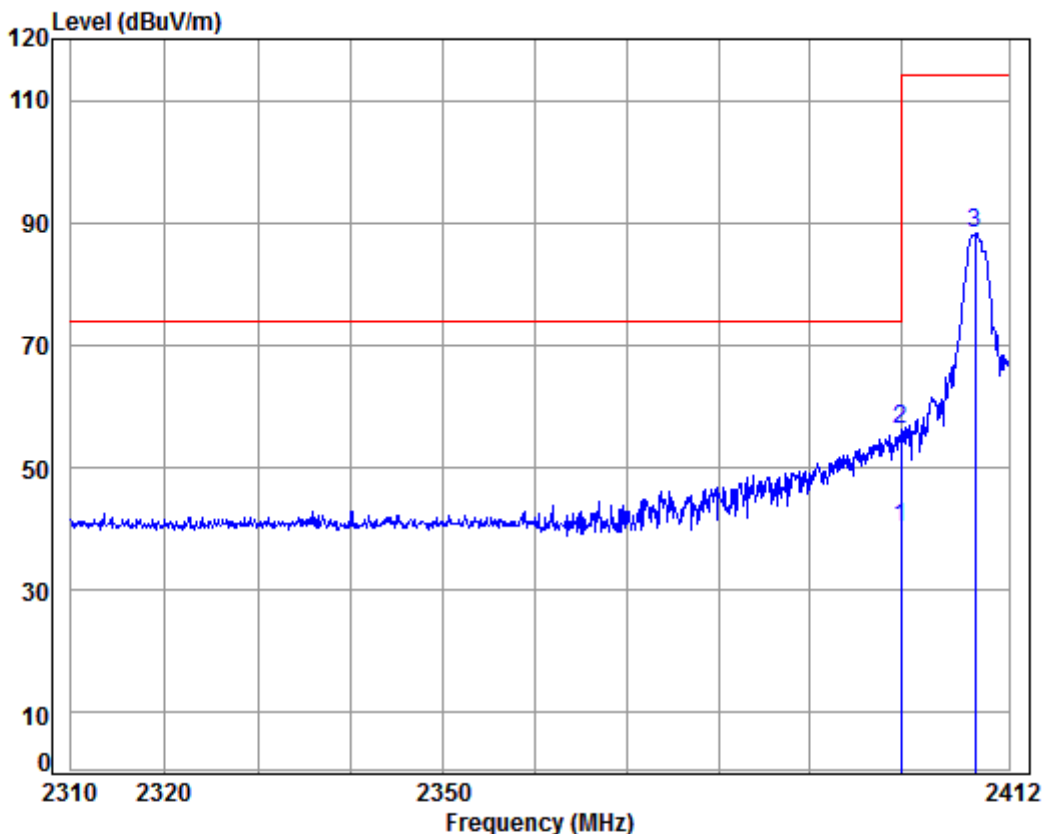


Condition: 3m Horizontal
Job No: : 02420CR
Mode: : 2408 Bandedge
: Remote

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2400.000	5.34	29.11	37.96	54.32	50.81	74.00	-23.19 Peak
2	2408.043	5.35	29.13	37.96	84.42	80.94	114.00	-33.06 Peak



Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:Low

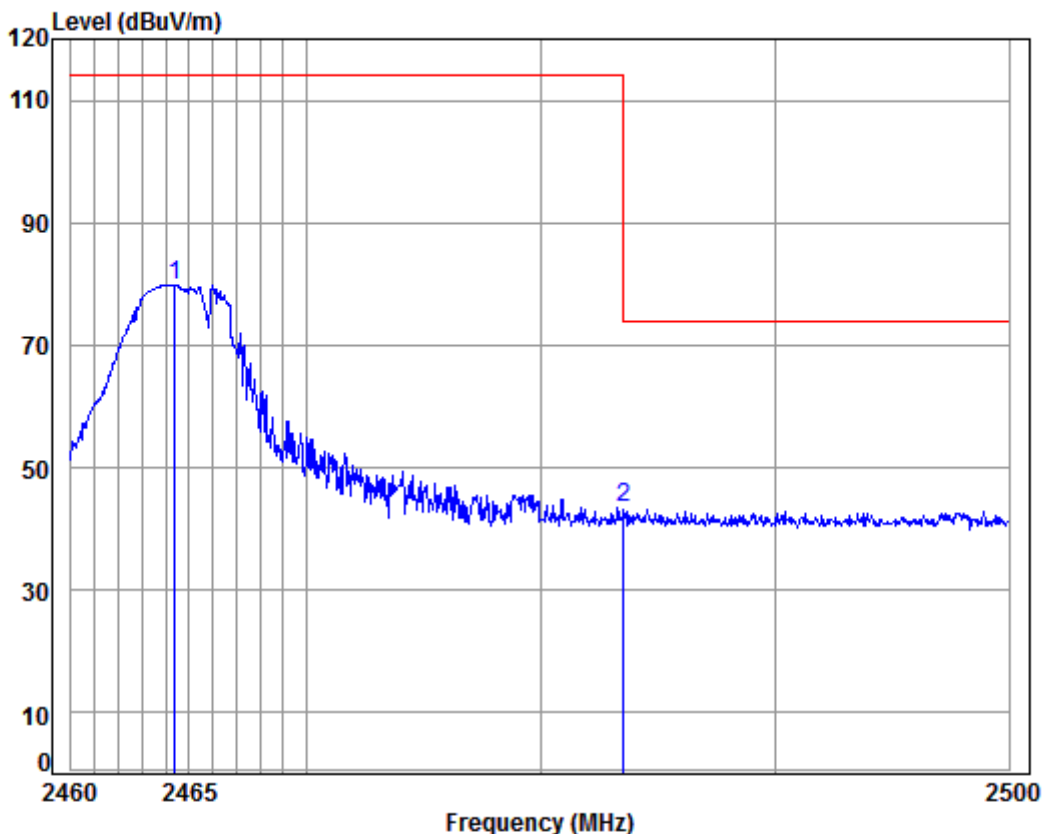


Condition: 3m Vertical
Job No: : 02420CR
Mode: : 2408 Bandedge
: Remote

		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	av 2400.000	5.34	29.11	37.96	43.81	40.30	74.00	-33.70 Average
2	pp 2400.000	5.34	29.11	37.96	59.60	56.09	74.00	-17.91 Peak
3	2408.251	5.35	29.13	37.96	91.62	88.14	114.00	-25.86 Peak



Mode:b; Polarization:Horizontal; Modulation Type:GFSK; Channel:High

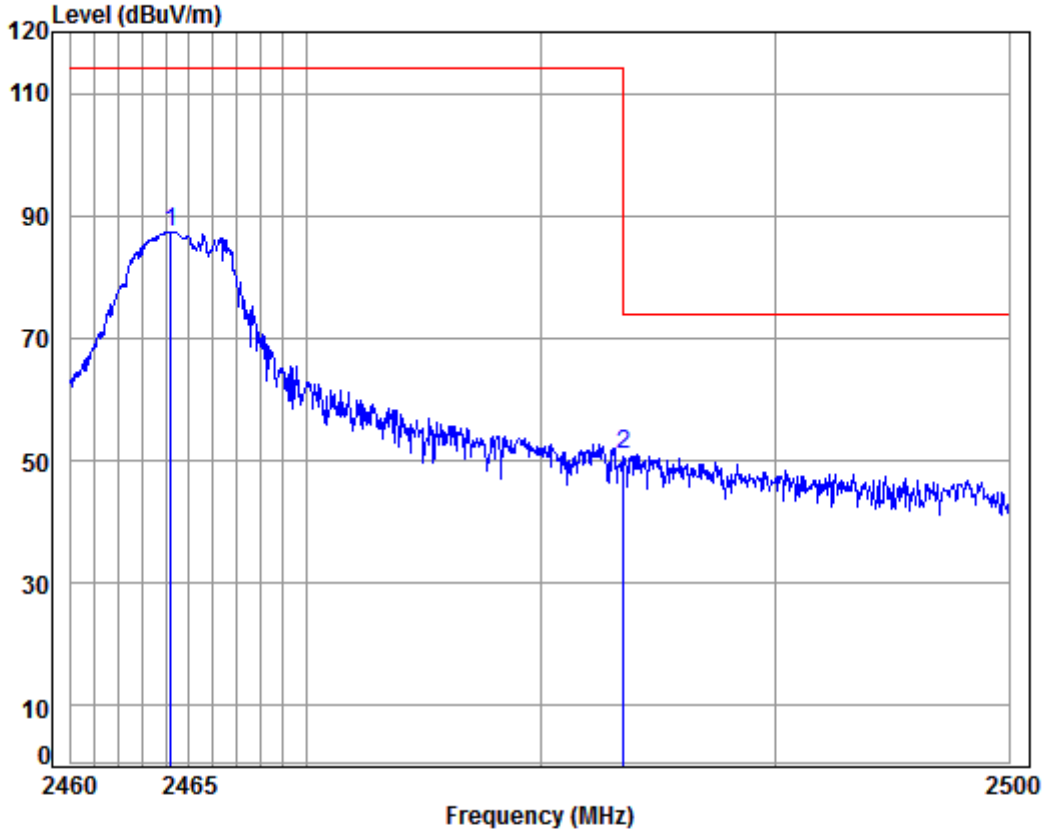


Condition: 3m Horizontal
Job No: : 02420CR
Mode: : 2464 Bandedge
: Remote

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2464.408	5.39	29.30	37.95	83.20	79.94	114.00	-34.06 Peak
2 pp	2483.500	5.41	29.35	37.95	46.78	43.59	74.00	-30.41 Peak



Mode:b; Polarization:Vertical; Modulation Type:GFSK; Channel:High

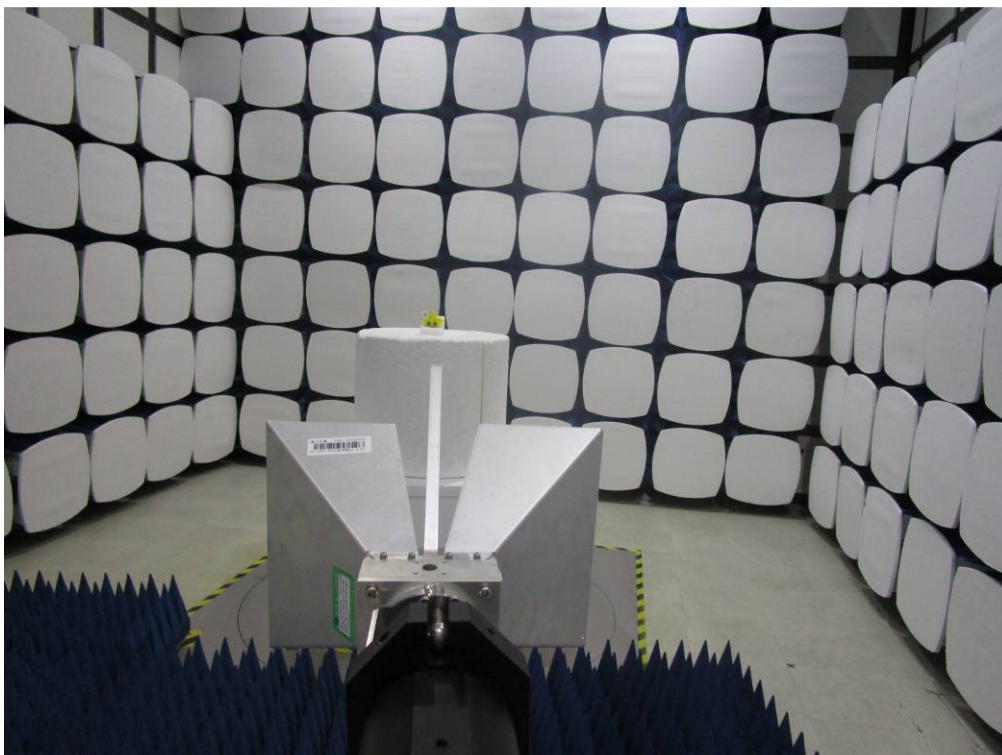
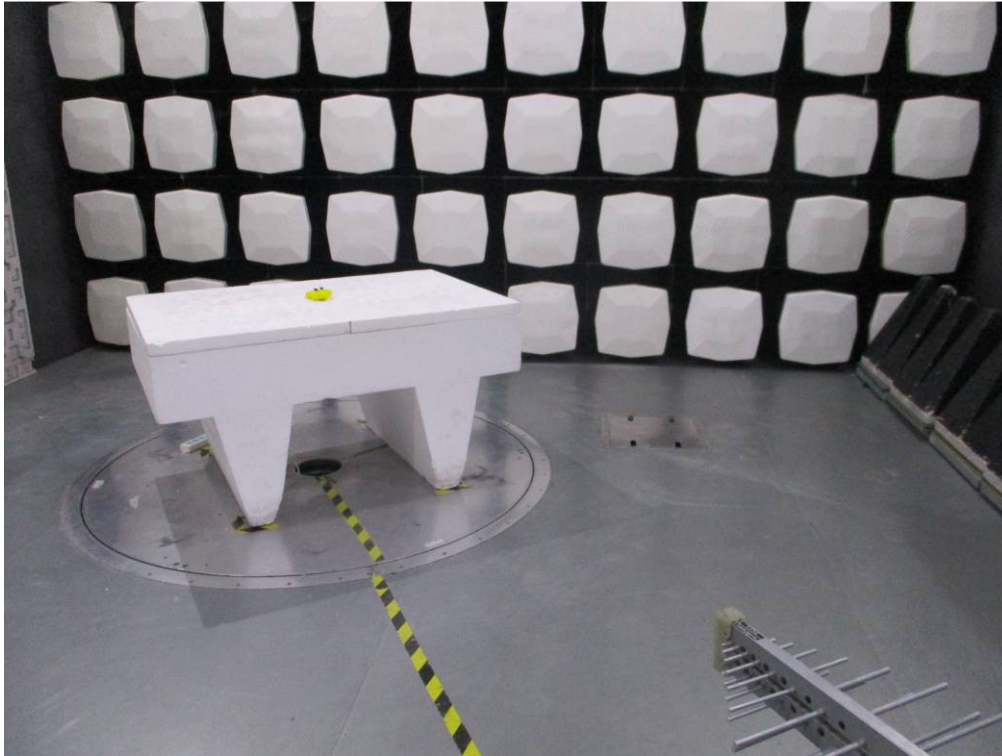


Condition: 3m Vertical
Job No: : 02420CR
Mode: : 2464 Bandedge
: Remote

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2464.249	5.39	29.30	37.95	90.52	87.26	114.00	-26.74	Peak
2 pp	2483.500	5.41	29.35	37.95	54.22	51.03	74.00	-22.97	Peak

7 Photographs

7.1 Radiated Emissions Test Setup



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



7.2 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1703002420CR.