

EMI TEST REPORT

On Model Name: ATA

Model Number: HT502

Brand Name: Grandstream

Prepared for Grandstream Networks, INC

FCC ID Number: YZZHT502V2X

According to FCC 47 CFR Part 15(2012), Subpart B

Test Report #: SHE-1211-10908-FCC

Tested by: Daomen ECMG
Daomen /Engineer Company Name

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

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

Test Report Released by: Swall Zhang November 14th, 2012
Swall Zhang 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.

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List Attached Files

<i>Exhibit Type</i>	<i>File Description</i>	<i>File Name</i>
<i>Test Report</i>	<i>Test Report</i>	<i>YZZHT502V2X _Test report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>YZZHT502V2X_operation description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>YZZHT502V2X_External Photos</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>YZZHT502V2X_Internal Photos</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>YZZHT502V2X_Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>YZZHT502V2X _Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>YZZHT502V2X _Label & Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>YZZHT502V2X _User Manual.pdf</i>
<i>Test set-up photos</i>	<i>Test set-up photos</i>	<i>YZZHT502V2X _Test Set-up Photos</i>

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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 Data

Test Sample : ATA

Model Numbers : HT502

Model Tested : HT502

Receipt Date : November 9th, 2012

Date Tested : November 9th, 2012

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 HT502 (referred to as the EUT in this report) is an ATA.

Technical specifications of the EUT are as below:

Parameter		Range
<i>Basic parameters</i>	<i>Rated voltage</i>	12VDC
	<i>Rated Current</i>	0.5A
<i>I/O Ports</i>	<i>Power Cable</i>	<i>Power adapter connection</i>
	<i>WAN Port (RJ-45)</i>	<i>Connect to the internal LAN network or router.</i>
	<i>LAN Port (RJ-45)</i>	<i>Connect the LAN port with an Ethernet cable to your PC.</i>
	<i>RESET</i>	<i>Factory Reset button. Press for 7 seconds to reset factory default settings.</i>
	<i>PHONE1 (RJ-11)</i>	<i>FXS port to be connected to analog phones / fax machines.</i>
	<i>PHONE2 (RJ-11)</i>	<i>FXS port to be connected to analog phones / fax machines.</i>
<i>Adapter #1</i>	<i>Input</i>	100-240VAC 50/60Hz 0.18A
	<i>Output</i>	12VDC,0.5A
	<i>Model</i>	SDF1200050A1BB
	<i>Brand name</i>	Mass
<i>Adapter #2</i>	<i>Input</i>	100-240VAC 50/60Hz 0.2A
	<i>Output</i>	12VDC,0.5A
	<i>Model</i>	UE06L8-120050SPAU
	<i>Brand name</i>	UE

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

Test Summary

The Electromagnetic Compatibility requirements on model HT502 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
<i>FCC Part 15.107 ANSI C63.4 -2009</i>	<i>Conducted Emission</i>	<i>Passed</i>	<i>AC Input Port</i>	<i>Attachment 1</i>
<i>FCC Part 15.109 ANSI C63.4 -2009</i>	<i>Radiated Emission</i>	<i>Passed</i>	<i>Enclosure</i>	<i>Attachment 2</i>

Test Mode Justification

Pre-scan has been conducted to determine the worst-case modes from all possible combinations between available operation modes. IP call modes was chosen for the final test as described below.

IP Call mode:

Connected LAN port and FXS port of the EUT to an IP phone and a telephone by an RJ-45 cord and RJ-11 cord and established an call link between them, then connected PC port of the EUT to a notebook PC and ping "192.168.0.160 -t" to EUT and measured it.

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.

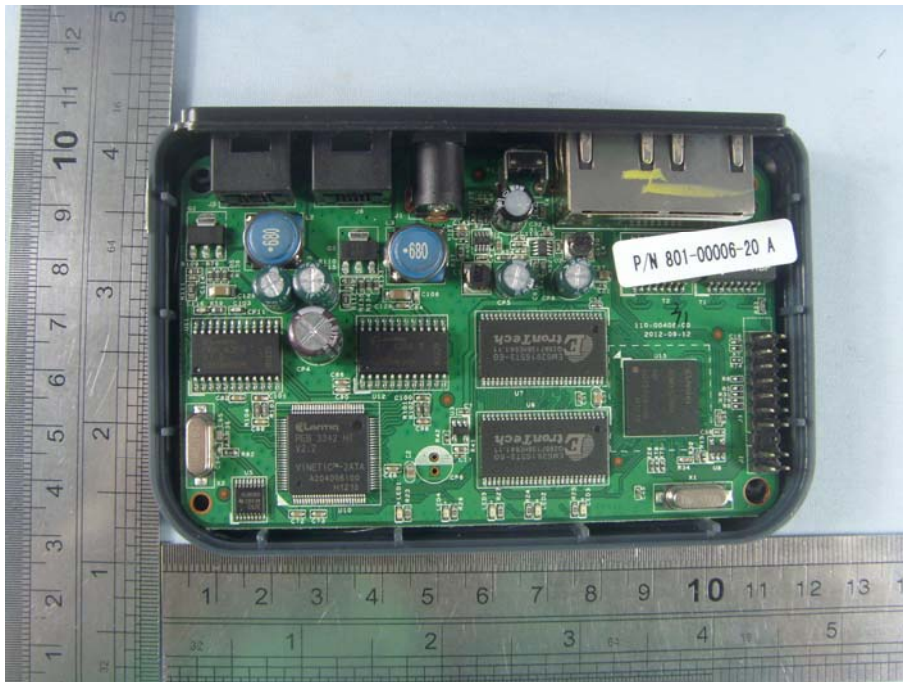
EUT Sample Photos for model HT502



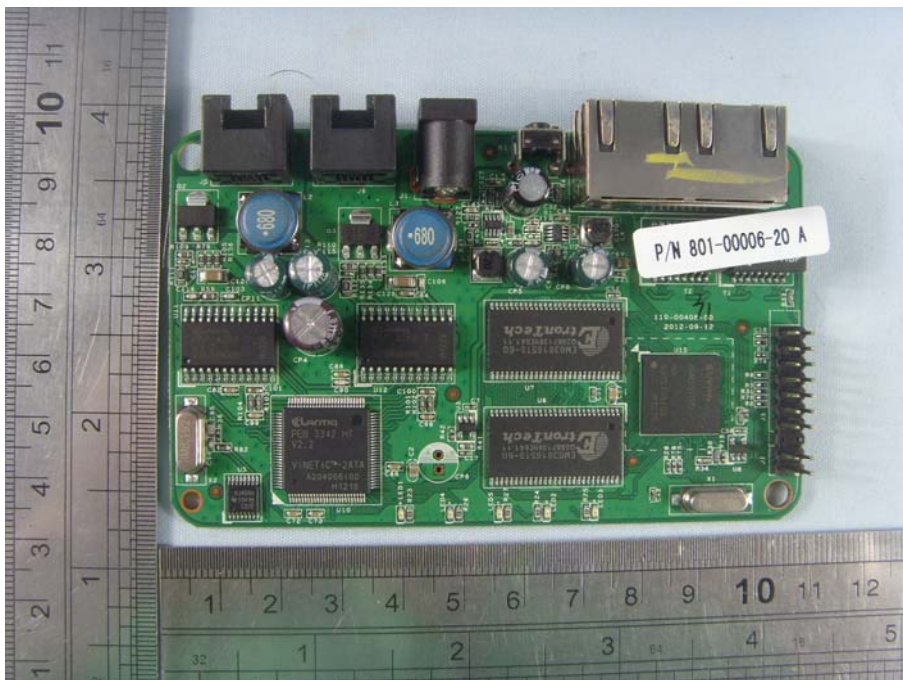
EUT- Front View



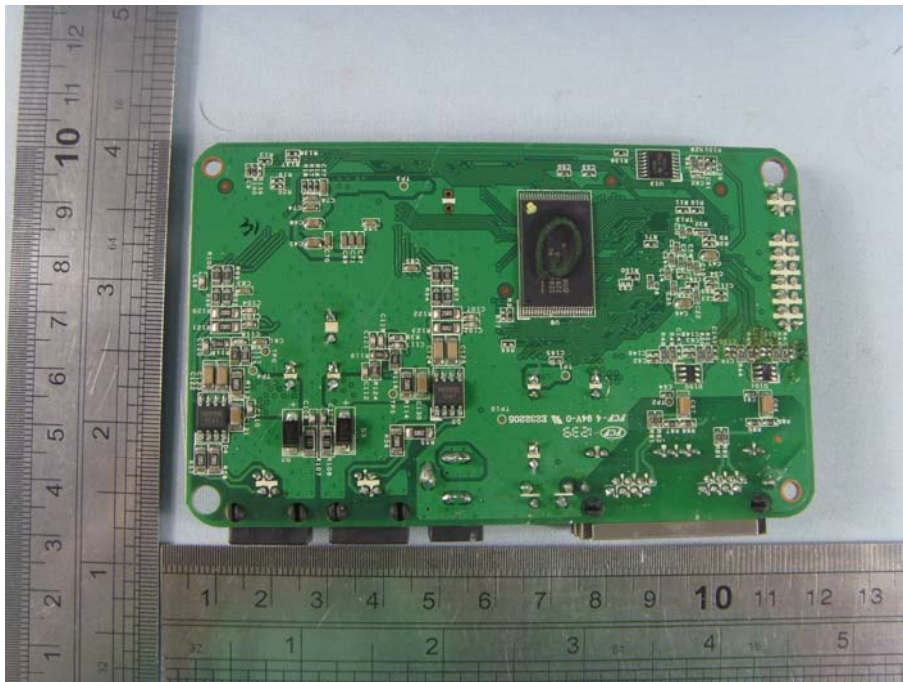
EUT- Rear View



EUT-Uncovered View



Mainboard- Top View



Mainboard- Bottom View



Adaptor #1 View (Manufacturer: Mass Power)



Adaptor #2 View (Manufacturer: UE)

Test System Details

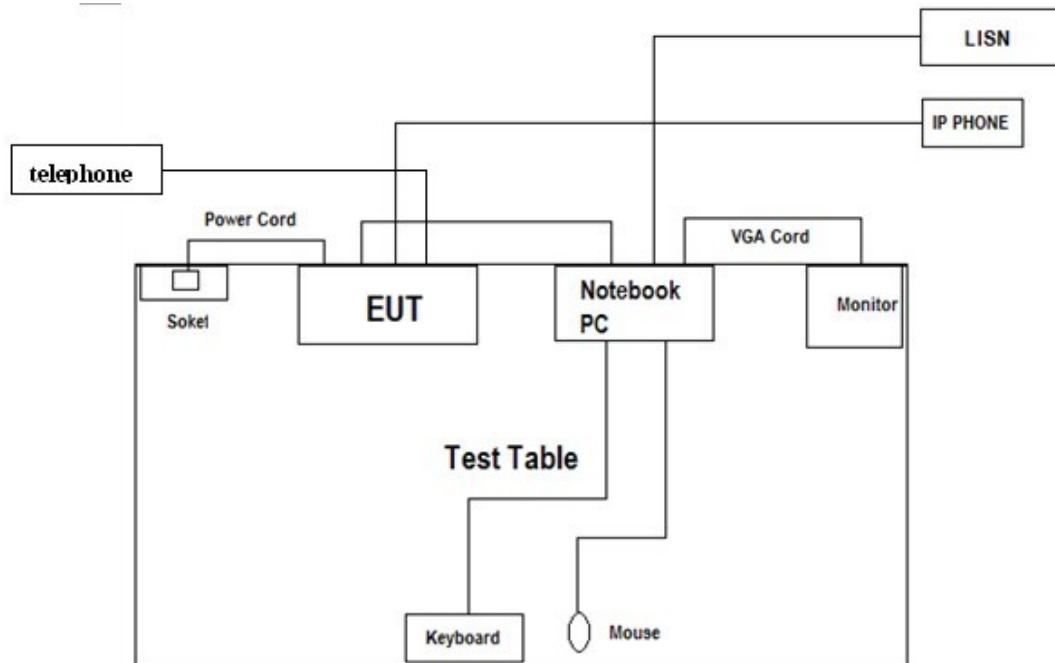
EUT			
Model Number:	HT502		
Model Tested:	HT502		
Description:	ATA		
Input:	AC 120V/60Hz		
Manufacturer:	Grandstream Networks, INC		
Support Equipment			
Description	Model Number	Serial Number	Manufacturer
Notebook PC	ThinkPad X121e	---	Lenovo
Adapter Of Notebook PC	ThinkPad 57Y4614	---	Lenovo
Mouse	MO32B0	23-033131	IBM
Keyboard	SK-1788	---	Lenovo
Monitor	TFT1780PS	B8879HA021638	AOC
IP phone	GXP2100	---	Grandstream
Telephone	HCD129P/TSDL 2953		DAERXUN

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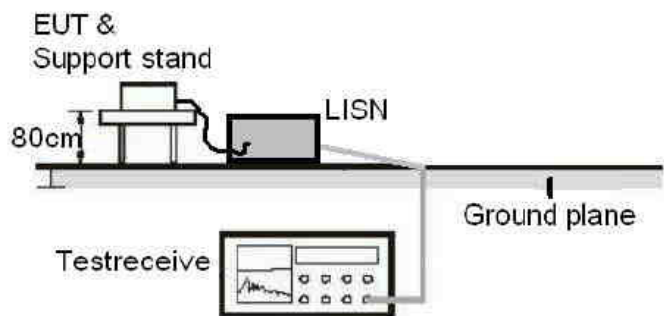
Cable Description					
<i>Description</i>	<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite (Y/N)</i>
<i>Power Cord Of Notebook PC</i>	<i>Adapter</i>	<i>Notebook PC</i>	<i>1.6</i>	<i>N</i>	<i>Y</i>
	<i>Adapter</i>	<i>Plug</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Mouse cord</i>	<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>PC</i>	<i>1.2</i>	<i>Y</i>	<i>Y</i>
<i>RJ-45 Cord #1</i>	<i>EUT</i>	<i>Notebook PC</i>	<i>1.5</i>	<i>N</i>	<i>N</i>
<i>RJ-45 Cord #2</i>	<i>EUT</i>	<i>IP telephone</i>	<i>>3.0</i>	<i>N</i>	<i>N</i>
<i>Power Adapter cord of EUT</i>	<i>EUT</i>	<i>Plug</i>	<i>1.8</i>	<i>N</i>	<i>N</i>
<i>Note: The "EUT" means "ATA".</i>					

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.

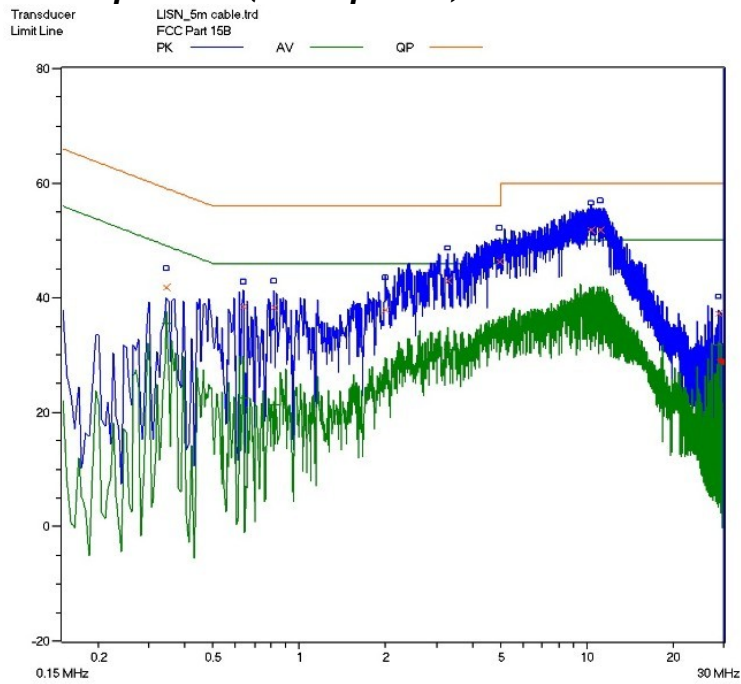
Configuration of Tested System



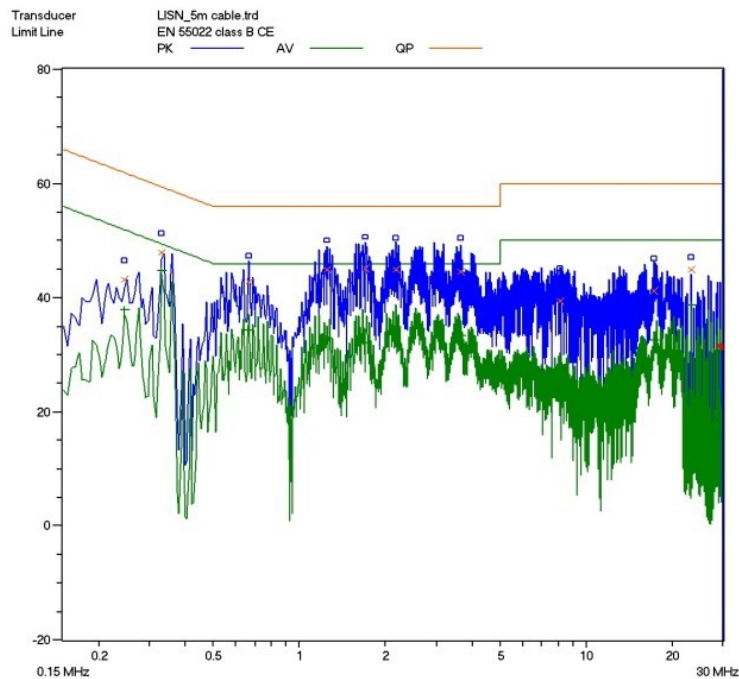
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks, INC	TEST STANDERD:	FCC Part 15, Subpart B, Section 15.107
MODEL NUMBERS:	HT502	PRODUCT:	ATA
MODEL TESTED:	HT502	EUT DESIGNATION:	Home or Office
TEMPERATURE:	23°C	HUMIDITY:	51%
ATM PRESSURE:	103kPa	GROUNDING:	None
TESTED BY:	Daomen	DATE OF TEST:	November 9 th , 2012
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.		
DESCRIPTION OF TEST MODE	IP Call mode		
TEST SET UP	 <p>The diagram illustrates the test setup. An EUT (Equipment Under Test) is placed on a support stand at a height of 80cm. The EUT is connected to a LISN (Line Impedance Stabilization Network). The LISN is connected to a Test receiver, which is also connected to a Ground plane.</p>		
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		

Adaptor #1:(Mass power)

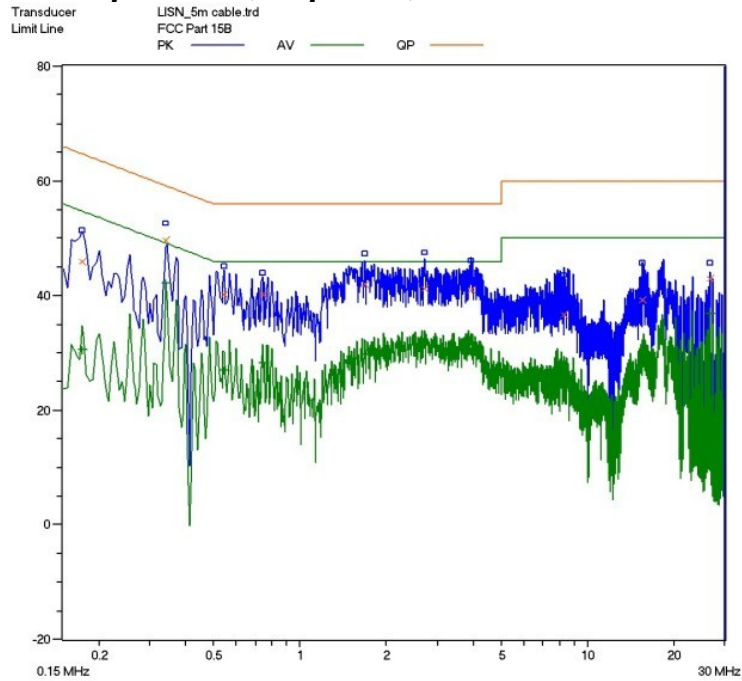


Line L Conducted Emission Graph Of AC Mains

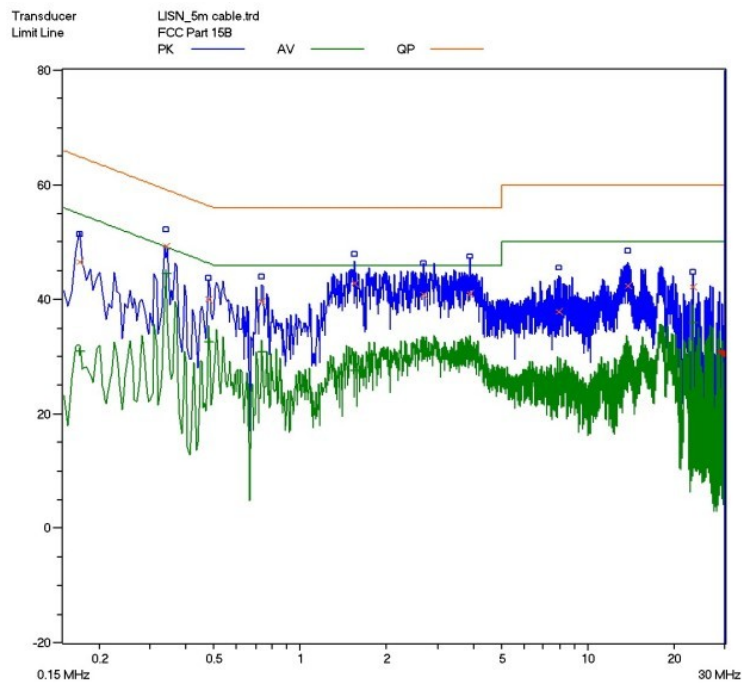


Line N Conducted Emission Graph Of AC Mains

Adaptor #2:(UE power)



Line L Conducted Emission Graph Of AC Mains



Line N Conducted Emission Graph Of AC Mains

Test Data:
Adaptor #1(Mass power)

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)
IP Call Mode								
L	0.345	41.7	59.1	-17.4	0.345	35.5	49.1	-13.6
L	3.275	43.0	56	-13.0	3.275	31.0	46	-15.0
L	4.950	46.4	56	-9.6	4.950	33.4	46	-12.6
N	0.245	43.2	61.9	-18.7	0.245	38.0	51.9	-13.9
N	0.330	47.9	59.5	-11.6	0.330	44.8	49.5	-4.7
N	0.665	42.8	56	-13.2	0.665	34.2	46	-11.8
Note : 1) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use. 2) "QP" means "Quasi-Peak" values, "AV" means "Average" values. 3) The other reading are too low against official limits that are not be recorded.								

Adaptor #2(UE power)

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)
IP Call Mode								
L	0.340	49.7	59.2	-9.5	0.340	42.2	49.2	-7.0
L	1.675	42.1	56	-13.9	1.675	29.8	46	-16.2
L	2.720	41.1	56	-14.9	2.720	31.5	46	-14.5
N	0.340	49.3	59.2	-9.9	0.340	44.7	49.2	-4.5
N	1.535	42.8	56	-13.2	1.535	27.6	46	-18.4
N	3.870	41.0	56	-15	3.870	30.6	46	-15.4
Note : 1) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use. 2) "QP" means "Quasi-Peak" values, "AV" means "Average" values. 3) The other reading are too low against official limits that are not be recorded.								

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	2012.07.08	2013.07.08
Line impedance stabilization network	4825/2	ETS	1161	2012.07.08	2013.07.08

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.

TESTED BY: *Daomen* ECMG
ENGINEER COMPANY NAME

REVIEWED BY: *Janeyan* ECMG
SENIOR ENGINEER COMPANY NAME

Conducted Emission Test Set-up:

ATTACHMENT 2 - RADIATED EMISSION MEASUREMENT

CLIENT:	Grandstream Networks, INC	TEST STANDERD:	FCC Part 15,Subpart B, Section 15.109
MODEL NUMBERS:	HT502	PRODUCT:	ATA
EUT MODEL:	HT502	EUT DESIGNATION:	Home or Office
TEMPERATURE:	23°C	HUMIDITY:	49%RH
ATM PRESSURE:	103.0kPa	GROUNDING:	None
TESTED BY:	Daomen	DATE OF TEST:	November 9 th , 2012
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 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>		
TEST MODE	IP Call Mode		
TESTED RANGE:	9K-30MHz and 30MHz to 5GHz		
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. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

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TEST SET-UP:

Frequency measured at 9KHz to 30MHz:

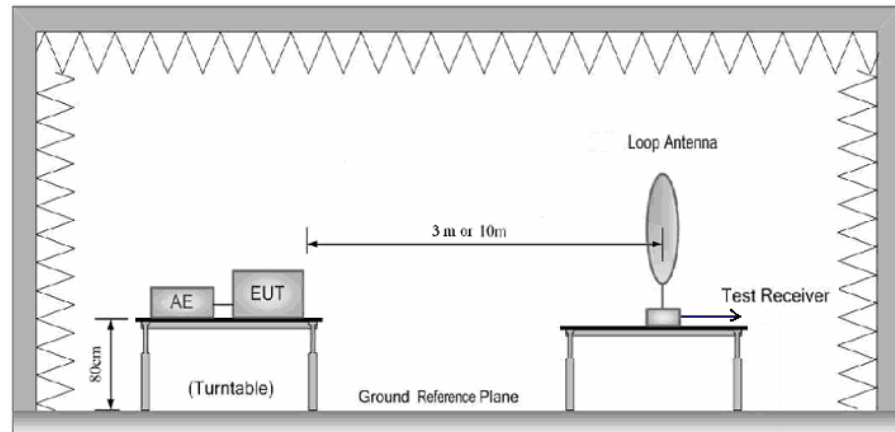


Figure 1 : Frequencies measured below 1 GHz configuration

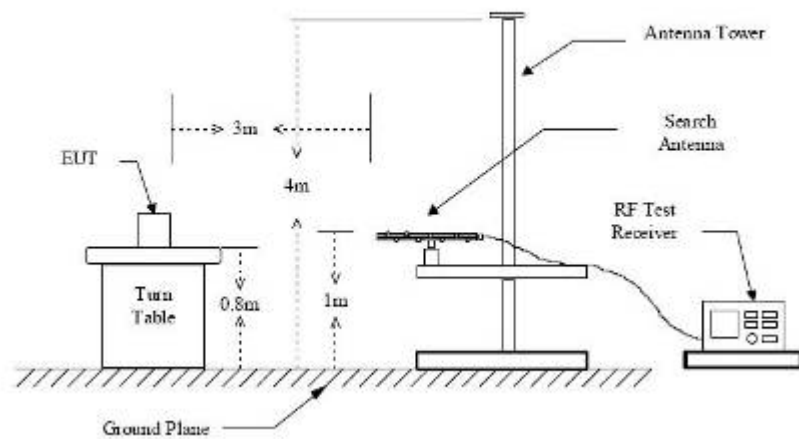
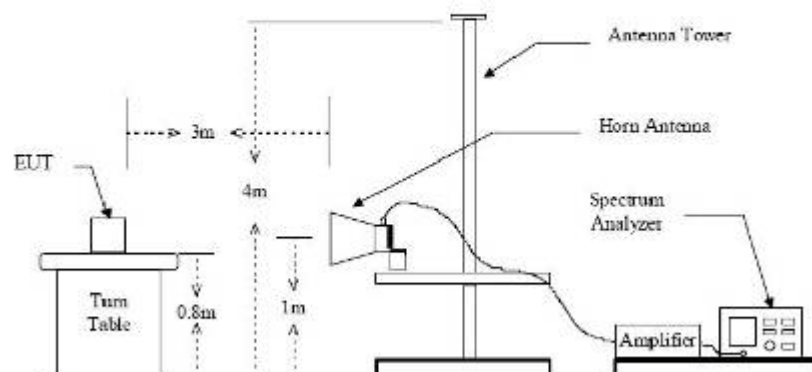
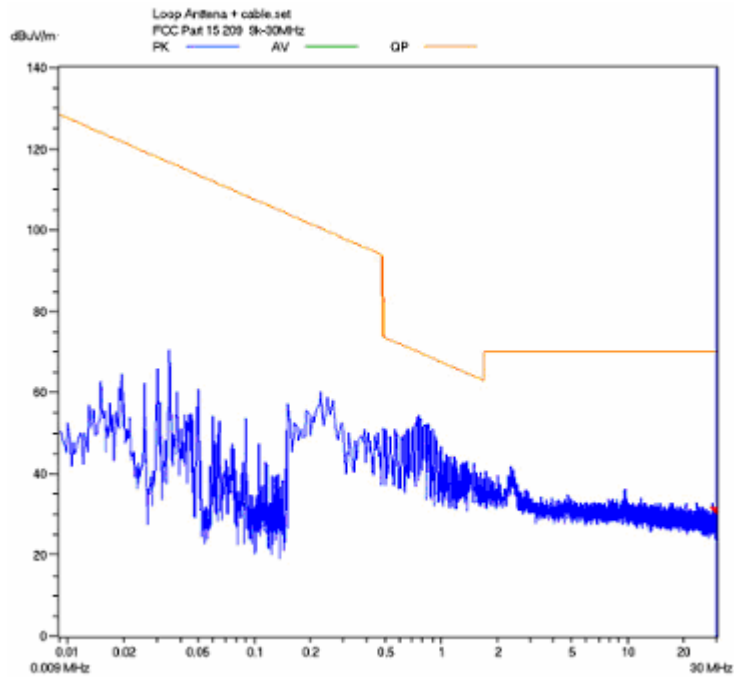


Figure 2 : Frequencies measured above 1 GHz configuration

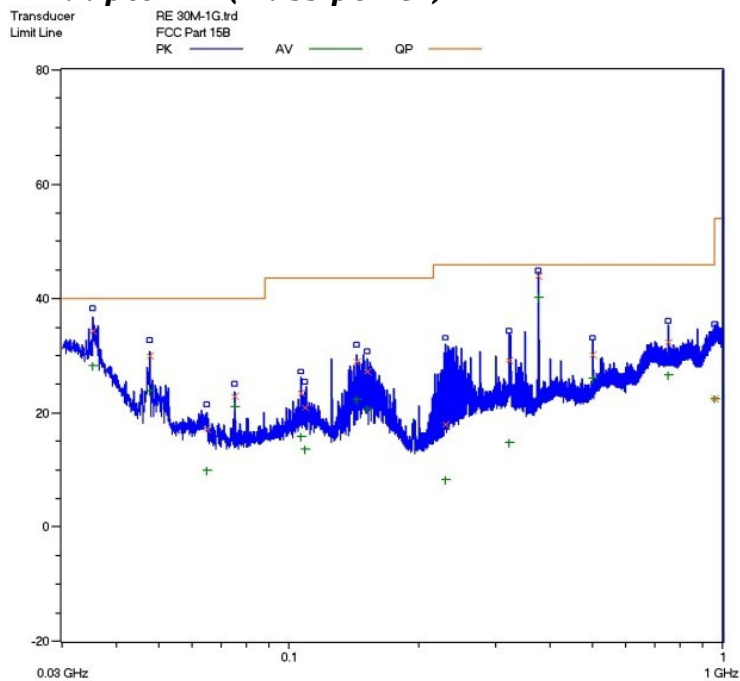


IP Call Mode:

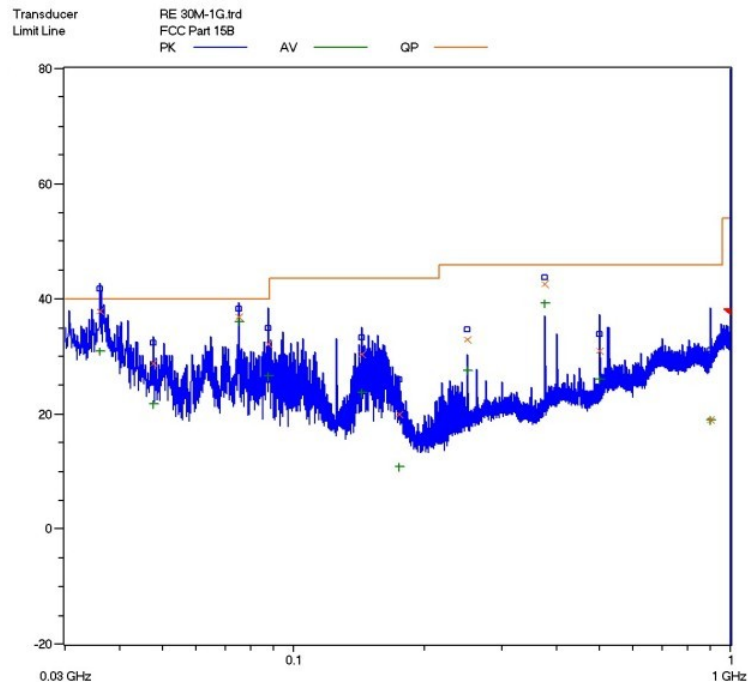


Radiated Filed Strength Emission Test Plot(9KHz-30MHz)

Adaptor #1(Mass power)

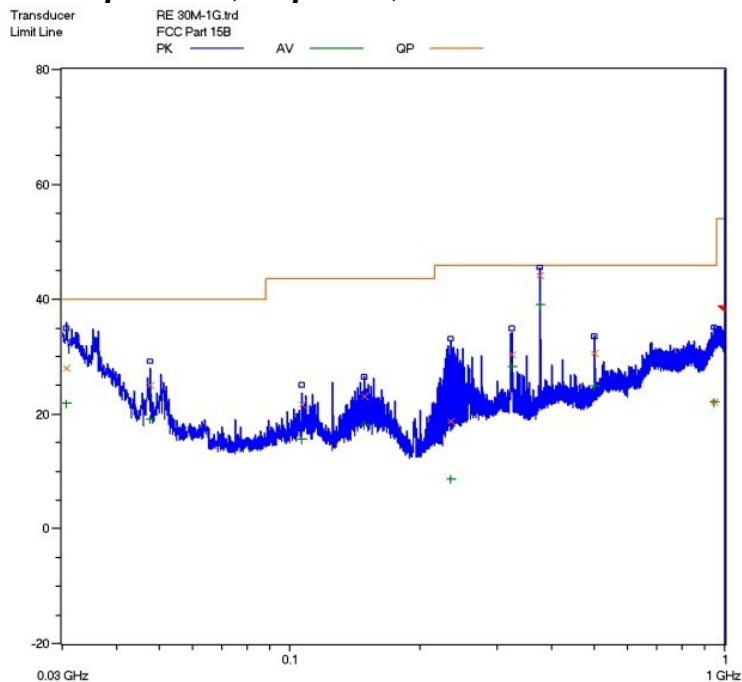


Horizontal: Radiated Emission Test Plot (30MHz-1000MHz)

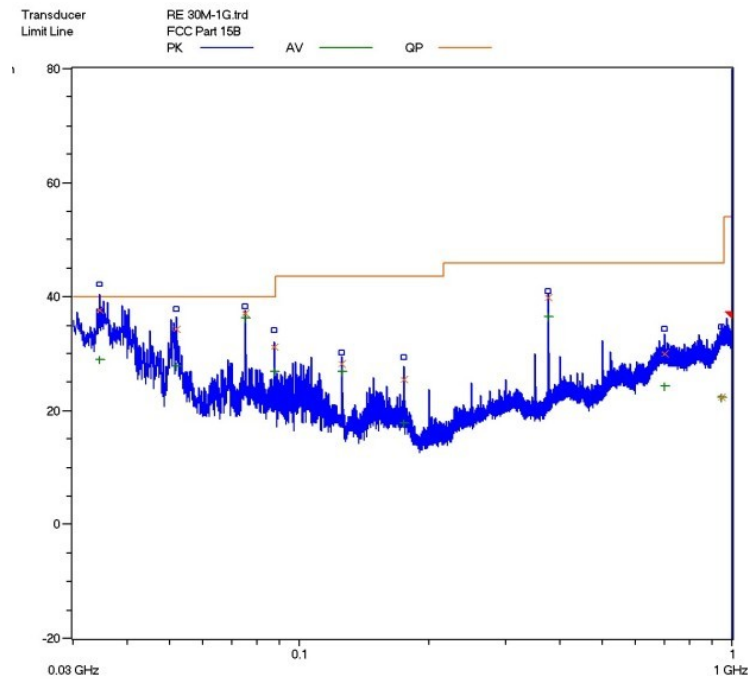


Vertical: Radiated Emission Test Plot (30MHz-1000MHz)

Adaptor #2(UE power)



Horizontal: Radiated Emission Test Plot (30MHz-1000MHz)



Vertical: Radiated Emission Test Plot (30MHz-1000MHz)

Test Data:**IP Call mode/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:
 $\text{Emission Level} = \text{Reading Level} + \text{Antenna Factor} + \text{Cable Loss}$.
2. For band in 9KHz to 30MHz, Pre-scan has been conducted to determine the worst-case from apaptor #1, apaptor #2 and apaptor #3. Apaptor #1 was selected for the fina testing.
3. 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.
4. All emission levels in the frequency range of 9KHz to 30MHz are 20dB below the official limits that are not reported.

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

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Horizontal							
35.340	0.02	18.4	/	15.98	34.4	40	-5.6
47.820	0.02	11.9	/	17.98	29.9	40	-10.1
375.000	0.16	13.7	/	30.14	44.0	46	-2.0
499.980	0.2	17.4	/	12.7	30.3	46	-15.7
750.000	0.39	21.1	/	10.91	32.4	46	-13.6
958.980	0.44	23.8	/	-1.64	22.6	46	-23.4
Vertical							
36.120	0.02	18.4	/	19.48	37.9	40	-2.1
75.000	0.02	5.3	/	31.68	37	40	-3.0
87.480	0.02	6.1	/	25.98	32.1	40	-7.9
250.020	0.12	11.8	/	21.08	33.0	46	-13.0
375.000	0.16	13.7	/	28.74	42.6	46	-3.4
500.040	0.2	17.4	/	13.5	31.1	46	-14.9

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 20dB below the official limits that are not reported.

IP Call Mode/Above 1GHz:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.000	1.39	23.9	33.6	54.46	46.15	74	-27.85	H
1.330	1.58	24.7	33.6	54.61	47.29	74	-26.71	H
1.520	1.71	26.8	33.6	54.2	49.11	74	-24.89	H
1.326	1.58	24.7	33.6	54.52	47.2	74	-26.8	V
2.400	2.3	29.3	33	50.9	49.50	74	-24.5	V
1.858	1.93	27.5	33.6	54.29	50.12	74	-23.88	V
Average Measurement								
1.329	1.58	24.7	33.6	35.4	28.08	54	-25.92	H
1.331	1.58	24.7	33.6	34.08	26.76	54	-27.24	H
1.855	1.93	27.5	33.6	31.92	27.75	54	-26.25	H
1.326	1.58	24.7	33.6	36.63	29.31	54	-24.69	V
2.400	2.3	29.3	33	33.02	31.62	54	-22.38	V
1.858	1.93	27.5	33.6	33.87	29.7	54	-24.3	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 20dB below the official limits that are not reported.

Adaptor #2(UE power):
IP Call Mode/Below 1GHz:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
Horizontal							
30.600	0.02	16.7	/	11.28	28.0	40	-12
47.820	0.02	11.9	/	13.18	25.1	40	-14.9
325.020	0.16	13.5	/	16.64	30.3	46	-15.7
375.000	0.16	13.7	/	30.34	44.2	46	-1.8
499.980	0.2	17.4	/	12.9	30.5	46	-15.5
945.780	0.44	23.8	/	-2.04	22.2	46	-23.8
Vertical							
34.620	0.02	18.4	/	19.18	37.6	40	-2.4
51.840	0.02	8.2	/	26.08	34.3	40	-5.7
75.000	0.02	5.3	/	31.68	37.0	40	-3
87.480	0.02	6.1	/	24.98	31.1	40	-8.9
375.000	0.16	13.7	/	25.94	39.8	46	-6.2
700.020	0.36	20.4	/	9.24	30	46	-16

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 20dB below the official limits that are not reported.

IP Call Mode/Above 1GHz:


Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamplifier Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.000	1.39	23.9	33.6	57.52	49.21	74	-24.79	H
1.330	1.58	24.7	33.6	56.3	48.98	74	-25.02	H
1.520	1.71	26.8	33.6	52.65	47.56	74	-26.44	H
1.326	1.58	24.7	33.6	56.23	48.91	74	-25.09	V
2.400	2.3	29.3	33	50.71	49.31	74	-24.69	V
1.858	1.93	27.5	33.6	52.38	48.21	74	-25.79	V
Average Measurement								
1.329	1.58	24.7	33.6	36.45	29.13	54	-24.87	H
1.331	1.58	24.7	33.6	34.54	27.22	54	-26.78	H
1.855	1.93	27.5	33.6	34.07	29.90	54	-24.1	H
1.326	1.58	24.7	33.6	34.67	27.35	54	-26.65	V
2.400	2.3	29.3	33	31.52	30.12	54	-23.88	V
1.858	1.93	27.5	33.6	34.44	30.27	54	-23.73	V

Note:

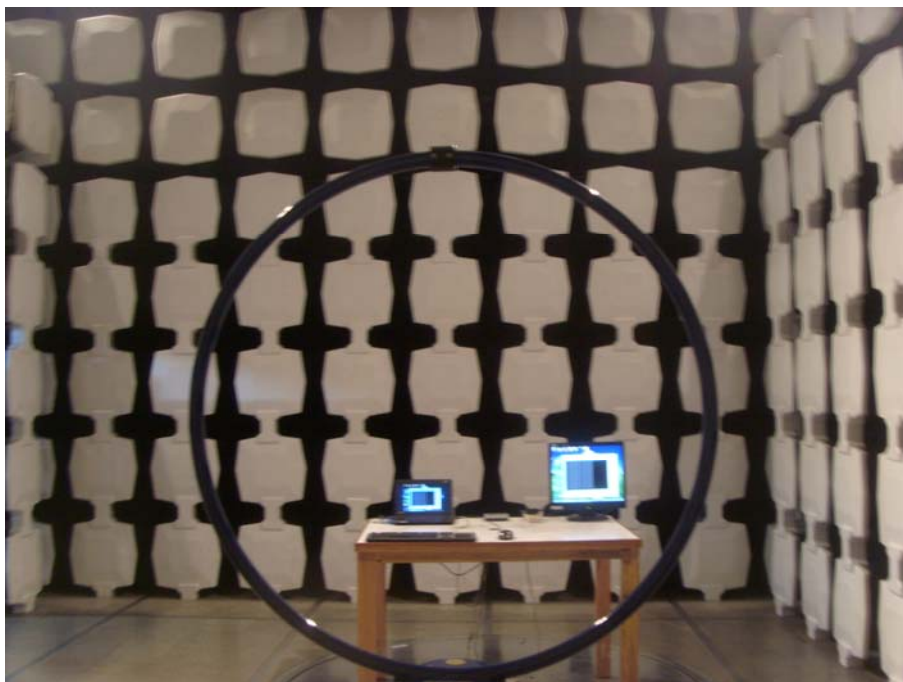
1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level = Reading Level + Antenna Factor + Cable Loss - Preamplifier Factor.
2. The limits shown are based on Peak value and Average value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

Test Equipment List:

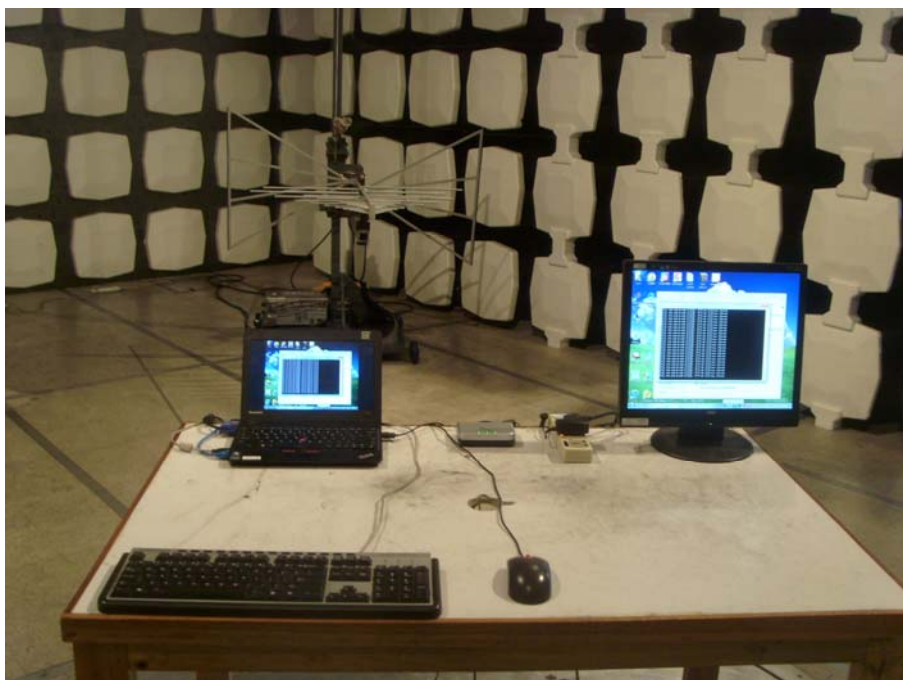
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
Receiver	SMR4503	SCHAFFNER	11725	2012.07.08	2013.07.07
HF Loop Antenna	HLA6120	TESEQ	26348	2012.09.27	2013.09.26
Double-ridged Wave guide horn	3115	ETS	6587	2012.08.02	2013.08.01
Microwave system amplifier	83017A	Agilent	MY39500438	2012.07.11	2013.07.10
Biconilog Antenna	3142C	ETS	00042672	2012.09.28	2013.09.27
Band-pass Filter	BRM50702	Micro-Tronic	S/N-030	2011.11.30	2012.11.29
Spectrum Analyzer	FSP30	R&S	100755	2011.11.30	2012.11.29
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY:  ECMG
ENGINEER COMPANY NAME

REVIEWED BY:  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)