

# FCC REPORT

**Applicant:** SENWA MEXICO,S.A.DE C.V  
**Address of Applicant:** Av. Javier Barros Sierra 540,Torre I,Planta 5;COL. LOMAS DE SANTA FE DELEGACION ALVARO OBREGON C.P. 01210 MEXICO,DISTRITO FEDERAL.

## Equipment Under Test (EUT)

**Product Name:** function phone  
**Model No.:** S425  
**Trade mark:** SENWA  
**FCC ID:** 2AAA6-S425  
**Applicable standards:** FCC CFR Title 47 Part 15 Subpart B  
**Date of sample receipt:** 11 Jun., 2014  
**Date of Test:** 12 Jun., to 25 Jun., 2014  
**Date of report issued:** 25 Jun., 2014  
**Test Result:** Pass \*

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

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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 90 days only.

## 2 Version

Version No.	Date	Description
00	25 Jun., 2014	Original

Prepared by:

*Sera Xiang*

Date:

25 Jun., 2014

Report Clerk

Reviewed by:

*Abimb Yang*

Date:

25 Jun., 2014

Project Engineer

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	Pass
Radiated Emission	Part15.109	Pass

*Pass: The EUT complies with the essential requirements in the standard.*

## 5 General Information

### 5.1 Client Information

Applicant:	SENWA MEXICO,S.A.DE C.V
Address of Applicant:	Av. Javier Barros Sierra 540,Torre I,Planta 5;COL. LOMAS DE SANTA FE DELEGACION ALVARO OBREGON C.P. 01210 MEXICO,DISTRITO FEDERAL
Manufacturer :	SENWA MEXICO,S.A.DE C.V
Address of Manufacturer:	Av. Javier Barros Sierra 540,Torre I,Planta 5;COL. LOMAS DE SANTA FE DELEGACION ALVARO OBREGON C.P. 01210 MEXICO,DISTRITO FEDERAL

### 5.2 General Description of E.U.T.

Product Name:	function phone
Model No.:	S425
Power supply:	Rechargeable Li-ion Battery DC3.7V-1000mAh
AC adapter :	Input: AC 100-240V 50/60Hz 0.15A Output: DC 5V, 500mA

### 5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in Downloading mode(Worst case for Radiated Emission )
Charging & recording mode	Keep the EUT in Charging & recording mode(Worst case for Conducted Emission)

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

## 5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	PC	OPTIPLEX745	N/A	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
HP	Printer	CB495A	05257893	DoC

## 5.5 Laboratory Facility

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

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. 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 out files. Registration 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

## 5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.  
 Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,  
 Bao'an District, Shenzhen, Guangdong, China  
 Tel: 0755-23118282  
 Fax: 0755-23116366

## 5.7 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	July 09 2013	Jul 08 2014
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	July 25 2013	July 24 2014
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	July 25 2013	July 24 2014
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
5	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2014	Mar. 31 2015
6	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2014	Mar. 31 2015
7	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2014	Mar. 31 2015
8	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2014	Mar. 31 2015
9	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2014	Mar. 31 2015
10	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2014	Mar. 31 2015
11	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	July 09 2013	July 08 2014
12	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2014	Mar. 31 2015
13	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2014	Mar. 29 2015
14	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
15	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
16	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	July. 25 2013	July. 24 2014
17	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2014	Mar. 31 2015
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2013	Aug. 11 2014
19	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	July. 25 2013	July. 24 2014
20	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	July. 25 2013	July. 24 2014

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	July 09 2013	July 08 2014
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	July 25 2013	July. 24 2014
3	LISN	CHASE	MN2050D	CCIS0074	Apr. 01 2014	Mar. 31 2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2014	Mar. 31 2015

## 6 Test results and Measurement Data

### 6.1 Conducted Emission

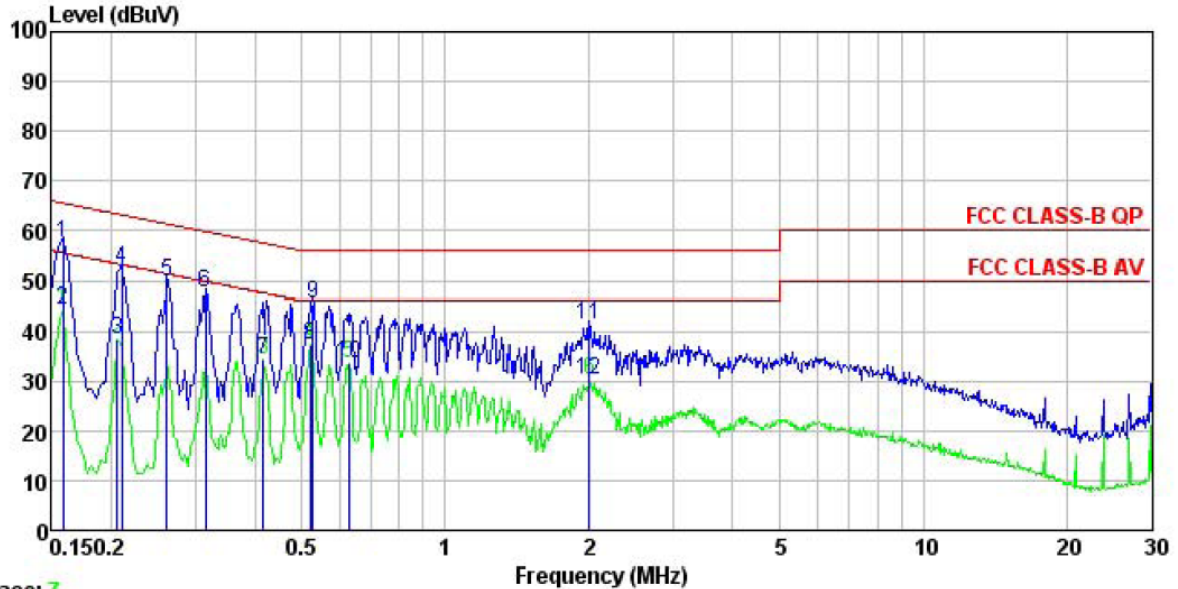
Test Requirement:	FCC Part15 B Section 15.107														
Test Method:	ANSI C63.4:2003														
Test Frequency Range:	150kHz to 30MHz														
Class / Severity:	Class B														
Receiver setup:	RBW=9kHz, VBW=30kHz														
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dB<math>\mu</math>V)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>0.5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dB $\mu$ V)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	0.5-30	60	50
Frequency range (MHz)	Limit (dB $\mu$ V)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
0.5-30	60	50													
Test setup:	<p>Remark  E.U.T: Equipment Under Test  LISN: Line Impedance Stabilization Network  Test table height=0.8m</p>														
Test procedure	<ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.</li> </ol>														
Test environment:	Temp.: 23 °C Humid.: 56% Press.: 1 01kPa														
Measurement Record:	Uncertainty: 3.28dB														
Test Instruments:	Refer to section 5.7 for details														
Test mode:	Refer to section 5.3 for details														
Test results:	Pass														



**Measurement data:**

**Charging & recoding mode :**

Line:

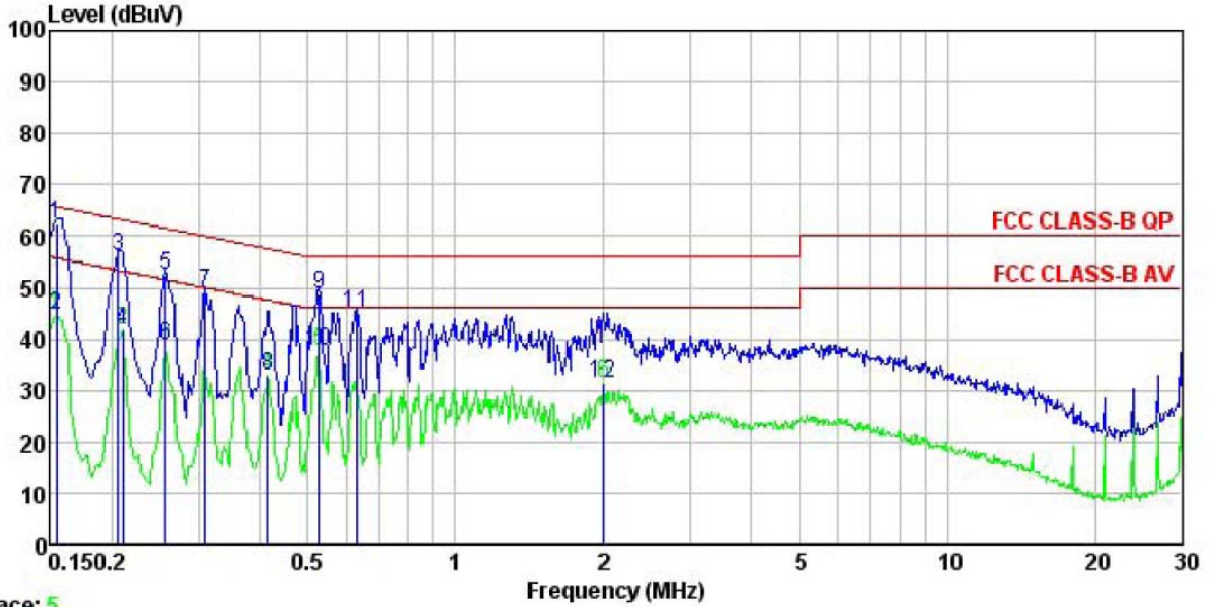


Trace: 7

Site : CCIS Shielding Room  
 Condition : FCC CLASS-B QP LISN LINE  
 Job No. : 431RF  
 EUT : function phone  
 Model : S425  
 Test Mode : Charging&recording mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa  
 Test Engineer: A-bomb  
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.158	46.51	0.27	10.78	57.56	65.56	-8.00	QP
2	0.158	33.36	0.27	10.78	44.41	55.56	-11.15	Average
3	0.206	27.44	0.28	10.76	38.48	53.36	-14.88	Average
4	0.211	41.30	0.28	10.76	52.34	63.18	-10.84	QP
5	0.262	38.93	0.27	10.75	49.95	61.38	-11.43	QP
6	0.313	36.47	0.26	10.74	47.47	59.88	-12.41	QP
7	0.415	23.13	0.28	10.73	34.14	47.55	-13.41	Average
8	0.521	26.18	0.28	10.76	37.22	46.00	-8.78	Average
9	0.527	34.40	0.28	10.76	45.44	56.00	-10.56	QP
10	0.627	22.51	0.24	10.77	33.52	46.00	-12.48	Average
11	2.001	30.03	0.26	10.96	41.25	56.00	-14.75	QP
12	2.001	18.96	0.26	10.96	30.18	46.00	-15.82	Average

Neutral:



Trace: 5

Site : CCIS Shielding Room  
 Condition : FCC CLASS-B QP LISN NEUTRAL  
 Job No. : 431RF  
 EUT : function phone  
 Model : S425  
 Test Mode : Charging&recording mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa  
 Test Engineer: A-bomb  
 Remark :

	Read Freq	Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	51.29	0.25	10.78	62.32	65.78	-3.46	QP
2	0.154	33.70	0.25	10.78	44.73	55.78	-11.05	Average
3	0.206	45.24	0.25	10.76	56.25	63.36	-7.11	QP
4	0.211	30.56	0.25	10.76	41.57	53.18	-11.61	Average
5	0.258	41.50	0.26	10.75	52.51	61.51	-9.00	QP
6	0.258	27.90	0.26	10.75	38.91	51.51	-12.60	Average
7	0.310	38.22	0.26	10.74	49.22	59.97	-10.75	QP
8	0.415	21.98	0.26	10.73	32.97	47.55	-14.58	Average
9	0.527	37.65	0.27	10.76	48.68	56.00	-7.32	QP
10	0.527	26.60	0.27	10.76	37.63	46.00	-8.37	Average
11	0.627	33.89	0.22	10.77	44.88	56.00	-11.12	QP
12	2.001	19.95	0.29	10.96	31.20	46.00	-14.80	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

## 6.2 Radiated Emission

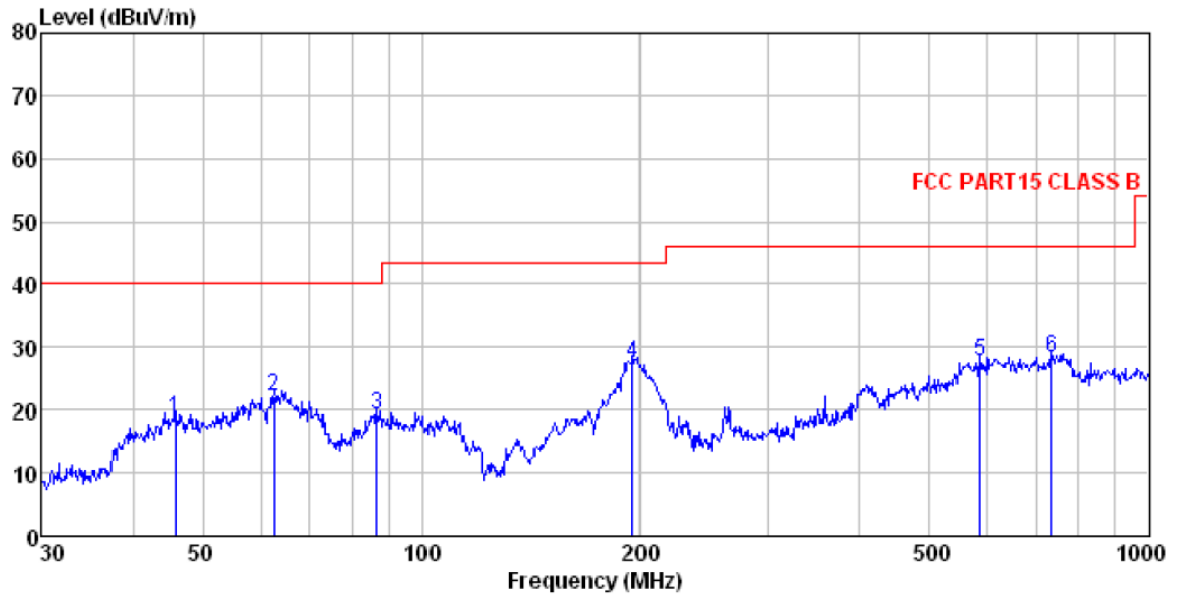
Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2003				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	
	30MHz-1GHz	Quasi-peak	120 kHz	300KHz	
	Above 1GHz	Peak	1MHz	3MHz	
		Peak	1MHz	10Hz	
				Remark	
	30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Above 1GHz	Peak	1MHz	10Hz	Average Value
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	
		74.0		Peak Value	
Test setup:	Below 1GHz				
Test setup:	Above 1GHz				

Test Procedure:	<ol style="list-style-type: none"> <li>1. 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.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. 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.</li> <li>4. 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.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. 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.</li> </ol>
Test environment:	Temp.: 25 °C Humid.: 55% Press.: 1 01kPa
Measurement Record:	Uncertainty: 4.88dB
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

## Measurement Data

Below 1GHz

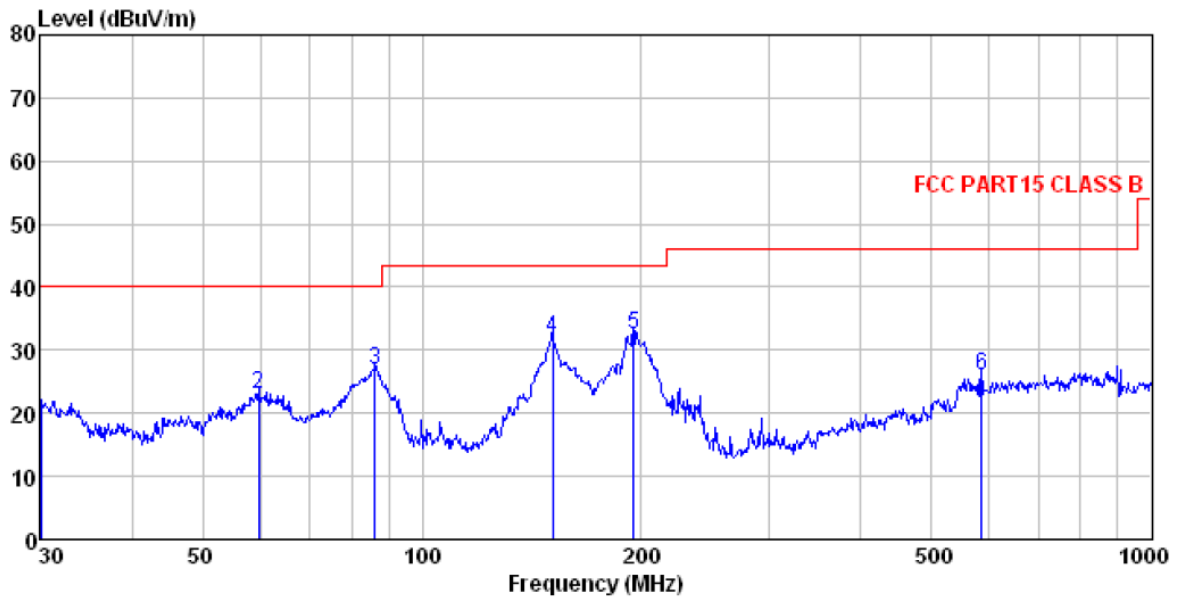
Horizontal:



Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL  
 EUT : function phone  
 Model : S425  
 Test mode : PC Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	45.855	34.46	13.49	0.57	29.85	18.67	40.00 -21.33 QP
2	62.651	39.67	11.63	0.72	29.76	22.26	40.00 -17.74 QP
3	86.807	36.86	10.89	0.89	29.59	19.05	40.00 -20.95 QP
4	195.137	44.46	10.57	1.37	28.86	27.54	43.50 -15.96 QP
5	584.790	35.96	18.19	2.60	28.99	27.76	46.00 -18.24 QP
6	737.071	34.45	19.29	3.01	28.53	28.22	46.00 -17.78 QP

Vertical:

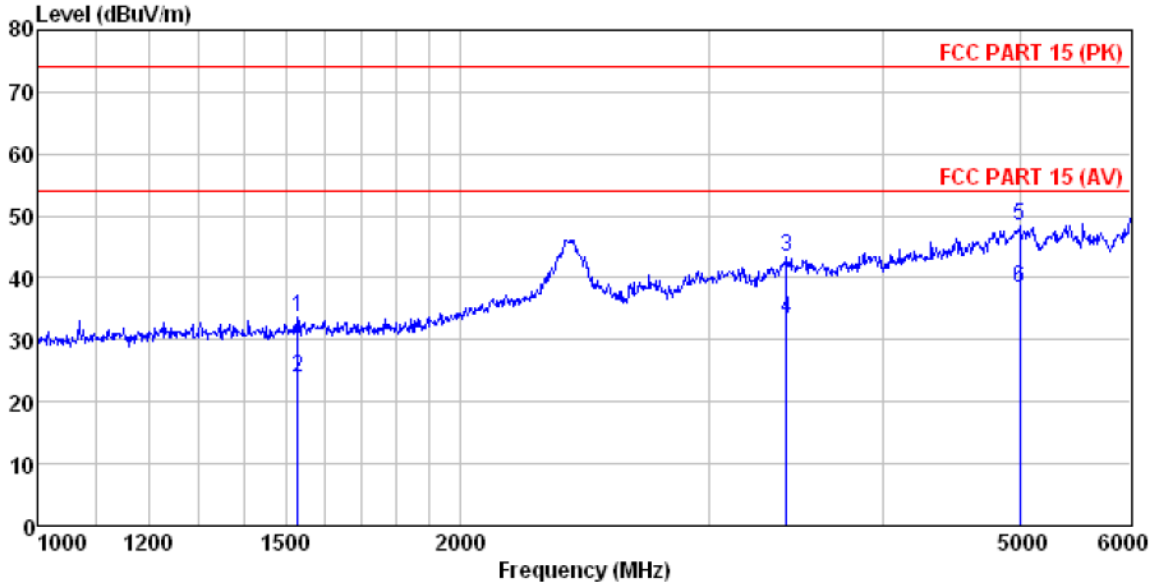


Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL  
 EUT : function phone  
 Model : S425  
 Test mode : PC Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	30.000	38.46	12.33	0.43	29.98	21.24	40.00 -18.76 QP
2	59.649	39.24	12.73	0.69	29.77	22.89	40.00 -17.11 QP
3	86.200	44.87	10.74	0.89	29.59	26.91	40.00 -13.09 QP
4	151.067	51.41	8.29	1.32	29.21	31.81	43.50 -11.69 QP
5	195.137	49.38	10.57	1.37	28.86	32.46	43.50 -11.04 QP
6	584.790	34.04	18.19	2.60	28.99	25.84	46.00 -20.16 QP

Above 1GHz

Horizontal:

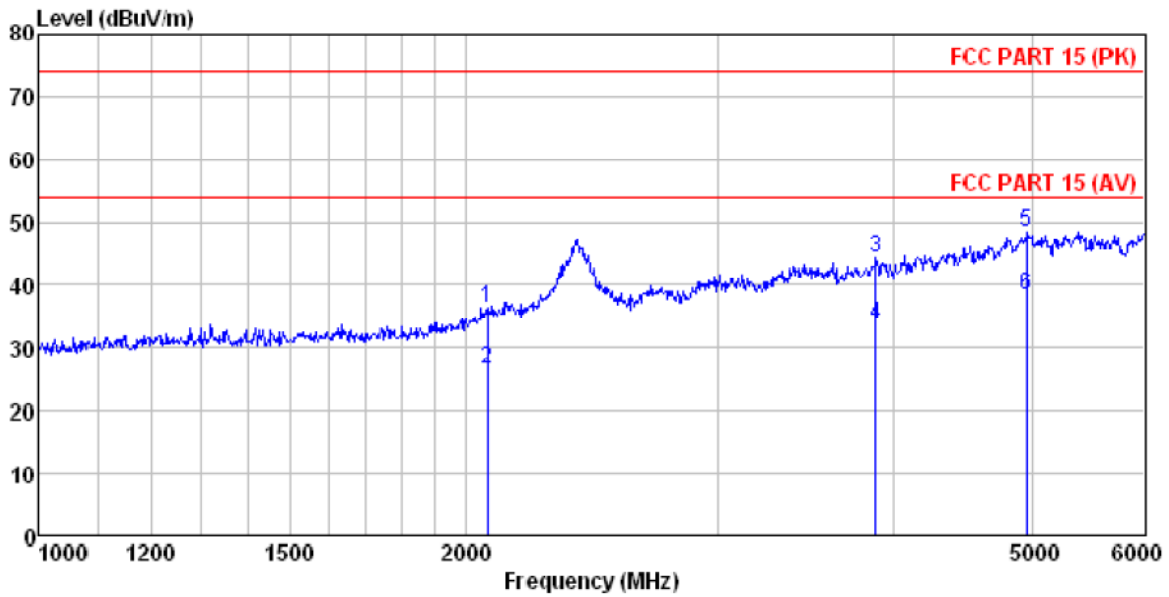


Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL  
 EUT : function phone  
 Model : S425  
 Test mode : PC Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Freq	ReadAntenna	Cable Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1529.051	45.46	25.17	3.95	40.96	33.62	74.00	-40.38
2	1529.051	35.62	25.17	3.95	40.96	23.78	54.00	-30.22
3	3412.193	47.32	28.53	6.41	38.96	43.30	74.00	-30.70
4	3412.193	37.49	28.53	6.41	38.96	33.47	54.00	-20.53
5	4997.811	47.48	31.79	9.12	39.98	48.41	74.00	-25.59
6	4997.811	37.41	31.79	9.12	39.98	38.34	54.00	-15.66



Vertical:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL  
 EUT : function phone  
 Model : S425  
 Test mode : PC Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Read	Antenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2069.805	45.20	26.71	4.97	40.62	36.26	74.00 -37.74 Peak
2	2069.805	35.60	26.71	4.97	40.62	26.66	54.00 -27.34 Average
3	3882.044	47.69	29.73	7.56	40.84	44.14	74.00 -29.86 Peak
4	3882.044	37.13	29.73	7.56	40.84	33.58	54.00 -20.42 Average
5	4953.236	47.72	31.69	9.08	40.03	48.46	74.00 -25.54 Peak
6	4953.236	37.57	31.69	9.08	40.03	38.31	54.00 -15.69 Average