

FCC REPORT

Applicant: Aqua trading (Shenzhen) limited
Address of Applicant: No.22D,NEO Building Block B, No.6011. Shennan avenue
Futian District, Shenzhen, China

Equipment Under Test (EUT)

Product Name: GSM Mobile Phone
Model No.: FK1a
Trade mark: AKUA
FCC ID: 2AGE2-FK1A
Applicable standards: FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt: 05 Sep., 2016
Date of Test: 05 Sep., to 20 Sep., 2016
Date of report issued: 20 Sep., 2016
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	20 Sep., 2016	Original

Tested by:

Peter zhu

Date:

20 Sep., 2016

Test Engineer

Reviewed by:

M. Liang

Date:

20 Sep., 2016

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:	Aqua trading(shenzhen)limited
Address of Applicant:	No.22D,NEO Building Block B, No.6011.Shennan avenueFutian District,Shenzhen China
Manufacturer	Aqua trading(shenzhen)limited
Address of Manufacturer:	No.22D,NEO Building Block B, No.6011.Shennan avenueFutian District,Shenzhen China
Factory:	ShenZhenXindCommunication Equipment Co.,Ltd
Address of Factory:	Floor 2nd, Building 3rd, Pengtengda Industrial park, NO.512 Huarong Road, DalangLonghua Community, BaoanDistrict,Shenzhen City

5.2 General Description of E.U.T.

Product Name:	GSM Mobile Phone
Model No.:	FK1a
Power supply:	Rechargeable Li-ion Battery DC3.7V-1000mAh
AC adapter :	Model: Fk1a Input: AC100-240V 50/60Hz 0.2A Output: DC 5.0V, 500mA

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
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

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

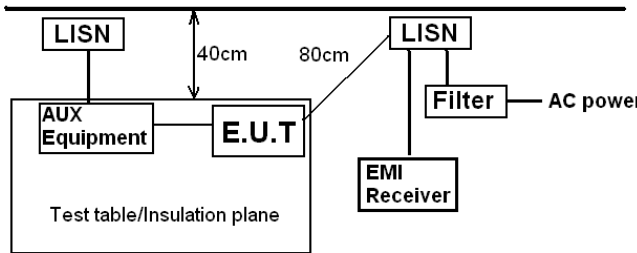
5.8 Test Instruments list

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	03-25-2016	03-25-2017
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	03-25-2016	03-25-2017
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2016	03-31-2017
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2016	03-31-2017
6	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	03-28-2016	03-28-2017
7	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	03-28-2016	03-28-2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

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	03-24-2016	03-24-2017
3	LISN	CHASE	MN2050D	CCIS0074	03-26-2016	03-26-2017
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2016	03-31-2017
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

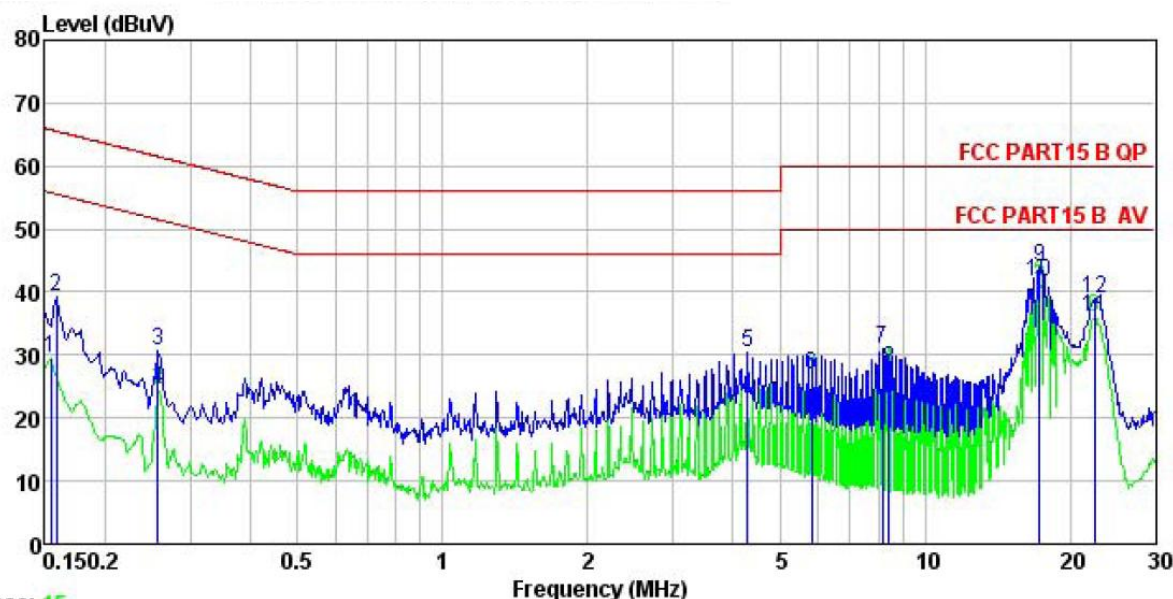
6 Test results and Measurement Data

6.1 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.107					
Test Method:	ANSI C63.4:2014					
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		
* Decreases with the logarithm of the frequency.						
Test setup:	<div><p style="text-align: center;">Reference Plane</p><p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>					
Test procedure	<div>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.</div> <div>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).</div> <div>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: 2014on conducted measurement.</div>					
Test environment:	Temp.:	23°C	Humid.:	56%	Press.:	101kPa
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: 15

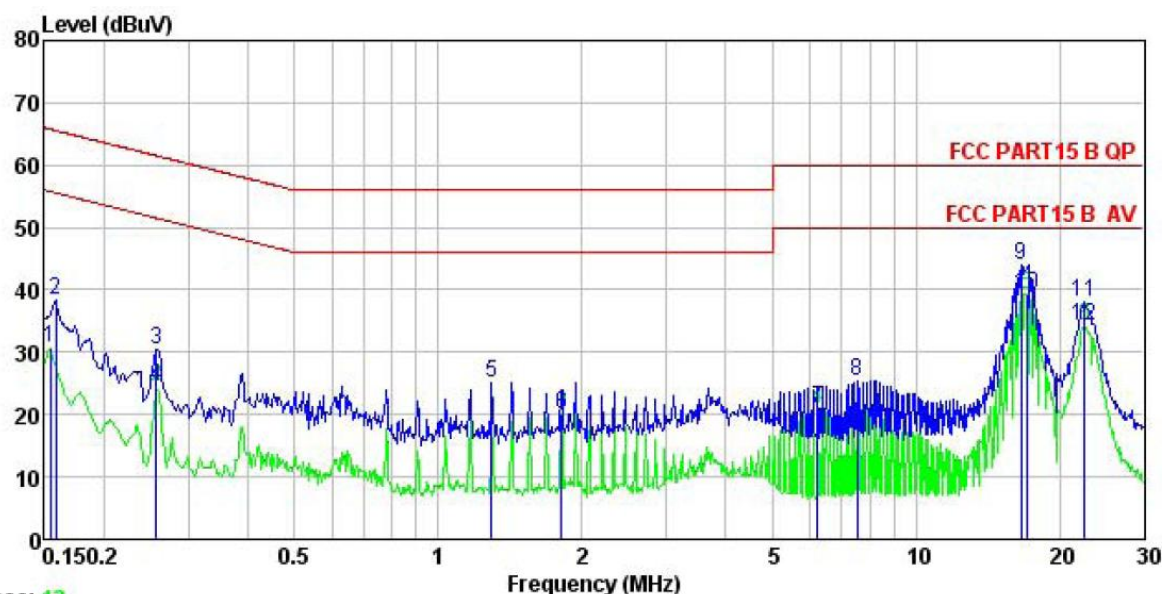
Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN LINE
 EUT : GSM Mobile Phone
 Model : FK1a
 Test Mode : PC mode
 Power Rating : AC120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Peter
 Remark :

	Freq	Read	LISN	Cable	Level	Limit	Over	
	MHz	Level	Factor	Loss	Level	Line	Limit	Remark
		dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	18.58	0.14	10.78	29.50	55.78	-26.28	Average
2	0.158	28.47	0.14	10.78	39.39	65.56	-26.17	QP
3	0.258	19.87	0.16	10.75	30.78	61.51	-30.73	QP
4	0.258	13.62	0.16	10.75	24.53	51.51	-26.98	Average
5	4.292	19.05	0.34	10.88	30.27	56.00	-25.73	QP
6	5.836	15.72	0.35	10.83	26.90	50.00	-23.10	Average
7	8.148	19.68	0.34	10.86	30.88	60.00	-29.12	QP
8	8.412	16.47	0.33	10.87	27.67	50.00	-22.33	Average
9	17.291	32.89	0.29	10.91	44.09	60.00	-15.91	QP
10	17.291	30.31	0.29	10.91	41.51	50.00	-8.49	Average
11	22.416	24.88	0.35	10.90	36.13	50.00	-13.87	Average
12	22.535	27.77	0.35	10.89	39.01	60.00	-20.99	QP

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:



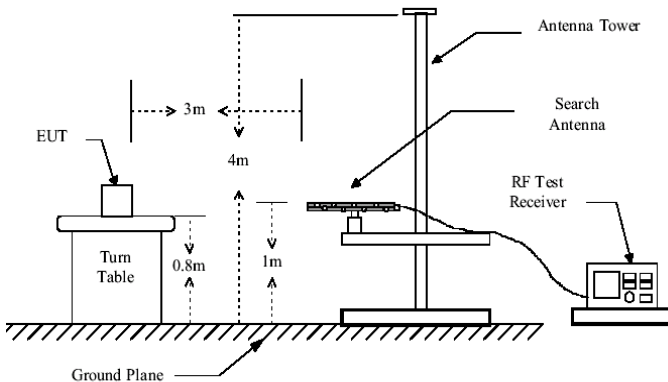
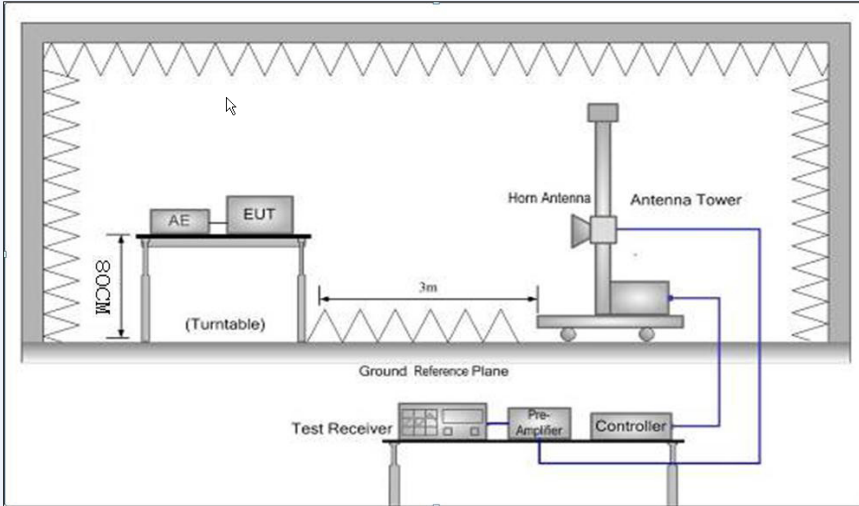
Trace: 13
 Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN NEUTRAL
 EUT : GSM Mobile Phone
 Model : FK1a
 Test Mode : PC mode
 Power Rating : AC120/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Peter
 Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	19.82	0.12	10.78	30.72	55.78	-25.06	Average
2	0.158	27.35	0.13	10.78	38.26	65.56	-27.30	QP
3	0.258	19.52	0.17	10.75	30.44	61.51	-31.07	QP
4	0.258	13.60	0.17	10.75	24.52	51.51	-26.99	Average
5	1.296	14.07	0.26	10.90	25.23	56.00	-30.77	QP
6	1.810	8.85	0.26	10.95	20.06	46.00	-25.94	Average
7	6.219	9.68	0.32	10.82	20.82	50.00	-29.18	Average
8	7.526	14.36	0.30	10.83	25.49	60.00	-34.51	QP
9	16.573	32.85	0.27	10.91	44.03	60.00	-15.97	QP
10	17.018	28.06	0.27	10.91	39.24	50.00	-10.76	Average
11	22.535	26.85	0.25	10.89	37.99	60.00	-22.01	QP
12	22.535	23.22	0.25	10.89	34.36	50.00	-15.64	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

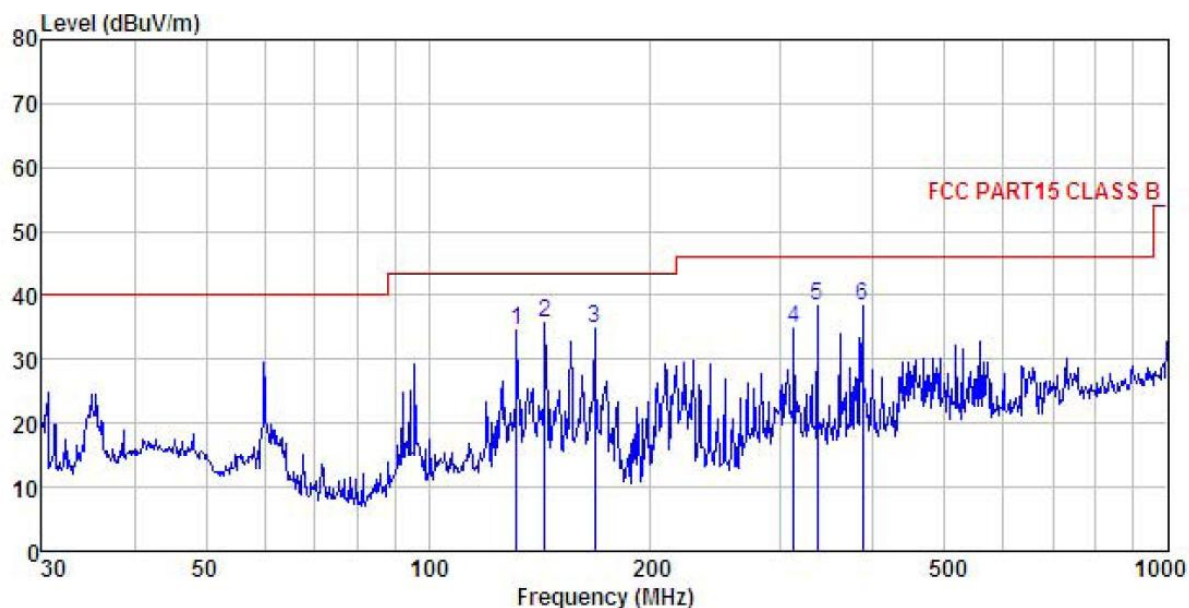
Test Requirement:	FCC Part15 B Section 15.109				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	30MHz to 26000MHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
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
Test setup:	Below 1GHz				
	Above 1GHz				

Test Procedure:	<ol style="list-style-type: none"> 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 rotating 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.:	101kPa
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 was the noise floor and was not recorded.					

Measurement Data:

Below 1GHz

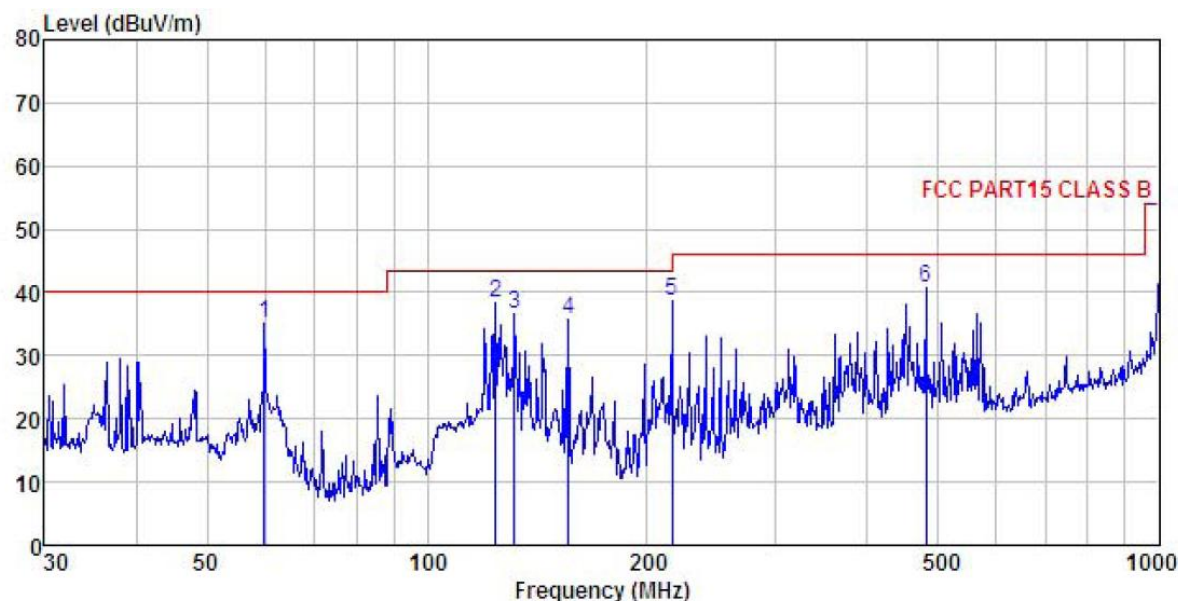
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M3G) HORIZONTAL
 EUT : GSM Mobile Phone
 Model : FK1a
 Test mode : PC mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: Peter
 REMARK :

	Freq	ReadAntenna	Cable	Preamp		Limit	Over	
	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	131.758	49.26	12.19	2.30	29.32	34.43	43.50	-9.07 QP
2	143.830	51.05	11.34	2.44	29.25	35.58	43.50	-7.92 QP
3	167.824	51.44	9.82	2.64	29.07	34.83	43.50	-8.67 QP
4	312.179	47.12	13.08	2.98	28.48	34.70	46.00	-11.30 QP
5	336.035	50.01	13.76	3.05	28.53	38.29	46.00	-7.71 QP
6	386.634	48.50	15.47	3.09	28.72	38.34	46.00	-7.66 QP

Vertical:

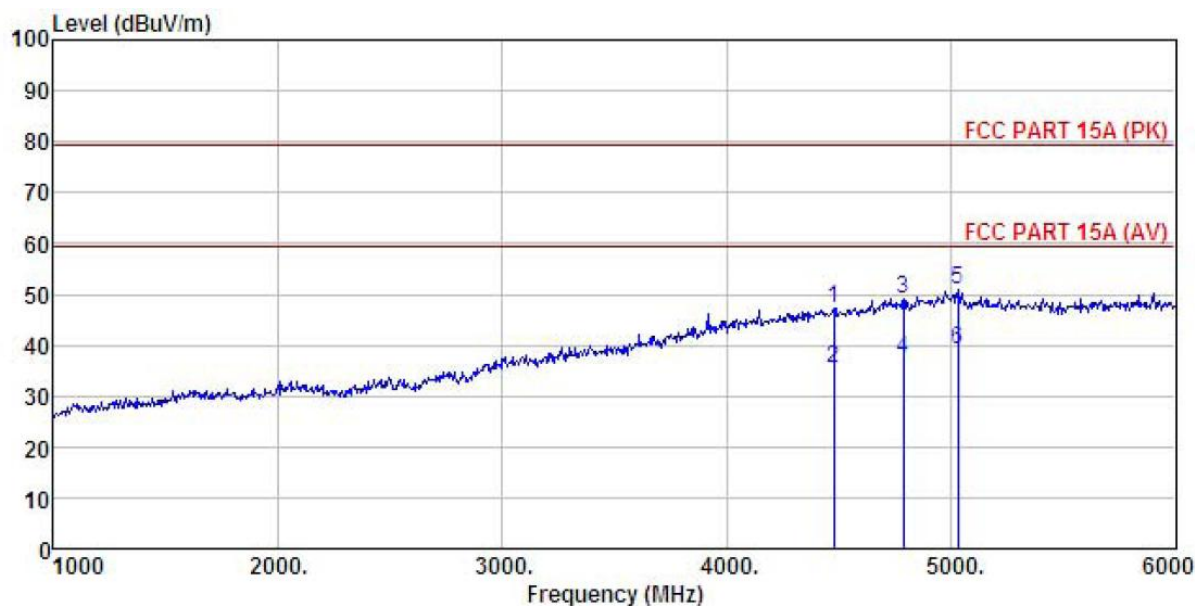


Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M3G) VERTICAL
 EUT : GSM Mobile Phone
 Model : FK1a
 Test mode : PC mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: Peter
 REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	59.859	53.24	10.32	1.38	29.77	35.17
2	124.133	53.65	12.01	2.21	29.36	38.51
3	131.758	51.46	12.19	2.30	29.32	36.63
4	155.910	52.05	10.19	2.56	29.17	35.63
5	216.024	53.40	11.18	2.85	28.73	38.70
6	480.528	49.75	16.57	3.46	28.92	40.86

Above 1GHz

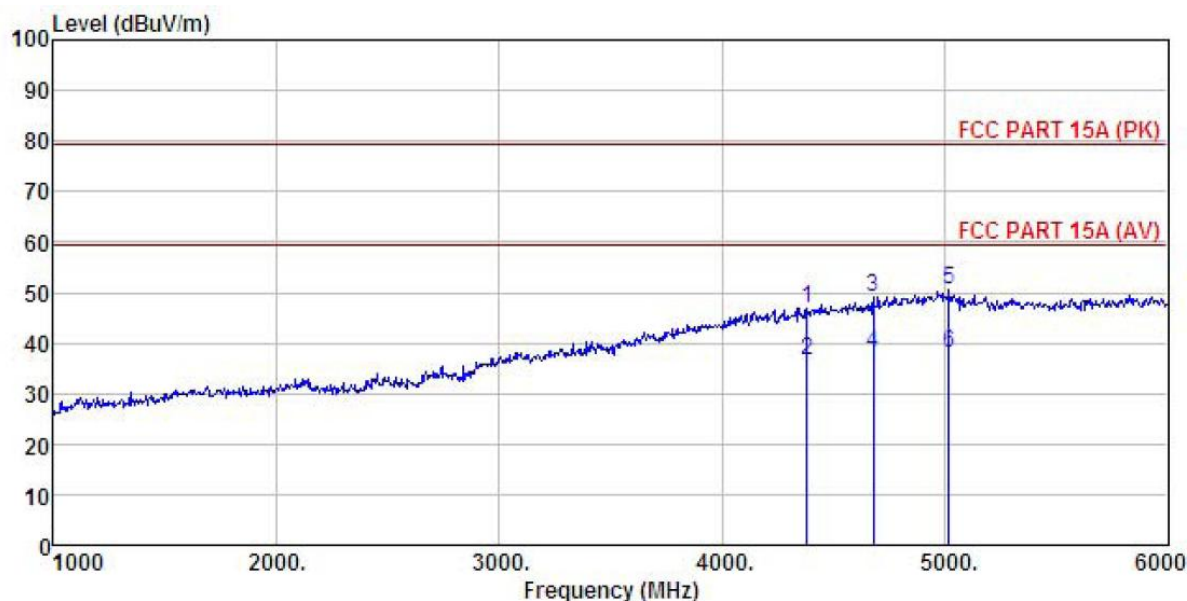
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15A (PK) 3m BBHA9120(1G18) HORIZONTAL
 EUT : GSM Mobile Phone
 Model : FK1a
 Test mode : PC mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: Peter
 REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier	Level	Limit	Over	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Remark
1	4480.000	48.20	34.44	6.79	42.04	47.39	79.50	-32.11	Peak
2	4480.000	36.22	34.44	6.79	42.04	35.41	59.50	-24.09	Average
3	4790.000	48.14	35.93	6.81	41.83	49.05	79.50	-30.45	Peak
4	4790.000	36.46	35.93	6.81	41.83	37.37	59.50	-22.13	Average
5	5030.000	49.15	36.77	6.96	41.89	50.99	79.50	-28.51	Peak
6	5030.000	37.41	36.77	6.96	41.89	39.25	59.50	-20.25	Average

Vertical:



Site : 3m chamber
 Condition : FCC PART 15A (PK) 3m BBHA9120(1G18) VERTICAL
 EUT : GSM Mobile Phone
 Model : FK1a
 Test mode : PC mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55% 101KPa
 Test Engineer: Peter
 REMARK :

	Freq	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4380.000	48.18	34.01	6.67	41.95	46.91	79.50	-32.59	Peak
2	4380.000	37.64	34.01	6.67	41.95	36.37	59.50	-23.13	Average
3	4680.000	48.70	35.41	6.86	42.01	48.96	79.50	-30.54	Peak
4	4680.000	37.64	35.41	6.86	42.01	37.90	59.50	-21.60	Average
5	5020.000	48.66	36.83	6.95	41.89	50.55	79.50	-28.95	Peak
6	5020.000	36.25	36.83	6.95	41.89	38.14	59.50	-21.36	Average