FCC REPORT

Applicant:	LAVA INTERNATIONAL (H.K) LIMITED
Address of Applicant:	UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK

Equipment Under Test (EUT)

Product Name:	Mobile Phone
Model No.:	iris 80
Trade mark:	LAVA
FCC ID:	2AEE8LAVAIRIS80
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	13 Apr., 2017
Date of Test:	14 Apr., to 28 Apr., 2017
Date of report issued:	02 May, 2017
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	*02 May, 2017*	*Original*

Tested by: Carey Chen ***Date:*** *02 May, 2017*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *02 May, 2017*

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part 15.107	Pass
Radiated Emission	Part 15.109	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	LAVA INTERNATIONAL (H.K) LIMITED
Address of Applicant:	UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK
Manufacturer	LAVA INTERNATIONAL (H.K) LIMITED
Address of Manufacturer:	UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST, JORDAN KL, HK

5.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	iris 80
Power supply:	Rechargeable Li-polymer battery DC3.8V-2500mAh
AC adapter :	Model: CLV-15 Input: AC100-300V 50/60Hz 0.15A Output: DC 5.0V, 1A

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+Playing mode	Keep the EUT in Charging+Playing mode
FM mode	Keep the EUT in FM receiver mode
GPS mode	Keep the EUT in GPS 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 Measurement Uncertainty

Items	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)

5.5 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
NAKAMICHI	Bluetooth earphone	T8	N/A	FCC ID

5.6 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.

5.7 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: +86-755-23118282
Fax: +86-755-23116366

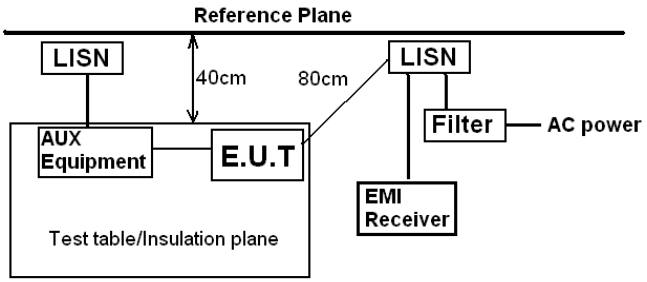
5.8 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	02-25-2017	02-24-2018
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
6	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018
7	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	N/A	N/A	CCIS0018	02-25-2017	02-24-2018
10	Coaxial Cable	N/A	N/A	CCIS0020	02-25-2017	02-24-2018

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	08-23-2014	08-22-2017
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	02-25-2017	02-24-2018
3	LISN	CHASE	MN2050D	CCIS0074	02-25-2017	02-24-2018
4	Coaxial Cable	CCIS	N/A	CCIS0086	02-25-2017	02-24-2018
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

6 Test results and Measurement Data

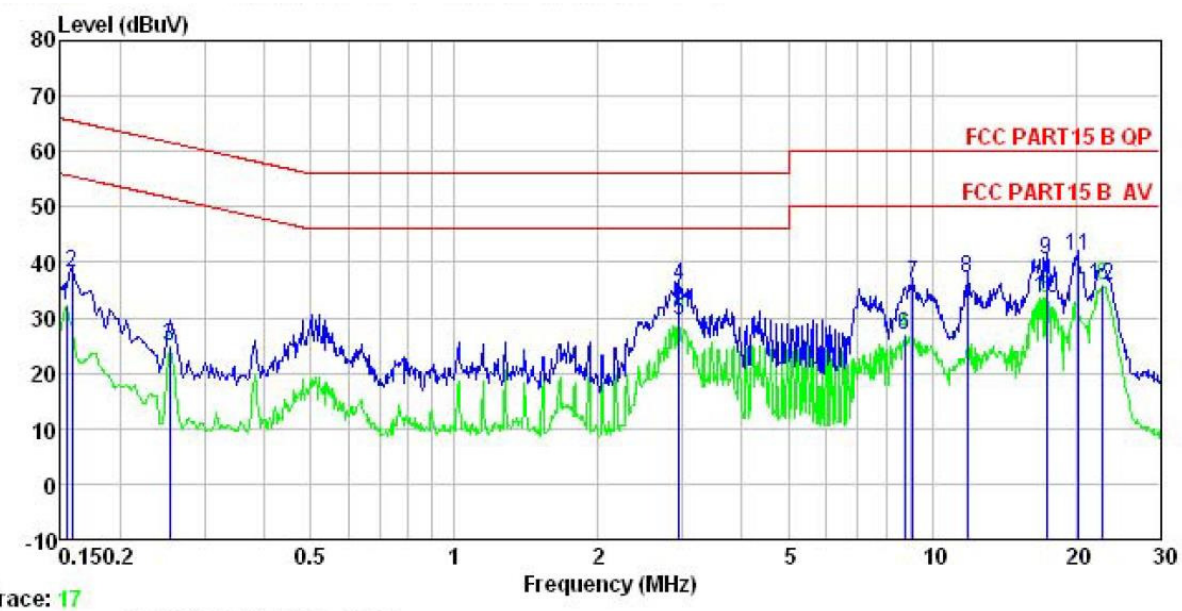
6.1 Conducted Emission

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 B Section 15.107</td></tr>
<tr><td>Test Method:</td><td colspan="5">ANSI C63.4:2014</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">150kHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="5">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="5">RBW=9kHz, VBW=30kHz</td></tr>
<tr><td>Limit:</td><td colspan="5"><table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBµV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></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>
<tr><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
</table></td></tr>
<tr><td>Test setup:</td><td colspan="5"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test procedure</td><td colspan="5">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: 2014 on conducted measurement.</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>23 °C</td><td>Humid.:</td><td>56%</td><td>Press.:</td><td>101kPa</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 5.7 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td colspan="5">Pass</td></tr>
</table>

Measurement data:

Line:



Trace: 17

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Site          : CCIS Shielding Room
Condition     : FCC PART15 B QP LISN LINE
EUT           : Mobile Phone
Model         : iris 80
Test Mode     : PC mode
Power Rating  : AC 120V/50Hz
Environment   : Temp: 23 'C Huni:56%  Atmos:101KPa
Test Engineer: Carey
Remark        :
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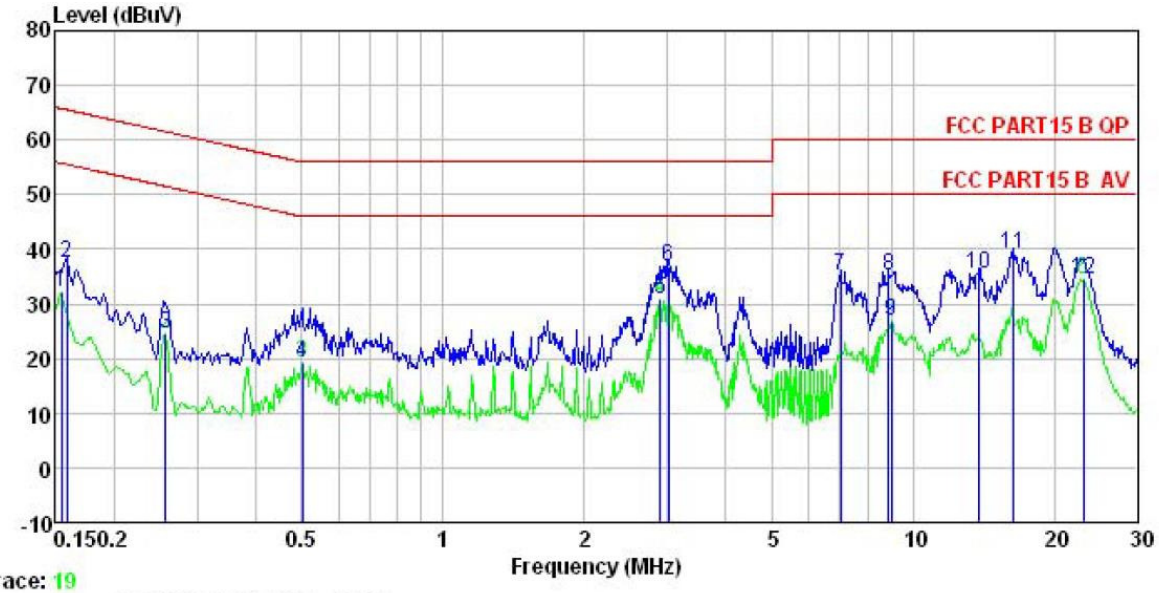
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	21.35	0.14	10.78	32.27	55.78	-23.51	Average
2	0.158	27.35	0.14	10.78	38.27	65.56	-27.29	QP
3	0.253	13.81	0.16	10.75	24.72	51.64	-26.92	Average
4	2.946	24.60	0.33	10.92	35.85	56.00	-20.15	QP
5	2.946	18.30	0.33	10.92	29.55	46.00	-16.45	Average
6	8.776	15.49	0.32	10.89	26.70	50.00	-23.30	Average
7	9.107	24.81	0.32	10.90	36.03	60.00	-23.97	QP
8	11.870	25.88	0.28	10.92	37.08	60.00	-22.92	QP
9	17.383	29.31	0.30	10.91	40.52	60.00	-19.48	QP
10	17.383	22.46	0.30	10.91	33.67	50.00	-16.33	Average
11	20.162	29.88	0.34	10.93	41.15	60.00	-18.85	QP
12	22.775	24.65	0.35	10.89	35.89	50.00	-14.11	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

Neutral:



Trace: 19

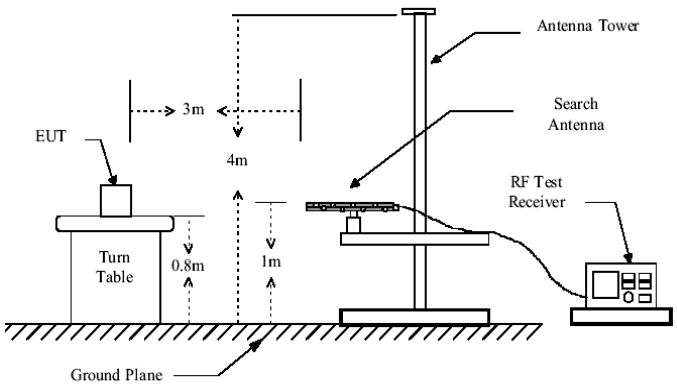
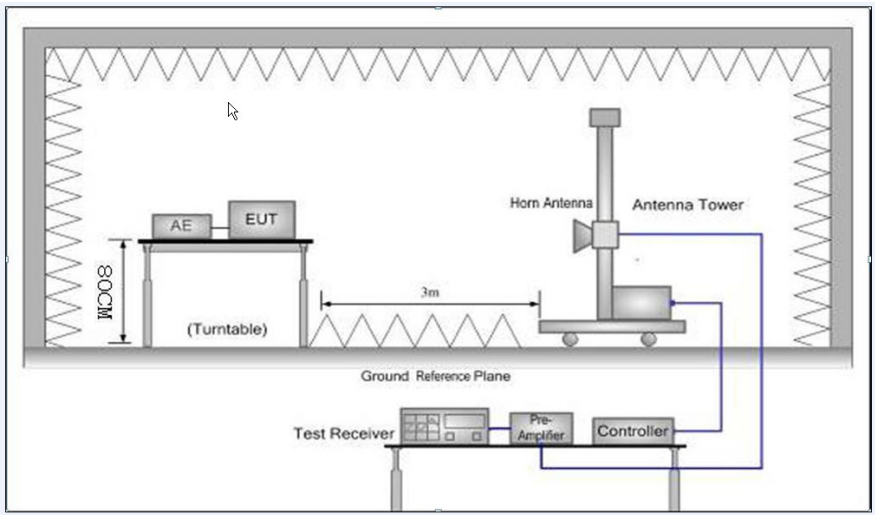
Site : CCIS Shielding Room
Condition : FCC PART15 B QP LISN NEUTRAL
EUT : Mobile Phone
Model : iris 80
Test Mode : PC mode
Power Rating : AC 120V/50Hz
Environment : Temp: 23 'C Huni:56% Atmos:101KPa
Test Engineer: Carey
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	21.24	0.12	10.78	32.14	55.78	-23.64	Average
2	0.158	26.44	0.13	10.78	37.35	65.56	-28.21	QP
3	0.258	13.70	0.17	10.75	24.62	51.51	-26.89	Average
4	0.502	8.39	0.24	10.76	19.39	46.00	-26.61	Average
5	2.900	19.54	0.30	10.92	30.76	46.00	-15.24	Average
6	3.025	25.59	0.31	10.92	36.82	56.00	-19.18	QP
7	7.025	23.99	0.32	10.80	35.11	60.00	-24.89	QP
8	8.869	24.03	0.27	10.89	35.19	60.00	-24.81	QP
9	9.011	15.77	0.26	10.90	26.93	50.00	-23.07	Average
10	13.841	24.23	0.26	10.91	35.40	60.00	-24.60	QP
11	16.398	28.07	0.27	10.91	39.25	60.00	-20.75	QP
12	23.018	23.32	0.25	10.89	34.46	50.00	-15.54	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

6.2 Radiated Emission

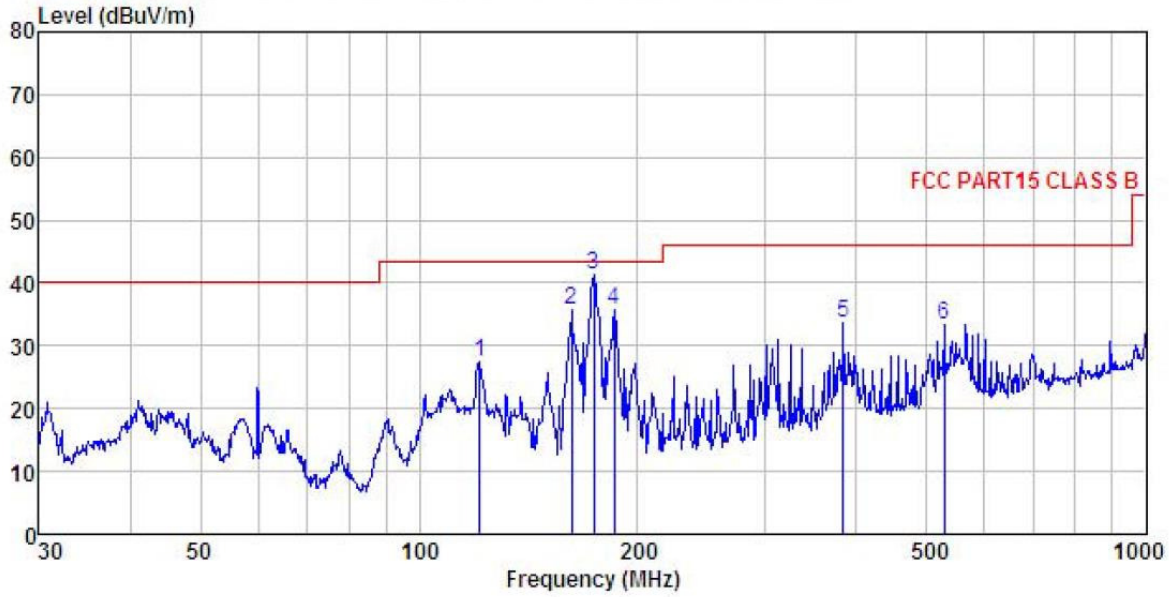
Test Requirement:	FCC Part 15 B Section 15.109				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	30MHz to 26000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	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  Above 1GHz 				

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
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					
Remark:	All of the observed value above 6GHz ware the niose floor , which were no recorded					

Measurement Data:

Below 1GHz

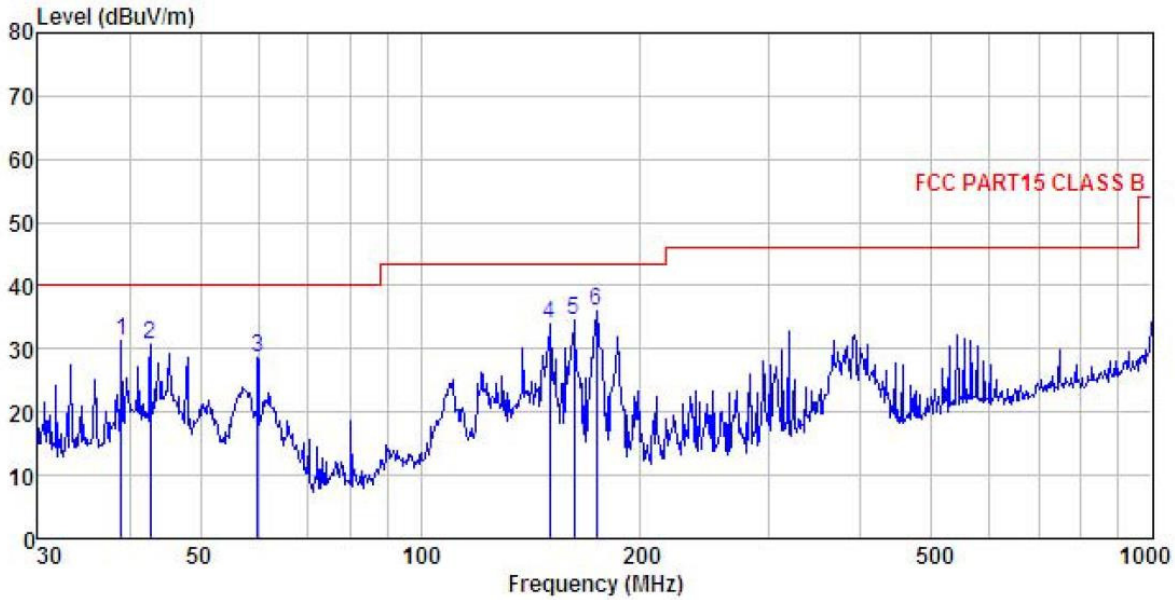
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M3G) HORIZONTAL
EUT : Mobile Phone
Model : iris 80
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Carey
REMARK :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBm	dB/m	dB	dB	dBm/m	dBm/m	dB	
1	121.123	42.91	11.86	2.18	29.38	27.57	43.50	-15.93	QP
2	162.041	52.31	9.88	2.60	29.12	35.67	43.50	-7.83	QP
3	173.814	57.94	9.60	2.68	29.02	41.20	43.50	-2.30	QP
4	185.788	52.35	9.49	2.77	28.93	35.68	43.50	-7.82	QP
5	383.932	44.00	15.40	3.09	28.71	33.78	46.00	-12.22	QP
6	528.246	41.01	17.54	3.77	29.04	33.28	46.00	-12.72	QP

Vertical:

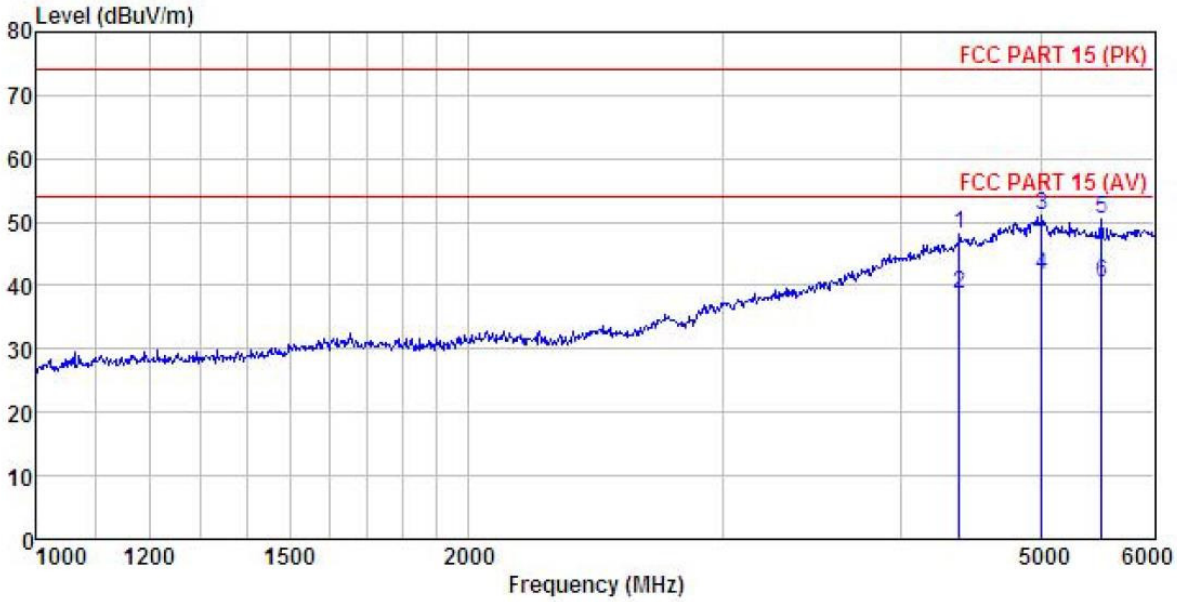


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M3G) VERTICAL
EUT : Mobile Phone
Model : iris 80
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5'C Huni:55%
Test Engineer: Carey
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBm	dB/m	dB	dB	dBm/m	dBm/m	dB	
1	39.024	43.34	16.54	1.18	29.91	31.15	40.00	-8.85	QP
2	42.750	41.83	17.36	1.25	29.88	30.56	40.00	-9.44	QP
3	59.859	46.80	10.32	1.38	29.77	28.73	40.00	-11.27	QP
4	150.011	50.07	10.64	2.52	29.22	34.01	43.50	-9.49	QP
5	162.041	51.16	9.88	2.60	29.12	34.52	43.50	-8.98	QP
6	173.814	52.89	9.60	2.68	29.02	36.15	43.50	-7.35	QP

Above 1GHz

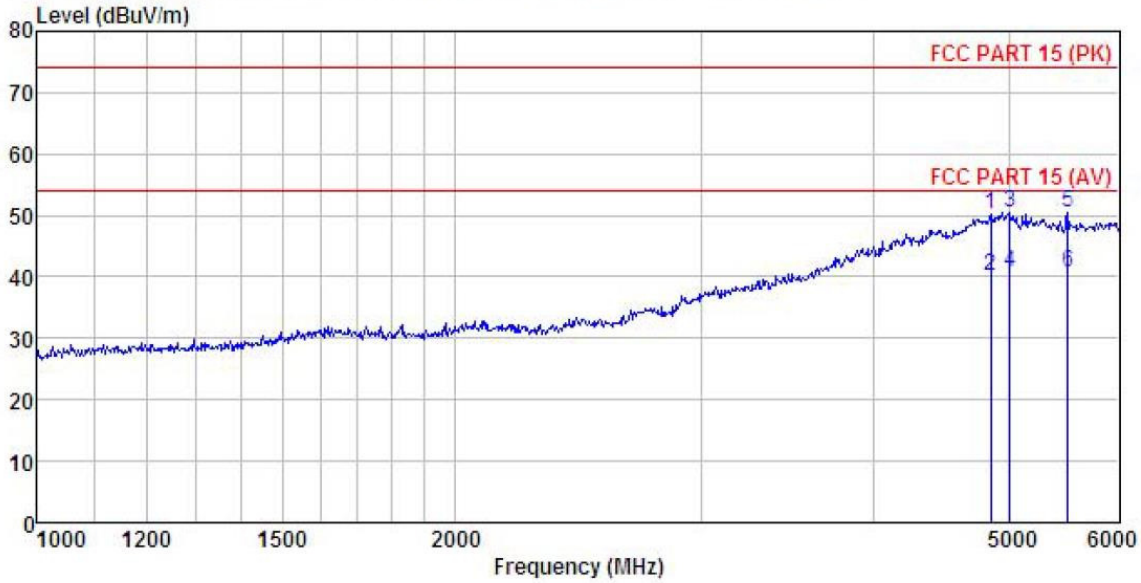
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : Mobile Phone
Model : iris 80
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Carey
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	4388.080	49.45	34.06	6.69	41.96	48.24	74.00	-25.76	Peak
2	4388.080	39.84	34.06	6.69	41.96	38.63	54.00	-15.37	Average
3	5008.886	49.13	36.90	6.94	41.88	51.09	74.00	-22.91	Peak
4	5008.886	39.63	36.90	6.94	41.88	41.59	54.00	-12.41	Average
5	5509.992	50.41	34.70	7.22	41.83	50.50	74.00	-23.50	Peak
6	5509.992	40.46	34.70	7.22	41.83	40.55	54.00	-13.45	Average

Vertical:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : Mobile Phone
Model : iris 80
Test mode : PC mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Carey
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	4855.339	48.96	36.25	6.84	41.83	50.22	74.00	-23.78	Peak
2	4855.339	38.77	36.25	6.84	41.83	40.03	54.00	-13.97	Average
3	5008.886	48.48	36.90	6.94	41.88	50.44	74.00	-23.56	Peak
4	5008.886	38.68	36.90	6.94	41.88	40.64	54.00	-13.36	Average
5	5509.992	50.45	34.70	7.22	41.83	50.54	74.00	-23.46	Peak
6	5509.992	40.59	34.70	7.22	41.83	40.68	54.00	-13.32	Average