

FCC REPORT

Applicant: Zechin Technology Co., Ltd

Address of Applicant: Unit804,8th Floor Desay Tech Building Gaoxin Road South,
Nanshan District Shenzhen,China

Equipment Under Test (EUT)

Product Name: GSM mobile phone

Model No.: GQ8

FCC ID: HA4-GQ8

Applicable standards: FCC CFR Title 47 Part 15 Subpart B: 2011

Date of sample receipt: 13 Mar., 2013

Date of Test: 14 Mar., to 10 Apr.,2013

Date of report issued: 11 Apr.,2013

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	11 Apr.,2013	Original

Prepared by:

Lisa chen

Report Clerk

Date:

11 Apr.,2013

Reviewed by:

Wimer Zhang

Project Engineer

Date:

11 Apr.,2013

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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:	Zechin Technology Co., Ltd
Address of Applicant:	Unit804,8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China
Manufacturer:	Zechin Technology Co., Ltd
Address of Manufacturer:	Unit804,8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	GSM mobile phone
Model No.:	GQ8
AC adapter:	Input:100-300V AC,50/60Hz 0.15A Output:5V DC MAX 400mA
Power supply:	Rechargeable Li-ion Battery DC3.7V/850mAh

5.3 Operating Modes

Operating mode	Detail description
Downloading mode	Keep the EUT in Downloading mode(Worst case)
Playing mode	Keep the EUT in Playing mode
Recording mode	Keep the EUT in Recording mode
FM mode	Keep the EUT in FM receiver mode
TV mode	Keep the EUT in TV 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

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

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2012	June 08 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr.01 2013	Mar. 31 2014
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2012	June 03 2013
4	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2012	May. 29 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2013	Mar. 31 2014
7	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2013	Mar. 31 2014
8	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2013	Mar. 31 2014
9	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2013	Mar. 31 2014
10	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2013	Mar. 31 2014
11	Amplifier(10KHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2013	Mar. 31 2014
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2012	June 08 2013
13	Spectrum analyzer	Rohde & Schwarz	FSP	CCIS0023	May 29 2012	May 28 2013
14	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
15	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	June 09 2012	June 08 2013
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	May 25 2012	May. 24 2013
3	LISN	CHASE	MN2050D	CCIS0074	Apr. 01 2013	Mar. 31 2014
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2013	Mar. 31 2014

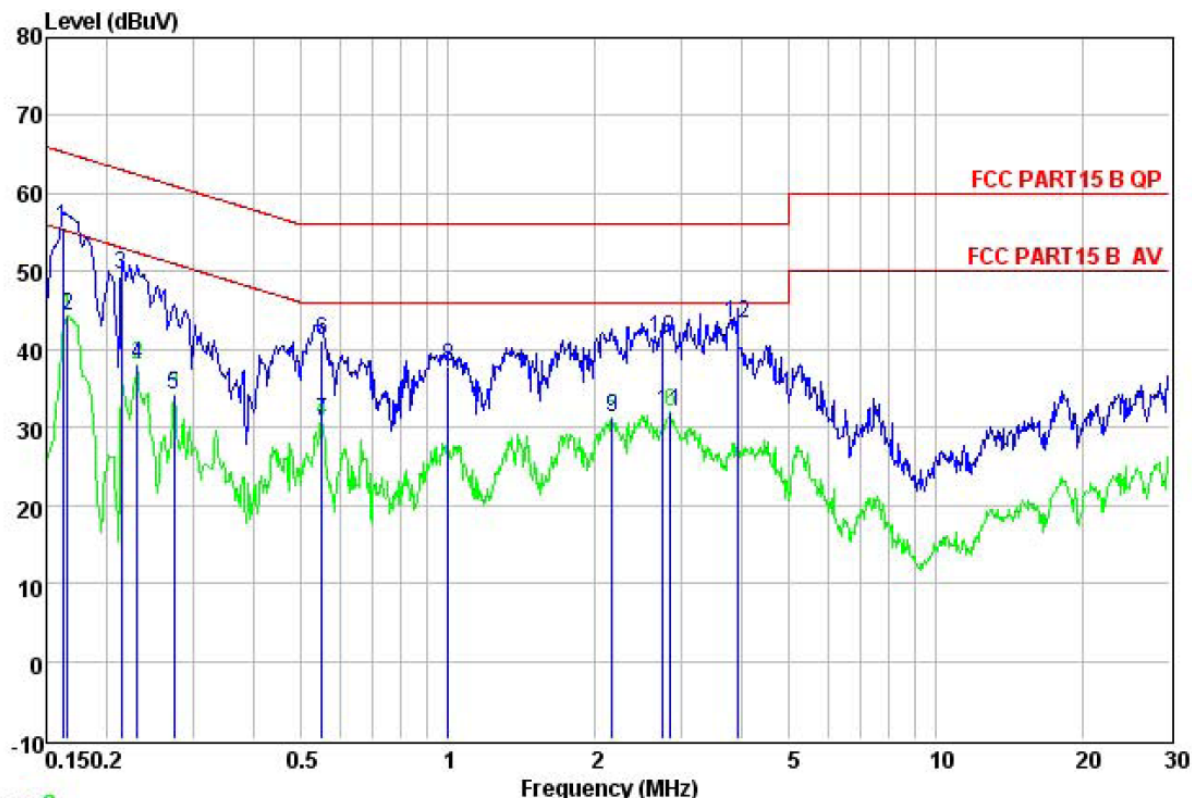
7 Test results and Measurement Data

7.1 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><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><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></table>			Frequency range (MHz)	Limit (dBμV)		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 (dBμV)																
	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:	Reference Plane Test table/Insulation plane <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m																
Test procedure	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. 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). 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.																
Test environment:	Temp.:	23 °C	Humid.: 56% Press.: 1 01kPa														
Measurement Record:	Uncertainty: 3.28dB																
Test Instruments:	Refer to section 6 for details																
Test mode:	Pre-scan all test mode in the section 5.3, and found the blew mode which it is worse case mode.																
Test results:	Pass																

Measurement data:

Line:

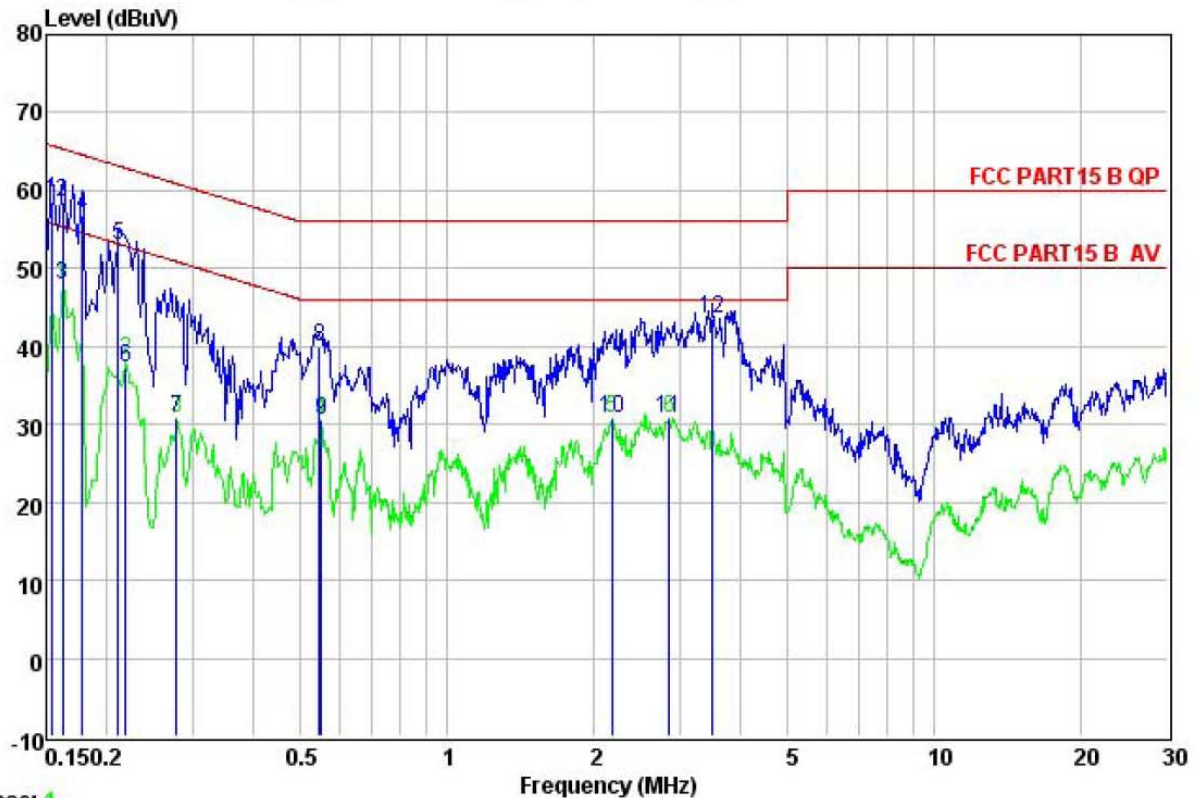


Trace: 3

Site : CCIS Conducted Test Site
 Condition : FCC PART15 B QP LISN LINE
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test Mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Winner

	Read	LISN	Cable	Limit	Over	
Freq	Level	Factor	Loss	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dB	dBuV	dB	
1	0.162	44.55	10.24	0.78	55.57	65.34 -9.77 QP
2	0.166	33.37	10.24	0.78	44.39	55.16 -10.77 Average
3	0.214	38.62	10.22	0.76	49.60	63.05 -13.45 QP
4	0.230	26.96	10.23	0.75	37.94	52.44 -14.50 Average
5	0.274	23.08	10.25	0.74	34.07	50.98 -16.91 Average
6	0.549	30.15	10.24	0.76	41.15	56.00 -14.85 QP
7	0.549	19.69	10.24	0.76	30.69	46.00 -15.31 Average
8	1.000	26.60	10.21	0.87	37.68	56.00 -18.32 QP
9	2.167	20.11	10.28	0.96	31.35	46.00 -14.65 Average
10	2.750	30.10	10.28	0.93	41.31	56.00 -14.69 QP
11	2.854	20.79	10.29	0.92	32.00	46.00 -14.00 Average
12	3.901	32.06	10.29	0.89	43.24	56.00 -12.76 QP

Neutral:



Trace: 1

Site : CCIS Conducted Test Site
 Condition : FCC PART15 B QP LISN NEUTRAL
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test Mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Winner

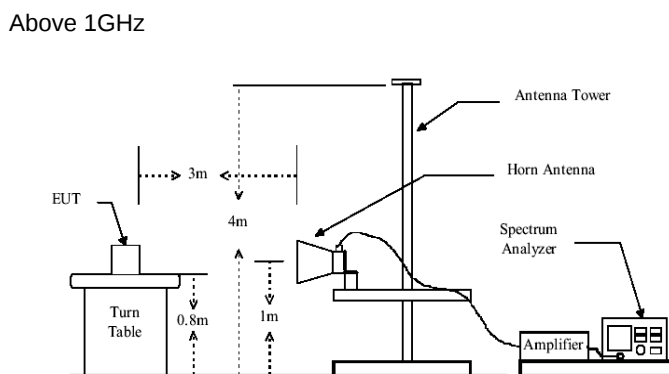
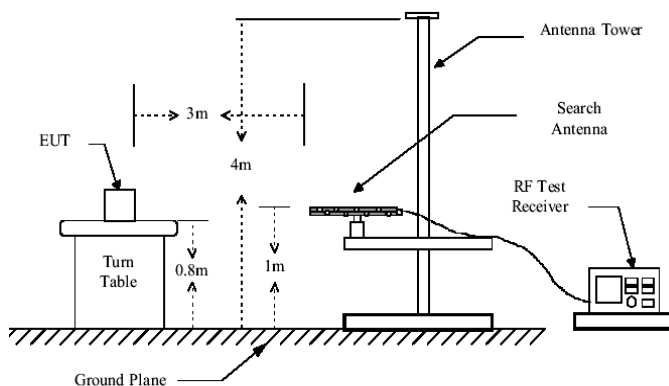
	Read	LISN	Cable	Limit	Over	
Freq	Level	Factor	Loss	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dB	dBuV	dB	
1	0.154	47.55	10.27	0.79	58.61	65.78 -7.17 QP
2	0.162	47.47	10.26	0.78	58.51	65.34 -6.83 QP
3	0.162	36.93	10.26	0.78	47.97	55.34 -7.37 Average
4	0.178	45.83	10.25	0.77	56.85	64.59 -7.74 QP
5	0.211	42.10	10.23	0.76	53.09	63.18 -10.09 QP
6	0.219	26.25	10.23	0.76	37.24	52.88 -15.64 Average
7	0.277	19.71	10.24	0.74	30.69	50.90 -20.21 Average
8	0.546	28.85	10.25	0.76	39.86	56.00 -16.14 QP
9	0.549	19.52	10.25	0.76	30.53	46.00 -15.47 Average
10	2.178	19.47	10.27	0.96	30.70	46.00 -15.30 Average
11	2.854	19.66	10.28	0.92	30.86	46.00 -15.14 Average
12	3.491	32.31	10.28	0.90	43.49	56.00 -12.51 QP

Notes:

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

7.2 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	100KHz	300KHz
	Above 1GHz	Peak	1MHz	3MHz
		Peak	1MHz	10Hz
Limit:	Frequency			Remark
	30MHz-88MHz			Quasi-peak Value
	88MHz-216MHz			Quasi-peak Value
	216MHz-960MHz			Quasi-peak Value
	960MHz-1GHz			Quasi-peak Value
	Above 1GHz			Average Value
Test setup:	Below 1GHz			Peak Value
	Above 1GHz			Peak Value



Test Procedure:	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. 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. 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. 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. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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.
Test environment:	Temp.: 24 °C Humid.: 65% Press.: 1 01kPa
Measurement Record:	Uncertainty: 4.88dB
Test Instruments:	Refer to section 6 for details
Test mode:	Pre-scan all test mode in the section 5.3, and found the blew mode which it is worse case mode.
Test results:	Passed

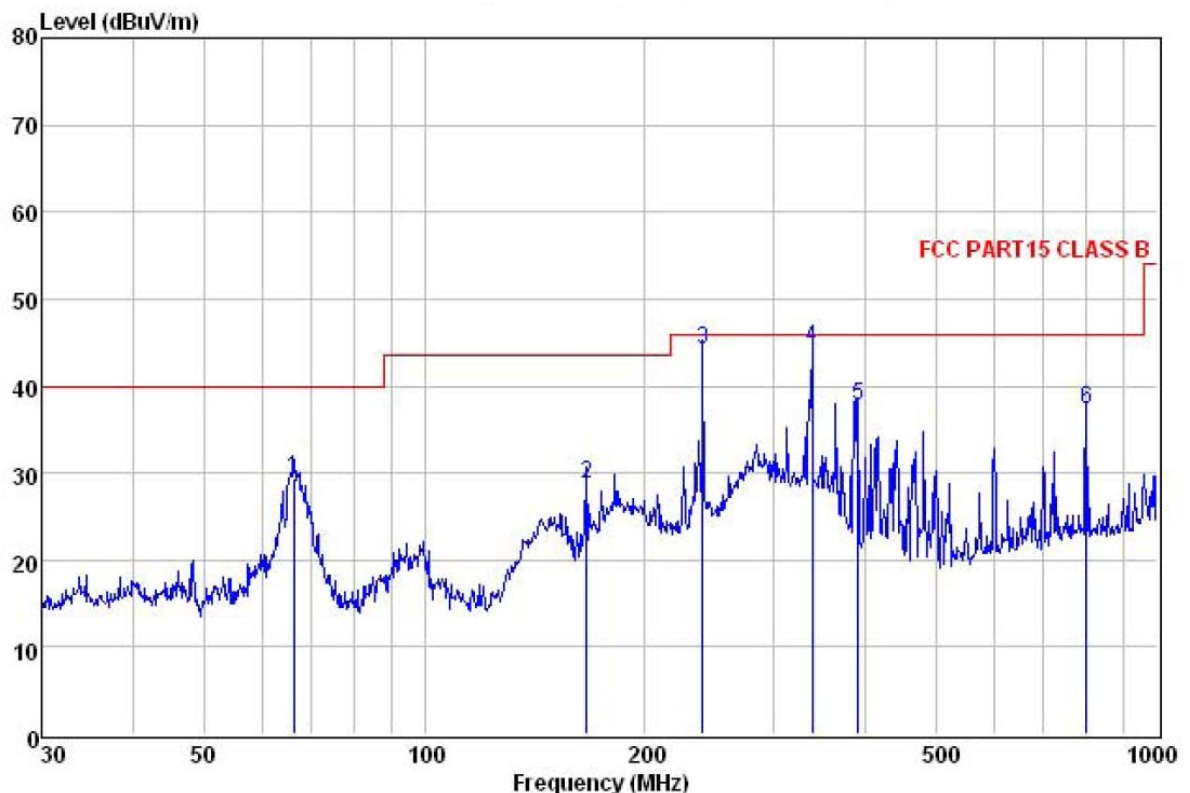
Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.

Measurement Data

Below 1GHz

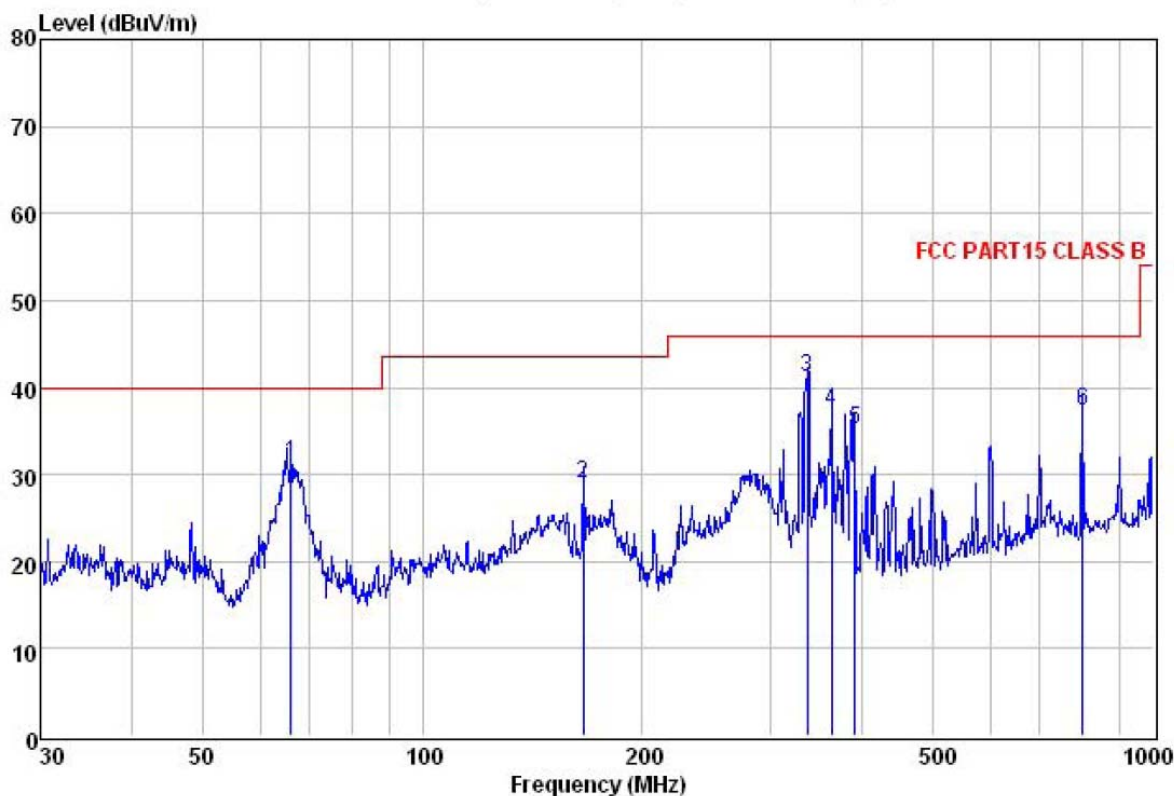
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25°C Humi:55% Atmos:101Kpa
 Test Engineer: Winner

	Freq	Read	Antenna	Cable	Preamp	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	66.266	47.68	10.16	1.41	29.81	29.44	40.00	-10.56 QP
2	166.651	46.35	8.87	2.64	29.17	28.69	43.50	-14.81 QP
3	239.987	58.92	12.09	2.82	29.64	44.19	46.00	-1.81 QP
4	338.400	56.80	14.05	3.06	29.62	44.29	46.00	-1.71 QP
5	390.723	49.58	14.87	3.08	29.86	37.67	46.00	-8.33 QP
6	801.786	43.28	20.06	4.34	30.40	37.28	46.00	-8.72 QP

Vertical:

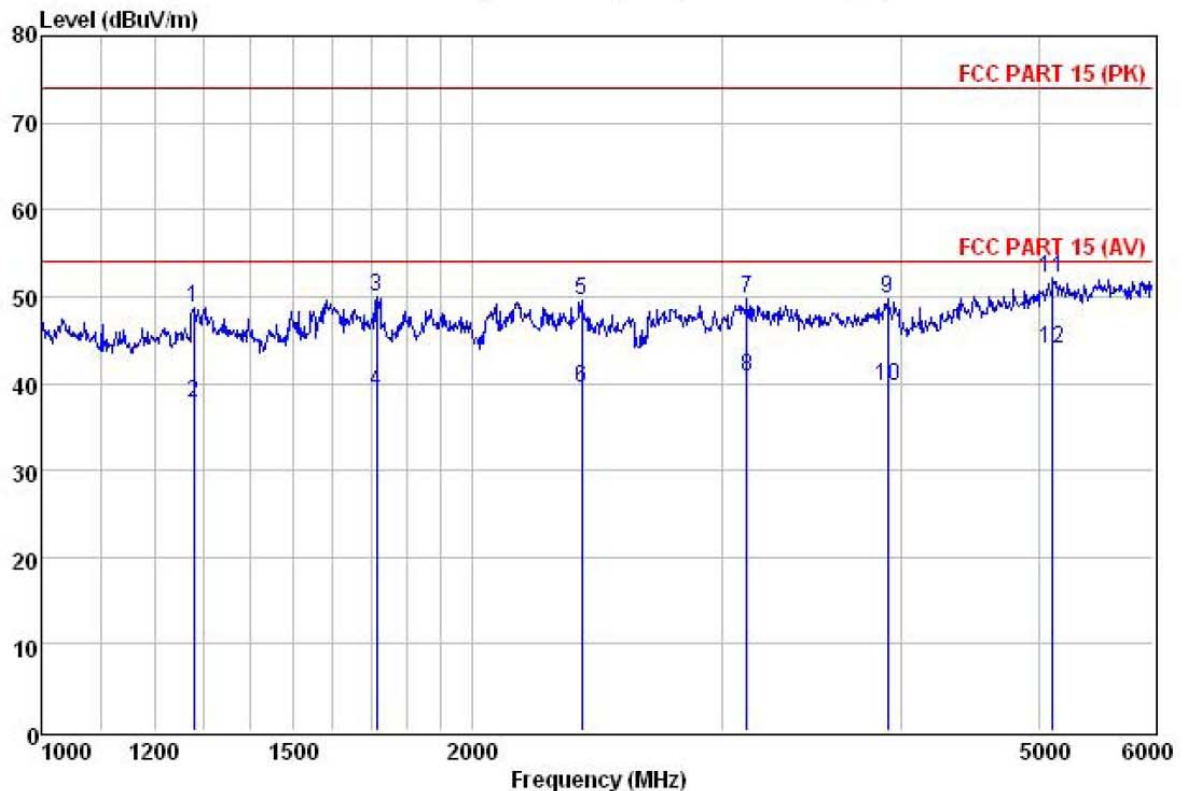


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25°C Humi:55% Atmos:101Kpa
 Test Engineer: Winner

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	66.034	49.39	10.30	1.41	29.78	31.32	40.00	-8.68	QP
2	166.068	46.65	8.85	2.63	29.25	28.88	43.50	-14.62	QP
3	336.035	53.81	13.99	3.05	29.61	41.24	46.00	-4.76	QP
4	362.985	49.54	14.45	3.09	29.74	37.34	46.00	-8.66	QP
5	390.723	47.00	14.87	3.08	29.86	35.09	46.00	-10.91	QP
6	801.786	43.25	20.06	4.34	30.40	37.25	46.00	-8.75	QP

Above 1GHz

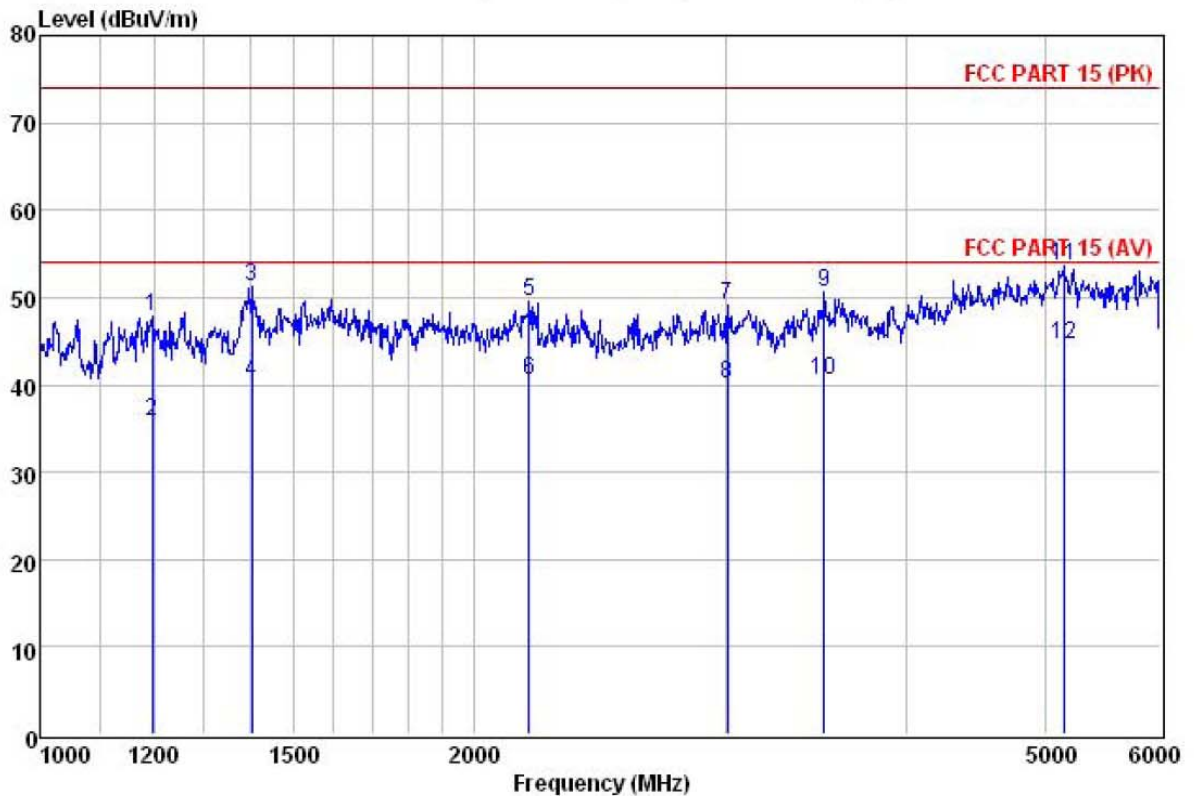
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) HORIZONTAL
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25°C Humi:55% Atmos:101Kpa
 Test Engineer: Winner

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	dBuV/m	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1278.223	65.62	0.00	2.71	19.63	48.70	74.00	-25.30	Peak
2	1278.223	54.62	0.00	2.71	19.63	37.70	54.00	-16.30	Average
3	1717.915	74.88	0.00	3.24	28.11	50.01	74.00	-23.99	Peak
4	1717.915	63.88	0.00	3.24	28.11	39.01	54.00	-14.99	Average
5	2388.809	75.83	0.00	3.81	30.10	49.54	74.00	-24.46	Peak
6	2388.809	65.83	0.00	3.81	30.10	39.54	54.00	-14.46	Average
7	3119.795	74.75	0.00	4.49	29.50	49.74	74.00	-24.26	Peak
8	3119.795	65.75	0.00	4.49	29.50	40.74	54.00	-13.26	Average
9	3909.967	71.33	0.00	5.23	26.86	49.70	74.00	-24.30	Peak
10	3909.967	61.33	0.00	5.23	26.86	39.70	54.00	-14.30	Average
11	5106.433	69.85	0.00	6.06	23.88	52.03	74.00	-21.97	Peak
12	5106.433	61.85	0.00	6.06	23.88	44.03	54.00	-9.97	Average

Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(>1GHZ) VERTICAL
 Job No. : 062RF
 EUT : GSM mobile phone
 Model : GQ8
 Test mode : PC mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25°C Humi:55% Atmos:101Kpa
 Test Engineer: Winner

	Freq	Read	Antenna	Cable	Preamp	Limit	Over	
		Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1196.231	64.13	0.00	2.59	18.81	47.91	74.00	-26.09 Peak
2	1196.231	52.13	0.00	2.59	18.81	35.91	54.00	-18.09 Average
3	1403.042	70.11	0.00	2.88	21.66	51.33	74.00	-22.67 Peak
4	1403.042	59.11	0.00	2.88	21.66	40.33	54.00	-13.67 Average
5	2188.024	76.65	0.00	3.66	30.71	49.60	74.00	-24.40 Peak
6	2188.024	67.65	0.00	3.66	30.71	40.60	54.00	-13.40 Average
7	3004.588	74.64	0.00	4.38	29.90	49.12	74.00	-24.88 Peak
8	3004.588	65.64	0.00	4.38	29.90	40.12	54.00	-13.88 Average
9	3505.144	73.59	0.00	4.86	27.90	50.55	74.00	-23.45 Peak
10	3505.144	63.59	0.00	4.86	27.90	40.55	54.00	-13.45 Average
11	5143.163	71.35	0.00	6.08	23.87	53.56	74.00	-20.44 Peak
12	5143.163	62.35	0.00	6.08	23.87	44.56	54.00	-9.44 Average