

# FCC REPORT

**Applicant:** REACH Tech (Xiamen) Co., Ltd.

**Address of Applicant:** RM.303,#18,Guanri Road, Software Park II, Xiamen,361008, China

**Equipment Under Test (EUT)**

Product Name: Smart Phone

Model No.: R55

**FCC ID:** Z5JREACH-Q887R

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart B

**Date of sample receipt:** 20 Mar., 2014

**Date of Test:** 21 Mar., to 03 Apr., 2014

**Date of report issued:** 04 Apr., 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.

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## 2 Version

Version No.	Date	Description
00	04 Apr.,2014	Original

**Prepared by:** Sera Xiang **Date:** 04 Apr.,2014  
**Report Clerk**

**Reviewed by:** Abimb Yang **Date:** 04 Apr.,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:	REACH Tech (Xiamen) Co., Ltd.
Address of Applicant:	RM.303,#18,Guanri Road, Software Park II, Xiamen,361008, China
Manufacturer:	REACH Tech (Xiamen) Co., Ltd.
Address of Manufacturer:	RM.303,#18,Guanri Road, Software Park II, Xiamen,361008,China
Factory:	REACH Tech (Xiamen) Co., Ltd.
Address of Factory:	5/F,#51,Wanghai Road, Software Park II,Xiamen,361008, China

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

Product Name:	Smart Phone
Model No.:	R55
Power supply:	Rechargeable Li-ion Battery DC3.7V-2100mAh
AC adapter :	Model:SKL-5WU-U050-0700 Input:100-240V AC,50/60Hz 150mA Output:5.0V DC MAX700mA

### 5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in Downloading mode(Worst case)
Charging+recording mode	Keep the EUT in Charging+recording mode
Charging+Play mode	Keep the EUT in Charging+Play mode
FM mode	Keep the EUT in FM receiver mode

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
MERCURY	Wireless router	MW150R	12922104015	FCC ID

## 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 our 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	June 09 2013	June 08 2014
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	May 25 2013	May 24 2014
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 25 2013	May 24 2014
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
5	Coaxial Cable	CCIS	N/A	CCIS0016	Feb. 01 2014	Feb. 31 2015
6	Coaxial Cable	CCIS	N/A	CCIS0017	Feb. 01 2014	Feb. 31 2015
7	Coaxial cable	CCIS	N/A	CCIS0018	Feb. 01 2014	Feb. 31 2015
8	Coaxial Cable	CCIS	N/A	CCIS0019	Feb. 01 2014	Feb. 31 2015
9	Coaxial Cable	CCIS	N/A	CCIS0087	Feb. 01 2014	Feb. 31 2015
10	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Feb. 01 2014	Feb. 31 2015
11	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2014	June 08 2015
12	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Feb. 01 2014	Feb. 31 2015
13	Horn Antenna	ETS-LINDGREN	3160	GTS217	Feb. 30 2014	Jan. 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	May. 25 2013	May. 24 2014
17	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Feb 01 2014	Jan. 31 2015
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2013	Aug. 11 2014
19	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	May. 25 2013	May. 24 2014
20	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	May. 25 2013	May. 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	June 09 2013	June 08 2014
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	May 25 2013	May. 24 2014
3	LISN	CHASE	MN2050D	CCIS0074	Feb. 01 2014	Jan. 31 2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	Feb. 01 2014	Jan. 31 2015

## 6 Test results and Measurement Data

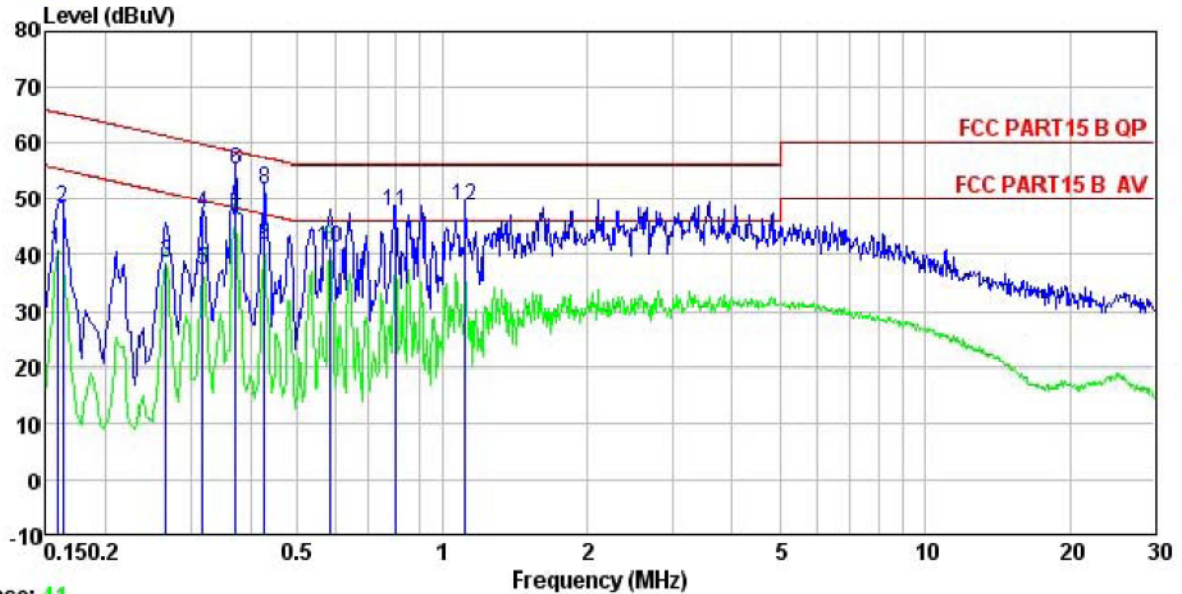
### 6.1 Conducted Emission

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>Reference Plane</p> <p>40cm 80cm</p> <p>LISN LISN</p> <p>AUX Equipment E.U.T. Filter AC power</p> <p>Test table/Insulation plane EMI Receiver</p> <p><i>Remark</i>  <i>E.U.T: Equipment Under Test</i>  <i>LISN: Line Impedance Stabilization Network</i>  <i>Test table height=0.8m</i></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:**

Line:

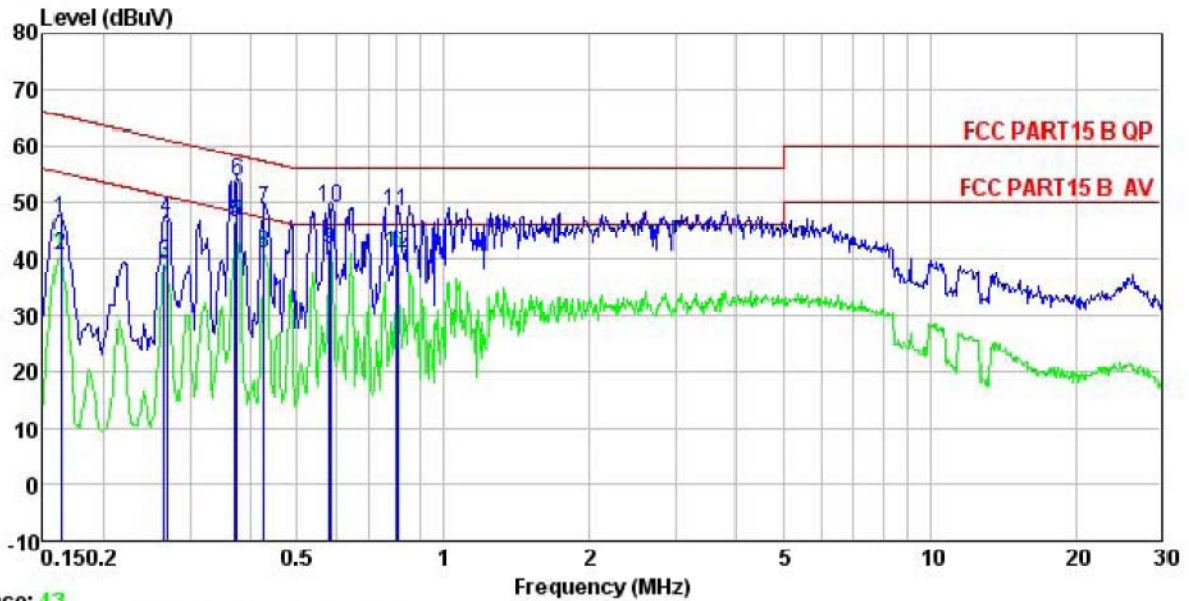


**Trace: 41**

Site : CCIS Conducted test Site  
 Condition : FCC PART15 B QP LISN LINE  
 Job No. : 154RF  
 EUT : Smart Phone  
 Model : R55  
 Test Mode : PC 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	29.80	0.27	10.78	40.85	55.56	-14.71	Average
2	0.162	37.54	0.27	10.77	48.58	65.34	-16.76	QP
3	0.266	27.54	0.27	10.75	38.56	51.25	-12.69	Average
4	0.318	36.47	0.26	10.74	47.47	59.75	-12.28	QP
5	0.318	26.23	0.26	10.74	37.23	49.75	-12.52	Average
6	0.373	44.14	0.28	10.73	55.15	58.43	-3.28	QP
7	0.373	35.00	0.28	10.73	46.01	48.43	-2.42	Average
8	0.426	40.72	0.28	10.73	51.73	57.33	-5.60	QP
9	0.426	30.68	0.28	10.73	41.69	47.33	-5.64	Average
10	0.585	29.96	0.26	10.77	40.99	46.00	-5.01	Average
11	0.796	36.87	0.23	10.81	47.91	56.00	-8.09	QP
12	1.111	37.53	0.25	10.88	48.66	56.00	-7.34	QP

Neutral:



Trace: 43

Site : CCIS Conducted test Site  
 Condition : FCC PART15 B QP LISN NEUTRAL  
 Job No. : 154RF  
 EUT : Smart Phone  
 Model : R55  
 Test Mode : PC 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	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	36.13	0.25	10.77	47.15	65.34	-18.19	QP
2	0.162	29.50	0.25	10.77	40.52	55.34	-14.82	Average
3	0.266	28.26	0.26	10.75	39.27	51.25	-11.98	Average
4	0.270	35.97	0.26	10.75	46.98	61.12	-14.14	QP
5	0.373	35.62	0.25	10.73	46.60	48.43	-1.83	Average
6	0.377	42.89	0.25	10.72	53.86	58.34	-4.48	QP
7	0.426	37.96	0.26	10.73	48.95	57.33	-8.38	QP
8	0.426	29.77	0.26	10.73	40.76	47.33	-6.57	Average
9	0.582	30.41	0.24	10.77	41.42	46.00	-4.58	Average
10	0.585	38.12	0.24	10.77	49.13	56.00	-6.87	QP
11	0.800	37.57	0.19	10.81	48.57	56.00	-7.43	QP
12	0.804	29.72	0.20	10.81	40.73	46.00	-5.27	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

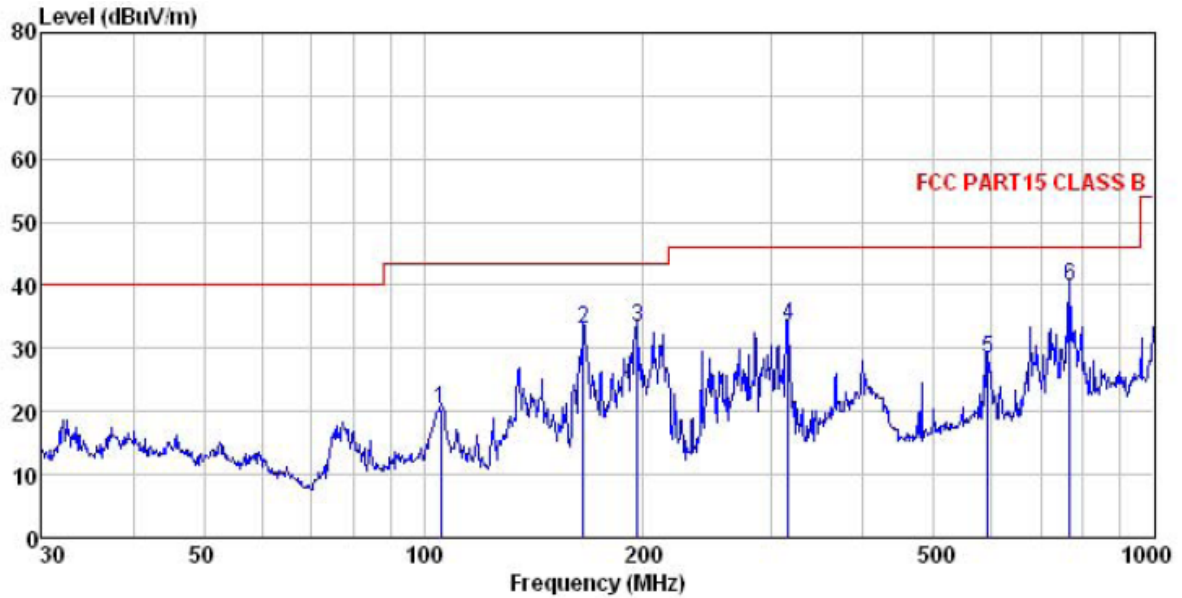
Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2003				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak Value
	Above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

<p>Test Procedure:</p>	<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>
<p>Test environment:</p>	<p>Temp.: 25 °C      Humid.: 55%      Press.: 1 01kPa</p>
<p>Measurement Record:</p>	<p style="text-align: right;">Uncertainty: 4.88dB</p>
<p>Test Instruments:</p>	<p>Refer to section 5.7 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Passed</p>

## Measurement Data

Below 1GHz

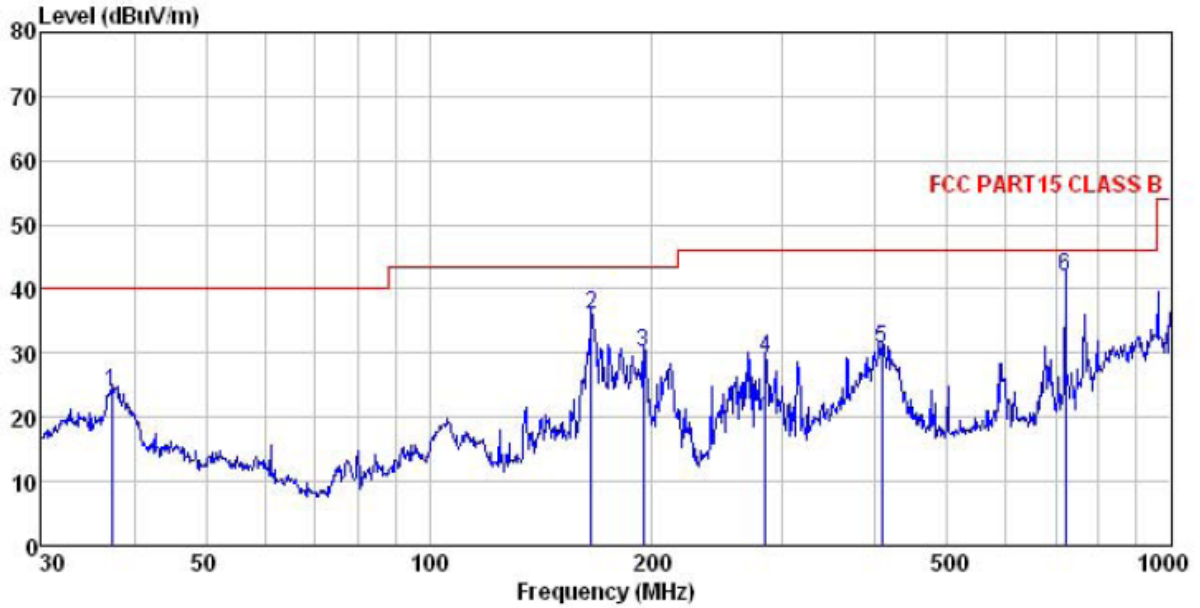
Horizontal:



Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL  
 EUT : Smart phone  
 Model : R55  
 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	Level	Line	Limit	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	105.642	35.57	12.63	2.00	29.97	20.23	43.50	-23.27 QP
2	165.487	50.99	8.82	2.62	29.33	33.10	43.50	-10.40 QP
3	196.510	49.75	10.57	2.84	29.82	33.34	43.50	-10.16 QP
4	315.481	46.80	13.28	2.99	29.51	33.56	46.00	-12.44 QP
5	593.050	36.71	18.35	3.93	30.55	28.44	46.00	-17.56 QP
6	766.057	46.36	19.63	4.36	30.47	39.88	46.00	-6.12 QP

Vertical:

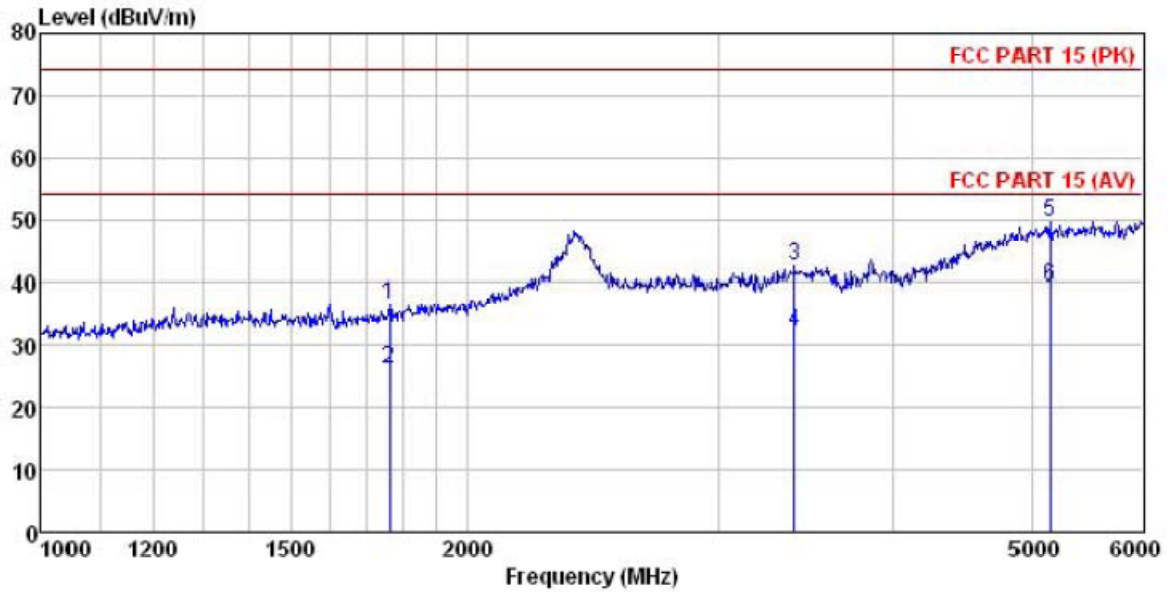


Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL  
 EUT : Smart phone  
 Model : R55  
 Test mode : PC mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Freq	ReadAntenna	Cable Preamp	Level	Limit	Over	Remark
	MHz	Level Factor	Loss Factor	dB	Line	Limit	
		dB/m	dB	dBuV/m	dBuV/m	dB	
1	37.285	36.98	12.92	1.14	27.01	24.03	40.00 -15.97 QP
2	165.487	53.89	8.82	2.82	29.33	36.00	43.50 -7.50 QP
3	194.453	46.55	10.56	2.83	29.82	30.12	43.50 -13.38 QP
4	283.979	43.07	12.75	2.90	29.48	29.24	46.00 -16.76 QP
5	407.515	42.37	15.22	3.10	30.00	30.69	46.00 -15.31 QP
6	721.726	49.17	19.10	4.26	30.55	41.98	46.00 -4.02 QP

Above 1GHz

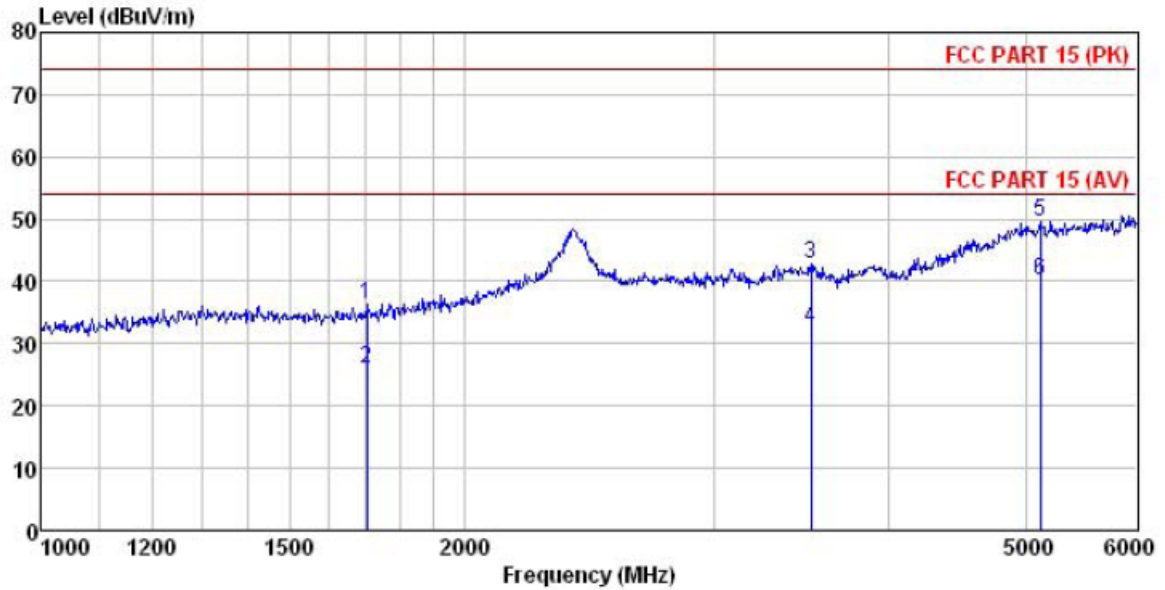
Horizontal:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL  
 EUT : Smart phone  
 Model : R55  
 Test mode : PC mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: A-bomb  
 REMARK :

	Freq	ReadLevel	Antenna	Cable	Preamp	Limit	Over	
	MHz	dBuV	dB/m	Loss	Factor	Line	Limit	Remark
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1758.400	47.88	25.07	4.57	40.98	36.54	74.00	-37.46 Peak
2	1758.400	37.57	25.07	4.57	40.98	26.23	54.00	-27.77 Average
3	3399.987	46.36	28.46	6.44	38.84	42.42	74.00	-31.58 Peak
4	3399.987	36.24	28.46	6.44	38.84	32.30	54.00	-21.70 Average
5	5152.386	48.41	32.07	9.13	40.06	49.55	74.00	-24.45 Peak
6	5152.386	38.23	32.07	9.13	40.06	39.37	54.00	-14.63 Average

Vertical:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL  
 EUT : Smart phone  
 Model : R55  
 Test mode : PC mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp:25.5°C Huni: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	1702.593	47.78	24.98	4.38	40.97	36.17	74.00	-37.83 Peak
2	1702.593	37.64	24.98	4.38	40.97	26.03	54.00	-27.97 Average
3	3517.727	47.27	29.01	6.24	39.71	42.81	74.00	-31.19 Peak
4	3517.727	37.08	29.01	6.24	39.71	32.62	54.00	-21.38 Average
5	5124.765	48.30	32.10	9.13	40.05	49.48	74.00	-24.52 Peak
6	5124.765	38.96	32.10	9.13	40.05	40.14	54.00	-13.86 Average