

EMI TEST REPORT

On Model Name: IP PBX

Model Number: UCM6510

Brand Name: Grandstream

Prepared for Grandstream Networks, Inc.

FCC ID: YZZUCM6510

According to FCC 47 CFR Part 15, Subpart B

Test Report #: SHE-1405-11163-FCC

Tested by: Sewen Guo *Sewen Guo /Engineer* *ECMG*
Company Name

Reviewed by: Jawen Yin *Jawen Yin/ Senior Engineer* *ECMG*
Company Name

QC Manager: Swall Zhang *Swall Zhang/QC Manager* *ECMG*
Company Name

Test Report Released by: Swall Zhang *Swall Zhang* *ECMG*
Company Name *August 28th, 2014*
Date

Test Location

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

<i>Test Site Location</i>	<i>: Galanz</i>
	<i>25 South Ronggui Rd., Shunde, Foshan, Guangdong, China</i>
<i>Tel</i>	<i>: (86)-757-23612785</i>
<i>Fax</i>	<i>: (86)-757-23612537</i>

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

GOVERNMENT DISCLAIMER NOTICE	2
REPRODUCTION CLAUSE	2
OPINIONS AND INTERPRETATIONS	2
STATEMENT OF MEASUREMENT UNCERTAINTY	2
ADMINISTRATIVE IP PBX	3
EUT DESCRIPTION	4
§15.33 FREQUENCY RANGE OF RADIATED MEASUREMENTS	5
TEST SUMMARY	6
TEST MODE JUSTIFICATION	7
EUT EXERCISE SOFTWARE	7
EQUIPMENT MODIFICATION	7
EUT SAMPLE PHOTOS FOR MODEL UCM6510	8
TEST SYSTEM DETAILS	12
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS	15
ATTACHMENT 2 - RADIATED EMISSION MEASUREMENT	21

List Attached Files

Exhibit Type	File Description	File Name
<i>Test Report</i>	<i>Test Report</i>	YZZUCM6510 _Test report.pdf
<i>Operation Description</i>	<i>Technical Description</i>	YZZUCM6510 _operation description.pdf
<i>External Photos</i>	<i>External Photos</i>	YZZUCM6510 _External Photos
<i>Internal Photos</i>	<i>Internal Photos</i>	YZZUCM6510 _Internal Photos
<i>Block Diagram</i>	<i>Block Diagram</i>	YZZUCM6510 _Block Diagram.pdf
<i>Schematics</i>	<i>Circuit Diagram</i>	YZZUCM6510 _Schematics.pdf
<i>ID Label/Location</i>	<i>Label and Location</i>	YZZUCM6510 _Label & Location.pdf
<i>User Manual</i>	<i>User Manual</i>	YZZUCM6510 _User Manual.pdf
<i>Test set-up photos</i>	<i>Test set-up photos</i>	YZZUCM6510 _Test Set-up Photos

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of ECMG Electronic Technical Testing Corp (Shenzhen) 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 IP PBX

Test Sample : IP PBX

Model Numbers : UCM6510

Model Tested : UCM6510

Receipt Date : May 21st, 2014

Date Tested : May 28th-30th, 2014

Applicant : Grandstream Networks, Inc.

Address : 5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China

Telephone : (86)-755-26014600

Fax : (86)-755-26014601

Manufacturer : Grandstream Networks, Inc.

Address : 5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China

Telephone : (86)-755-26014600

Fax : (86)-755-26014601

Factory : Grandstream Networks, Inc.

Address : 5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China

Telephone : (86)-755-26014600

Fax : (86)-755-26014601

EUT Description

Grandstream Networks, Inc., model tested UCM6510 (referred to as the EUT in this report) is an IP PBX.

Technical specifications of the EUT are as belows:

Parameter		Range
Basic parameters	<i>Rated voltage</i>	12VDC
	<i>Rated Current</i>	1.5A
I/O Ports	<i>Power interface x2(pcs)</i>	<i>Power adapter connection</i>
	<i>FXS Ports</i>	<i>2 ports, FXS port to be connected to analog phones / fax machines.</i>
	<i>Network Interfaces</i>	<i>3 ports: 1 LAN, 1 WAN, 1 Heartbeat 10M/100M/1000M RJ45 Ethernet port (s) with integrated PoE Plug (IEEE 802.3at-2009)</i>
	<i>FXO Ports</i>	<i>2 PSTN trunk FXO ports</i>
	<i>T1/E1/J1 Interface</i>	<i>1 RJ45 port</i>
	<i>RESET</i>	<i>Factory Reset button. Press for 7 seconds to reset factory default settings.</i>
	<i>Peripheral Ports</i>	<i>USB, SD</i>
Adapter (Mass power)	<i>Input</i>	<i>100-240VAC</i>
	<i>Output</i>	<i>12VDC, 1.5A</i>
	<i>Model</i>	<i>SFF1200150A1BB</i>
	<i>Brand name</i>	<i>Mass power</i>

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

§15.33 Frequency Range of Radiated Measurements

(b) For unintentional radiators:

(1) Except as otherwise indicated in paragraphs (b)(2) or (b)(3) of this section, for an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Note: As the highest frequency operated of the EUT is 528MHz, so upper frequency of radiated emission test is up to 5GHz as per §15.33(b)(1).

Test Summary

The Electromagnetic Compatibility requirements on model UCM6510 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 -2009	Conducted Emission	Passed	AC Input Port	Attachment 1
FCC Part 15.109 ANSI C63.4 -2009	Radiated Emission	Passed	Enclosure	Attachment 2

Test Mode Justification

Pre-Scan has been conducted to determine the worst-case from all possible combination between available operation mode .Following mode(s) was (were) selected for the final test as listed below:

Pre-Test Mode	
<i>EMI Test Mode</i>	<i>Mode 1: Communication with PC&Phone+power jack 1</i>
	<i>Mode 2: Communication with PC&Phone+power jack 2</i>
	<i>Mode 3: PoE mode</i>
Final Test Mode	
<i>EMI Test Mode</i>	<i>Mode 1: Communication with PC&Phone+power jack 1</i>
	<i>Mode 3: PoE mode</i>
<i>EMS Test Mode</i>	<i>Not Applicable</i>

EUT Exercise Software

No test software support this test.

Equipment Modification

Any modifications installed previous to testing by Grandstream Networks, Inc. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). Test personnel.

EUT Sample Photos for model UCM6510



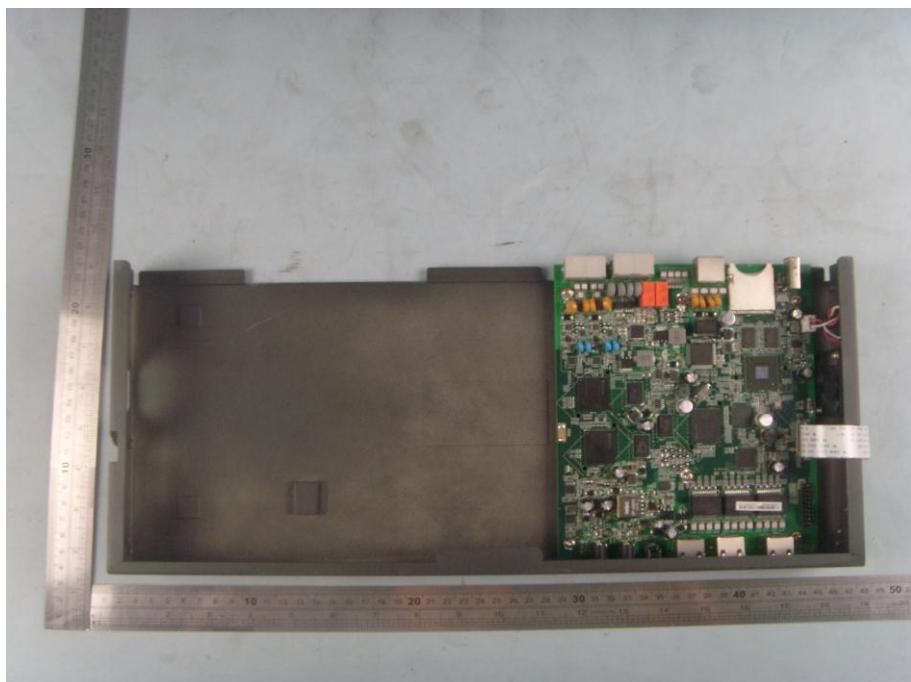
EUT- Front&Top View



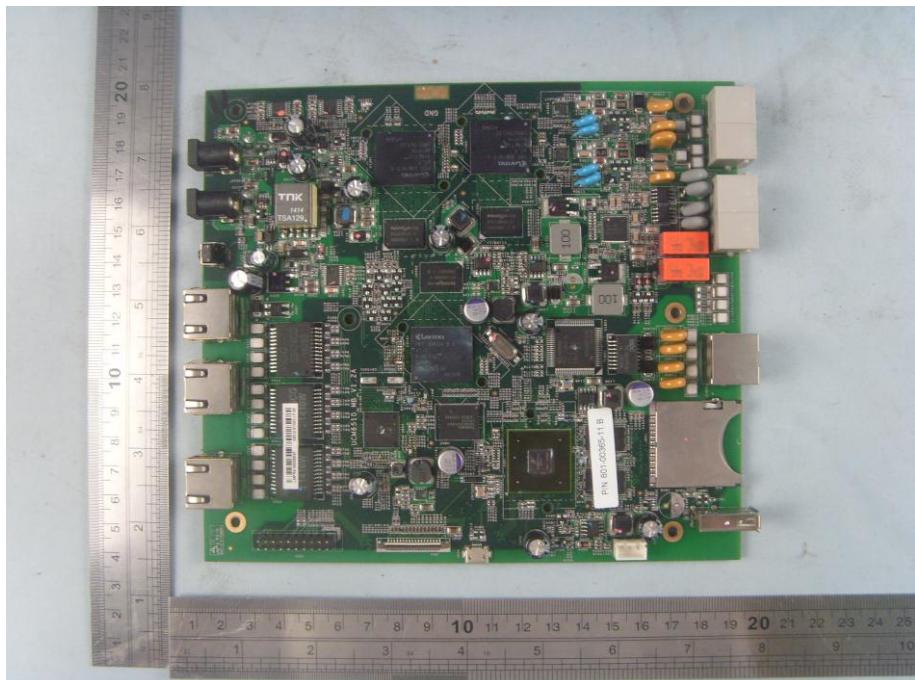
EUT -Rear View



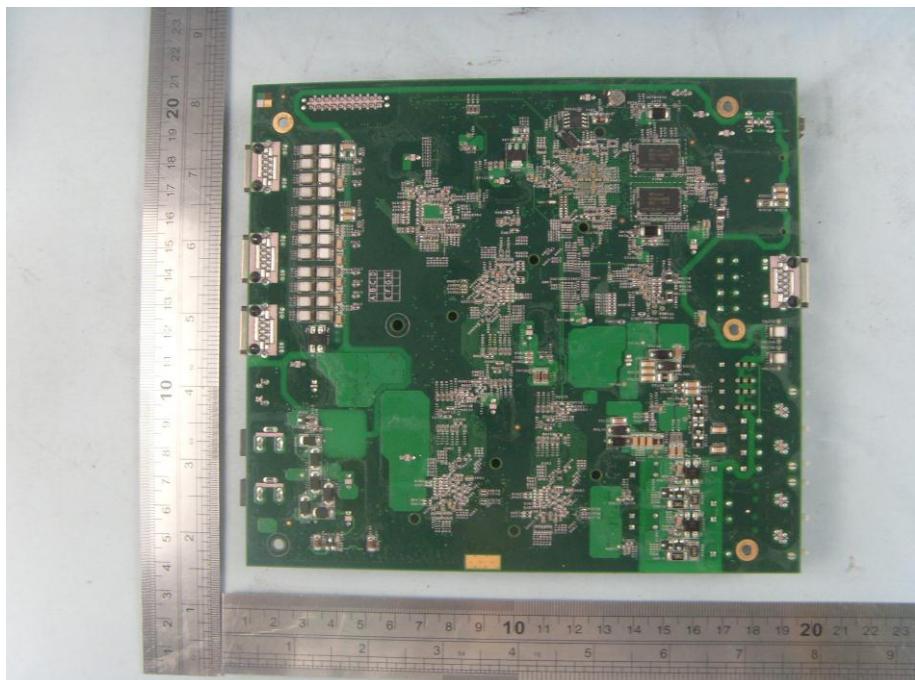
EUT -Bottom View



EUT-Uncovered View



Main board -Top View



Main board -Bottom View



Power Adaptor View (Manufacturer: Mass Power)

Test System Details

EUT			
Model Number:	<i>UCM6510</i>		
Model Tested:	<i>UCM6510</i>		
Description:	<i>IP PBX</i>		
Input:	<i>DC12V/1.5A</i>		
Manufacturer:	<i>Grandstream Networks, Inc.</i>		
Support Equipment			
Description	Model Number	Serial Number	Manufacturer
<i>Notebook Computer</i>	<i>NV57H03C-2412G64Mnc2s</i>	<i>LXWZ4010011251092 01601</i>	<i>Gateway</i>
<i>Mouse</i>	<i>MO32B0</i>	<i>23-033131</i>	<i>IBM</i>
<i>Keyboard</i>	<i>SK-1788</i>	<i>---</i>	<i>Lenovo</i>
<i>Monitor</i>	<i>TFT1780PS</i>	<i>B8879HA021638</i>	<i>AOC</i>
<i>Phone</i>	<i>HCD6138(20)P/TSDL 07</i>	<i>064650564</i>	<i>CHINOE</i>

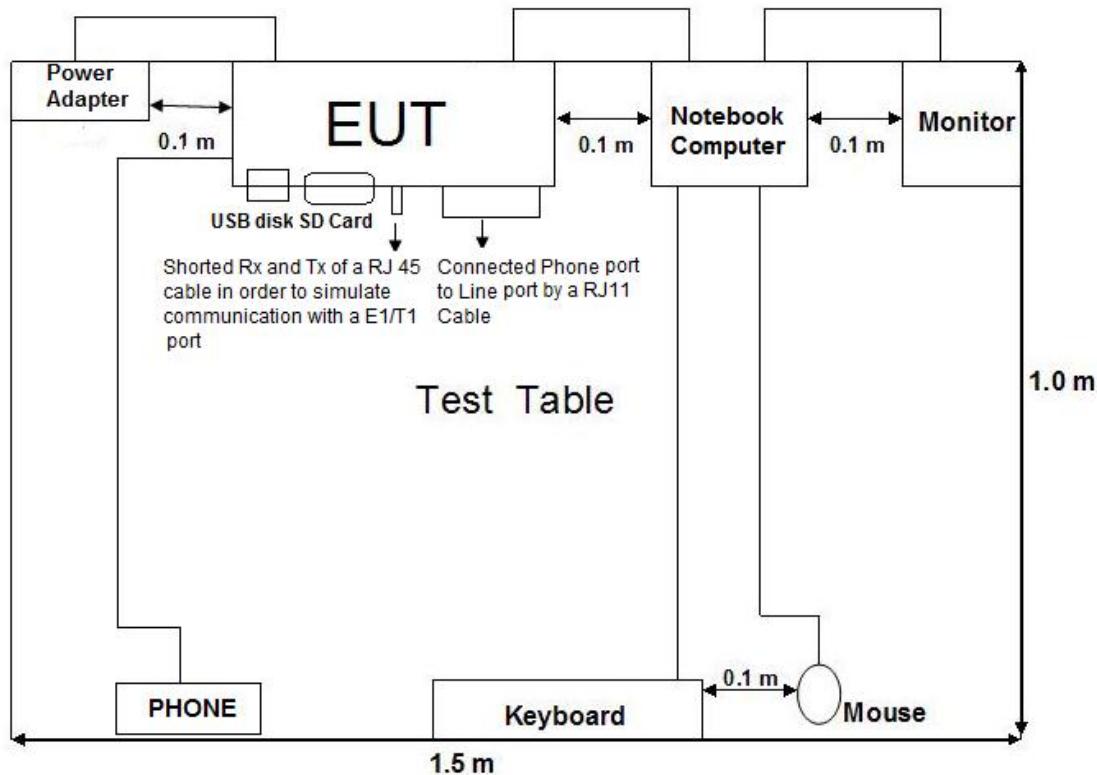
Continue on to next page...

<i>Cable Description</i>					
<i>Description</i>	<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite (Y/N)</i>
<i>Power Cord Of Notebook Computer</i>	<i>Plug</i>	<i>Notebook Computer</i>	<i>1.6</i>	<i>N</i>	<i>Y</i>
<i>Power Cord of Monitor</i>	<i>Plug</i>	<i>Monitor</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>Monitor</i>	<i>Computer</i>	<i>1.2</i>	<i>Y</i>	<i>Y</i>
<i>RJ-45 Cord</i>	<i>EUT</i>	<i>Notebook Computer</i>	<i>1.5</i>	<i>N</i>	<i>N</i>
<i>RJ-11 Cord</i>	<i>Phone port</i>	<i>Line port</i>	<i>1.2</i>	<i>N</i>	<i>N</i>
<i>Power cord of Adapter (Mass power)</i>	<i>EUT</i>	<i>Plug</i>	<i>2.4</i>	<i>N</i>	<i>N</i>

Note: The "EUT" means "IP PBX".

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.

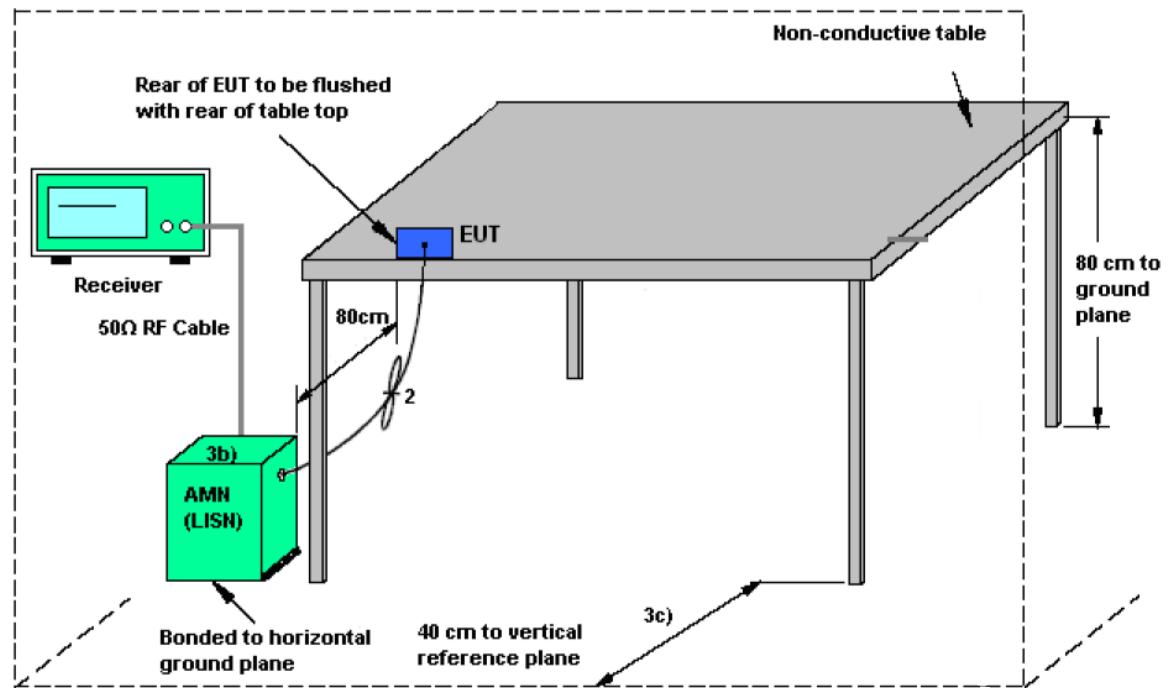
Configuration of Tested System



ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks, Inc.	TEST STANDERD:	FCC Part 15, Subpart B, Section 15.107														
MODEL NUMBERS:	UCM6510	PRODUCT:	IP PBX														
MODEL TESTED:	UCM6510	EUT DESIGNATION:	Home or Office														
TEMPERATURE:	23°C	HUMIDITY:	51%														
ATM PRESSURE:	103kPa	GROUNDING:	None														
TESTED BY:	Sewen Guo	DATE OF TEST:	May 28 th , 2014														
TEST REFERENCE:	ANSI C63.4 -2009																
TEST PROCEDURE:	The EUT was set up according to the guidelines of ANSI C63.4 -2009 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.																
TEST MODE:	Mode 1																
LIMITS:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;"><i>Frequency range (MHz)</i></th> <th colspan="2" style="text-align: center;"><i>Limits dB(uV)</i></th> </tr> <tr> <th style="text-align: center;"><i>Quasi-peak</i></th> <th style="text-align: center;"><i>Average</i></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.15 to 0.50</td> <td style="text-align: center;">66 to 56</td> <td style="text-align: center;">56 to 46</td> </tr> <tr> <td style="text-align: center;">0.50 to 5</td> <td style="text-align: center;">56</td> <td style="text-align: center;">46</td> </tr> <tr> <td style="text-align: center;">5 to 30</td> <td style="text-align: center;">60</td> <td style="text-align: center;">50</td> </tr> </tbody> </table>			<i>Frequency range (MHz)</i>	<i>Limits dB(uV)</i>		<i>Quasi-peak</i>	<i>Average</i>	0.15 to 0.50	66 to 56	56 to 46	0.50 to 5	56	46	5 to 30	60	50
<i>Frequency range (MHz)</i>	<i>Limits dB(uV)</i>																
	<i>Quasi-peak</i>	<i>Average</i>															
0.15 to 0.50	66 to 56	56 to 46															
0.50 to 5	56	46															
5 to 30	60	50															
TESTED RANGE:	150kHz to 30MHz																
TEST VOLTAGE:	AC 120V/60Hz																
RESULTS:	The EUT meets the requirements of test reference for Conducted Emissions. The test results relate only to the equipment under test provided by client.																
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). test personnel.																
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB																

TEST SET UP:

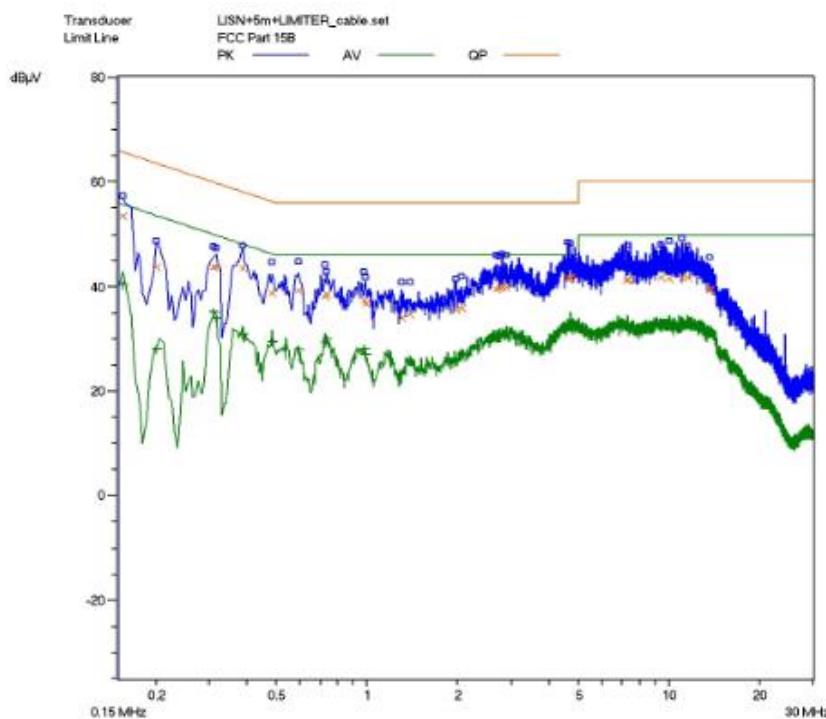


AMN = Artificial mains network (LISH)

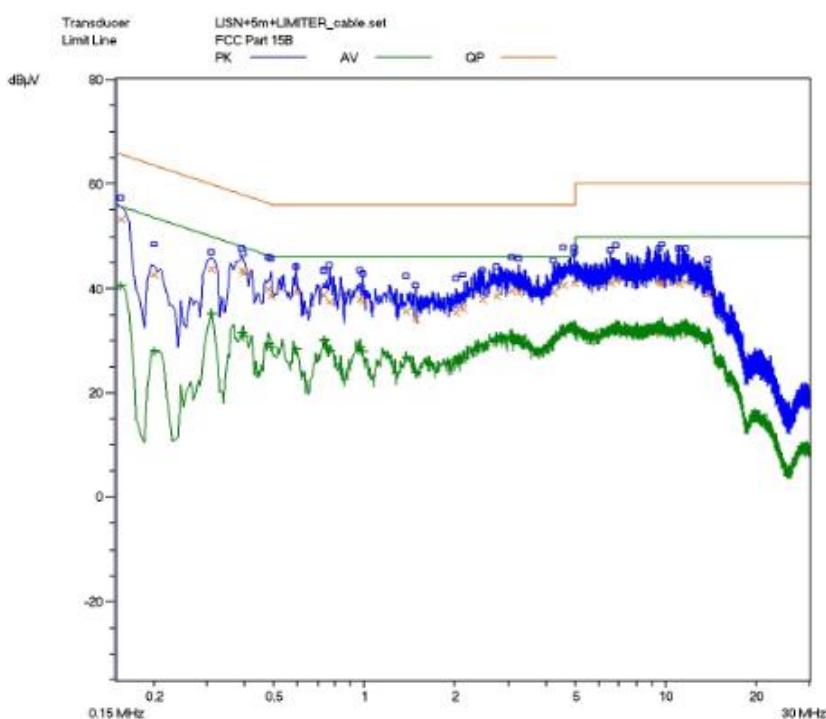
AE = Associated equipment

EUT = Equipment under test

ISN = Impedance stabilization network



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Test Data:

Lines	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AVE Level (dBuV)	Limits AVE (dBuV)	Margin AVE (dB)
L	0.155	53.6	65.7	-12.1	0.155	40.4	55.7	-15.3
L	4.605	41.5	56	-14.5	4.605	32.6	46	-13.4
L	4.715	41.8	56	-14.2	4.715	32.8	46	-13.2
N	0.155	53.2	65.7	-12.5	0.155	40.5	55.7	-15.2
N	0.390	43.5	58.1	-14.6	0.390	31.6	48.1	-16.5
N	4.955	41.1	56.0	-14.9	4.955	32.2	46.0	-13.8

Note:

1) All readings are using a bandwidth of 9 kHz, with a 500ms sweep time. A video filter was not used.

2) Other emission levels are too low against official limits are not reported.

Test Equipment List:

<i>Test Equipment</i>	<i>Model No.</i>	<i>Manufacturer</i>	<i>Serial No.</i>	<i>Last Cal.</i>	<i>Cal. Interval</i>
Receiver	SMR4503	SCHAFFNER	11725	2013.07.08	2014.07.07
Line impedance stabilization network	4825/2	ETS	1161	2013.07.08	2014.07.07
<i>Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.</i>					

TESTED BY: 
ENGINEER ECMG
COMPANY NAME

REVIEWED BY: 
SENIOR ENGINEER ECMG
COMPANY NAME



Conducted Emission Test Set-up -Front view



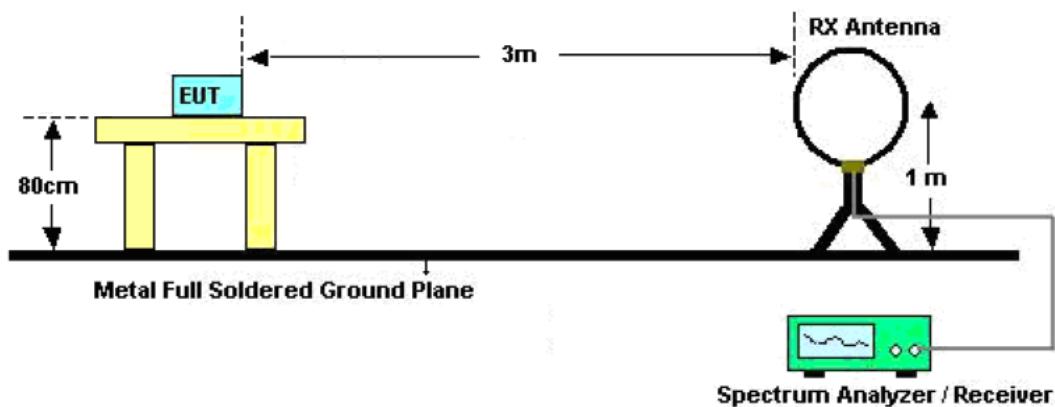
Conducted Emission Test Set-up -Rear view

ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

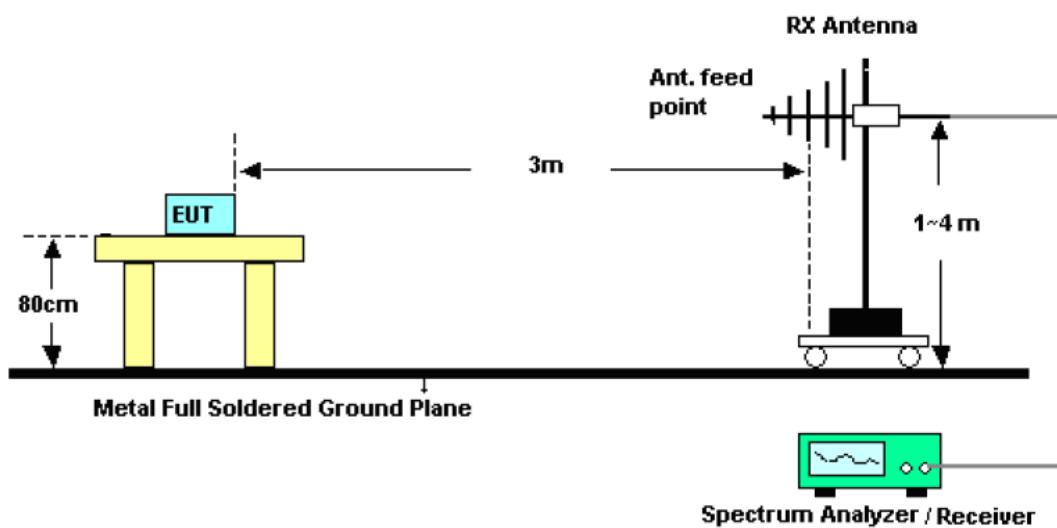
CLIENT:	Grandstream Networks, Inc.	TEST STANDERD:	FCC Part 15,Subpart B, Section 15.109
MODEL NUMBERS:	UCM6510	PRODUCT:	IP PBX
EUT MODEL:	UCM6510	EUT DESIGNATION:	Home or Office
TEMPERATURE:	23°C	HUMIDITY:	49%RH
ATM PRESSURE:	103.0kPa	GROUNDING:	None
TESTED BY:	Sewen Guo	DATE OF TEST:	May 28 th , 2014
TEST REFERENCE:	ANSI C63.4 -2009		
TEST PROCEDURE:	<p>The EUT was set up according to the guidelines of ANSI C63.4 -2009 for radiated emissions. 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 1 GHz to 5GHz 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>		
TEST MODE:	Mode 1, mode 3		
TESTED RANGE:	9K-30MHz and 30MHz to 5,000MHz		
TEST VOLTAGE:	AC 120V/60Hz		
RESULTS:	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). Test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp ± 2.6 dB		

Continue on to next page...

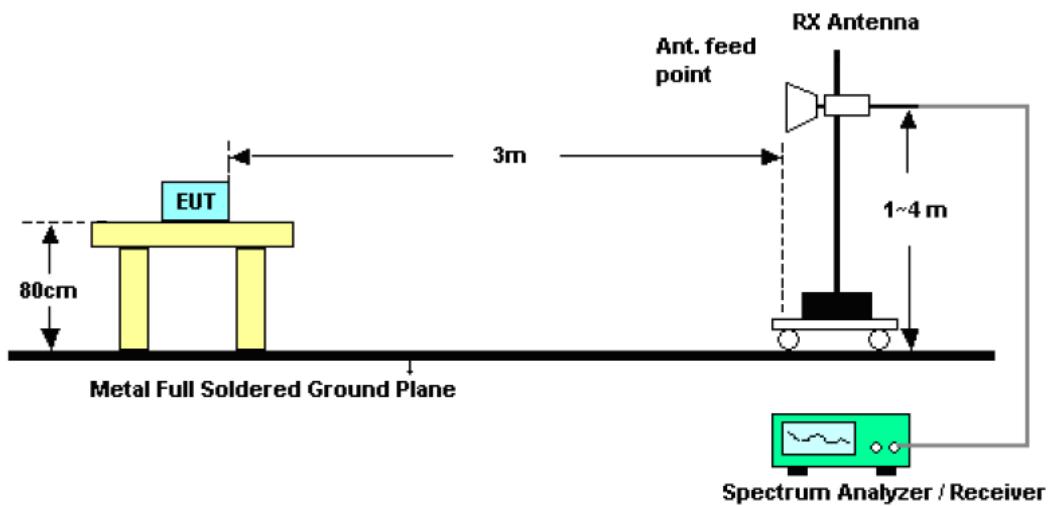
For radiated emissions below 30MHz



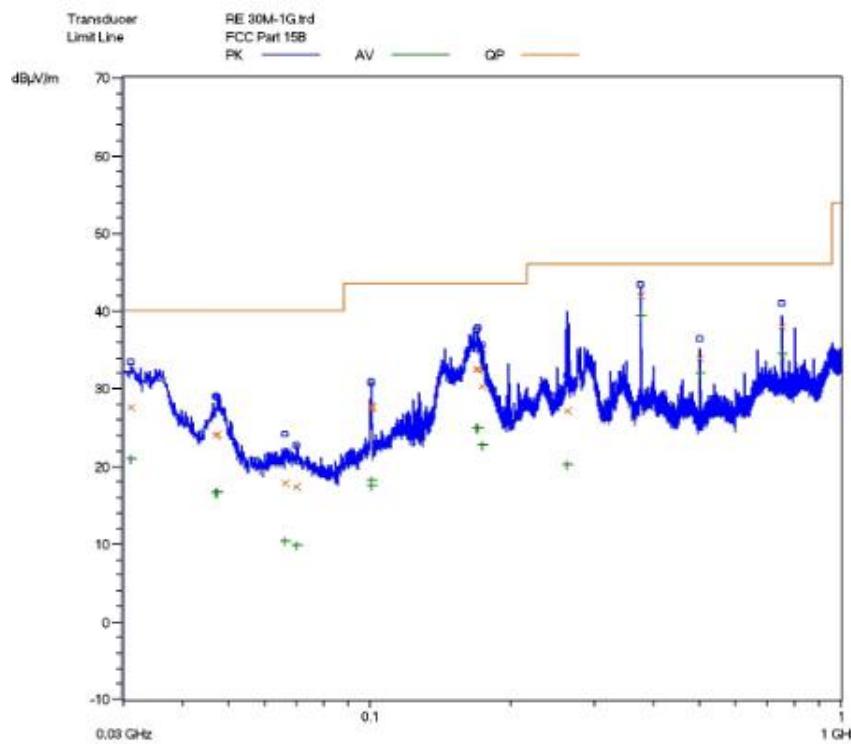
For radiated emissions from 30MHz to 1GHz



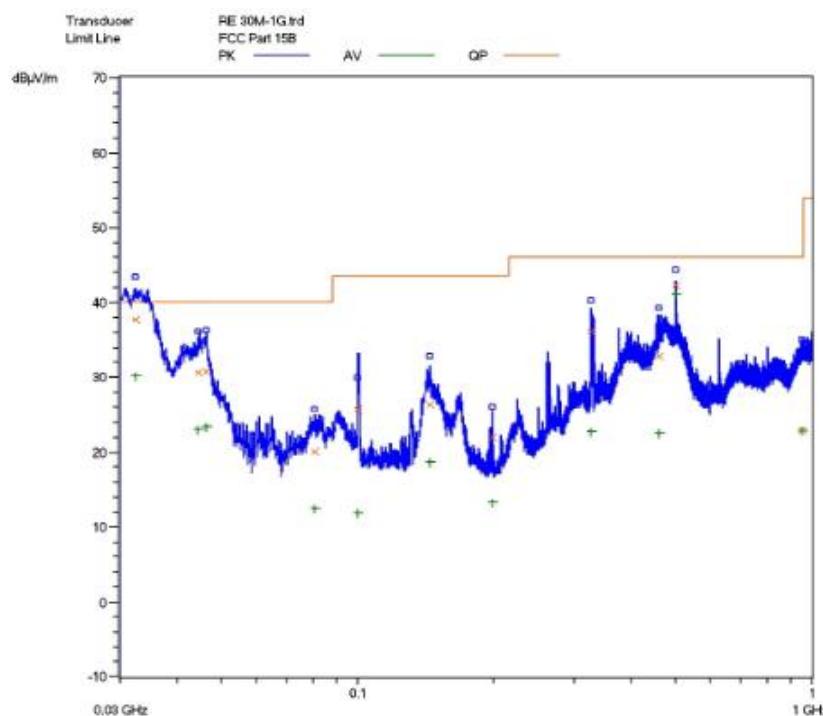
For radiated emissions above 1GHz



Mode 1:

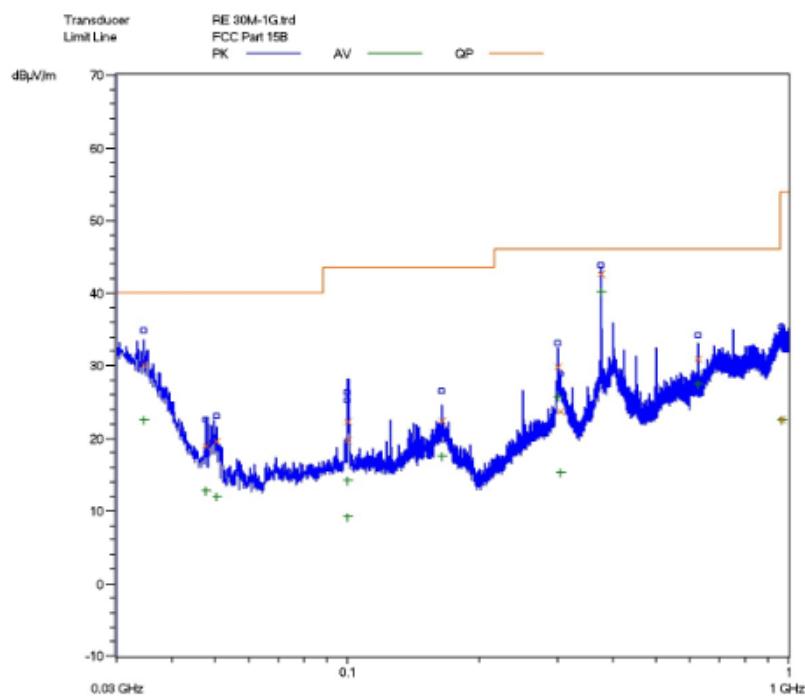


Horizontal: Radiated Emission Test Plot
- (Peak,maxhold)

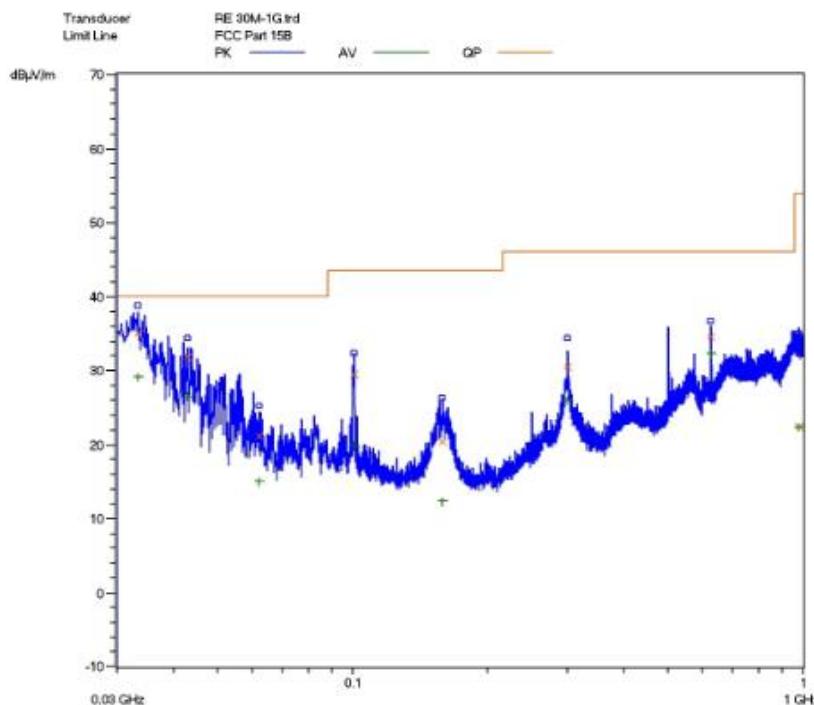


Vertical: Radiated Emission Test Plot
- (Peak,maxhold)

Mode 3:



Horizontal: Radiated Emission Test Plot
- PoE mode(Peak,maxhold)



Vertical: Radiated Emission Test Plot
-PoE Mode(Peak,maxhold)

**Test Data:
9KHz to 30MHz:**

Test No. #:	Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/
4	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/
6	/	/	/	/	/	/	/

Note:

1. The field strength is calculated by adding the antenna factor, cable factor. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss.
2. The limits shown are based on quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. the bandwidth of Test Receiver was set at 200Hz in frequency range of 9KHz to 150KHz, 9kHz in the frequency range of 150KHz to 30MHz.
3. The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Test Data:
Mode 1/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)
Horizontal							
169.200	0.30	9.2	/	23	32.5	43.5	-11.0
314.960	0.51	13.4	/	30.09	44.0	46	-2.0
750.000	0.8	17.7	/	19.5	38	46	-8.0
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
Vertical							
32.480	0.13	16.7	/	20.97	37.8	40	-2.2
46.400	0.16	8.7	/	22.04	30.9	40	-8.1
500.000	0.59	15.9	/	26.01	42.5	46	-3.5
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

Note:

1. 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.
2. 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.
3. The other emission levels are very low against the official limits that are not reported.

Mode 1/Above 1GHz:

Frequency (GHz)	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)
Peak Measurement								
1.001	1.39	23.9	33.6	12.71	46.18	74	-27.82	H
1.100	1.40	24.2	33.6	5.00	54.20	74	-19.80	H
2.600	2.3	29.3	33	8.89	55.71	74	-18.29	H
1.128	1.40	24.0	33.6	11.79	47.21	74	-26.79	V
1.100	1.40	24.2	33.6	1.10	58.10	74	-15.90	V
1.660	1.73	27.2	33	2.43	59.50	74	-14.50	V
Average Measurement								
1.001	1.39	23.9	33.6	30.80	28.09	54	-25.91	H
1.100	1.40	24.2	33.6	26.9	32.30	54	-21.70	H
2.600	2.3	29.3	33.0	28.68	35.92	54	-18.08	H
1.128	1.40	24.0	33.6	29.69	29.31	54	-24.69	V
1.100	1.40	24.2	33.6	25.44	33.76	54	-20.24	V
1.660	1.73	27.2	33.0	22.73	39.20	54	-14.80	V

Note:

1. 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.
2. 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.
3. The other emission levels are very low against the official limits that are not reported.

Mode 3/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)
Horizontal							
34.640	0.13	20.9	/	9.71	30.2	40	-8.8
374.960	0.51	13.9	/	26.19	40.6	46	-5.4
624.240	0.73	15.9	/	14.37	31	46	-15.0
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
Vertical							
33.440	0.13	20.9	/	14.07	35.1	40	-4.9
100.720	0.22	7.4	/	21.98	29.6	43,5	-13.9
624.960	0.73	15.9	/	17.97	34.6	46	-11.4
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

Note:

1. All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120 kHz, with a 60 s sweep time. A video filter was not used.
2. 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.
3. The other emission levels are very low against the official limits that are not reported.

Mode 3/Above 1GHz:

Frequency (GHz)	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)
Peak Measurement								
1.001	1.39	23.9	33.6	6.58	52.31	74	-21.69	H
1.100	1.40	24.2	33.6	3.93	55.27	74	-18.73	H
2.600	2.3	29.3	33.0	8.50	56.10	74	-17.90	H
1.128	1.40	24.0	33.6	1.80	57.20	74	-16.80	V
1.100	1.40	24.2	33.6	5.98	53.22	74	-20.78	V
1.660	1.73	27.2	33.0	8.03	53.90	74	-20.10	V
Average Measurement								
1.001	1.39	23.9	33.6	24.38	34.51	54	-19.49	H
1.100	1.40	24.2	33.6	23.93	35.27	54	-18.73	H
2.600	2.3	29.3	33.0	31.87	32.73	54	-21.27	H
1.128	1.40	24.0	33.6	22.79	36.21	54	-17.79	V
1.100	1.40	24.2	33.6	20.84	38.36	54	-15.64	V
1.660	1.73	27.2	33.0	28.72	33.21	54	-20.79	V

Note:

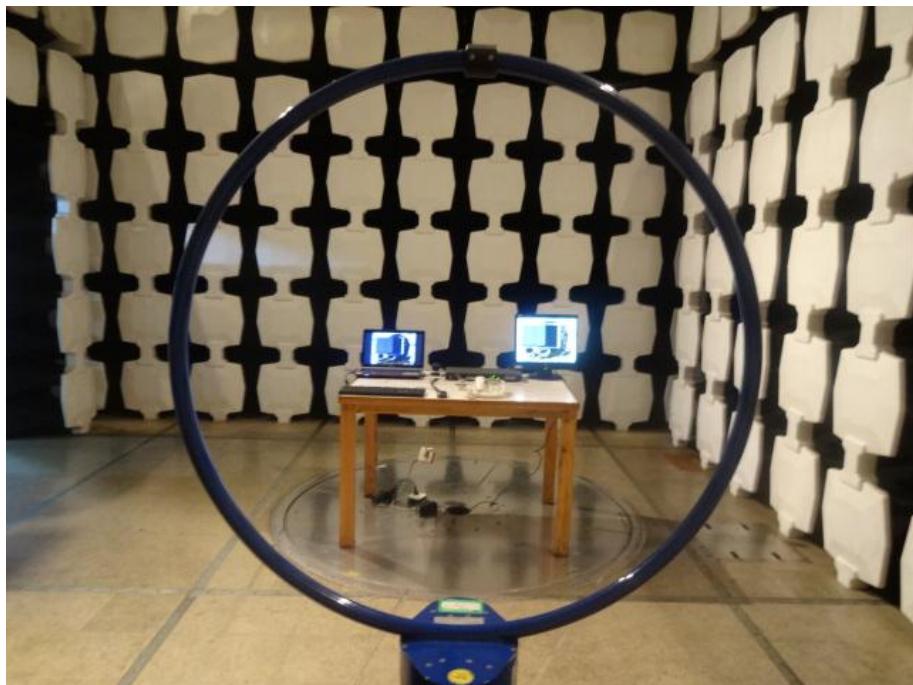
1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss -Preamplifier Factor.
2. The limits shown are based on Peak value and Average value detector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

Test Equipment List:

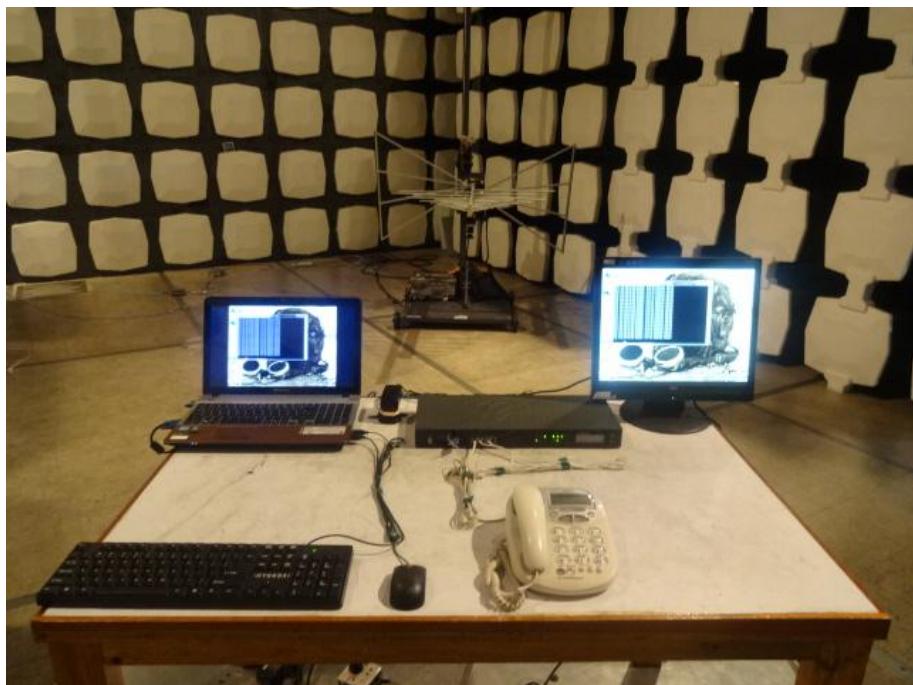
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI Test Receiver	SMR4503	SCHAFFNER	11725	2013.07.08	2014.07.07
HF Loop Antenna	HLA6120	TESEQ	26348	2013.09.27	2014.09.26
Double-ridged Wave guide horn	3115	ETS	6587	2013-08.02	2014.08.01
Microwave system amplifier	83017A	Agilent	MY39500438	2013.07.11	2014.07.10
Biconilog Antenna	3142C	ETS	00042672	2013.09.28	2014.09.27
Band-pass Filter	BRM50702	Micro-Tronic	S/N-030	2013.11.30	2014.11.29
Spectrum Analyzer	FSP30	R&S	100755	2013.11.30	2014.11.29
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY: James **ECMG**
ENGINEER **COMPANY NAME**

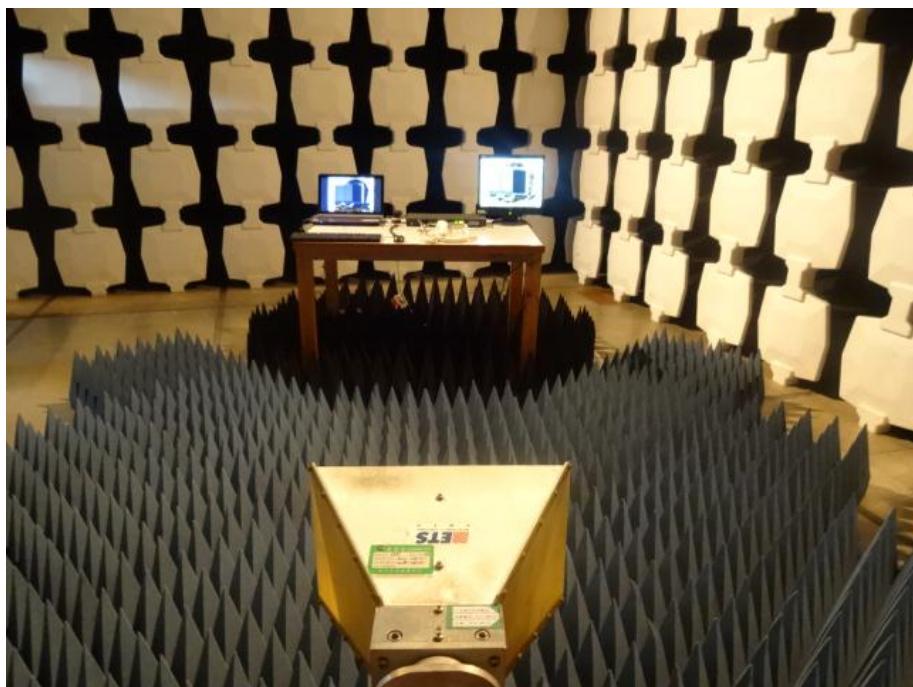
REVIEWED BY: James **ECMG**
SENIOR ENGINEER **COMPANY NAME**



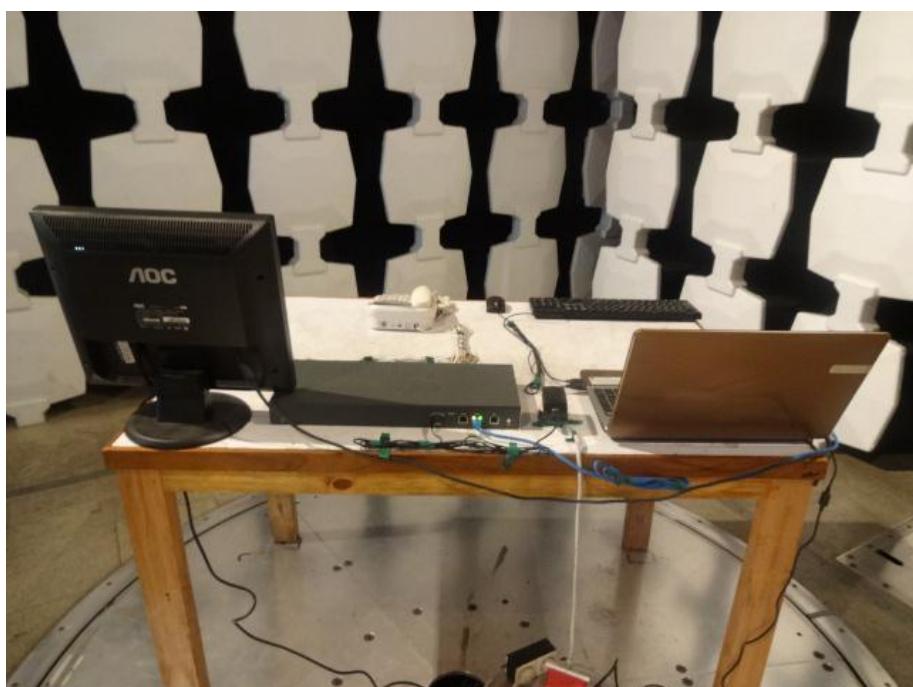
Radiated Emission Test Set-up (9KHz-30MHz)



Radiated Emission Test Set-up (Below 1GHz)



Radiated Emission Test Set-up (Above 1GHz)



Radiated Emission Test Set-up (Rear view)