Report No: CCIS14110093204

FCC REPORT

Applicant:	GRUN MOBILE LLC
Address of Applicant:	2315 nw 107th Ave SUITE I M02 Mailbox # 33 Doral 33172，United States

Equipment Under Test (EUT)

Product Name:	mobile phone
Model No.:	U402
FCC ID:	2ACFG-U402
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	11 Nov., 2014
Date of Test:	20 Nov., to 21 Nov., 2014
Date of report issued:	24 Nov., 2014
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	*24 Nov., 2014*	*Original*

Prepared by: Yoyo Luo ***Date:*** *24 Nov., 2014*

Report Clerk

Reviewed by: Abomb Yang ***Date:*** *24 Nov., 2014*

Project Engineer

3 Contents

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:	GRUN MOBILE LLC
Address of Applicant:	2315 nw 107th Ave SUITE I M02 Mailbox # 33 Doral 33172，United States
Manufacturer :	shenzhen tianruixiang communication equipment limited
Address of Manufacturer:	12F,Shenzhen science building, zhongshan university, xuefu road, Hi-tech park , nanshan district Shenzhen, China
Factory:	dongguan tianruixiang communication equipment limited
Address of Factory:	1,2,3F,B building, NO.1, keyuan 9 road, tangxia district dongguan

5.2 General Description of E.U.T.

Product Name:	mobile phone
Model No.:	U402
Power supply:	Rechargeable Li-ion Battery DC3.7V-1400mAh
AC adapter :	Input: AC 100-240V 50/60Hz 0.2A Output: DC 5.0V, 1000mA

5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in Downloading mode(Worst case)
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

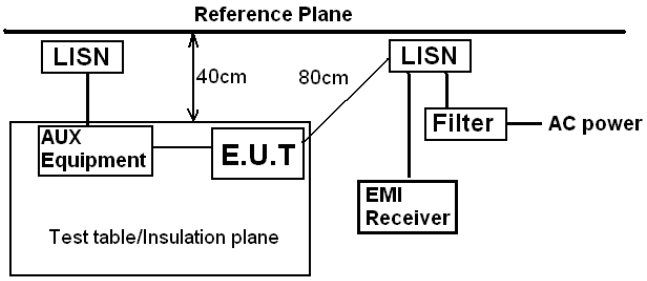
5.7 Test Instruments list

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	08-23-2014	08-22-2017
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	04-19-2014	04-19-2015
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	04-19-2014	04-19-2015
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
5	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2014	03-31-2015
6	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	06-09-2014	06-08-2015
7	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2014	03-31-2015
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	03-31-2014	03-29-2015
9	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
10	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
11	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP 30	CCIS0023	04-19-2014	04-19-2015
12	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	09-02-2014	09-01-2015
13	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2014	03-31-2015
14	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	05-29-2014	05-28-2015
15	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	04-19-2014	04-19-2015

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
1	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	01-10-2014	04-09-2015
2	LISN	CHASE	MN2050D	CCIS0074	01-10-2014	04-09-2015
3	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2014	03-31-2015
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

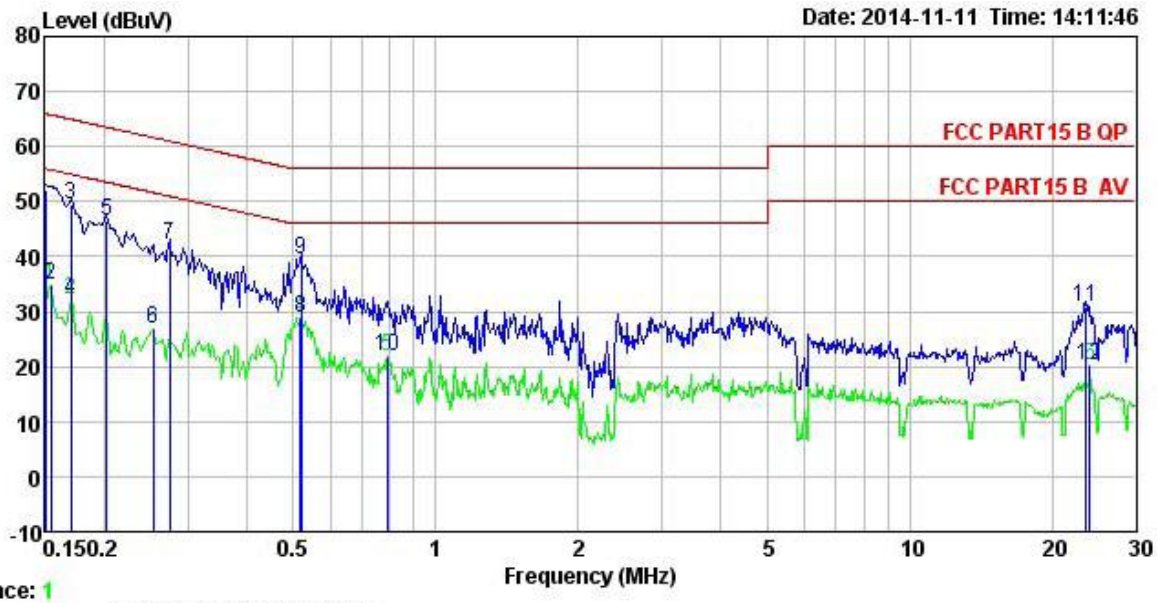
6 Test results and Measurement Data

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:	Passed

Measurement data:

Line:

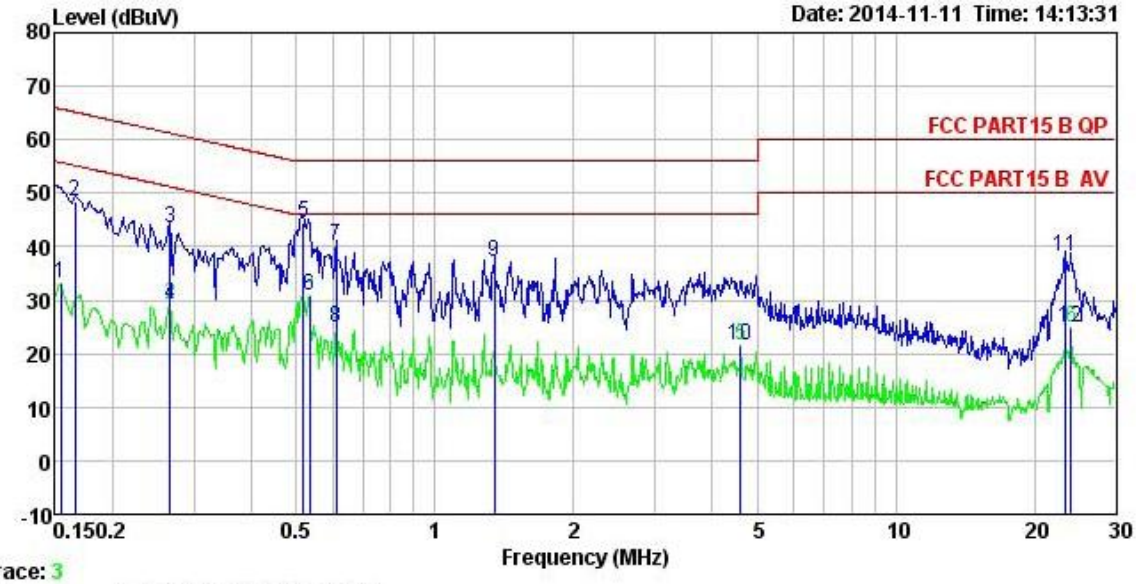


Trace: 1

Site : CCIS Shielding Room
Condition : FCC PART15 B QP LISN LINE
Job No. : 932RF
EUT : mobile phone
Model : U402
Test Mode : PC mode
Power Rating : AC 120V/ 60 Hz
Environment : Temp: 23 'C Huni:56% Atmos:101KPa
Test Engineer: Wendell
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	41.00	0.27	10.78	52.05	66.00	-13.95	QP
2	0.154	23.64	0.27	10.78	34.69	55.78	-21.09	Average
3	0.170	38.39	0.27	10.77	49.43	64.94	-15.51	QP
4	0.170	21.18	0.27	10.77	32.22	54.94	-22.72	Average
5	0.202	35.28	0.28	10.76	46.32	63.54	-17.22	QP
6	0.253	15.81	0.27	10.75	26.83	51.64	-24.81	Average
7	0.274	31.14	0.26	10.74	42.14	60.98	-18.84	QP
8	0.518	17.93	0.28	10.76	28.97	46.00	-17.03	Average
9	0.521	28.28	0.28	10.76	39.32	56.00	-16.68	QP
10	0.792	10.75	0.23	10.81	21.79	46.00	-24.21	Average
11	23.511	19.34	0.47	10.88	30.69	60.00	-29.31	QP
12	24.015	8.81	0.49	10.88	20.18	50.00	-29.82	Average

Neutral:



Trace: 3

```
Site          : CCIS Shielding Room
Condition     : FCC PART15 B QP LISN NEUTRAL
Job No.       : 932RF
EUT           : mobile phone
Model         : U402
Test Mode     : PC mode
Power Rating  : AC 120V/ 60 Hz
Environment   : Temp: 23 'C Huni:56%  Atmos:101KPa
Test Engineer: Wendell
Remark        :
```

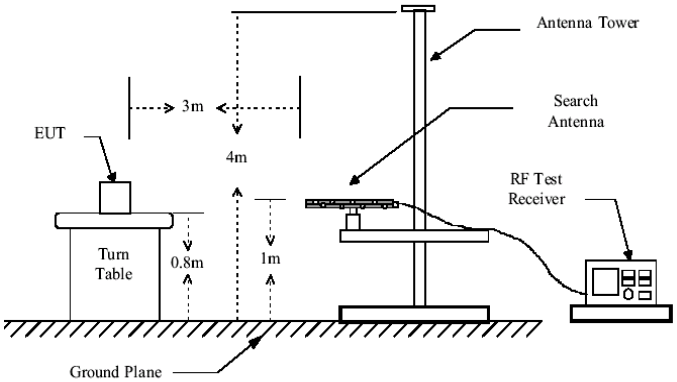
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	22.29	0.25	10.78	33.32	55.78	-22.46	Average
2	0.166	37.39	0.25	10.77	48.41	65.16	-16.75	QP
3	0.266	32.45	0.26	10.75	43.46	61.25	-17.79	QP
4	0.266	18.09	0.26	10.75	29.10	51.25	-22.15	Average
5	0.518	33.53	0.28	10.76	44.57	56.00	-11.43	QP
6	0.535	19.89	0.27	10.76	30.92	46.00	-15.08	Average
7	0.611	29.24	0.22	10.77	40.23	56.00	-15.77	QP
8	0.611	13.96	0.22	10.77	24.95	46.00	-21.05	Average
9	1.345	25.88	0.25	10.91	37.04	56.00	-18.96	QP
10	4.598	10.50	0.28	10.86	21.64	46.00	-24.36	Average
11	23.387	26.90	0.43	10.89	38.22	60.00	-21.78	QP
12	24.015	13.49	0.48	10.88	24.85	50.00	-25.15	Average

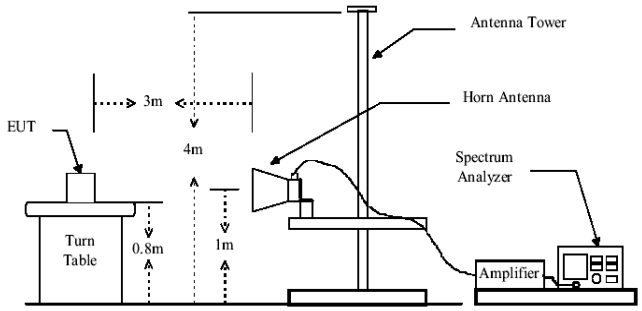
Notes:

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
 

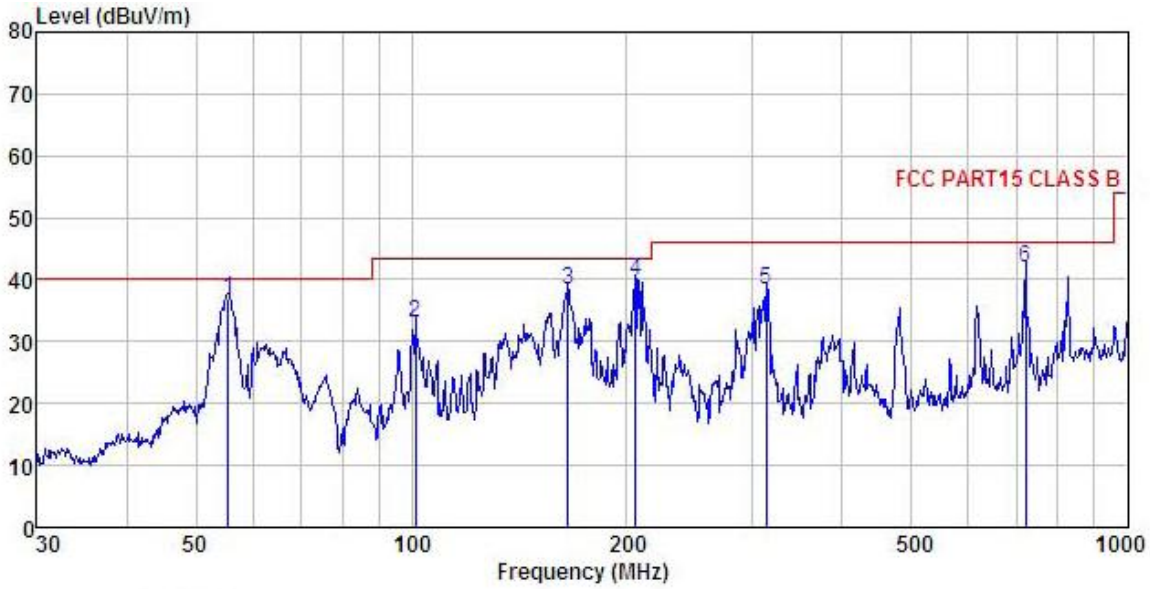
</td></tr>
</table>

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.:	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

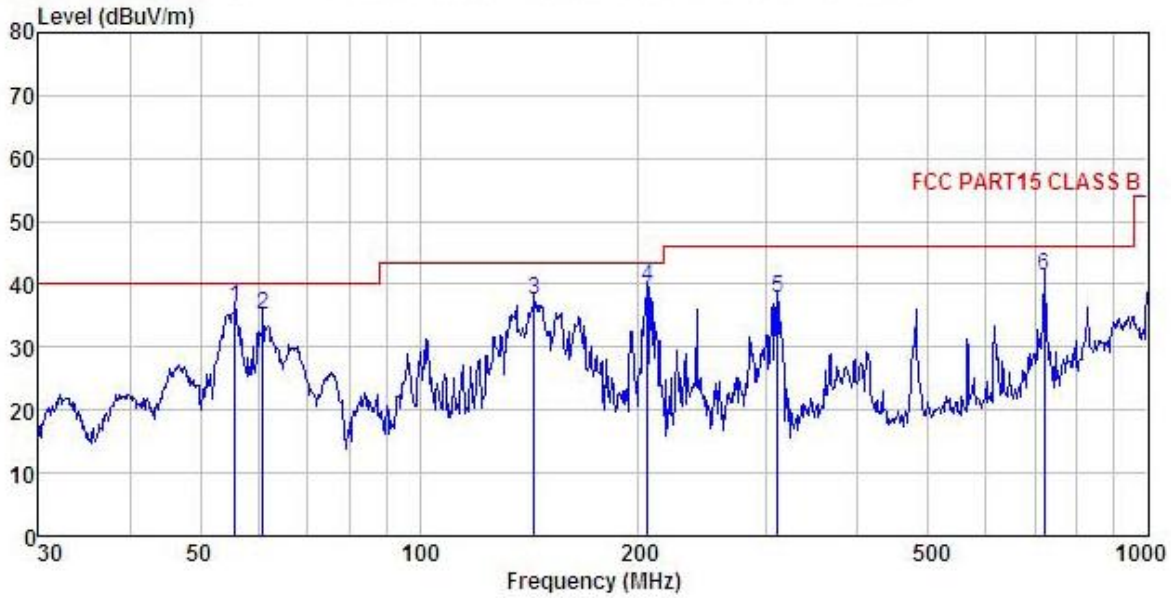
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
Jobi NO. : 932RF
EUT : mobile phone
Model : U402
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5'C Huni:55%
Test Engineer: Wendell
Remark :

	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	55.415	53.07	13.01	0.65	29.80	36.93	40.00	-3.07	QP
2	101.289	48.56	13.02	0.97	29.52	33.03	43.50	-10.47	QP
3	165.487	57.32	8.82	1.34	29.09	38.39	43.50	-5.11	QP
4	205.675	56.50	10.74	1.41	28.79	39.86	43.50	-3.64	QP
5	313.276	51.80	13.24	1.82	28.48	38.38	46.00	-7.62	QP
6	721.726	48.35	19.10	2.97	28.58	41.84	46.00	-4.16	QP

Vertical:

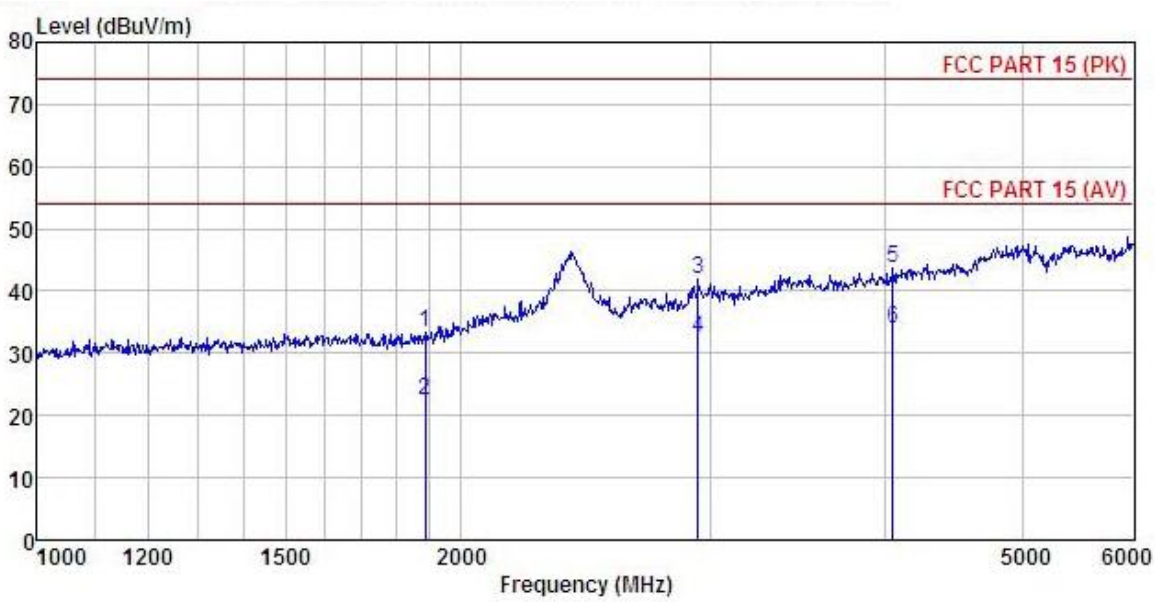


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
Jobi NO. : 932RF
EUT : mobile phone
Model : U402
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Wendell
Remark :

	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	55.805	52.46	12.99	0.66	29.80	36.31	40.00	-3.69	QP
2	60.918	51.75	12.43	0.70	29.77	35.11	40.00	-4.89	QP
3	143.830	57.27	8.22	1.28	29.25	37.52	43.50	-5.98	QP
4	205.675	56.19	10.74	1.41	28.79	39.55	43.50	-3.95	QP
5	309.998	51.24	13.19	1.80	28.47	37.76	46.00	-8.24	QP
6	721.726	47.76	19.10	2.97	28.58	41.25	46.00	-4.75	QP

Above 1GHz

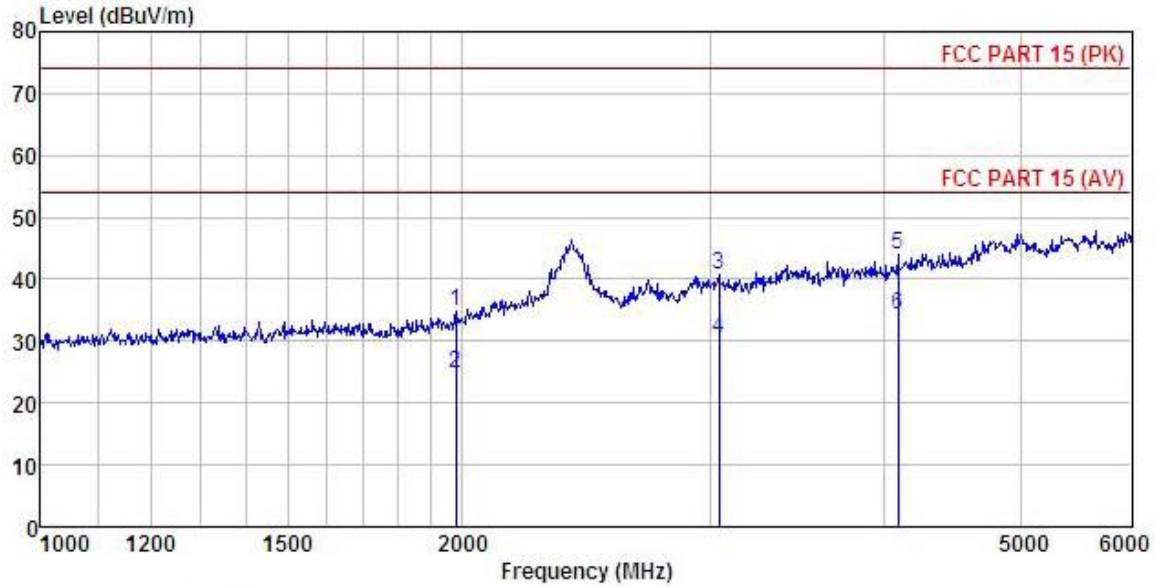
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
Jobi NO. : 932RF
EUT : mobile phone
Model : U402
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5'C Huni:55%
Test Engineer: Wendell
Remark :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1885.669	43.92	25.67	4.74	40.92	33.41	74.00	-40.59	Peak
2	1885.669	33.02	25.67	4.74	40.92	22.51	54.00	-31.49	Average
3	2945.949	48.09	28.43	6.01	40.56	41.97	74.00	-32.03	Peak
4	2945.949	38.54	28.43	6.01	40.56	32.42	54.00	-21.58	Average
5	4045.367	47.05	29.91	7.72	41.10	43.58	74.00	-30.42	Peak
6	4045.367	37.46	29.91	7.72	41.10	33.99	54.00	-20.01	Average

Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
Jobi NO. : 932RF
EUT : mobile phone
Model : U402
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Wendell
Remark :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1979.136	44.87	26.06	4.82	40.85	34.90	74.00	-39.10	Peak
2	1979.136	34.63	26.06	4.82	40.85	24.66	54.00	-29.34	Average
3	3047.966	46.75	28.65	6.00	40.55	40.85	74.00	-33.15	Peak
4	3047.966	36.39	28.65	6.00	40.55	30.49	54.00	-23.51	Average
5	4089.092	47.17	30.03	7.81	41.05	43.96	74.00	-30.04	Peak
6	4089.092	37.53	30.03	7.81	41.05	34.32	54.00	-19.68	Average