



**SGS-CSTC Standards Technical Services 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.: SZEM161100993301
Page: 1 of 31

FCC REPORT

Application No. :
Applicant:
Manufacturer:
Factory:
Product Name:
Model No.(EUT):
Add Model No.:

SZEM1611009933CR
ZHENCHENG TOYS FACTORY
ZHENCHENG TOYS FACTORY
ZHENCHENG TOYS FACTORY
R/C CAR
173201
171601, 171602, 171601A, 171602A, 17XZ01, 17XZ01A, 17GS02B,
17GS02A, 17GS03B, 17GS03A, 17GS04B, 17GS04A, 17GS05B,
17GS05A, 17GS06B, 17GS06A, 17GS07B, 17GS07A, 17GS08B, 17GS08A,
17GS09B, 17GS09A, 17G02, 17G03, 17G04, 17G05, 17G06, 17G07,
17G08, 17G09, 17MUD01B, 17MUD02B, 17MUD01A, 17MUD02A,
17MUD12B, 17MUD13B, 17MUD14B, 17MUD12A, 17MUD13A,
17MUD14A, 17MUD21B, 17MUD22B, 17MUD23B, 17MUD21A,
17MUD22A, 17MUD23A, 17DS01, 17DS01A, 17BBD01,
17NBS01, 17SL01B, 17SL01A, 17MT01B, 17MT01A, 17GS01,
17GS01A, 17933B, 17933A, 17DZ11, 17TK11, 17TK11A, 17ZJ11,
17ZJ11A, 17VS03, 17VS03A, CTW168
2AAGP173201
47 CFR Part 15, Subpart C (2015)
2016-11-23
2016-11-23 to 2016-11-29
2016-11-30

FCC ID:

Standards:

Date of Receipt:

Date of Test:

Date of Issue:

Test Result:

PASS *

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

Authorized Signature:



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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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-Documents.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.



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

Report No.: SZEM161100993301

Page : 2 of 31

2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2016-11-30		Original

Authorized for issue by:				
Tested By				
				2016-11-29
		(Bill Chen) /Project Engineer		Date
Checked By				
				2016-11-30
		(Eric Fu) /Reviewer		Date



3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS

Remark:

Model No.: 173201, 171601, 171602, 171601A, 171602A, 17XZ01, 17XZ01A, 17GS02B, 17GS02A, 17GS03B, 17GS03A, 17GS04B, 17GS04A, 17GS05B, 17GS05A, 17GS06B, 17GS06A, 17GS07B, 17GS07A, 17GS08B, 17GS08A, 17GS09B, 17GS09A, 17G02, 17G03, 17G04, 17G05, 17G06, 17G07, 17G08, 17G09, 17MUD01B, 17MUD02B, 17MUD01A, 17MUD02A, 17MUD12B, 17MUD13B, 17MUD14B, 17MUD12A, 17MUD13A, 17MUD14A, 17MUD21B, 17MUD22B, 17MUD23B, 17MUD21A, 17MUD22A, 17MUD23A, 17DS01, 17DS01A, 17BBD01, 17NBS01, 17SL01B, 17SL01A, 17MT01B, 17MT01A, 17GS01, 17GS01A, 17933B, 17933A, 17DZ11, 17TK11, 17TK11A, 17ZJ11, 17ZJ11A, 17VS03, 17VS03A, CTW168

Only the Model 173201 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for all above models. Only different on model name.



4 Contents

	Page
1 OVER PAG.....	1
2 VERSION	2
3 TEST SUMMARY	3
4 CONTENTS	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF EUT	5
5.3 TEST ENVIRONMENT AND MODE	7
5.4 DESCRIPTION OF SUPPORT UNITS	7
5.5 TEST LOCATION	7
5.6 TEST FACILITY	8
5.7 DEVIATION FROM STANDARDS	8
5.8 ABNORMALITIES FROM STANDARD CONDITIONS.....	8
5.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	8
5.10 EQUIPMENT LIST.....	9
6 TEST RESULTS AND MEASUREMENT DATA	11
6.1 ANTENNA REQUIREMENT	11
6.2 SPURIOUS EMISSIONS	12
6.2.1 Spurious Emissions.....	12
6.3 RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY	21
6.4 20dB BANDWIDTH.....	27
7 PHOTOGRAPHS	30
7.1 RADIATED EMISSION TEST SETUP.....	30
RADIATED SPURIOUS EMISSIONS	31
7.2 SETUP	31
7.3 EUT CONSTRUCTIONAL DETAILS	31



5 General Information

5.1 Client Information

Applicant:	ZHENCHENG TOYS FACTORY
Address of Applicant:	CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA
Manufacturer:	ZHENCHENG TOYS FACTORY
Address of Manufacturer:	CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA
Factory:	ZHENCHENG TOYS FACTORY
Address of Factory:	CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA

5.2 General Description of EUT

Name:	R/C CAR
Model No.:	173201
RF Function (Frequency):	2405MHz -2475MHz
Number of Channel:	71
Modulation Type:	GFSK
Antenna Type:	Integra
Antenna Gain:	5dBi
Power Supply:	6.0V DC (1.5V x 4 "AA" Size Batteries)



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

Report No.: SZEM161100993301

Page : 6 of 31

Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2405MHz	19	2423MHz	37	2441MHz	55	2459MHz
2	2406MHz	20	2424MHz	38	2442MHz	56	2460MHz
3	2407MHz	21	2425MHz	39	2443MHz	57	2461MHz
4	2408MHz	22	2426MHz	40	2444MHz	58	2462MHz
5	2409MHz	23	2427MHz	41	2445MHz	59	2463MHz
6	2410MHz	24	2428MHz	42	2446MHz	60	2464MHz
7	2411MHz	25	2429MHz	43	2447MHz	61	2465MHz
8	2412MHz	26	2430MHz	44	2448MHz	62	2466MHz
9	2413MHz	27	2431MHz	45	2449MHz	63	2467MHz
10	2414MHz	28	2432MHz	46	2450MHz	64	2468MHz
11	2415MHz	29	2433MHz	47	2451MHz	65	2469MHz
12	2416MHz	30	2434MHz	48	2452MHz	66	2470MHz
13	2417MHz	31	2435MHz	49	2453MHz	67	2471MHz
14	2418MHz	32	2436MHz	50	2454MHz	68	2472MHz
15	2419MHz	33	2437MHz	51	2455MHz	69	2473MHz
16	2420MHz	34	2438MHz	52	2456MHz	70	2474MHz
17	2421MHz	35	2439MHz	53	2457MHz	71	2475MHz
18	2422MHz	36	2440MHz	54	2458MHz		

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2405MHz
The Middle channel	2440MHz
The Highest channel	2475MHz



5.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1005 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with modulation.
Transmitting mode+ discharge	Keep the EUT in transmitting mode with modulation being discharge.

5.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
Car	ZHENCHENG TOYS FACTORY	173201

5.5 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.



5.6 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.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



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

Report No.: SZEM161100993301

Page : 9 of 31

5.10 Equipment List

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



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

Report No.: SZEM161100993301

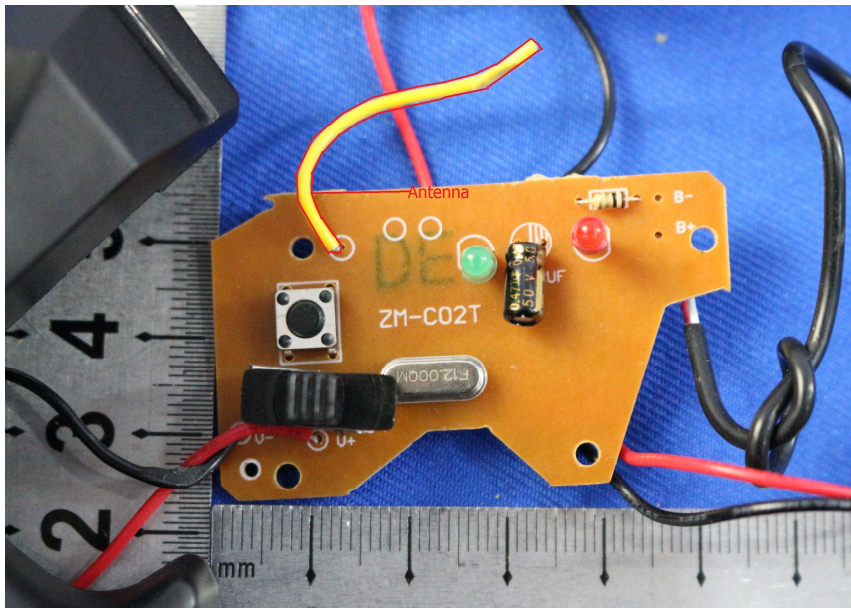
Page : 10 of 31

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
2	EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-09	2016-07-19	2017-07-19
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Horn Antenna (18-26GHz)	ETS-Lindgren	3160	SEM003-12	2014-11-24	2017-11-24
7	Horn Antenna (26GHz-40GHz)	A.H.Systems, inc.	SAS-573	SEM003-13	2015-02-12	2018-02-12
8	Low Noise Amplifier	Black Diamond Series	BDLNA-0118-352810	SEM005-05	2016-10-09	2017-10-09
9	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A

RF connected test						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
2	Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
3	Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2016-04-25	2017-04-25
4	Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203
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. The best case gain of the antenna is 5dBi.	



SGS-CSTC Standards Technical Services Ltd. Shenzhen Branch

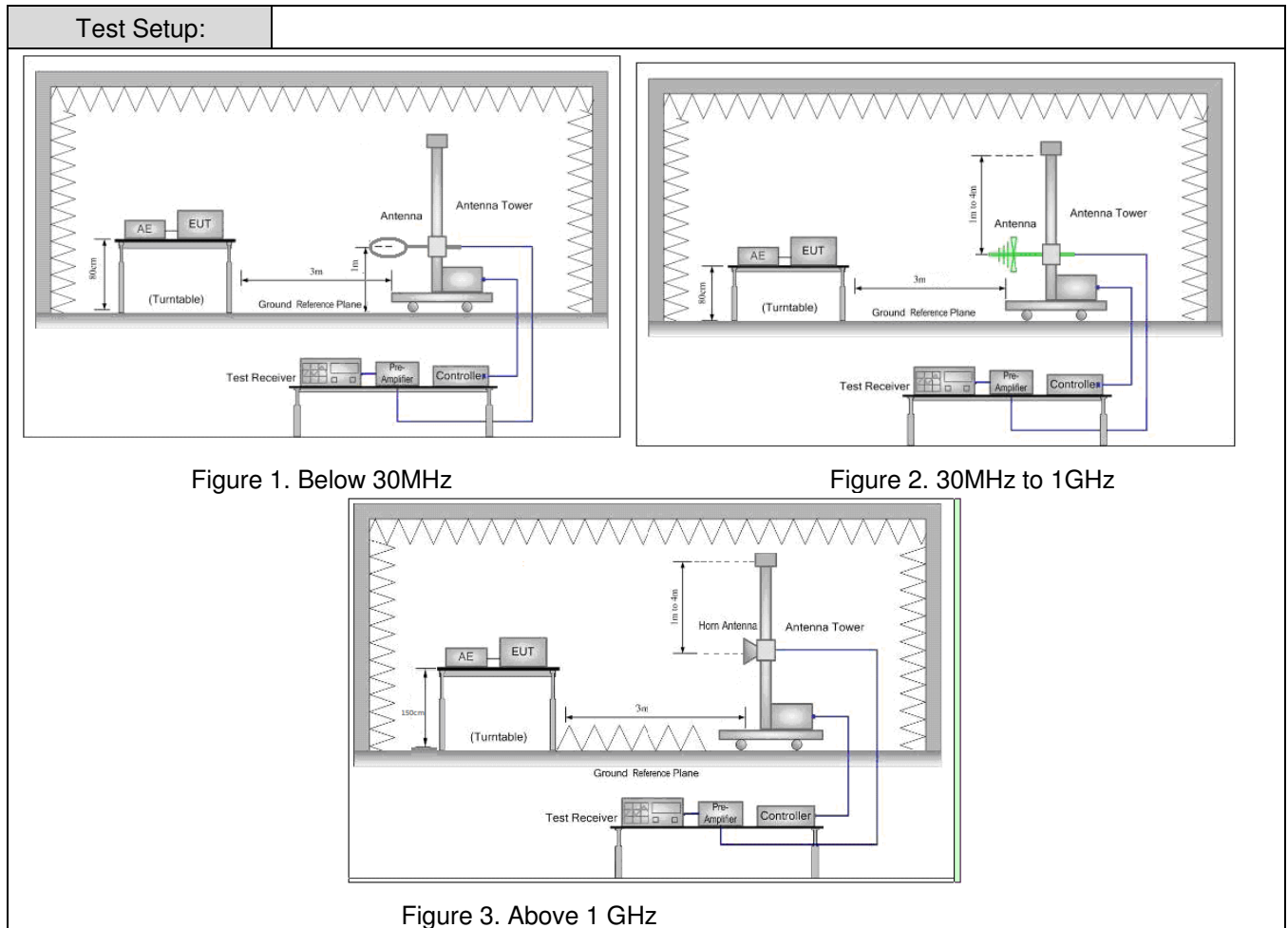
Report No.: SZEM161100993301

Page : 12 of 31

6.2 Spurious Emissions

6.2.1 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209				
Test Method:	ANSI C63.10: 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber) 3m (Fully-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30KHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit: (Spurious Emissions)	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F (kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F (kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.					
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark	
	2400MHz-2483.5MHz	94.0		Average Value	
		114.0		Peak Value	



Test Procedure:	- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - 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 - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - 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. - 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. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - 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
-----------------	---



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

Report No.: SZEM161100993301

Page : 14 of 31

	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 worse case. j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting mode Transmitting mode+ discharge
Final Test Mode:	Through Pre-scan, Transmitting mode the worst case. Only the worst case is recorded in the report.
Test Results:	Pass



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

Report No.: SZEM161100993301

Page : 15 of 31

Measurement Data

6.2.1.1 Field Strength Of The Fundamental Signal

Test mode: Transmitting mode

Peak value:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2405	29.12	5.35	38.15	91.19	87.51	114.00	-26.49	Horizontal
2405	29.12	5.35	38.15	92.6	88.92	114.00	-25.08	Vertical
2440	29.23	5.38	38.15	89.79	86.25	114.00	-27.75	Horizontal
2440	29.23	5.38	38.15	91.19	87.65	114.00	-26.35	Vertical
2475	29.33	5.4	37.95	89.13	85.91	114.00	-28.09	Horizontal
2475	29.33	5.4	37.95	92.35	89.13	114.00	-24.87	Vertical



SGS-CSTC Standards Technical Services Ltd. Shenzhen Branch

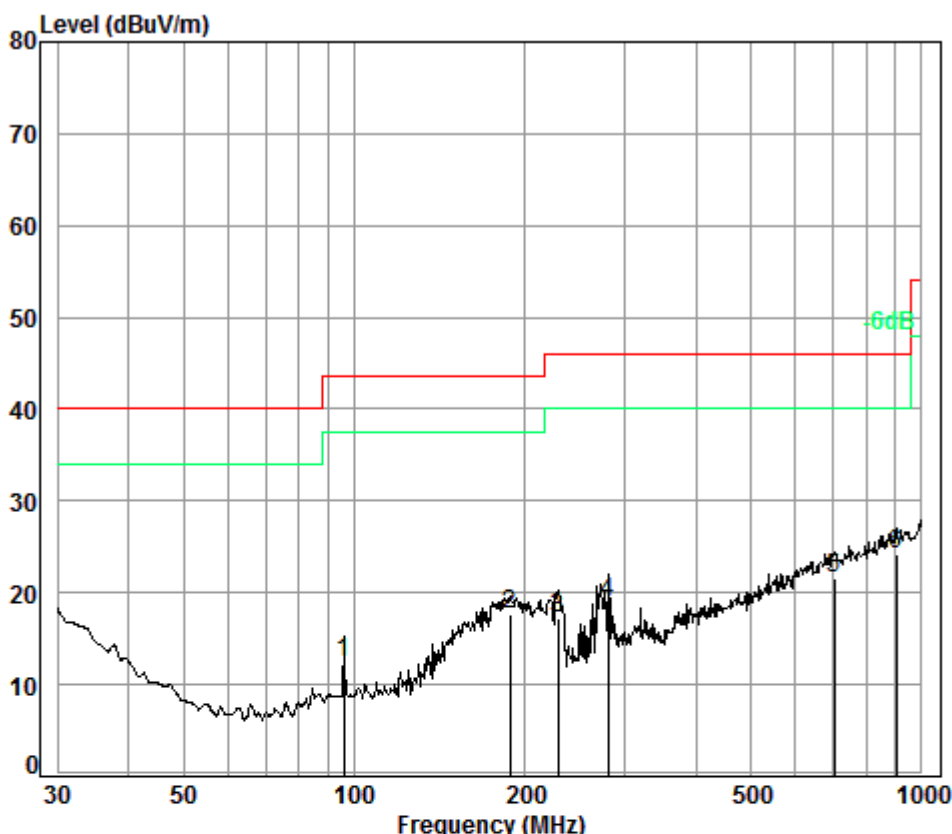
Report No.: SZEM161100993301

Page : 16 of 31

6.2.1.2 Spurious Emissions

30MHz~1GHz	
Test mode:	Transmitting mode

Horizontal



Condition: 3m HORIZONTAL

Job No. : 9933CR

Test mode: TX

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	96.10	1.16	8.94	27.21	29.47	12.36	43.50	-31.14
2	188.41	1.38	10.07	26.74	32.85	17.56	43.50	-25.94
3	228.49	1.56	11.61	26.60	30.76	17.33	46.00	-28.67
4	280.02	1.81	13.02	26.45	30.59	18.97	46.00	-27.03
5	701.76	2.91	21.60	27.41	24.40	21.50	46.00	-24.50
6 pp	903.31	3.60	23.21	26.75	24.03	24.09	46.00	-21.91

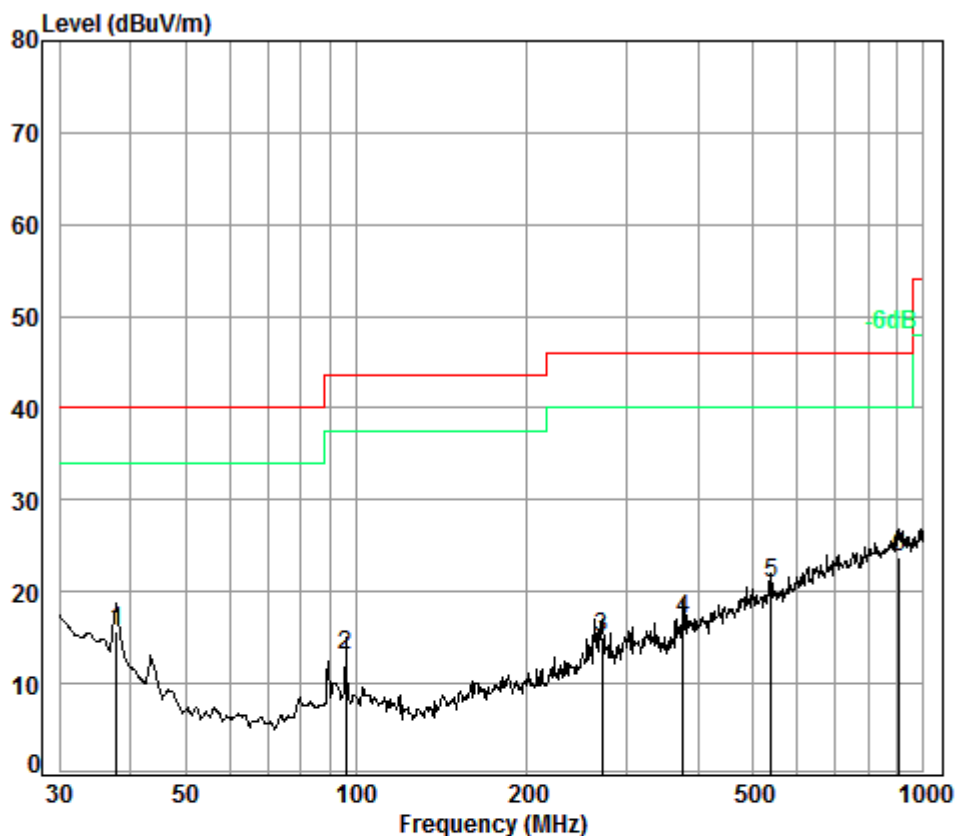


SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 17 of 31

Vertical



Condition: 3m VERTICAL

Job No. : 9933CR

Test mode: TX

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	37.81	0.60	14.33	27.33	28.07	15.67	40.00 -24.33
2	96.10	1.16	8.94	27.21	30.09	12.98	43.50 -30.52
3	271.32	1.77	12.73	26.47	27.01	15.04	46.00 -30.96
4	377.26	2.14	16.03	26.99	25.93	17.11	46.00 -28.89
5	539.48	2.64	18.73	27.63	27.20	20.94	46.00 -25.06
6 pp	906.48	3.61	23.23	26.75	23.78	23.87	46.00 -22.13



SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 18 of 31

Above 1GHz								
Test mode:		Transmitting		Test channel:		Lowest		Remark:
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3776.027	33.00	7.73	38.60	44.77	46.90	74	-27.10	Vertical
4810.000	34.17	8.88	39.03	49.04	53.06	74	-20.94	Vertical
6008.249	34.71	10.55	38.99	44.61	50.88	74	-23.12	Vertical
7215.000	36.41	10.68	38.17	44.36	53.28	74	-20.72	Vertical
9620.000	37.52	12.51	36.98	38.75	51.80	74	-22.20	Vertical
12494.320	38.90	14.15	38.80	38.79	53.04	74	-20.96	Vertical
3636.612	32.60	7.68	38.53	43.50	45.25	74	-28.75	Horizontal
4810.000	34.17	8.88	39.03	49.45	53.47	74	-20.53	Horizontal
5778.052	34.57	9.94	39.02	44.43	49.92	74	-24.08	Horizontal
7215.000	36.41	10.68	38.17	45.00	53.92	74	-20.08	Horizontal
9620.000	37.52	12.51	36.98	38.62	51.67	74	-22.33	Horizontal
11963.580	38.56	14.52	38.27	38.36	53.17	74	-20.83	Horizontal



SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 19 of 31

Test mode:		Transmitting		Test channel:		Middle		Remark:		Peak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization			
3831.060	33.15	7.75	38.62	44.78	47.06	74	-26.94	Vertical			
4880.000	34.29	8.97	39.06	48.95	53.15	74	-20.85	Vertical			
5862.263	34.62	10.18	39.01	44.90	50.69	74	-23.31	Vertical			
7320.000	36.37	10.72	38.07	44.95	53.97	74	-20.03	Vertical			
9760.000	37.55	12.58	36.92	39.54	52.75	74	-21.25	Vertical			
12261.500	38.76	14.34	38.57	39.11	53.64	74	-20.36	Vertical			
3847.726	33.19	7.76	38.63	44.16	46.48	74	-27.52	Horizontal			
4880.000	34.29	8.97	39.06	48.89	53.09	74	-20.91	Horizontal			
5828.433	34.60	10.08	39.02	44.60	50.26	74	-23.74	Horizontal			
7320.000	36.37	10.72	38.07	42.02	51.04	74	-22.96	Horizontal			
9760.000	37.55	12.58	36.92	39.62	52.83	74	-21.17	Horizontal			
12297.040	38.78	14.31	38.61	39.17	53.65	74	-20.35	Horizontal			



SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 20 of 31

Test mode:		Transmitting		Test channel:		Highest		Remark:		Peak	
Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization			
3903.444	33.34	6.63	37.99	44.19	46.17	74	-27.83	Vertical			
4950.000	34.41	7.93	38.47	49.31	53.18	74	-20.82	Vertical			
6363.645	34.99	8.98	37.94	44.15	50.18	74	-23.82	Vertical			
7425.000	36.33	9.80	36.92	41.94	51.15	74	-22.85	Vertical			
9900.000	37.58	11.34	34.95	39.54	53.51	74	-20.49	Vertical			
12366.420	38.82	12.95	36.48	37.97	53.26	74	-20.74	Vertical			
3350.560	31.95	6.20	37.94	45.72	45.93	74	-28.07	Horizontal			
4950.000	34.41	7.93	38.47	49.53	53.40	74	-20.60	Horizontal			
6379.864	35.01	8.99	37.92	43.73	49.81	74	-24.19	Horizontal			
7425.000	36.33	9.80	36.92	42.59	51.80	74	-22.20	Horizontal			
9900.000	37.58	11.34	34.95	39.68	53.65	74	-20.35	Horizontal			
12210.020	38.73	12.71	36.10	37.74	53.08	74	-20.92	Horizontal			

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) 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 bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205																					
Test Method:	ANSI C63.10: 2013																					
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber) 3m (Fully-Anechoic Chamber)																					
Limit(band edge):	Emissions 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. <table border="1"> <thead> <tr> <th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr> </thead> <tbody> <tr> <td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr> <tr> <td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr> <tr> <td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr> <tr> <td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr> <tr> <td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr> <tr> <td>74.0</td><td>Peak Value</td></tr> </tbody> </table>		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	74.0	Peak Value
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																				
	74.0	Peak Value																				
Test Setup:																						

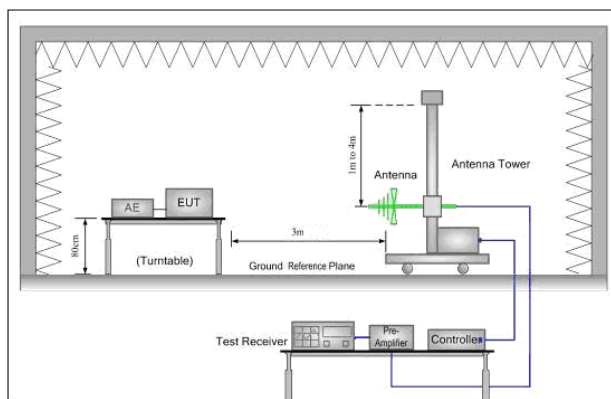


Figure 1. 30MHz to 1GHz

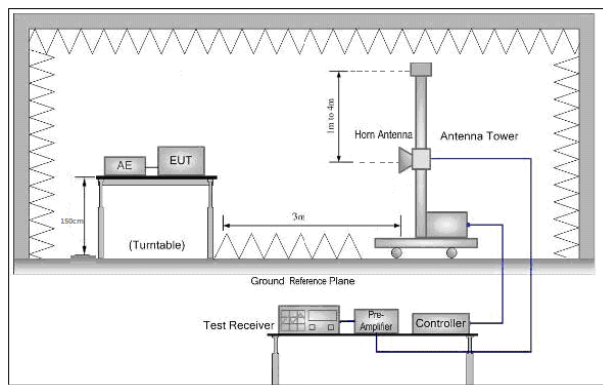


Figure 2. Above 1 GHz



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

Report No.: SZEM161100993301

Page : 22 of 31

Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 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 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 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. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel h. Test the EUT in the lowest 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 worse case.. j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting mode Transmitting mode+ discharge
Final Test Mode:	Through Pre-scan, Transmitting mode the worst case. Only the worst case is recorded in the report.
Test Results:	Pass



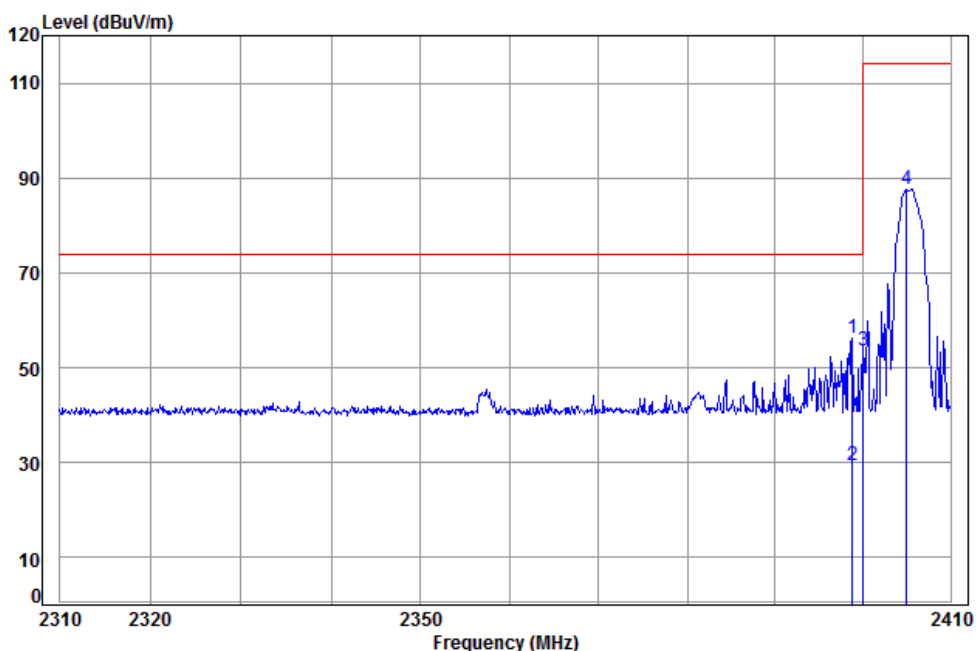
SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 23 of 31

Measurement Data

Band edge (Radiated Emission)						
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Horizontal



Condition: 3m HORIZONTAL

Job No: : 9933CR

Mode: : 2405 Band edge

: 2.4G

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	pp 2398.792	5.34	29.10	38.14	60.10	56.40	74.00	-17.60
2	av 2398.792	5.34	29.10	38.14	33.25	29.55	54.00	-24.45
3	2400.000	5.34	29.11	38.14	57.43	53.74	74.00	-20.26
4	2405.001	5.35	29.12	38.15	91.19	87.51	114.00	-26.49

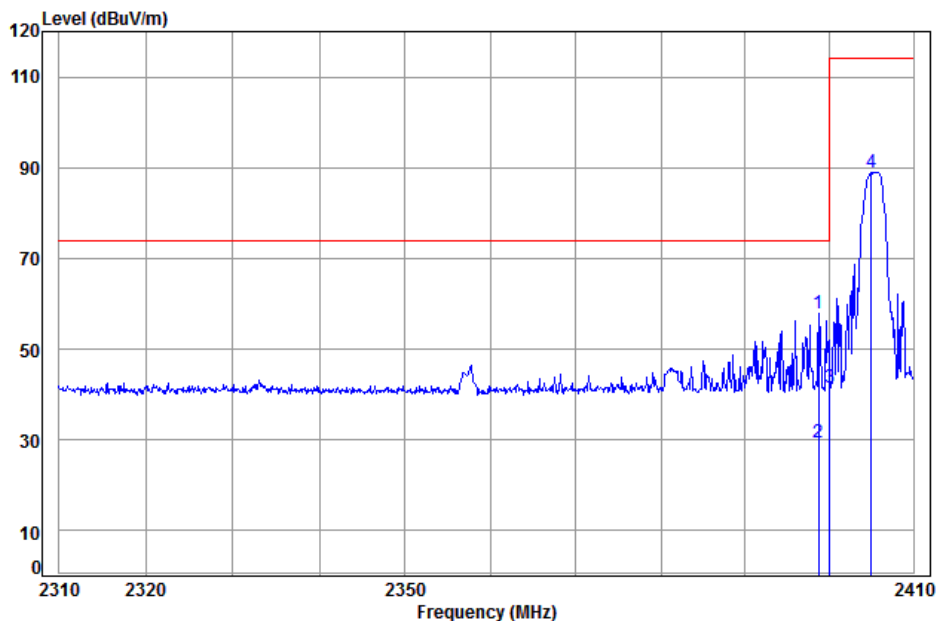


SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 24 of 31

Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Vertical
------------	--------------	---------------	--------	---------	------	----------



Condition: 3m Vertical

Job No: : 9933CR

Mode: : 2405 Band edge

: 2.4G

		Cable	Ant	Preamp	Read	Limit	Over
	Freq	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB
1	pp 2398.690	5.34	29.10	38.14	61.64	57.94	74.00 -16.06
2	av 2398.690	5.34	29.10	38.14	33.24	29.54	54.00 -24.46
3	2400.000	5.34	29.11	38.14	45.25	41.56	74.00 -32.44
4	2405.001	5.35	29.12	38.15	92.60	88.92	114.00 -25.08

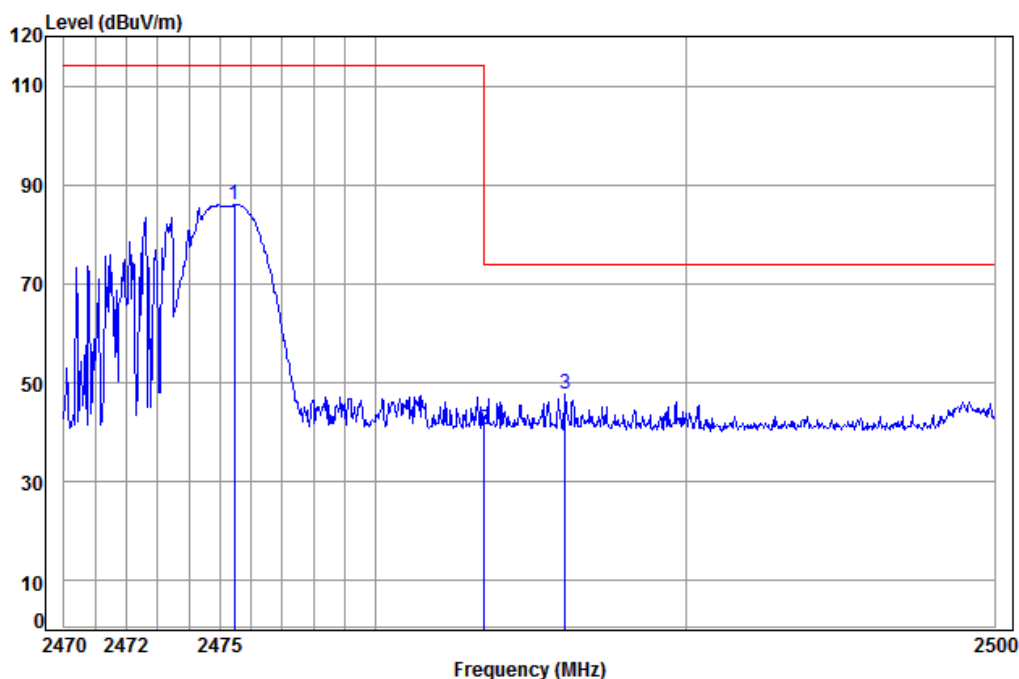


SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 25 of 31

Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Horizontal
------------	--------------	---------------	---------	---------	------	------------



Condition: 3m HORIZONTAL

Job No: : 9933CR

Mode: : 2475 Band edge

: 2.4G

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2475.463	5.40	29.33	37.95	89.13	85.91	114.00	-28.09
2	2483.500	5.41	29.35	37.95	43.61	40.42	74.00	-33.58
3 pp	2486.125	5.41	29.36	37.95	50.81	47.63	74.00	-26.37

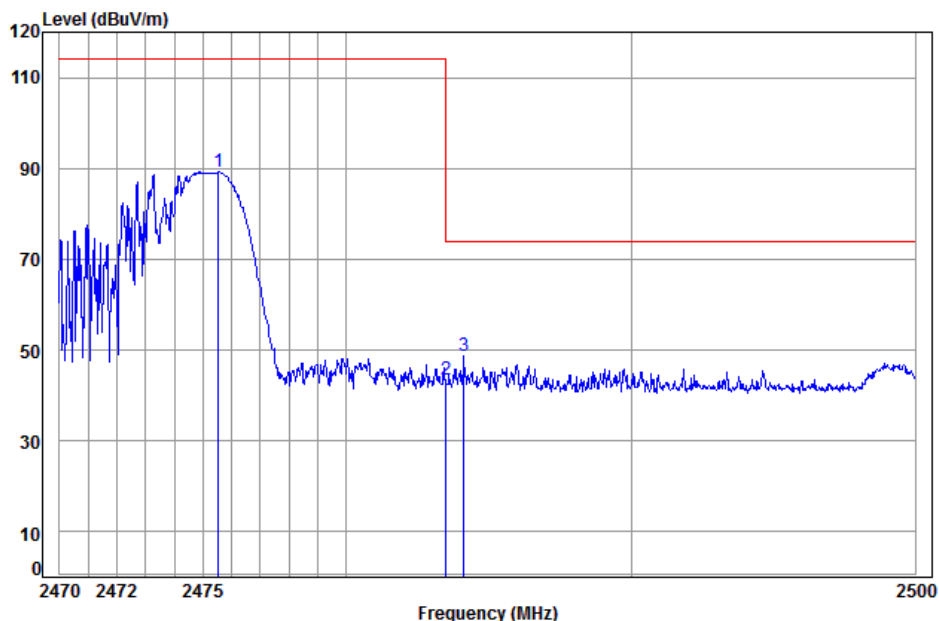


SGS-CSTC Standards Technical Services Ltd.
Shenzhen Branch

Report No.: SZEM161100993301

Page : 26 of 31

Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak	Vertical
------------	--------------	---------------	---------	---------	------	----------



Condition: 3m Vertical
Job No: : 9933CR
Mode: : 2475 Band edge
: 2.4G

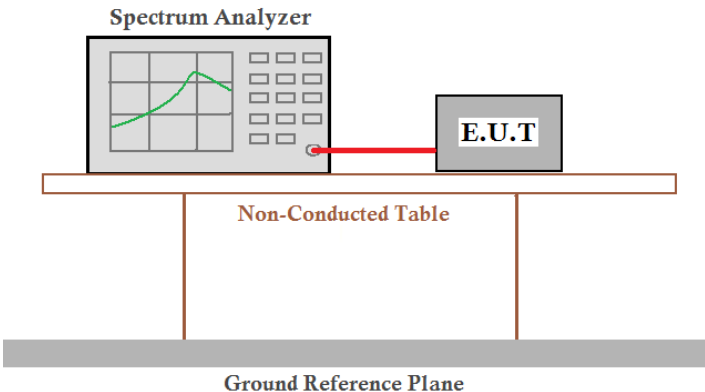
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2475.553	5.40	29.33	37.95	92.35	89.13	114.00	-24.87
2	2483.500	5.41	29.35	37.95	46.60	43.41	74.00	-30.59
3	2484.145	5.41	29.35	37.95	51.81	48.62	74.00	-25.38

Note:

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

6.4 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2013
Test Setup:	
Instruments Used:	Refer to section 5.10 for details
Test mode:	Transmitting mode
Limit:	N/A
Test Results:	Pass

Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.290	Pass
Middle	1.254	Pass
Highest	1.200	Pass



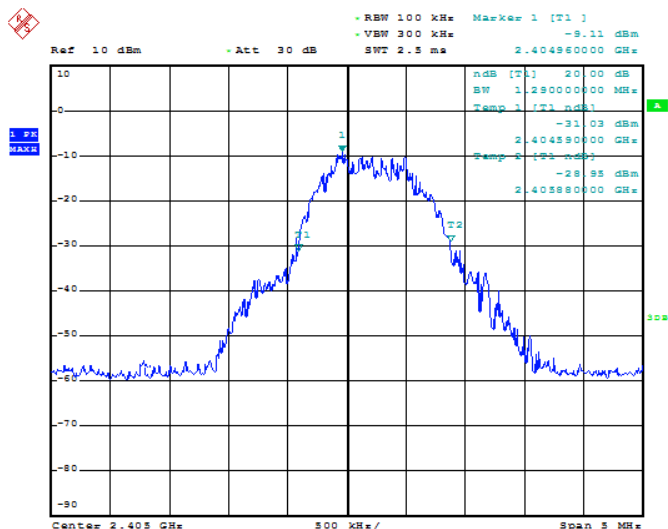
SGS-CSTC Standards Technical Services Ltd. Shenzhen Branch

Report No.: SZEM161100993301

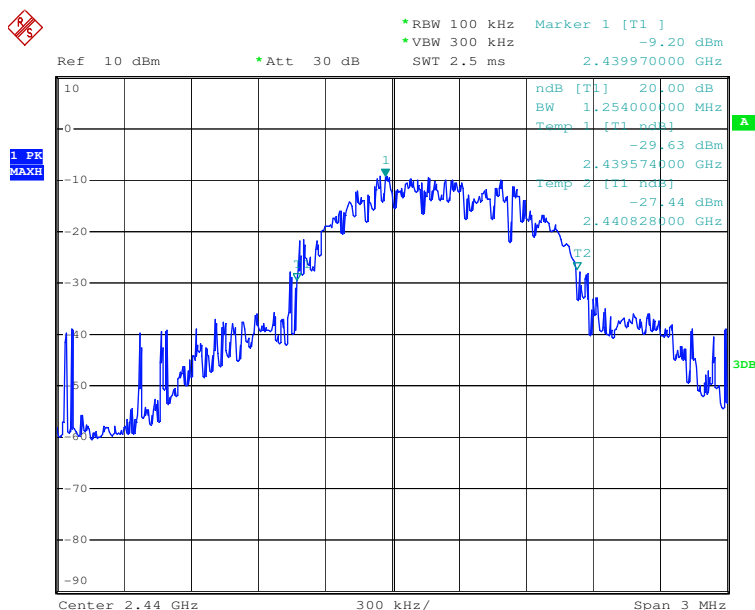
Page : 28 of 31

Test plot as follows:

Test channel:	Lowest
---------------	--------



Test channel:	Middle
---------------	--------



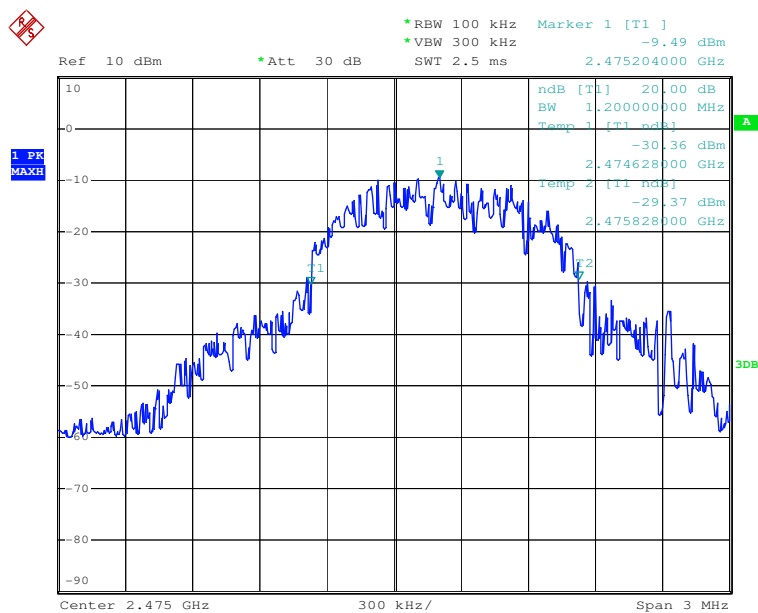


SGS-CSTC Standards Technical Services Ltd. Shenzhen Branch

Report No.: SZEM161100993301

Page : 29 of 31

Test channel:	Highest
---------------	---------



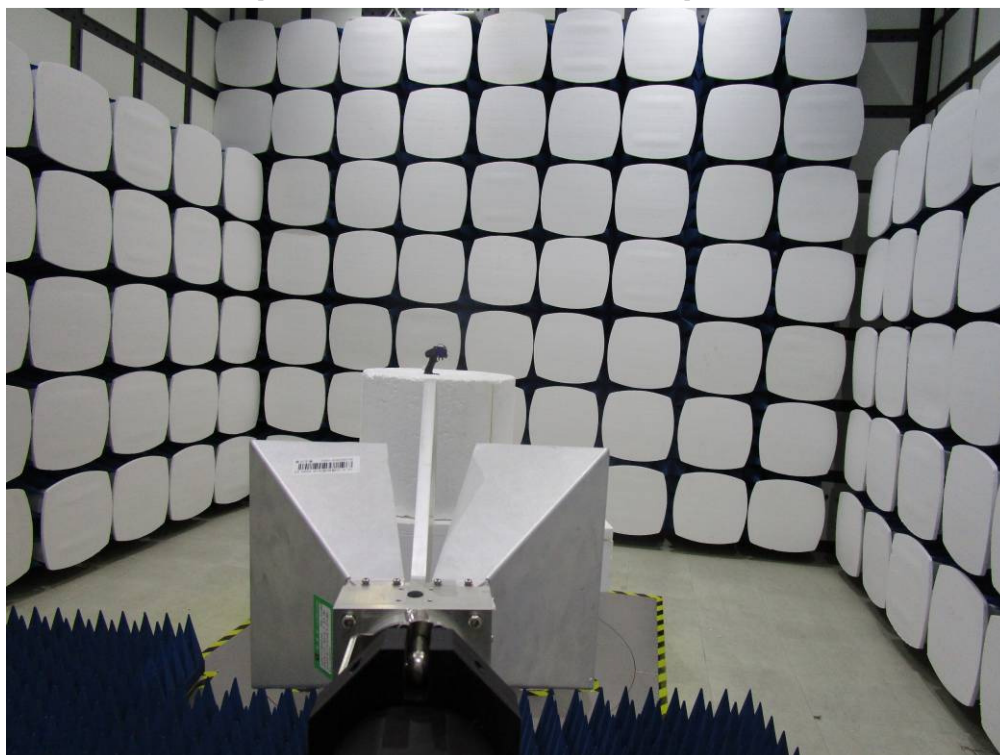
7 Photographs

Test model No.: 173201

7.1 Radiated Emission Test Setup



7.2 Radiated Spurious Emissions Setup



7.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1611009933CR.