

# EMI TEST REPORT

On Model Name: IP Phone

Model Number: eSpace 6830

Brand Name: 

Prepared for Huawei Technologies Co., Ltd

FCC ID Number: QISESPACE6830

According to FCC 47 CFR Part 15, Subpart B

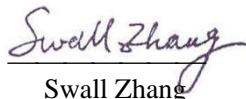
Test Report #: SHE-1107-10673-FCC

Prepared by: Sewen Guo

Reviewed by: Jawen Yin

QC Manager: Swall Zhang

Test Report Released by:

  
Swall Zhang

August 18, 2011

Date

## ***Test Location***

*Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room.*

*Test Site Location : Galanz*

*25 South Ronggui Rd., Shunde, Foshan,  
Guangdong, China*

*Tel : 86-757-23612785*

*Fax : 86-757-23612537*

## ***Test Facility***

*The test facility was recognized, certified, or accredited by the following organizations:*

- *CNAL - LAB Code: L2244*

*Galanz EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.*

- *FCC - Registration No.: 580210*

*Galanz EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC was maintained in our files.*

# *Table of Contents*

---

<b>GOVERNMENT DISCLAIMER NOTICE</b>	2
<b>REPRODUCTION CLAUSE</b>	2
<b>OPINIONS AND INTERPRETATIONS</b>	2
<b>STATEMENT OF MEASUREMENT UNCERTAINTY</b>	2
<b>ADMINISTRATIVE DATA</b>	3
<b>EUT DESCRIPTION</b>	4
<b>TEST SUMMARY</b>	5
<b>TEST MODE JUSTIFICATION</b>	6
<b>EUT EXERCISE SOFTWARE</b>	6
<b>EQUIPMENT MODIFICATION</b>	6
<b>TEST SYSTEM DETAILS</b>	7
<b>ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS</b>	10
<b>ATTACHMENT 2 - RADIATED EMISSION MEASUREMENT</b>	15

## List Attached Files

<b>Exhibit Type</b>	<b>File Description</b>	<b>File Name</b>
<i>Test Report</i>	<i>Test Report</i>	<i>QISESPACE6830 _Test report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>QISESPACE6830_operation description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>QISESPACE6830_External Photos</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>QISESPACE6830_Internal Photos</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>QISESPACE6830_Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>QISESPACE6830 _Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>QISESPACE6830 _Label &amp; Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>QISESPACE6830 _User Manual.pdf</i>
<i>Test setup photos</i>	<i>Test setup photos</i>	<i>QISESPACE6830 _Test Setup Photos</i>

### ***Government Disclaimer Notice***

*When government drawing, specification, or other data are used for any purpose other than in connection with a definitely related government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawing, specifications, or other data, is not to be regarded by implication or otherwise in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell patented invention that may in any way be related thereto. This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.*

### ***Reproduction Clause***

*Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from EMC Compliance Management Group.*

### ***Opinions and Interpretations***

*This test report relates to the abovementioned equipment under test (EUT). Without the permission of EMC Compliance Management Group Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.*

### ***Statement of Measurement Uncertainty***

*The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.*

## **Administrative Data**

*Test Sample* : IP Phone

*Model Numbers* : eSpace 6830

*Model Tested* : eSpace 6830

*Receipt Date* : August 8, 2011

*Date Tested* : August 9, 2011 to August 11, 2011

*Applicant* : Huawei Technologies Co., Ltd

*Address* : Administration Building, Huawei BaseBantian Longgang District, Shenzhen 518129 P.R.C

*Telephone* : 86-755-28786132

*Fax* : 86-755-28566543

*Manufacturer* : Huawei Technologies Co., Ltd

*Address* : Administration Building, Huawei BaseBantian Longgang District, Shenzhen 518129 P.R.C

*Telephone* : 86-755-28786132

*Fax* : 86-755-28566543

*Factory* : Huawei Technologies Co., Ltd

*Address* : Administration Building, Huawei BaseBantian Longgang District, Shenzhen 518129 P.R.C

*Telephone* : 86-755-28786132

*Fax* : 86-755-28566543

## ***EUT Description***

*Huawei Technologies Co., Ltd, model number eSpace 6830 (referred to as the EUT in this report) is an IP Phone.*

*The EUT is an IP Phone whose main technical specifications are as below:*

<b>Parameter</b>		<b>Range</b>
<i>Basic parameters</i>	<i>Rated voltage</i>	<i>5VDC</i>
	<i>Rated Current</i>	<i>0.5A</i>
<i>I/O Ports</i>	<i>LAN Port</i>	<i>10/100Mbps RJ-45 Port for LAN connection, Integrated PoE</i>
	<i>PC Port</i>	<i>10/100Mbps RJ-45 Port for PC connection,</i>
	<i>Power Jack</i>	<i>5VDC Input Port</i>
	<i>Headset Jack</i>	<i>RJ22 headset jack and 2.5 mm earphone jack</i>
	<i>Handset Jack</i>	<i>RJ22 Port</i>
<i>Adapter #1</i>	<i>Input</i>	<i>100-240VAC 50/60Hz 0.15A</i>
	<i>Output</i>	<i>5VDC,800mA, 4.0W</i>
	<i>Model</i>	<i>SCF0500080A1BA</i>
	<i>Brand name</i>	<i>Mass</i>
<i>Adapter #2</i>	<i>Input</i>	<i>100-240VAC 50/60Hz 0.2A</i>
	<i>Output</i>	<i>5VDC,800mA, 4.0W</i>
	<i>Model</i>	<i>AK00G-0500080UW</i>
	<i>Brand name</i>	<i>All-Key(AK)</i>

*NOTE: For more detailed informations or features please refer to user's manual of EUT.*

## Test Summary

The Electromagnetic Compatibility requirements on model eSpace6830 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	Description	Test Results	Test Point	Remark
FCC Part 15.107 ANSI C63.4 -2003	Conducted Emission	Passed	AC Input Port	Attachment 1
FCC Part 15.109 ANSI C63.4 -2003	Radiated Emission	Passed	Enclosure	Attachment 2

## ***Test Mode Justification***

*Pre-scan has been conducted to determine the worst-case modes from all possible combinations between available operational modes. The following modes were chosen for final test as described below.*

### ***IP Call mode:***

*Connected the EUT to an another IP Phone by a RJ-45 signal line and established a call communication between them, then connected a notebook PC to PC port of the EUT by a RJ-45 signal line and ping 192.168.0.174 to EUT and measured it.*

### ***PoE Mode:***

*Removed AC/DC adaptor of the EUT, Let the EUT operated in PoE mode and measured it.*

## ***EUT Exercise Software***

*No test software support this test.*

## ***Equipment Modification***

*Any modifications installed previous to testing by Huawei Technologies Co., Ltd will be incorporated in each production model sold or leased in United States.*

*There were no modifications installed by EMC Compliance Management Group test personnel.*

## Test System Details

<b>EUT</b>			
<b>Model Number:</b>	<i>eSpace 6830</i>		
<b>Model Tested:</b>	<i>eSpace 6830</i>		
<b>Description:</b>	<i>IP Phone</i>		
<b>Input:</b>	<i>AC 120V/60Hz</i>		
<b>Manufacturer:</b>	<i>Huawei Technologies Co., Ltd</i>		
<b>Support Equipment</b>			
<b>Description</b>	<b>Model Number</b>	<b>Serial Number</b>	<b>Manufacturer</b>
<i>Notebook PC</i>	<i>NC4000</i>	<i>CNU4122BCL</i>	<i>HP</i>
<i>Adapter Of Notebook PC</i>	<i>PPP009H</i>	<i>239427-003</i>	<i>HP</i>
<i>Mouse</i>	<i>MO32B0</i>	<i>23-033131</i>	<i>HP</i>
<i>Keyboard</i>	<i>SK-1788</i>	<i>N/A</i>	<i>LENOVO</i>
<i>Monitor</i>	<i>177V+</i>	<i>N/A</i>	<i>AOC</i>

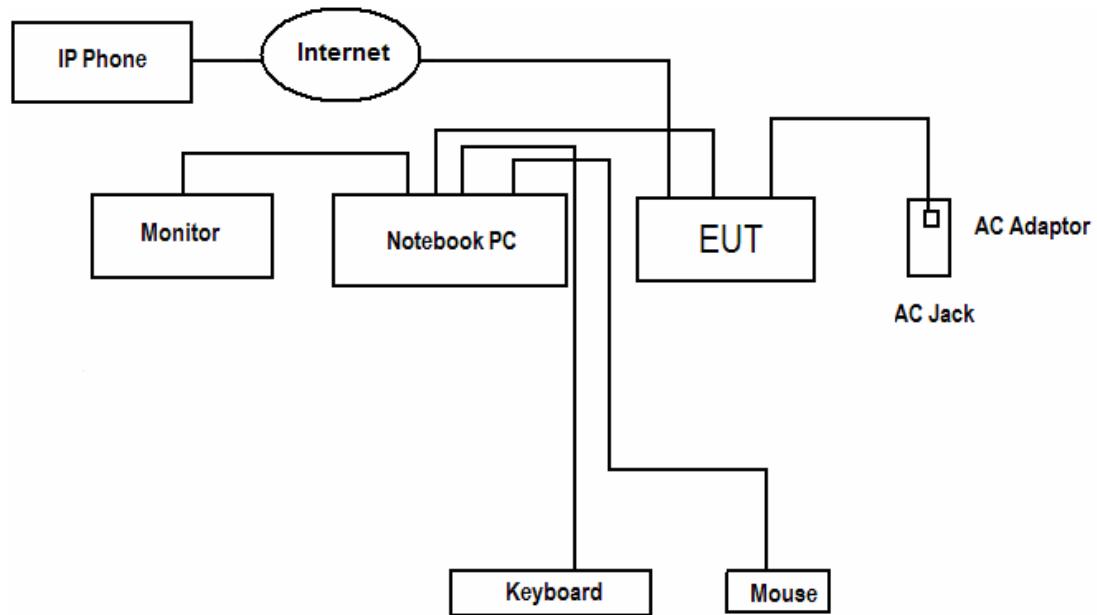
<b><i>Cable Description</i></b>					
<b><i>Description</i></b>	<b><i>From</i></b>	<b><i>To</i></b>	<b><i>Length (Meters)</i></b>	<b><i>Shielded (Y/N)</i></b>	<b><i>Ferrite (Y/N)</i></b>
<i>Adaptor Cord Of Notebook</i>	<i>AC Adaptor</i>	<i>Notebook PC</i>	<i>1.6</i>	<i>N</i>	<i>Y</i>
	<i>AC Plug</i>	<i>AC Adaptor</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Mouse cord</i>	<i>Mouse</i>	<i>Plug</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Keyboard cord</i>	<i>keyboard</i>	<i>Plug</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>VGA cord</i>	<i>Notebook PC</i>	<i>Monitor</i>	<i>1.2</i>	<i>Y</i>	<i>Y</i>
<i>RJ-45 Cord</i>	<i>EUT</i>	<i>Notebook PC</i>	<i>1.5</i>	<i>N</i>	<i>Y</i>
<i>Adaptor #1 cord</i>	<i>EUT</i>	<i>Plug</i>	<i>1.8</i>	<i>N</i>	<i>N</i>
<i>Adaptor #2 cord</i>	<i>EUT</i>	<i>Plug</i>	<i>1.8</i>	<i>N</i>	<i>N</i>

*Note: The "EUT" means "IP Phone".*

**NOTE:**

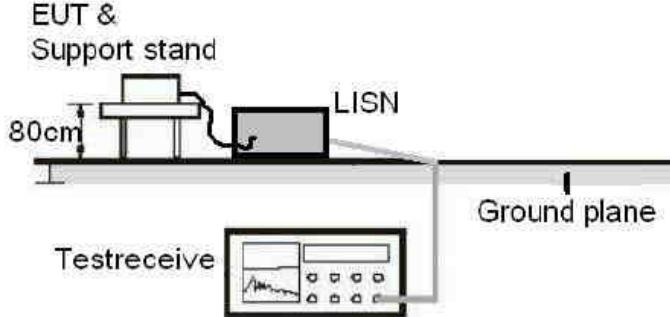
*The EUT has been tested as an independent unit together with other necessary accessories or support units. The above support units or accessories were used to form a representative test configuration during the test tests.*

## Configuration of Tested System

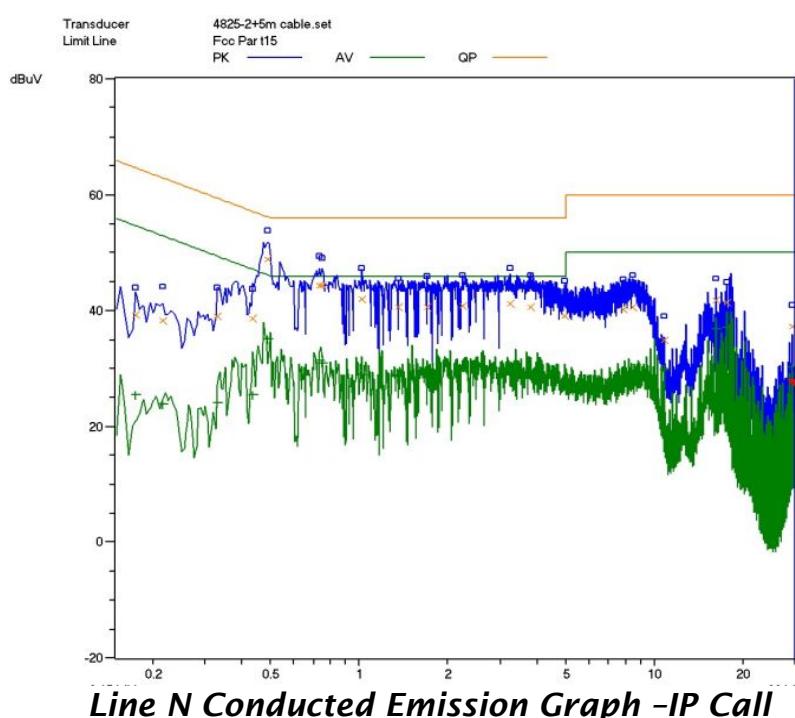
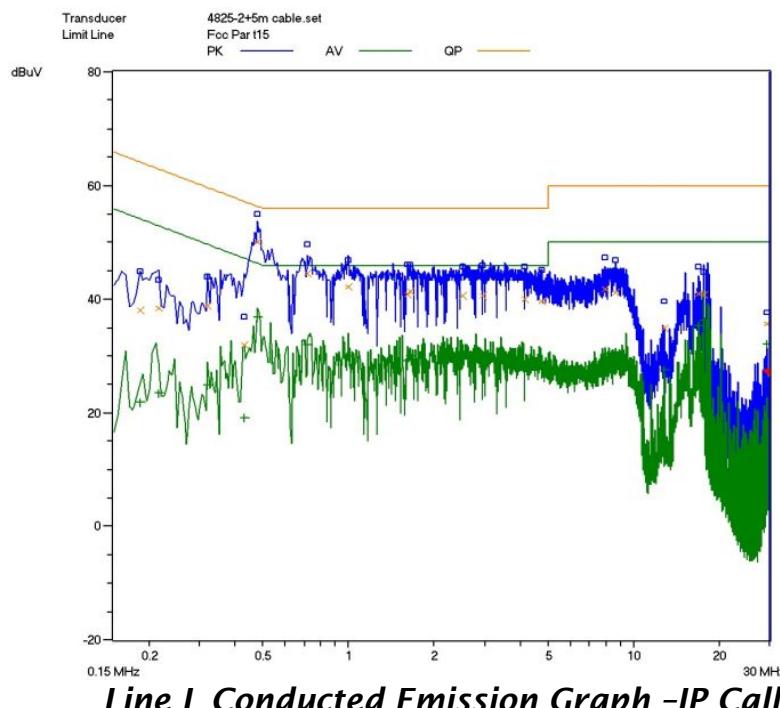


*Note : The same system configuration shall still apply to PoE mode when removed AC Adaptor of EUT.*

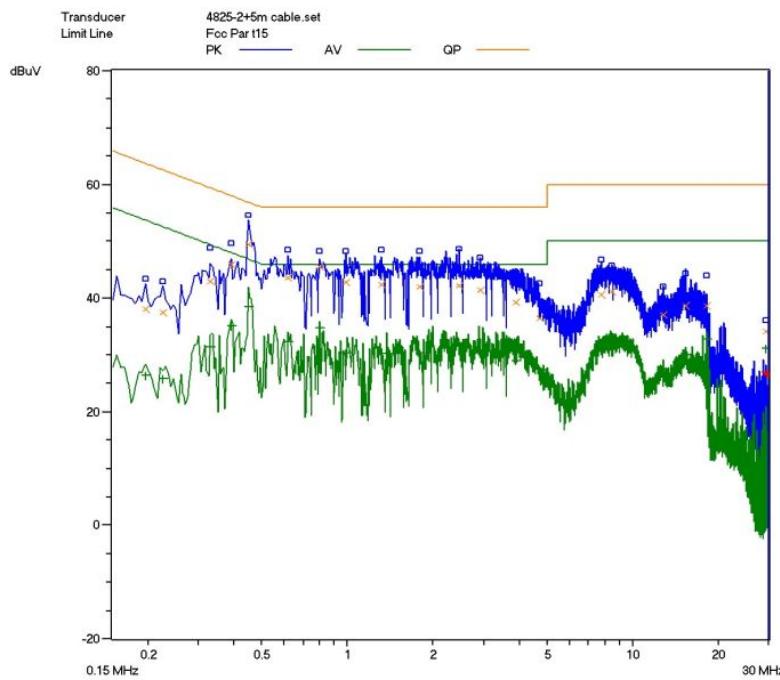
## ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

<b>CLIENT:</b>	Huawei Technologies Co., Ltd	<b>TEST STANDERD:</b>	FCC Part 15, Subpart B, Section 15.107
<b>MODEL NUMBERS:</b>	eSpace 6830	<b>PRODUCT:</b>	IP Phone
<b>MODEL TESTED:</b>	eSpace 6830	<b>EUT DESIGNATION:</b>	Commercial and Residential use
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	51%
<b>ATM PRESSURE:</b>	103kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	August 9, 2011
<b>TEST REFERENCE:</b>	ANSI C63.4- 2003		
<b>TEST PROCEDURE:</b>	The EUT was set up according to the guidelines of ANSI C63.4: 2003 for conducted emissions. The measurement was using a AMN on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged. The frequency range investigated was from 150KHz to 30MHz.		
<b>DESCRIPTION OF TEST MODE</b>	Refer to test mode justification. Note : for more detailed information please refer to test mode justification.		
<b>TEST SET UP</b>			
<b>TESTED RANGE:</b>	150kHz to 30MHz		
<b>TEST VOLTAGE:</b>	AC 120V/60Hz		
<b>RESULTS:</b>	The EUT meets the requirements of test reference for Conducted Emissions. The test results relate only to the equipment under test provided by client.		
<b>Changes or Modifications:</b>	There were no modifications installed by EMC Compliance Management Group test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB		

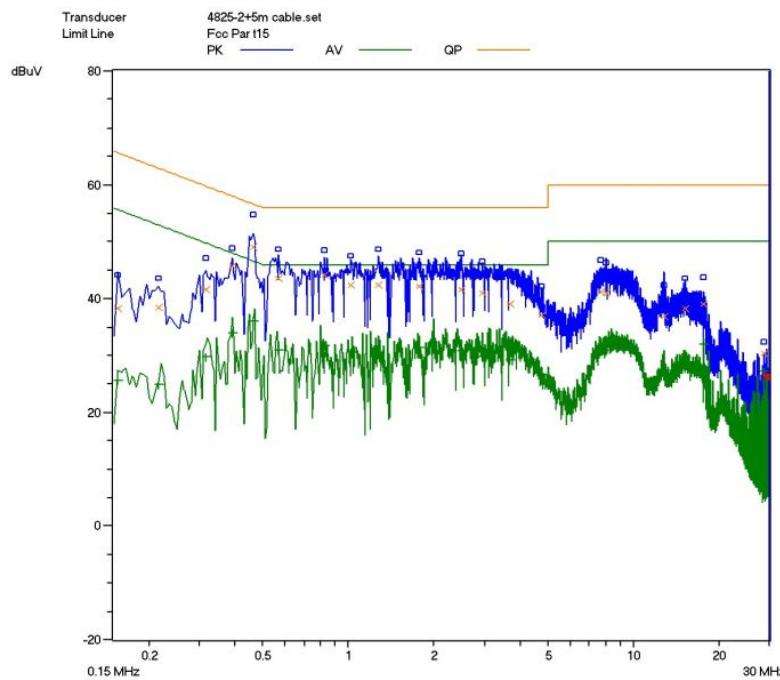
### **Adaptor #1: (Mass)**



## Adaptor #2: (AK)



**Line L Conducted Emission Graph -IP Call**



**Line N Conducted Emission Graph -IP Call**

**Test Data:**

**Adaptor #1(Mass):**

Lines (L/N)	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
<b>IP Call Mode</b>								
L	0.480	50.0	56.3	-6.3	0.480	36.9	46.3	-9.4
L	0.720	44.5	56.0	-11.5	0.720	32.0	46.0	-14
L	0.995	42.1	56.0	-13.9	0.995	30.0	46.0	-16
N	0.490	48.9	56.2	-7.3	0.490	35.1	46.2	-11.1
N	0.730	44.5	56.0	-11.5	0.730	31.4	46.0	-14.6
N	1.015	42.0	56.0	-14.0	1.015	29.0	46.0	-17.0
<p><b>Note :</b></p> <ol style="list-style-type: none"> <li>1) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use.</li> <li>2) "QP" means "Quasi-Peak" values, "AV" means "Average" values.</li> <li>3) The other reading are too low against official limits that are not be recorded.</li> </ol>								

**Adaptor #2(AK):**

Lines (L/N)	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
<b>IP Call Mode</b>								
L	0.450	49.5	56.9	-7.4	0.450	38.4	46.9	-8.5
L	0.615	43.7	56.0	-12.3	0.615	32.4	46.0	-13.6
L	0.795	45.5	56.0	-10.5	0.795	34.6	46.0	-11.4
N	0.465	49.0	56.6	-7.6	0.465	36.0	46.6	-10.6
N	0.565	43.6	56.0	-12.4	0.565	31.1	46.0	-14.9
N	0.820	44.1	56.0	-11.9	0.820	31.7	46.0	-14.3
<p><b>Note :</b></p> <ol style="list-style-type: none"> <li>4) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use.</li> <li>5) "QP" means "Quasi-Peak" values, "AV" means "Average" values.</li> <li>6) The other reading are too low against official limits that are not be recorded.</li> </ol>								

### **Test Equipment List:**

<b>Test Equipment</b>	<b>Model No.</b>	<b>Manufacturer</b>	<b>Serial No.</b>	<b>Last Cal.</b>	<b>Cal. Interval</b>
Receiver	SMR4503	SCHAFFNER	11725	2011.07.08	2012.07.08
Line impedance stabilization network	4825/2	ETS	1161	2011.07.08	2012.07.08
<i>Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.</i>					

**SIGNED BY:**

*Senior Eng*  
SENIOR ENGINEER

**REVIEWED BY:**

*Jammy*  
SENIOR ENGINEER

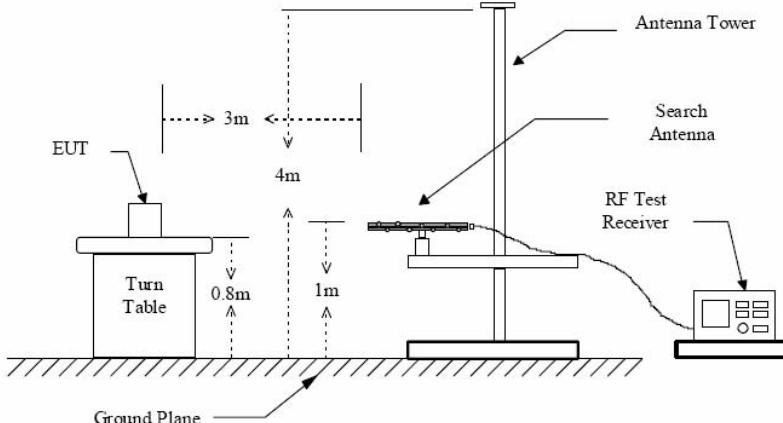
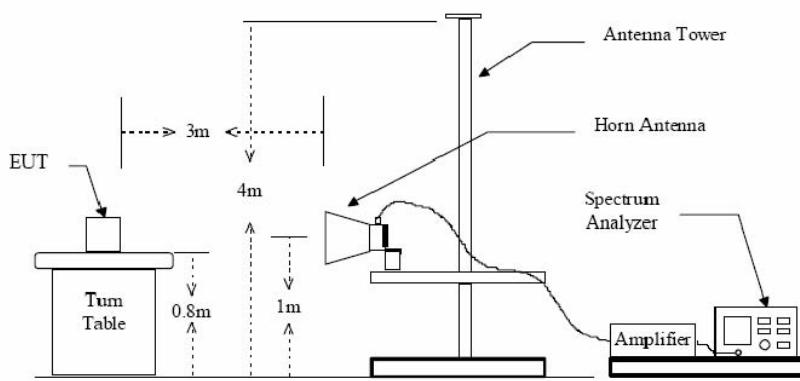


**Conducted Emission Test Set-up**

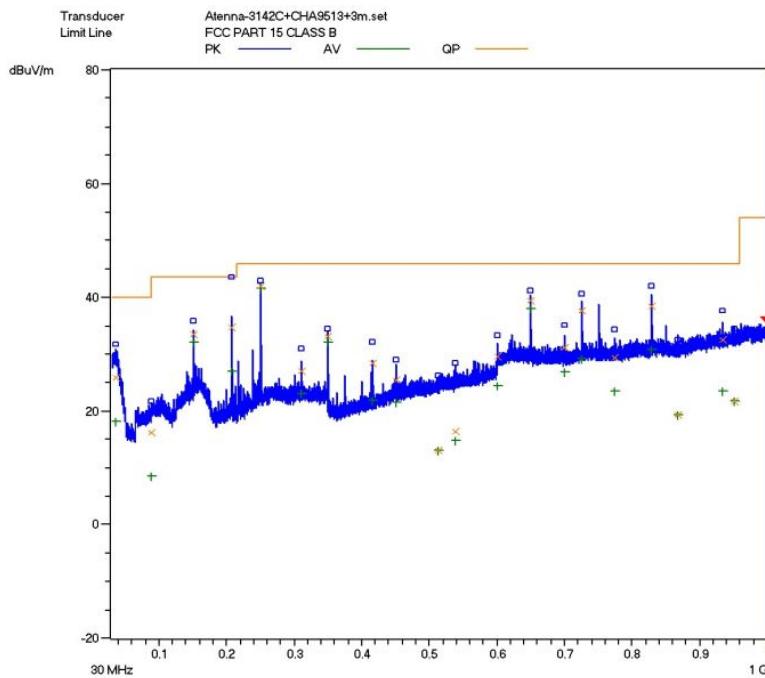
## ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

<b>CLIENT:</b>	Huawei Technologies Co., Ltd	<b>TEST STANDERD:</b>	FCC Part 15,Subpart B, Section 15.109
<b>MODEL NUMBERS:</b>	eSpace 6830	<b>PRODUCT:</b>	IP Phone
<b>EUT MODEL:</b>	eSpace 6830	<b>EUT DESIGNATION:</b>	Commercial and Residential use
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	49%RH
<b>ATM PRESSURE:</b>	103.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Sewen Guo	<b>DATE OF TEST:</b>	August 9, 2011
<b>TEST REFERENCE:</b>	ANSI C63.4: 2003		
<b>TEST PROCEDURE:</b>	<p>The EUT was set up according to the guidelines of ANSI C63.4: 2003 for radiated emissions.</p> <p>An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber. signal discrimination was then performed and the significant peaks marked. these peaks were then quasi-peaked in the frequency range of 30 MHz to 1GHz and average and peak in the frequency range of 1GHz to 3GHz at an anechoic chamber.</p> <p>The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings against the limits. Explanation of the Correction Factor are given as follows:</p> <p>FS= RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TEST MODE</b>	<p>IP Call Mode and PoE mode</p> <p>Note : for more detailed informations please refer to test mode justfication.</p>		
<b>TESTED RANGE:</b>	The EUT highest operated frequency is 208MHz for DSP module, so test frequency range is from 30MHz to 2.08GHz		
<b>TEST VOLTAGE:</b>	AC 120V/60Hz		
<b>RESULTS:</b>	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.		

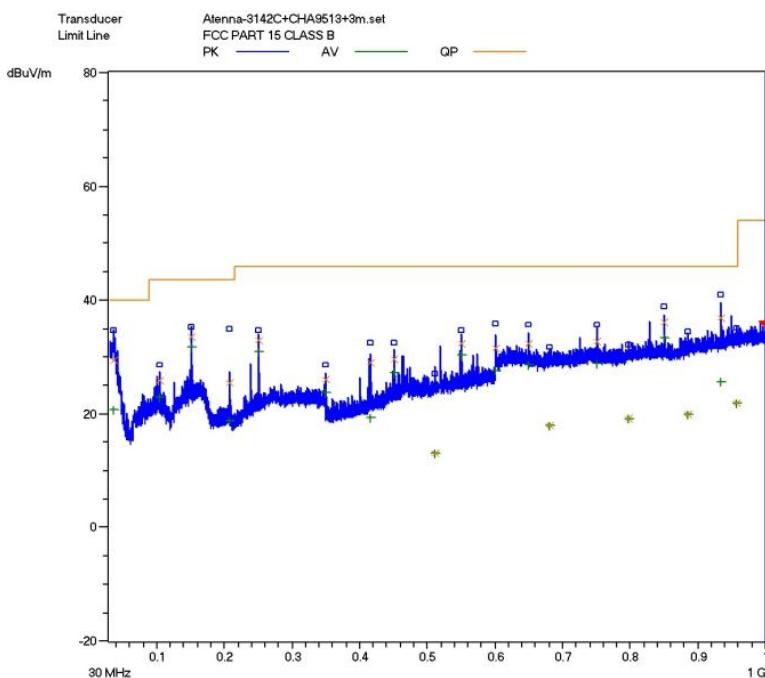
Continue on to next page...

	<p>Figure 1 : Frequencies measured below 1 GHz configuration</p> 
<b>TEST SET-UP</b>	
	<p>Figure 2 : Frequencies measured above 1 GHz configuration</p> 
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by EMC Compliance Management Group. test personnel.
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB

## Adaptor #1(Mass)

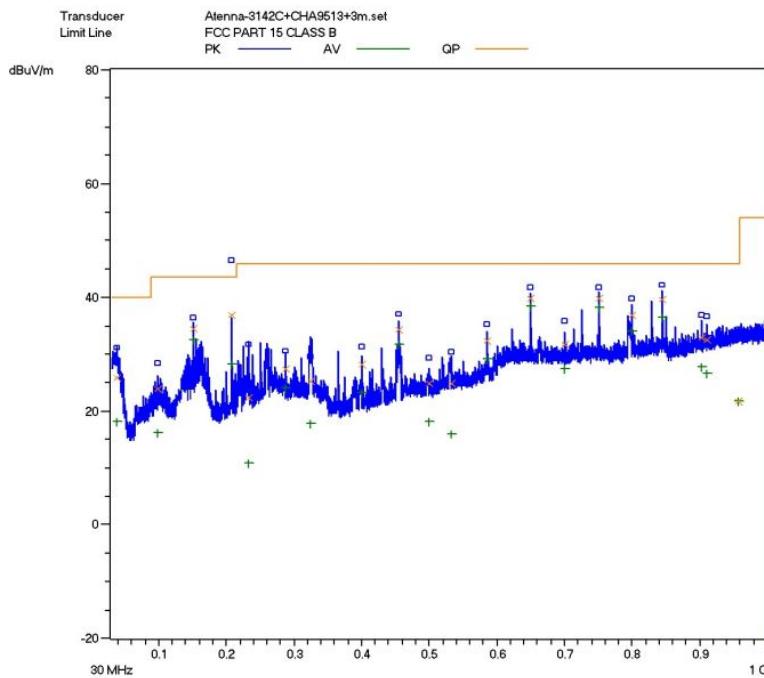


**Horizontal:Radiated Emission Test Plot-IP Call**

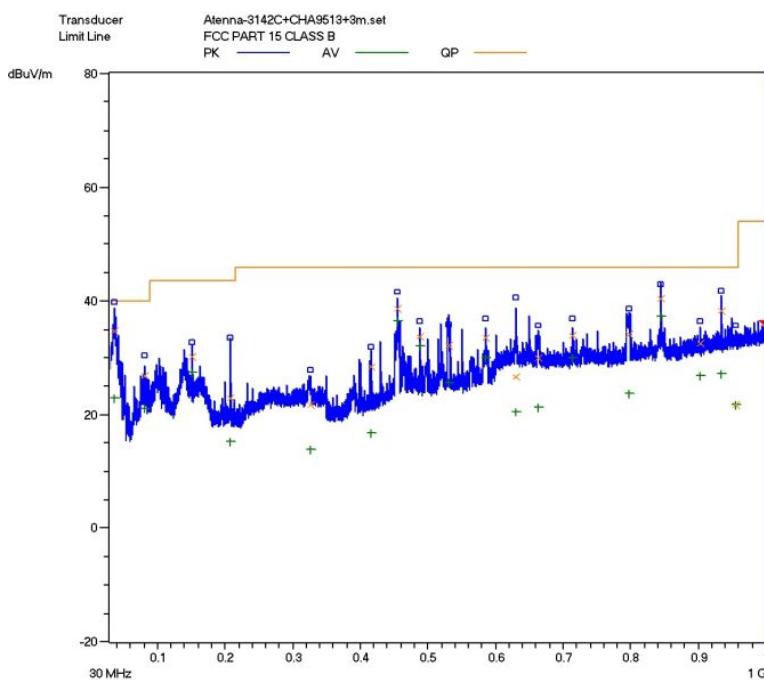


**Vertical:Radiated Emission Test Plot -IP Call**

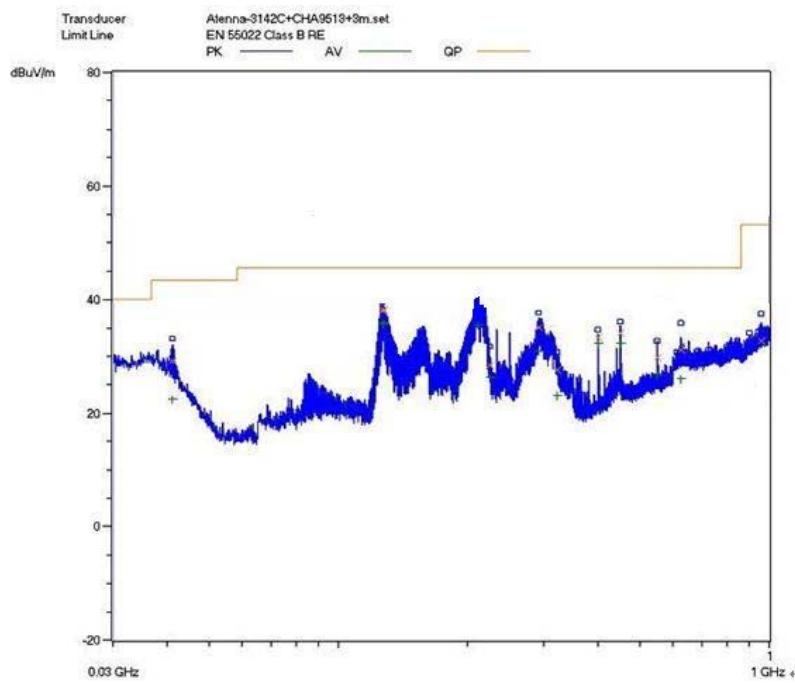
## Adaptor #2:(AK)



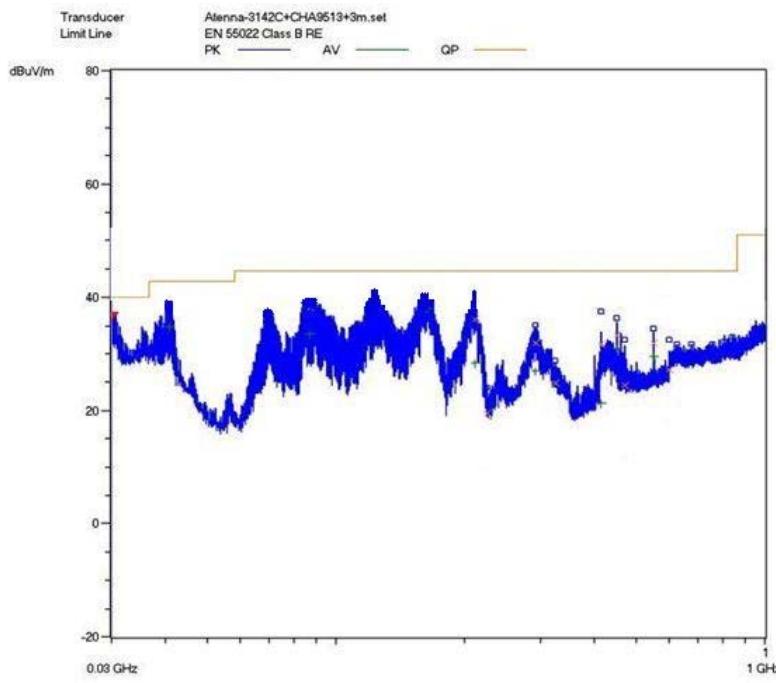
**Horizontal:Radiated Emission Test Plot -IP Call**



**Vertical:Radiated Emission Test Plot -IP Call**



**Horizontal:Radiated Emission Test Plot-PoE Mode**



**Vertical:Radiated Emission Test Plot-PoE Mode**

**Test Data:****Adaptor #1(Mass):****IP Call Mode/Below 1GHz:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
<b>Horizontal</b>							
207.360	0.12	7.7	/	26.98	34.8	43.5	-8.7
250.000	0.12	11.8	/	30.18	42.1	46.0	-3.9
650.000	0.36	20	/	19.04	39.4	46.0	-6.6
725.680	0.39	21.3	/	15.91	37.6	46.0	-8.4
829.360	0.42	22.4	/	15.58	38.4	46.0	-7.6
933.040	0.44	23.8	/	8.26	32.5	46.0	-13.5
<b>Vertical</b>							
150.000	0.02	8.8	/	24.78	33.6	43.5	-9.9
250.000	0.12	11.8	/	20.98	32.9	46.0	-13.1
550.000	0.3	18.5	/	13.6	32.4	46.0	-13.6
750.000	0.39	21.1	/	11.21	32.7	46.0	-13.3
850.000	0.42	22.6	/	12.98	36.0	46.0	-10.1
933.040	0.44	23.8	/	12.66	36.9	46.0	-9.1

**Note:**

- All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.
- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- The other emission levels are 20dB below the official limits that are not reported.

**IP Call Mode/Above 1GHz:**

<b>Frequency (MHz)</b>	<b>Cable Loss (dB)</b>	<b>Antenna Factor (dB)</b>	<b>Preamp Factor (dB)</b>	<b>Reading Level (dBuV/m)</b>	<b>Emission Level (dBuV/m)</b>	<b>Limit (dBuV/m)</b>	<b>Margin (dB)</b>	<b>Antenna Polarization (H/V)</b>
<b>Peak Measurement</b>								
1.064	1.40	23.9	-33.6	-6.04	52.86	74	-21.14	H
1.192	1.48	24.2	-33.6	-8.26	51.02	74	-22.98	H
1.584	1.79	26.7	-33.6	-11.71	50.38	74	-23.62	H
1.064	1.40	23.9	-33.6	-5.3	53.60	74	-20.4	V
1.192	1.48	24.2	-33.6	-8.01	51.27	74	-22.73	V
1.584	1.79	26.7	-33.6	-11.08	51.01	74	-22.99	V
<b>Average Measurement</b>								
1.056	1.39	23.9	-33.6	-19.72	39.17	54	-14.83	H
1.192	1.48	24.2	-33.6	-22.05	37.23	54	-16.77	H
1.328	1.57	25.3	-33.6	-23.89	36.58	54	-17.42	H
1.056	1.39	23.9	-33.6	-11.27	47.62	54	-6.38	V
1.192	1.48	24.2	-33.6	-19.95	39.33	54	-14.67	V
1.392	1.60	25.7	-33.6	-23.65	37.25	54	-16.75	V

**Note:**

- a) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- b) The limits shown are based on Peak value and Average value detector above 1GHz, the bandwidth of Test Receiver was set at 1MHz above 1GHz.
- c) The other emission levels are 20dB below the official limits that are not reported.

**Adaptor #2: (AK)**  
**IP Call Mode/Below 1GHz:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
<b>Horizontal</b>							
150. 000	0.02	8.8	/	25.68	34.5	43.5	-9.0
207.360	0.12	7.7	/	29.08	36.9	43.5	-6.6
454.800	0.2	16.8	/	17.3	34.3	46.0	-11.7
650.000	0.36	20	/	19.54	39.9	46.0	-6.1
750.000	0.39	21.1	/	18.31	39.8	46.0	-6.2
844.560	0.42	22.4	/	16.78	39.6	46.0	-6.4
<b>Vertical</b>							
36.000	0.02	18.4	/	16.28	34.7	40.0	-5.3
454.800	0.2	16.8	/	21.8	38.8	46.0	-7.2
486.800	0.2	17.2	/	16.3	33.7	46.0	-12.3
714.640	0.39	20.4	/	13.11	33.9	46.0	-12.1
844.560	0.42	22.6	/	17.48	40.5	46.0	-5.5
933.040	0.44	23.8	/	13.96	38.2	46.0	-7.8

**Note:**

- a) All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.
- b) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- c) The other emission levels are 20dB below the official limits that are not reported.

**IP Call Mode/Above 1GHz:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
<b>Peak Measurement</b>								
1.064	1.40	23.9	-33.6	-5.73	53.17	74	-20.83	H
1.192	1.48	24.2	-33.6	-8.15	51.13	74	-22.87	H
1.584	1.79	26.7	-33.6	-11.73	50.36	74	-23.64	H
1.064	1.40	23.9	-33.6	-5.88	53.02	74	-20.98	V
1.192	1.48	24.2	-33.6	-8.1	51.18	74	-22.82	V
1.584	1.79	26.7	-33.6	-10.53	51.56	74	-22.44	V
<b>Average Measurement</b>								
1.056	1.39	23.9	-33.6	-19.7	39.19	54	-14.81	H
1.192	1.48	24.2	-33.6	-22.07	37.21	54	-16.79	H
1.328	1.57	25.3	-33.6	-23.5	36.97	54	-17.03	H
1.056	1.39	23.9	-33.6	-13.77	45.12	54	-8.88	V
1.192	1.48	24.2	-33.6	-20.27	39.01	54	-14.99	V
1.392	1.60	25.7	-33.6	-24.17	36.73	54	-17.3	V

**Note:**

- a) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- b) The limits shown are based on Peak value and Average value detector above 1GHz, the bandwidth of Test Receiver was set at 1MHz above 1GHz.
- c) The other emission levels are 20dB below the official limits that are not reported.

**PoE Mode/Below 1GHz:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
<b>Horizontal</b>							
126.800	0.02	6.9	/	25.18	32.1	43.5	-11.4
139.280	0.02	7.8	/	29.48	37.3	43.5	-6.2
224.080	0.12	9	/	27.78	36.9	46.0	-9.1
292.080	0.16	12.9	/	27.04	40.1	46.0	-5.9
311.360	0.16	13.7	/	21.84	35.7	46.0	-10.3
622.000	0.36	20.2	/	12.04	32.6	46.0	-13.4
<b>Vertical</b>							
86.720	0.02	6.1	/	29.08	35.2	40.0	-4.8
162.960	0.02	10.2	/	27.48	37.7	43.5	-5.8
224.160	0.12	9	/	27.38	36.5	46.0	-9.5
324.720	0.16	13.6	/	24.94	38.7	46.0	-7.3
450.600	0.2	16.8	/	22.1	39.1	46.0	-6.9
550.000	0.3	18.5	/	21.3	40.1	46.0	-5.9

**Note:**

- All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.
- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- The other emission levels are 20dB below the official limits that are not reported.

**PoE Mode/Above 1GHz:**

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
<b>Peak Measurement</b>								
1.064	1.40	23.9	-33.6	-6.17	52.73	74	-21.27	H
1.192	1.48	24.2	-33.6	-7.61	51.67	74	-22.33	H
1.584	1.79	26.7	-33.6	-11.44	50.65	74	-23.35	H
1.064	1.40	23.9	-33.6	-5.92	52.98	74	-21.02	V
1.192	1.48	24.2	-33.6	-8.11	51.17	74	-22.83	V
1.584	1.79	26.7	-33.6	-11.13	50.96	74	-23.04	V
<b>Average Measurement</b>								
1.056	1.39	23.9	-33.6	-21.02	37.87	54	-16.13	H
1.192	1.48	24.2	-33.6	-21.38	37.90	54	-16.1	H
1.328	1.57	25.3	-33.6	-23.94	36.53	54	-17.47	H
1.056	1.39	23.9	-33.6	-18.27	40.62	54	-13.38	V
1.192	1.48	24.2	-33.6	-20.21	39.07	54	-14.93	V
1.392	1.60	25.7	-33.6	-23.78	37.12	54	-16.88	V

**Note:**

- a) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
- b) The limits shown are based on Peak value and Average value detector above 1GHz, the bandwidth of Test Receiver was set at 1MHz above 1GHz.
- c) The other emission levels are 20dB below the official limits that are not reported.

### Test Equipment List:

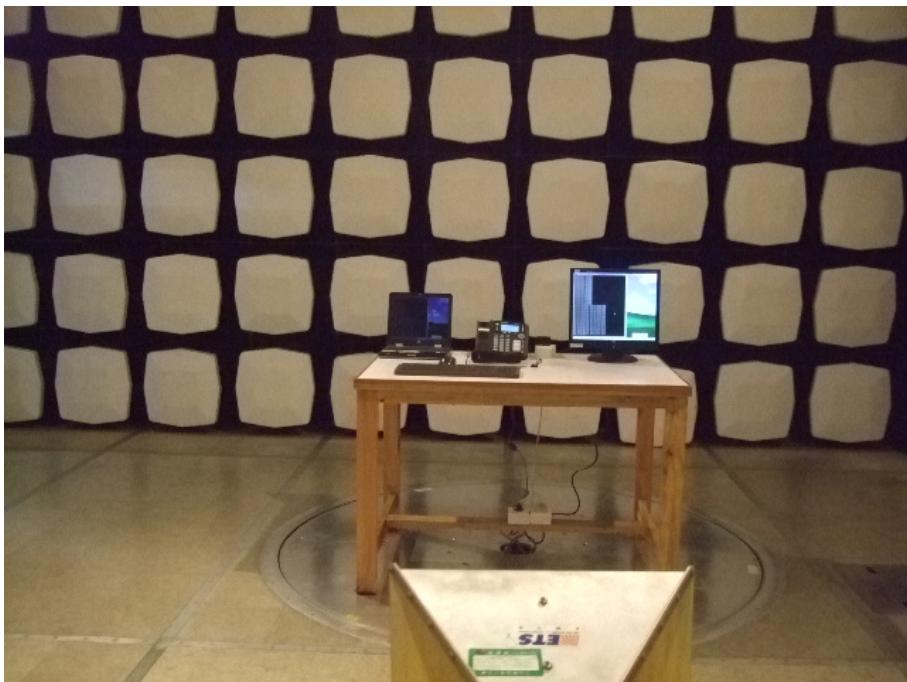
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
Receiver	SMR4503	SCHAFFNER	11725	2011.07.08	2012.07.07
Double-ridged Wave guide horn	3115	ETS	6587	2011.08.02	2012.08.01
Microwave system amplifier	83017A	Agilent	MY39500438	2011.07.11	2012.07.10
Biconilog Antenna	3142C	ETS	00042672	2010.09.28	2011.09.27
Band-pass Filter	BRM50702	Micro-Tronic	S/N-030	2010.11.30	2011.11.29
Spectrum Analyzer	FSP30	R&S	100755	2010.11.30	2011.11.29
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: Jenver Gao  
ENGINEER

REVIEWED BY: Jane Myhr  
SENIOR ENGINEER



***Radiated Emission Test Set-up(Below 1GHz)***



***Radiated Emission Test Set-up(Above 1GHz)***