Report No: CCIS13070021904

FCC REPORT

Applicant:	Power Idea Technology (Shenzhen) Co., Ltd.
Address of Applicant:	4th Floor, A Section ,Languang Science&technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan District ShenZhen City,China.

Equipment Under Test (EUT)

Product Name:	Mobile Phone
Model No.:	RG220,SWIFT PLUS
Trade mark:	RugGear
FCC ID:	ZLE-RG220
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	17 Jul., 2013
Date of Test:	18 Jul., to 08 Aug., 2013
Date of report issued:	08 Aug., 2013
Test Result :	Pass *

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*08 Aug., 2013*	*Original*

Prepared by: Sera ***Date:*** *08 Aug., 2013*

Report Clerk

Reviewed by: Vincent chen ***Date:*** *08 Aug., 2013*

Project Engineer

3 Contents

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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:	Power Idea Technology (Shenzhen) Co., Ltd.
Address of Applicant:	4th Floor, A Section ,Languang Science&technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan District ShenZhen City,China.
Manufacturer:	Power Idea Technology (Shenzhen) Co., Ltd.
Address of Manufacturer:	4th Floor, A Section ,Languang Science&technology Xinxi RD, Hi-Tech Industrial Park North, Nanshan District ShenZhen City,China.

5.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	RG220,SWIFT PLUS
Trade mark:	RugGear
AC adapter:	Input:100-240V AC,50/60Hz 0.15A Output:5.0V DC MAX1000mA
Power supply:	Rechargeable Li-ion Battery DC3.7V-1800mAh
Remark:	The Model: RG220 and SWIFT PLUS are identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.

5.3 Test Mode

Operating mode	Detail description
Downloading mode	Keep the EUT in transfer data with Downloading mode (Worst case)
GPS mode	Keep the EUT in GPS receiever mode
Recording mode	Keep the EUT in recording music or video mode
Play mode	Keep the EUT in play music or video mode
FM mode	Keep the EUT in play FM receiever 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 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

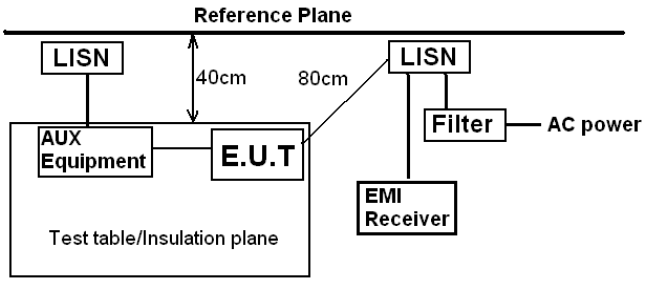
5.7 Test Instruments list

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	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	Apr. 01 2013	Mar. 31 2014
6	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2013	Mar. 31 2014
7	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2013	Mar. 31 2014
8	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2013	Mar. 31 2014
9	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2013	Mar. 31 2014
10	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2013	Mar. 31 2014
11	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2013	June 08 2014
12	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2013	Mar. 31 2014
13	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2013	Mar. 29 2014
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	Apr 01 2013	Mar. 31 2014
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2012	Aug. 11 2013
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	Apr. 01 2013	Mar. 31 2014
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2013	Mar. 31 2014

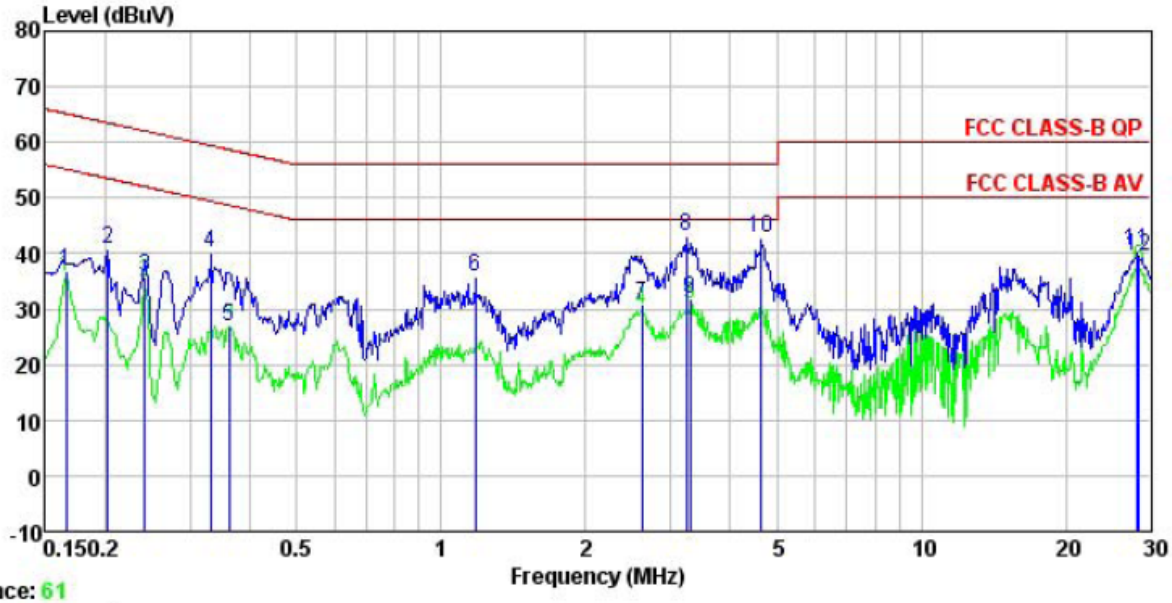
6 Test results and Measurement Data

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:	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:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence 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 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement data:

Line:

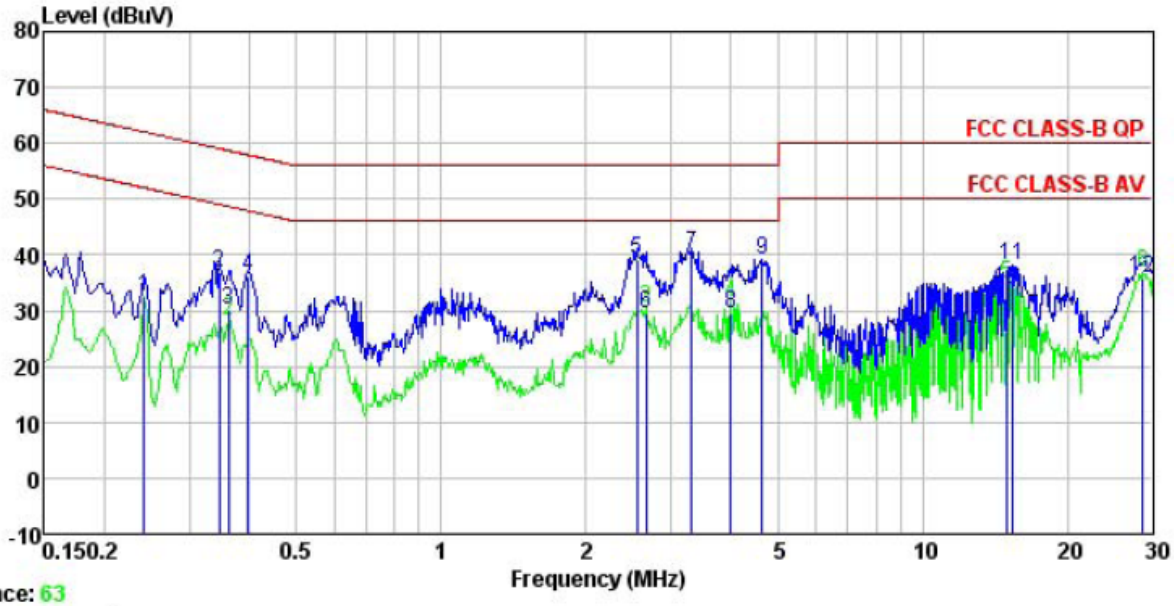


Trace: 61

```
Site          :
Condition     : FCC CLASS-B QP LISN LINE
Job No.       : 219RF
EUT           : Mobile Phone
Model         : RG220
Test Mode     : Downloading Mode
Power Rating  : AC 120V/60Hz
Environment   : Temp: 23 'C Huni:56%  Atmos:101KPa
Test Engineer: Vincent
```

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.166	25.73	10.24	0.78	36.75	55.16	-18.41	Average
2	0.202	29.96	10.21	0.76	40.93	63.54	-22.61	QP
3	0.242	25.01	10.23	0.75	35.99	52.04	-16.05	Average
4	0.330	29.04	10.27	0.73	40.04	59.44	-19.40	QP
5	0.361	16.01	10.27	0.73	27.01	48.69	-21.68	Average
6	1.178	24.59	10.23	0.89	35.71	56.00	-20.29	QP
7	2.622	19.65	10.28	0.93	30.86	46.00	-15.14	Average
8	3.241	31.86	10.29	0.91	43.06	56.00	-12.94	QP
9	3.293	20.75	10.29	0.91	31.95	46.00	-14.05	Average
10	4.647	31.80	10.28	0.87	42.95	56.00	-13.05	QP
11	28.152	28.74	10.76	0.87	40.37	60.00	-19.63	QP
12	28.452	27.78	10.78	0.87	39.43	50.00	-10.57	Average

Neutral:



Trace: 63

```
Site          :
Condition     : FCC CLASS-B QP LISN NEUTRAL
Job No.       : 219RF
EUT           : Mobile Phone
Model         : RG220
Test Mode     : Downloading Mode
Power Rating  : AC 120V/60Hz
Environment   : Temp: 23 'C Huni:56%  Atmos:101KPa
Test Engineer: Vincent
```

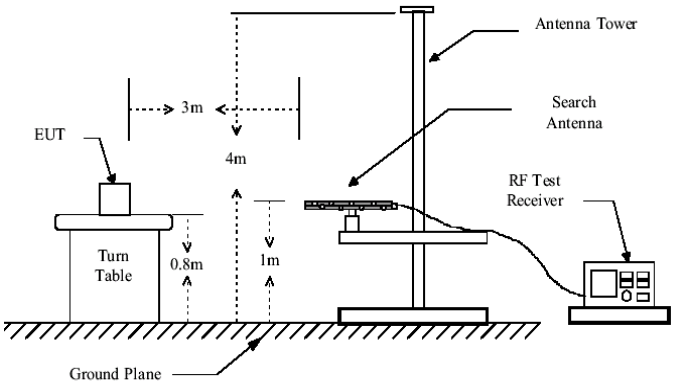
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.242	21.56	10.23	0.75	32.54	52.04	-19.50	Average
2	0.346	25.91	10.25	0.73	36.89	59.05	-22.16	QP
3	0.361	19.29	10.25	0.73	30.27	48.69	-18.42	Average
4	0.398	25.23	10.26	0.72	36.21	57.90	-21.69	QP
5	2.554	27.89	10.27	0.94	39.10	56.00	-16.90	QP
6	2.664	18.45	10.27	0.93	29.65	46.00	-16.35	Average
7	3.310	29.03	10.28	0.91	40.22	56.00	-15.78	QP
8	3.985	18.19	10.28	0.89	29.36	46.00	-16.64	Average
9	4.647	28.10	10.27	0.87	39.24	56.00	-16.76	QP
10	14.907	22.73	10.23	0.90	33.86	50.00	-16.14	Average
11	15.388	27.18	10.24	0.90	38.32	60.00	-21.68	QP
12	28.603	24.18	10.78	0.87	35.83	50.00	-14.17	Average

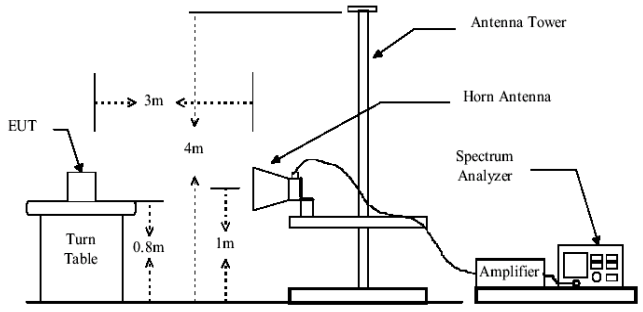
Notes:

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

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2003</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 6000MHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120 kHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<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>
</table>
</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz
 

Above 1GHz
 

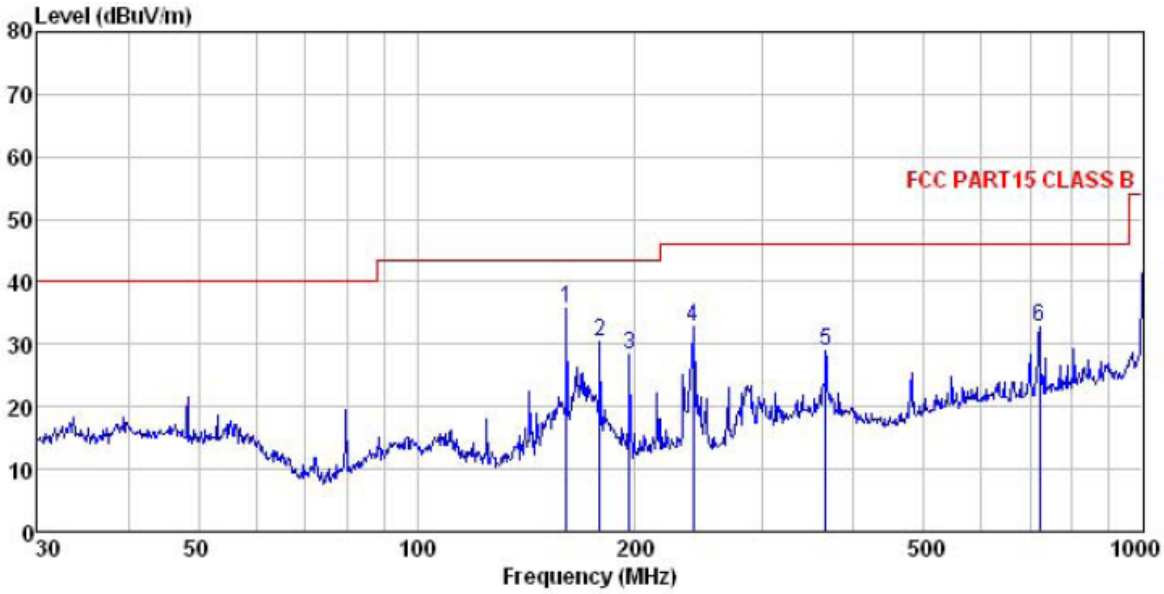
</td></tr>
</table>

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 camber. 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 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Below 1GHz

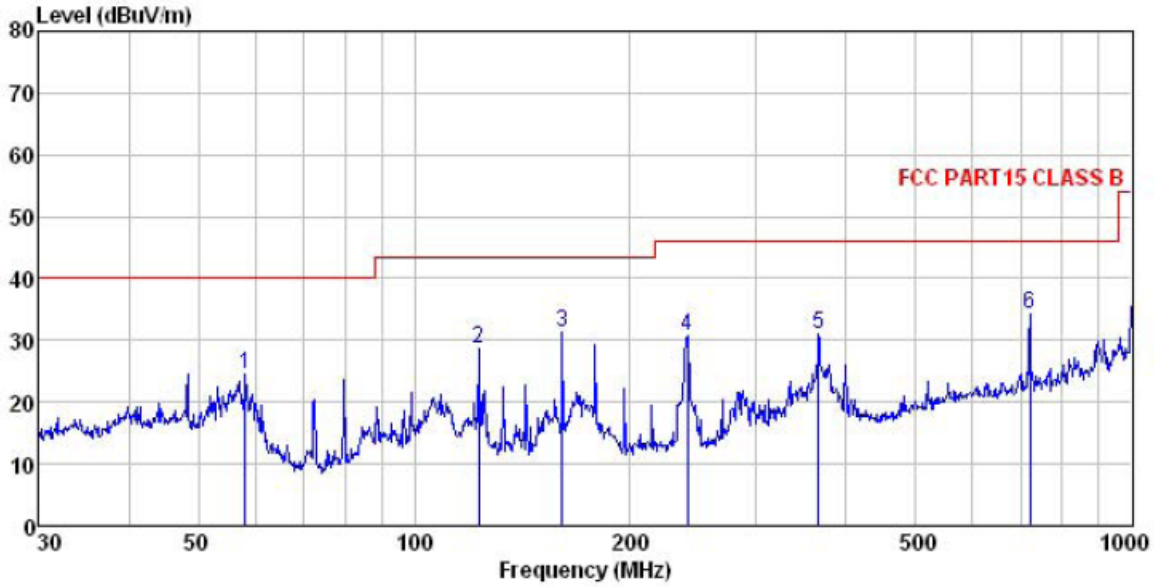
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
Job NO. : 219RF
EUT : Mobile phone
Model : RG220
Test mode : Downloading mode
Power Rating : AC 120V /60Hz
Environment : Temp:24℃ Huni:65% Atmos:101Kpa
Test Engineer: Vincent

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	160.909	54.17	8.69	2.60	29.87	35.59	43.50	-7.91	QP
2	178.758	44.97	9.62	2.72	26.81	30.50	43.50	-13.00	QP
3	196.510	44.65	10.57	2.84	29.82	28.24	43.50	-15.26	QP
4	239.987	47.52	12.09	2.82	29.64	32.79	46.00	-13.21	QP
5	365.539	41.14	14.48	3.09	29.75	28.96	46.00	-17.04	QP
6	721.726	39.98	19.10	4.26	30.55	32.79	46.00	-13.21	QP

Vertical:

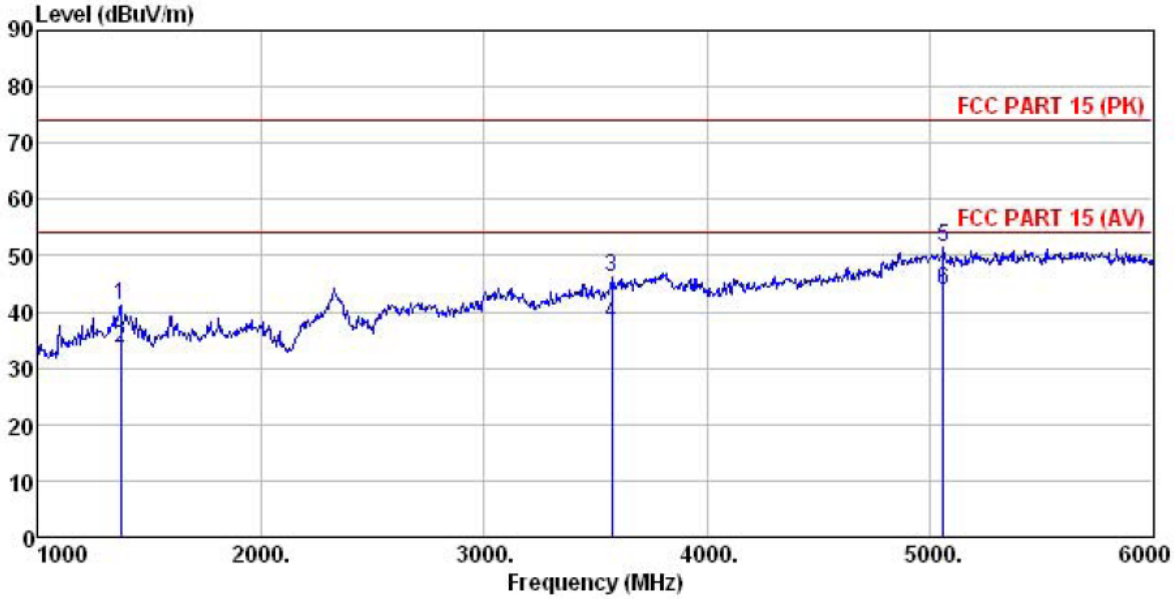


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
Job NO. : 219RF
EUT : Mobile phone
Model : RG220
Test mode : Downloading mode
Power Rating : AC 120V /60Hz
Environment : Temp:24℃ Huni:65% Atmos:101Kpa
Test Engineer: Vincent

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	58.203	39.23	12.81	1.37	29.05	24.36	40.00	-15.64	QP
2	122.834	46.23	10.00	2.20	29.65	28.78	43.50	-14.72	QP
3	160.909	49.74	8.69	2.60	29.87	31.16	43.50	-12.34	QP
4	239.987	45.34	12.09	2.82	29.64	30.61	46.00	-15.39	QP
5	365.539	43.15	14.48	3.09	29.75	30.97	46.00	-15.03	QP
6	721.726	41.29	19.10	4.26	30.55	34.10	46.00	-11.90	QP

Above 1GHz

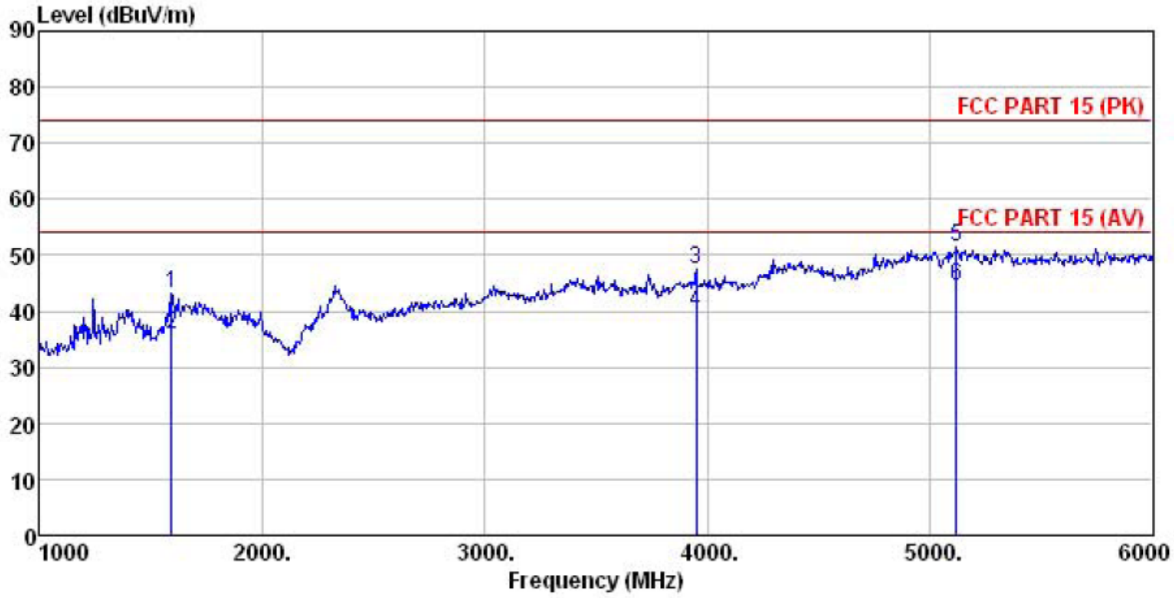
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
Job No. : 219RF
EUT : Mobile phone
Model : RG220
Test mode : Downloading mode
Power Rating : AC 120V/60Hz
Environment : Temp:25°C Huni:55% Atmos:101Kpa
Test Engineer: Vincent

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1370.000	52.78	25.61	3.68	40.93	41.14	74.00	-32.86	Peak
2	1370.000	45.25	25.61	3.68	40.93	33.61	54.00	-20.39	Average
3	3575.000	50.82	29.13	6.16	40.08	46.03	74.00	-27.97	Peak
4	3575.000	42.63	29.13	6.16	40.08	37.84	54.00	-16.16	Average
5	5060.000	50.29	32.01	9.13	40.02	51.41	74.00	-22.59	Peak
6	5060.000	42.56	32.01	9.13	40.02	43.68	54.00	-10.32	Average

Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
Job No. : 219RF
EUT : Mobile phone
Model : RG220
Test mode : Downloading mode
Power Rating : AC 120V/60Hz
Environment : Temp:25'C Huni:55% Atmos:101Kpa
Test Engineer: Vincent

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1590.000	54.93	24.98	4.08	40.97	43.02	74.00	-30.98	Peak
2	1590.000	47.62	24.98	4.08	40.97	35.71	54.00	-18.29	Average
3	3950.000	50.98	29.80	7.61	41.05	47.34	74.00	-26.66	Peak
4	3950.000	43.65	29.80	7.61	41.05	40.01	54.00	-13.99	Average
5	5120.000	50.43	32.10	9.13	40.05	51.61	74.00	-22.39	Peak
6	5120.000	43.23	32.10	9.13	40.05	44.41	54.00	-9.59	Average