

# FCC REPORT

**Applicant:** Shenzhen Fortuneship Technology Co., LTD

**Address of Applicant:** Room 501, the 5th Floor, Block B, Digital Building, Garden City, No.1079 Nanhai Road, Nanshan District, Shenzhen, China

## Equipment Under Test (EUT)

**Product Name:** Mobile phone

**Model No.:** LF890G

**FCC ID:** 2ABXI-LF890

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

**Date of sample receipt:** 18 Sep., 2014

**Date of Test:** 18 Sep., to 23 Oct., 2014

**Date of report issued:** 24 Oct., 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	24 Oct., 2014	Original

Prepared by:



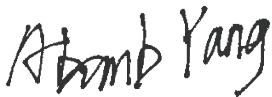
Sera Xiang

Date:

24 Oct., 2014

Report Clerk

Reviewed by:



Atom Yang

Date:

24 Oct., 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:	Shenzhen Fortuneship Technology Co., LTD
Address of Applicant:	Room 501, the 5th Floor, Block B, Digital Building, Garden City, No.1079 Nanhui Road, Nanshan District, Shenzhen, China

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

Product Name:	Mobile phone
Model No.:	LF890G
Power supply:	Rechargeable Li-ion Battery DC3.7V-650mAh
AC adapter :	Model:FTSL800TVL Input: AC 100-240V 50/60Hz 0.15A Output: DC 5.0V, 500mA

### 5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in Downloading mode(Worst case)
Recording mode	Keep the EUT in Recording mode
Playing mode	Keep the EUT in Playing mode
FM mode	Keep the EUT in FM 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 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	Aug 23 2014	Aug 22 2017
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	Apr 19 2014	Apr 19 2015
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	Apr 19 2014	Apr 19 2015
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	June 09 2014	June 08 2015
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	Apr 19 2014	Apr 19 2015
17	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2014	Mar. 31 2015
18	Loop antenna	Laplace instrument	RF300	EMC0701	Apr 01 2014	Mar. 31 2015
19	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	May. 29 2014	May. 28 2015
20	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	Apr 19 2014	Apr 19 2015

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	Oct 10 2012	Oct 09 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	Apr 10 2014	Apr 09 2015
3	LISN	CHASE	MN2050D	CCIS0074	Apr 10 2014	Apr 10 2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2014	Mar. 31 2015

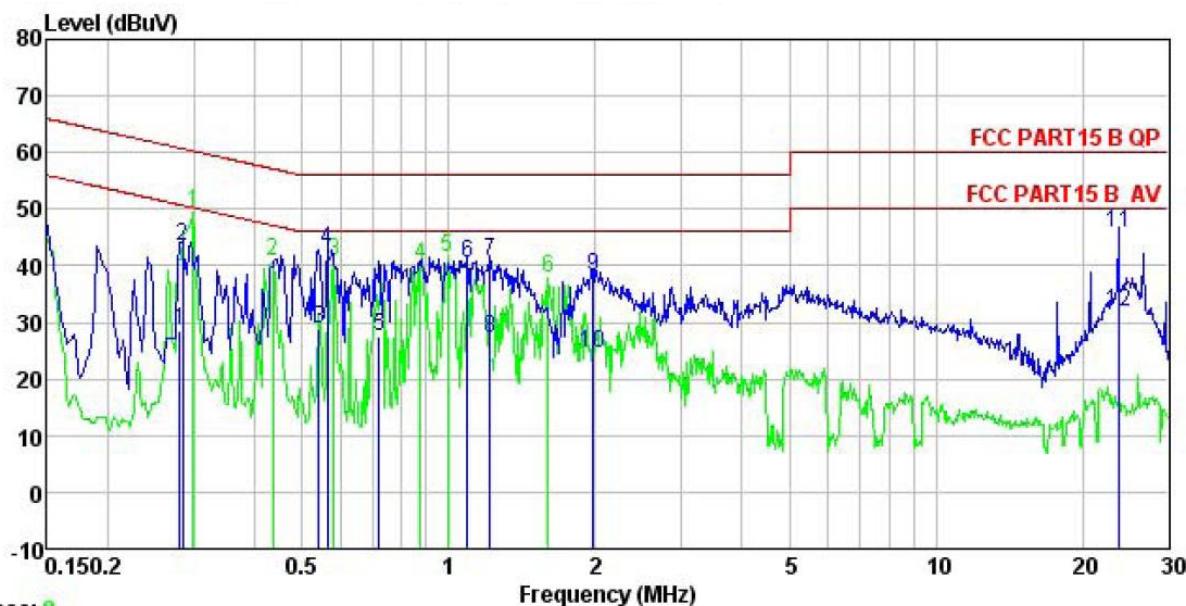
## 6 Test results and Measurement Data

### 6.1 Conducted Emission

Test Requirement:	FCC Part 15 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>LISN</p> <p>AUX Equipment</p> <p>E.U.T</p> <p>Test table/Insulation plane</p> <p>EMI Receiver</p> <p>Filter</p> <p>AC power</p> <p>40cm</p> <p>80cm</p> <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.). They 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 refer 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:	Passed																

**Measurement data:**

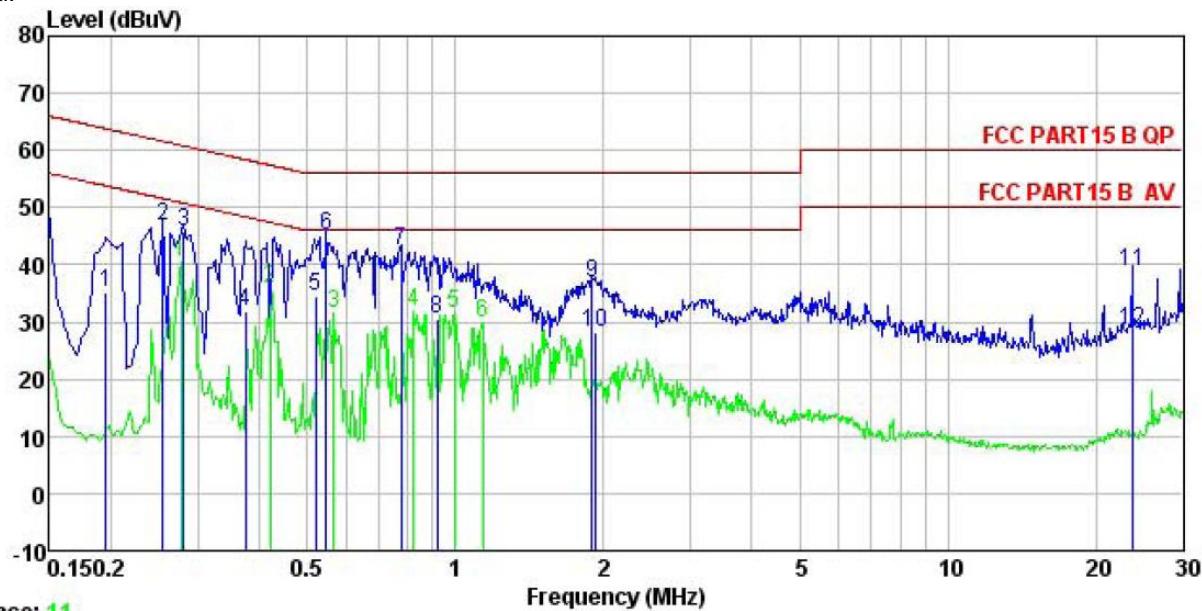
Line:



Site : CCIS Shielding Room  
 Condition : FCC PART15 B QP LISN LINE  
 Job. no : 772RF  
 EUT : MobilePhone  
 Model : LF890G  
 Test Mode : PC mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa  
 Test Engineer: Colin  
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV		dB	dBuV	dBuV	dB	
1	0.280	17.38	0.26	10.74	28.38	50.81	-22.43	Average
2	0.285	32.32	0.26	10.74	43.32	60.68	-17.36	QP
3	0.541	17.86	0.27	10.76	28.89	46.00	-17.11	Average
4	0.564	31.70	0.26	10.77	42.73	56.00	-13.27	QP
5	0.720	16.53	0.22	10.78	27.53	46.00	-18.47	Average
6	1.094	29.25	0.25	10.88	40.38	56.00	-15.62	QP
7	1.216	29.57	0.25	10.90	40.72	56.00	-15.28	QP
8	1.216	16.03	0.25	10.90	27.18	46.00	-18.82	Average
9	1.980	27.05	0.26	10.96	38.27	56.00	-17.73	QP
10	1.980	13.24	0.26	10.96	24.46	46.00	-21.54	Average
11	23.636	34.40	0.47	10.88	45.75	60.00	-14.25	QP
12	23.636	20.42	0.47	10.88	31.77	50.00	-18.23	Average

Neutral:



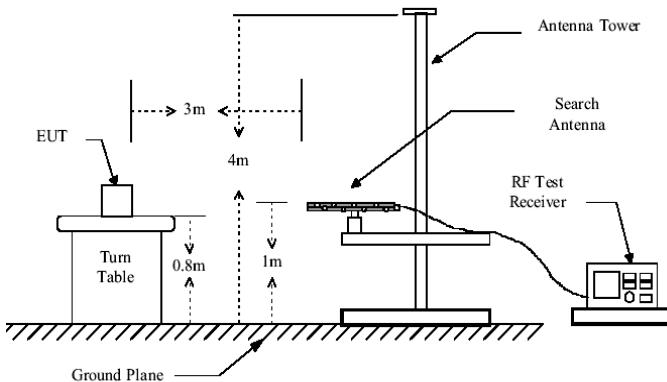
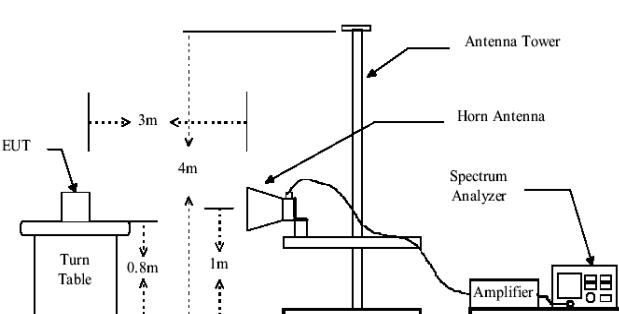
Site : CCIS Shielding Room  
 Condition : FCC PART15 B QP LISN NEUTRAL  
 Job. no : 772RF  
 EUT : Mobile Phone  
 Model : LF890G  
 Test Mode : PC mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp: 23 °C Huni:56% Atmos:101KPa  
 Test Engineer: Colin  
 Remark :

Freq	Read	LISN	Cable	Level	Limit	Over	Remark
	Freq	Level	Factor		Loss	Line	
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.195	24.31	0.25	10.76	35.32	53.80	-18.48 Average
2	0.255	35.68	0.26	10.75	46.69	61.60	-14.91 QP
3	0.280	34.77	0.26	10.74	45.77	60.81	-15.04 QP
4	0.375	21.02	0.25	10.72	31.99	48.39	-16.40 Average
5	0.521	23.59	0.28	10.76	34.63	46.00	-11.37 Average
6	0.546	34.13	0.26	10.76	45.15	56.00	-10.85 QP
7	0.775	31.48	0.19	10.80	42.47	56.00	-13.53 QP
8	0.918	19.39	0.21	10.84	30.44	46.00	-15.56 Average
9	1.898	25.62	0.29	10.95	36.86	56.00	-19.14 QP
10	1.918	16.81	0.29	10.95	28.05	46.00	-17.95 Average
11	23.636	27.65	0.45	10.88	38.98	60.00	-21.02 QP
12	23.636	17.25	0.45	10.88	28.58	50.00	-21.42 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

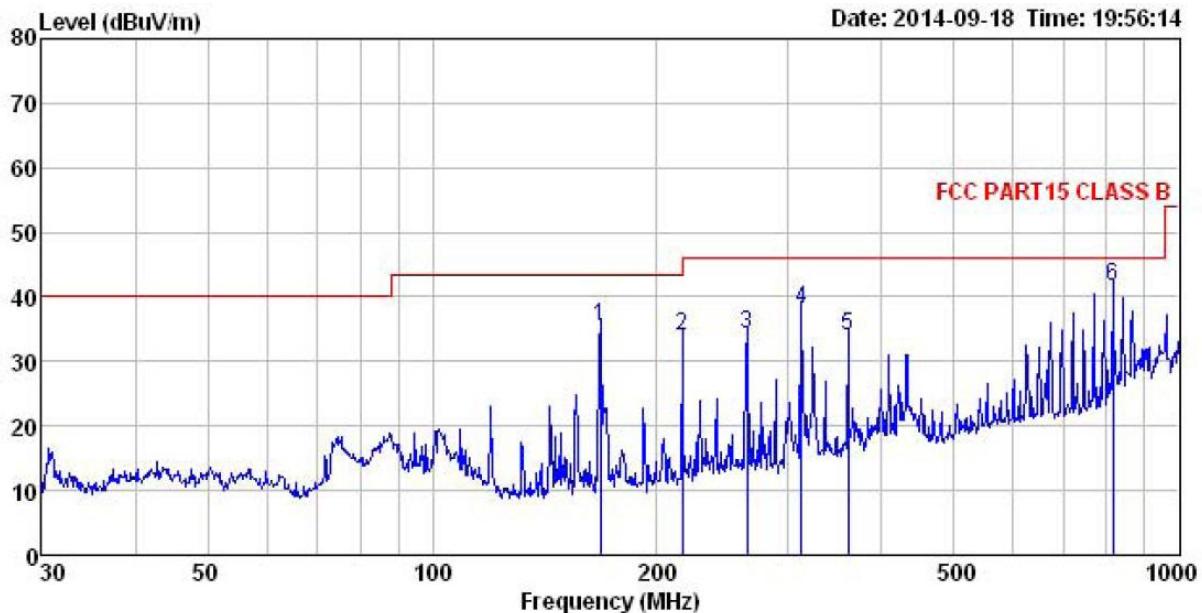
Test Requirement:	FCC Part 15 B Section 15.109										
Test Method:	ANSI C63.4:2003										
Test Frequency Range:	30MHz to 6000MHz										
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)										
Receiver setup:	Frequency	Detector	RBW	VBW	Remark						
	30MHz-1GHz	Quasi-peak	120 kHz	300kHz	Quasi-peak Value						
	Above 1GHz	Peak	1MHz	3MHz	Peak Value						
Limit:	Frequency	Limit (dB <sub>UV</sub> /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							
Test setup:		74.0									
Below 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.:	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

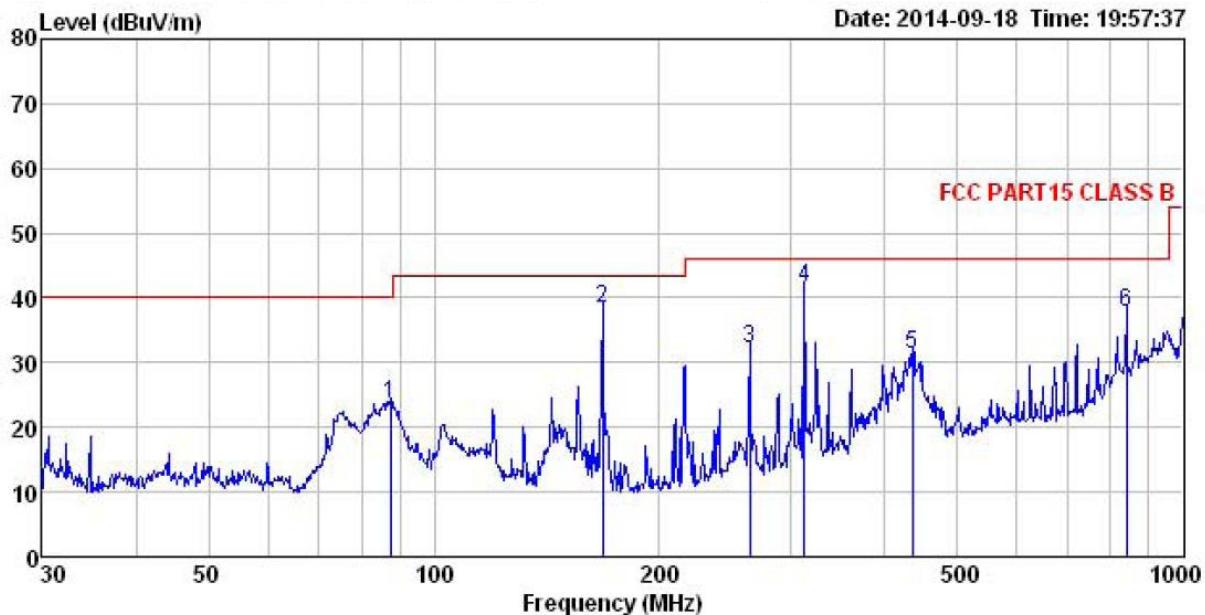
Horizontal:



Site : 3m chamber  
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL  
Job No. : 772RF  
EUT : Mobile Phone  
Model : LF890G  
Test mode : PC mode  
Power Rating : AC 120V/60Hz  
Environment : Temp:25.5°C Huni:55%  
Test Engineer: Colin  
Remark :

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark	
							Level	Line
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	167.824	54.39	8.90	1.34	29.07	35.56	43.50	-7.94 QP
2	216.024	50.07	11.07	1.46	28.73	33.87	46.00	-12.13 QP
3	263.819	48.94	12.17	1.66	28.51	34.26	46.00	-11.74 QP
4	312.179	51.61	13.22	1.81	28.48	38.16	46.00	-7.84 QP
5	360.448	46.17	14.43	1.98	28.61	33.97	46.00	-12.03 QP
6	815.968	46.41	20.24	3.20	28.13	41.72	46.00	-4.28 QP

Vertical:

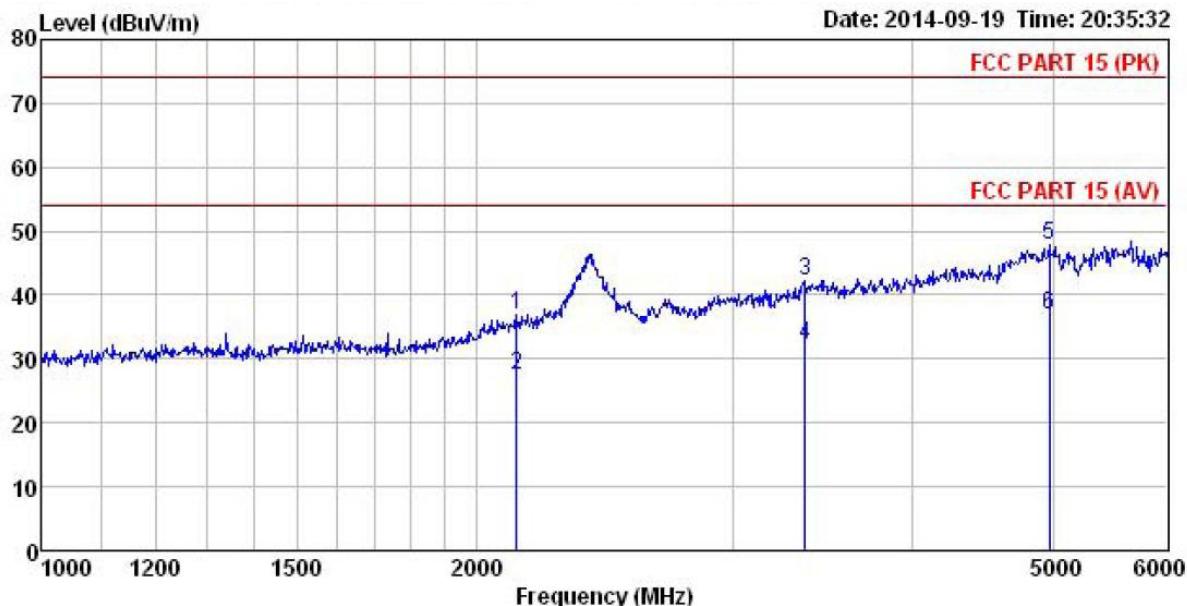


Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL  
 Job No. : 772RF  
 EUT : Mobile Phone  
 Model : LF890G  
 Test mode : PC mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp:25.5°C Huni:55%  
 Test Engineer: Colin  
 Remark :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line Limit	Over Remark
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 87.418	41.09	11.18	0.89	29.58	23.58	40.00	-16.42 QP
2 167.824	57.13	8.90	1.34	29.07	38.30	43.50	-5.20 QP
3 263.819	46.95	12.17	1.66	28.51	32.27	46.00	-13.73 QP
4 312.179	54.97	13.22	1.81	28.48	41.52	46.00	-4.48 QP
5 435.590	42.25	15.54	2.21	28.85	31.15	46.00	-14.85 QP
6 839.182	42.19	20.46	3.23	28.04	37.84	46.00	-8.16 QP

Above 1GHz

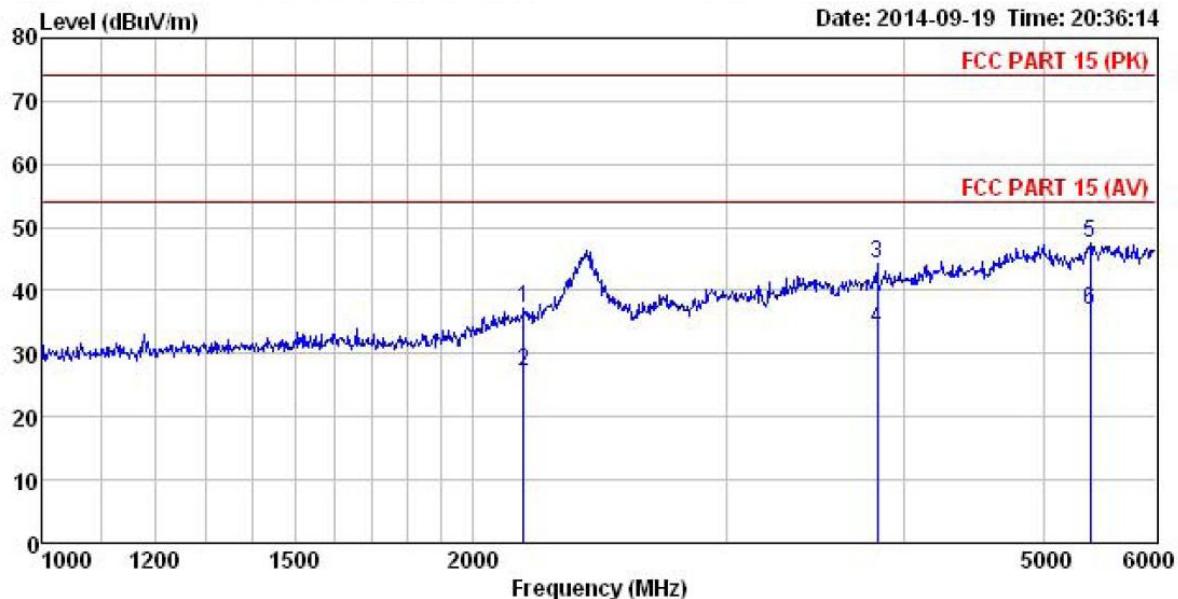
Horizontal:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL  
 Pro : 772RF  
 EUT : Mobile Phone  
 Model : LF890G  
 Test mode : PC mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp:25.5°C Huni:55%  
 Test Engineer: Colin  
 REMARK :

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	
1	2130.001	45.02	27.34	5.08	40.45	36.99	74.00 -37.01 Peak
2	2130.001	35.58	27.34	5.08	40.45	27.55	54.00 -26.45 Average
3	3369.664	46.79	28.35	6.35	39.15	42.34	74.00 -31.66 Peak
4	3369.664	36.63	28.35	6.35	39.15	32.18	54.00 -21.82 Average
5	4971.019	46.95	31.74	9.10	40.00	47.79	74.00 -26.21 Peak
6	4971.019	35.93	31.74	9.10	40.00	36.77	54.00 -17.23 Average

Vertical:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL  
 Pro : 772RF  
 EUT : Mobile Phone  
 Model : LF890G  
 Test mode : PC mode  
 Power Rating : AC 120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Colin  
 REMARK :

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	
1	2168.510	44.53	27.66	5.19	40.28	37.10	74.00 -36.90 Peak
2	2168.510	34.52	27.66	5.19	40.28	27.09	54.00 -26.91 Average
3	3826.796	47.88	29.63	7.52	40.63	44.40	74.00 -29.60 Peak
4	3826.796	37.39	29.63	7.52	40.63	33.91	54.00 -20.09 Average
5	5388.429	46.81	31.84	9.15	40.19	47.61	74.00 -26.39 Peak
6	5388.429	36.04	31.84	9.15	40.19	36.84	54.00 -17.16 Average