

EMI TEST REPORT

On Model Name: IP Camera

Model Number: GXV3610_HD v2, GXV3610_FHD v2

Brand Name: Grandstream

Prepared for Grandstream Networks, Inc.

FCC ID Number: YZZGXV3610-FHDV2

According to FCC 47 CFR Part 15, Subpart B

Test Report #: SHE-1411-11257-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 6th, 2014
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>YZZGXV3610-FHDV2 _Test report.pdf</i>
<i>Operation Description</i>	<i>Technical Description</i>	<i>YZZGXV3610-FHDV2 _operation description.pdf</i>
<i>External Photos</i>	<i>External Photos</i>	<i>YZZGXV3610-FHDV2 _External Photos</i>
<i>Internal Photos</i>	<i>Internal Photos</i>	<i>YZZGXV3610-FHDV2 _Internal Photos</i>
<i>Block Diagram</i>	<i>Block Diagram</i>	<i>YZZGXV3610-FHDV2 _Block Diagram.pdf</i>
<i>Schematics</i>	<i>Circuit Diagram</i>	<i>YZZGXV3610-FHDV2 _Schematics.pdf</i>
<i>ID Label/Location</i>	<i>Label and Location</i>	<i>YZZGXV3610-FHDV2 _Label & Location.pdf</i>
<i>User Manual</i>	<i>User Manual</i>	<i>YZZGXV3610-FHDV2 _User Manual.pdf</i>
<i>Test setup photos</i>	<i>Test set-up photos</i>	<i>YZZGXV3610-FHDV2 _Test Set-up Photos</i>

Government Disclaimer Notice

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Reproduction Clause

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from ECMG Electronic Technical Testing Corp (Shenzhen).

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 : IP Camera

Model Numbers : GXV3610_HD v2, GXV3610_FHD v2

Model Tested : GXV3610_FHD v2

Receipt Date : November 3rd, 2014

Date Tested : November 4th, 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 GXV3610_FHD v2 (referred to as the EUT in this report) is an IP Camera.

The EUT is an IP Camera and technical specifications of EUT are as follows:

Parameter		Range
<i>Basic parameters</i>	<i>Rated voltage</i>	12V
	<i>Rated Current</i>	1A
<i>I/O Ports</i>	<i>Network Port</i>	<i>RJ-45 ports for PC &router connection</i>
	<i>Power Jack</i>	<i>12V DC power port; UL Certified</i>
	<i>Output Audio</i>	<i>Connected to Audio device</i>
<i>Power over Ethernet (PoE)</i>	<i>IEEE 802.3af, Class 0</i>	
<i>Power Adapter #1</i>	<i>Input</i>	<i>100-240VAC 50/60Hz 0.3A</i>
	<i>Output</i>	<i>12VDC,1.0A</i>
	<i>Model</i>	<i>SEF1200100A1BB</i>
	<i>Brand name</i>	<i>Mass</i>
<i>Power Adapter #2</i>	<i>Input</i>	<i>100-240VAC 50/60Hz 0.3A</i>
	<i>Output</i>	<i>12VDC,1.0A</i>
	<i>Model</i>	<i>WEF1200100A1BA</i>
	<i>Brand name</i>	<i>Mass</i>

Note: For other informations &features please refer to user's manual of EUT.

EUT Model Derived

Model GXV3610_FHD v2 is identical to GXV3610_HD v2 except for differences as follows:

GXV3610_HD v2 is High Definition digital which uses the DSP of DM365-300 and the Sensor of AR0130. GXV3610_FHD v2 is Full High Definition digital which uses the DSP of DM368-400 and the Sensor of AR0331.

The worst-case model GXV3610_FHD v2 was selected for the final testing.

Test Summary

The Electromagnetic Compatibility requirements on model GXV3610_FHD v2 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 -2003</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 -2003</i>	<i>Radiated Emission</i>	<i>Passed</i>	<i>Enclosure</i>	<i>Attachment 2</i>

EUT Operation Mode

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:

<i>Pre-Test Mode</i>	
<i>EMI Test Mode</i>	<i>Mode 1: Communication with PC +Power Adapter #1 (Model: SEF1200100A1BB)</i>
	<i>Mode 2: Communication with PC +Power Adapter #2 (Model: WEF1200100A1BA)</i>
	<i>Mode 3: PoE mode</i>
<i>Final Test Mode</i>	
<i>EMI Test Mode</i>	<i>Mode 1: Communication with PC +Power Adapter #1 (Model: SEF1200100A1BB)</i>
	<i>Mode 2: Communication with PC +Power Adapter #2 (Model: WEF1200100A1BA)</i>
	<i>Mode 3: PoE mode</i>
<i>EMS Test Mode</i>	<i>Not Applicable</i>

EUT Exercise Software

The device is not programmable and does not use software.

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.

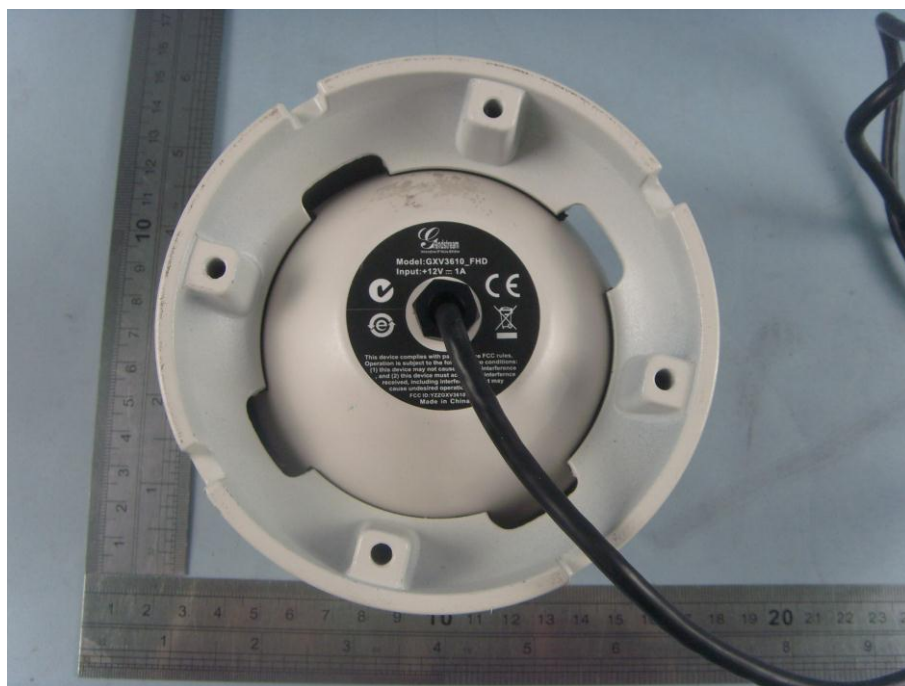
There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen).

EUT Sample Photos

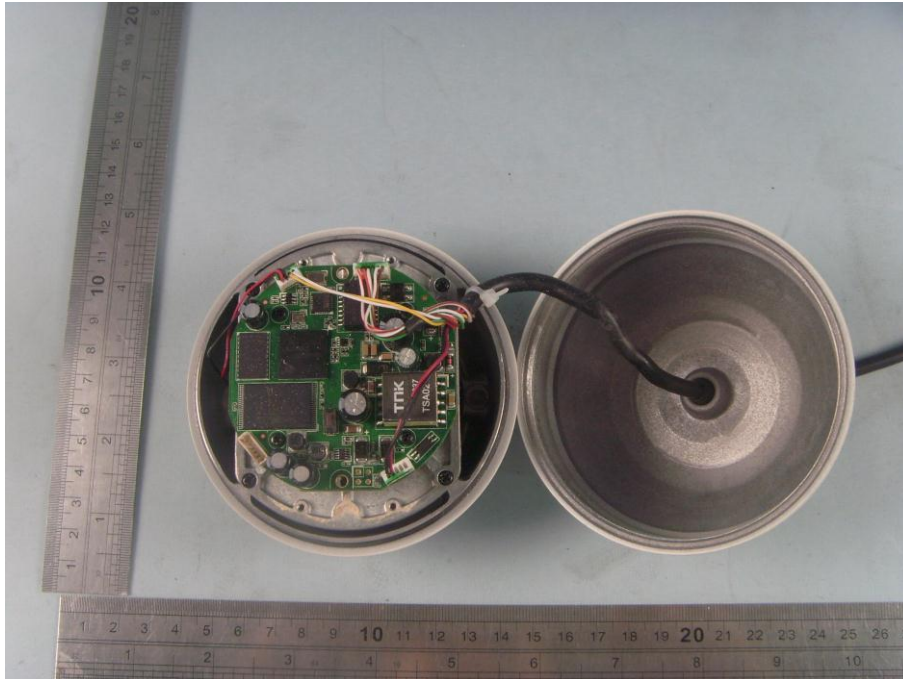
EUT Model: GXV3610_FHD v2



EUT- Front View



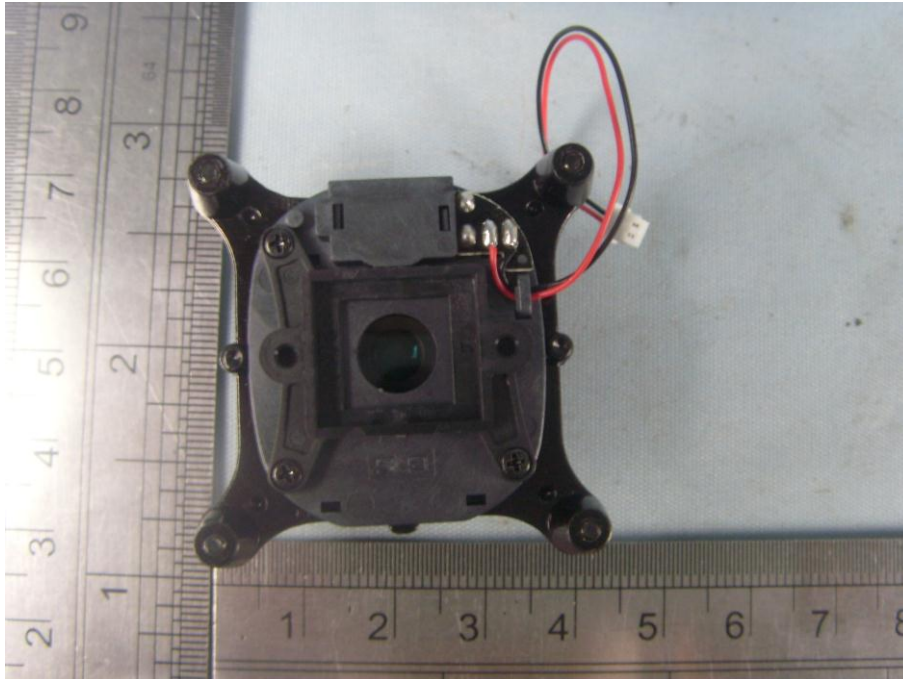
EUT- Rear View



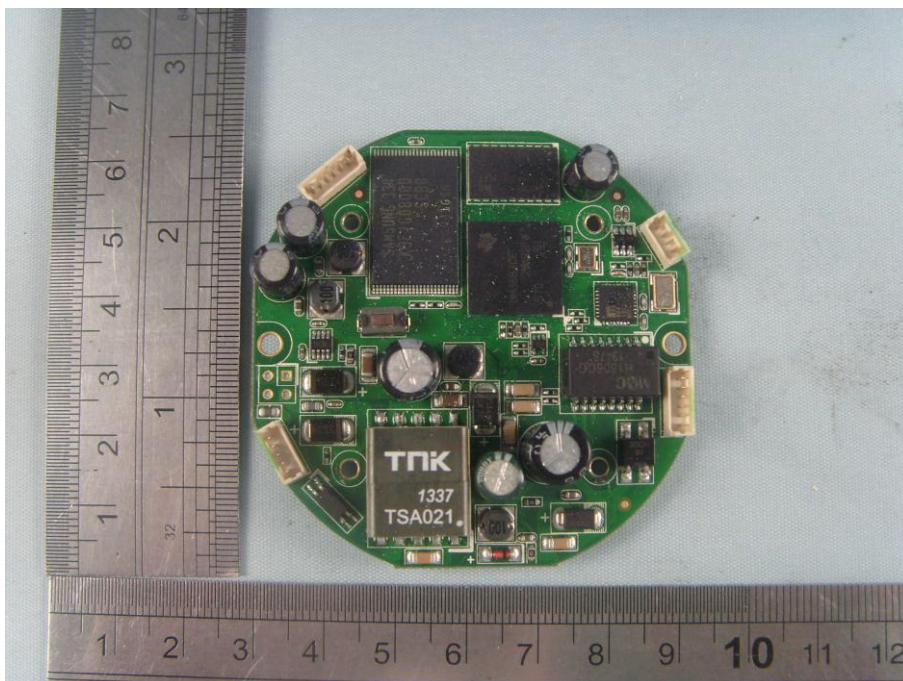
EUT-Uncovered View



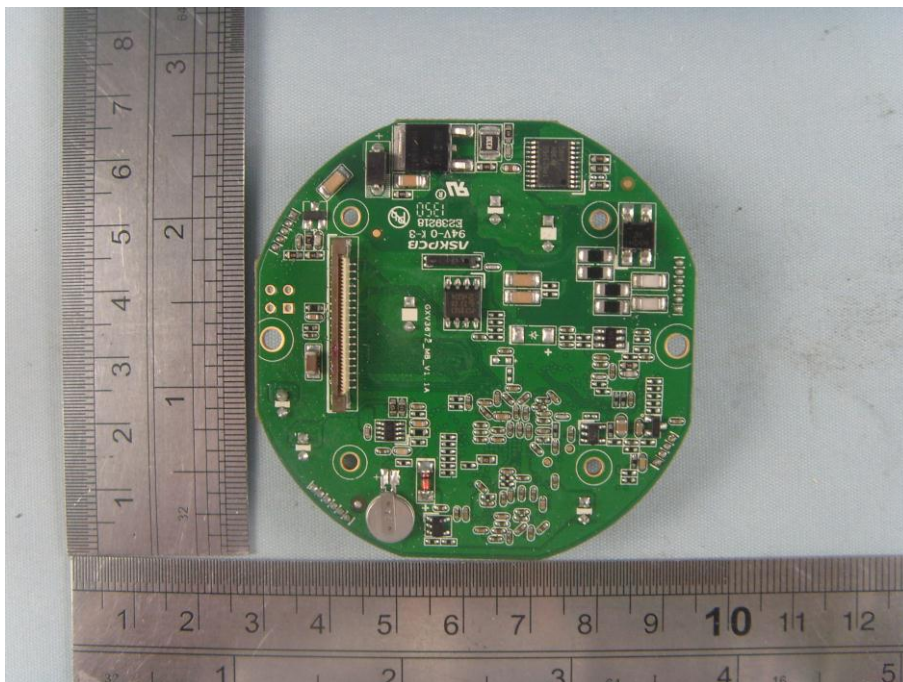
Lens Front View



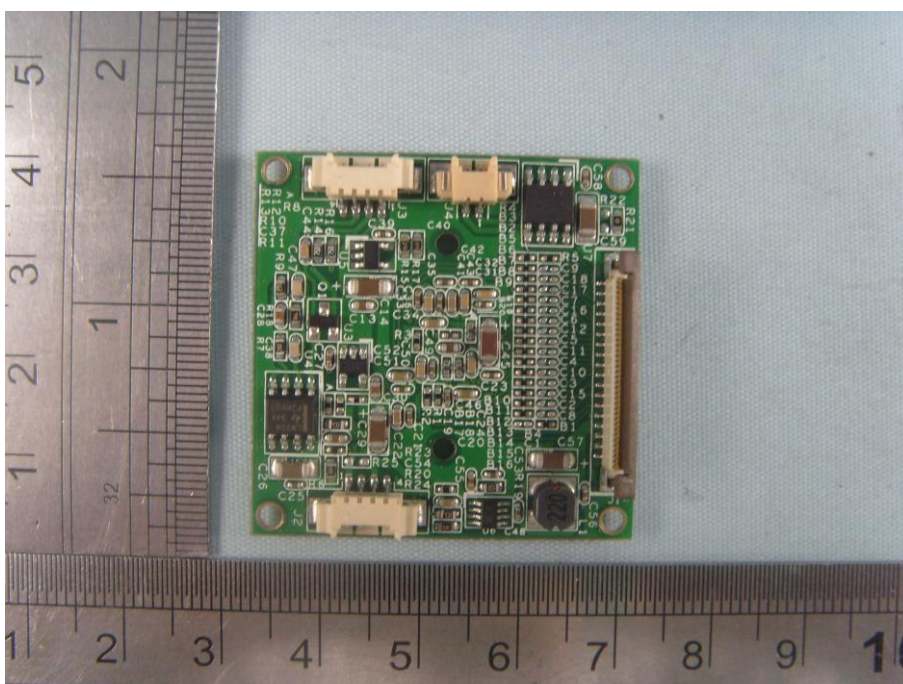
Lens Rear View



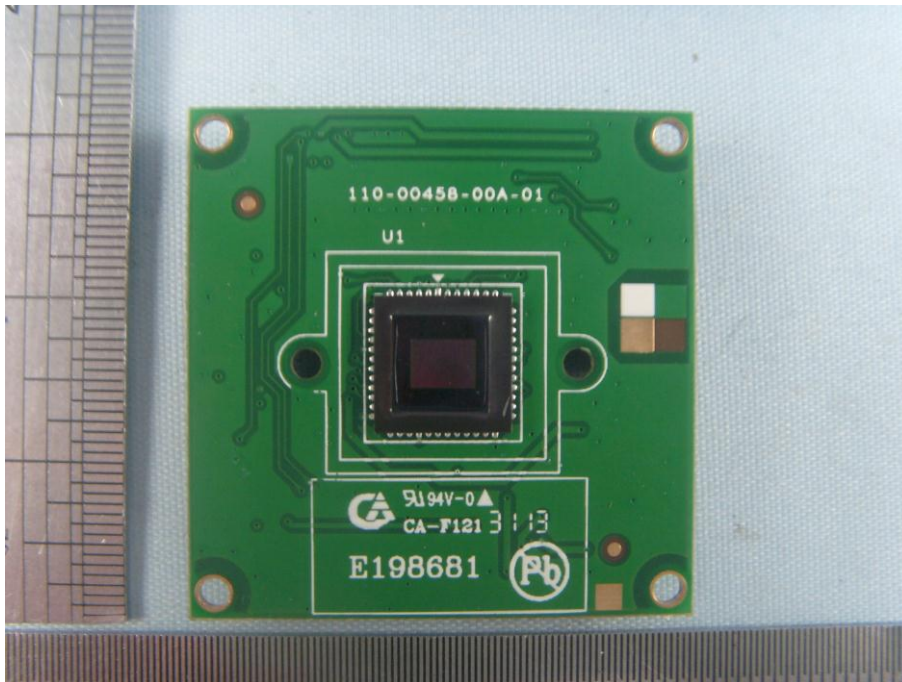
Mainboard- Top View



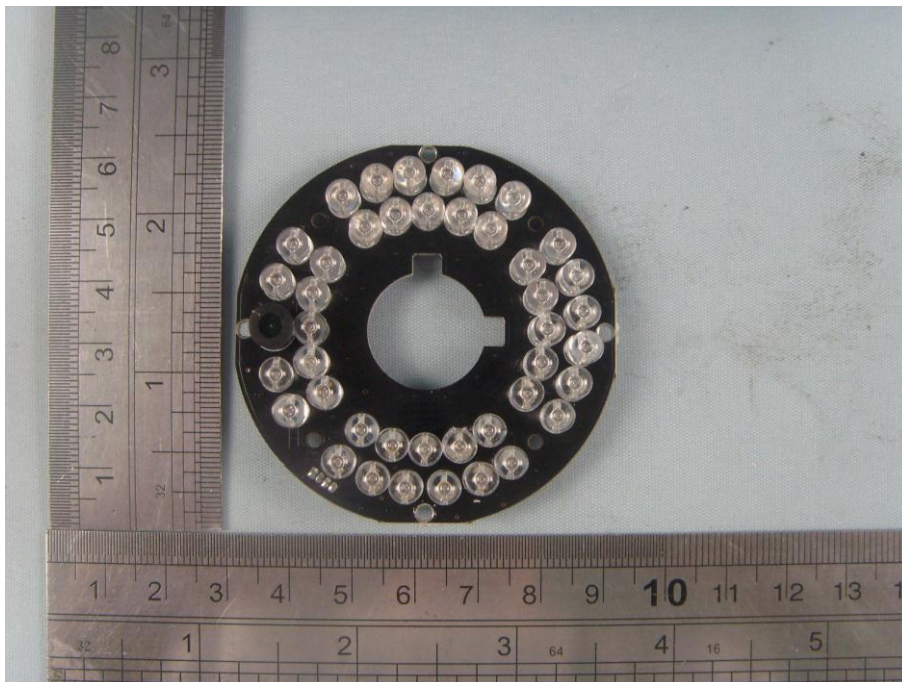
Mainboard- Bottom View



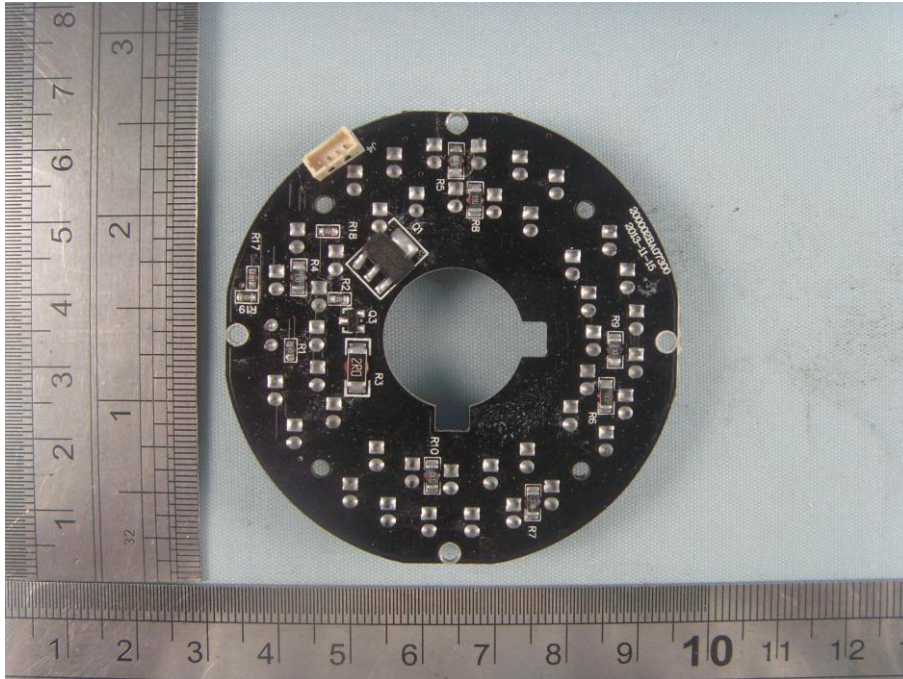
Sensor board - Top View



Sensor board – bottom View



IR LED board – Top View



IR LED board- Bottom View



Power Adapter View #1(Mass Power :SEF1200100A1BB)



Power Adapter View #2 (Mass Power: WEF1200100A1BA)

Test System Details

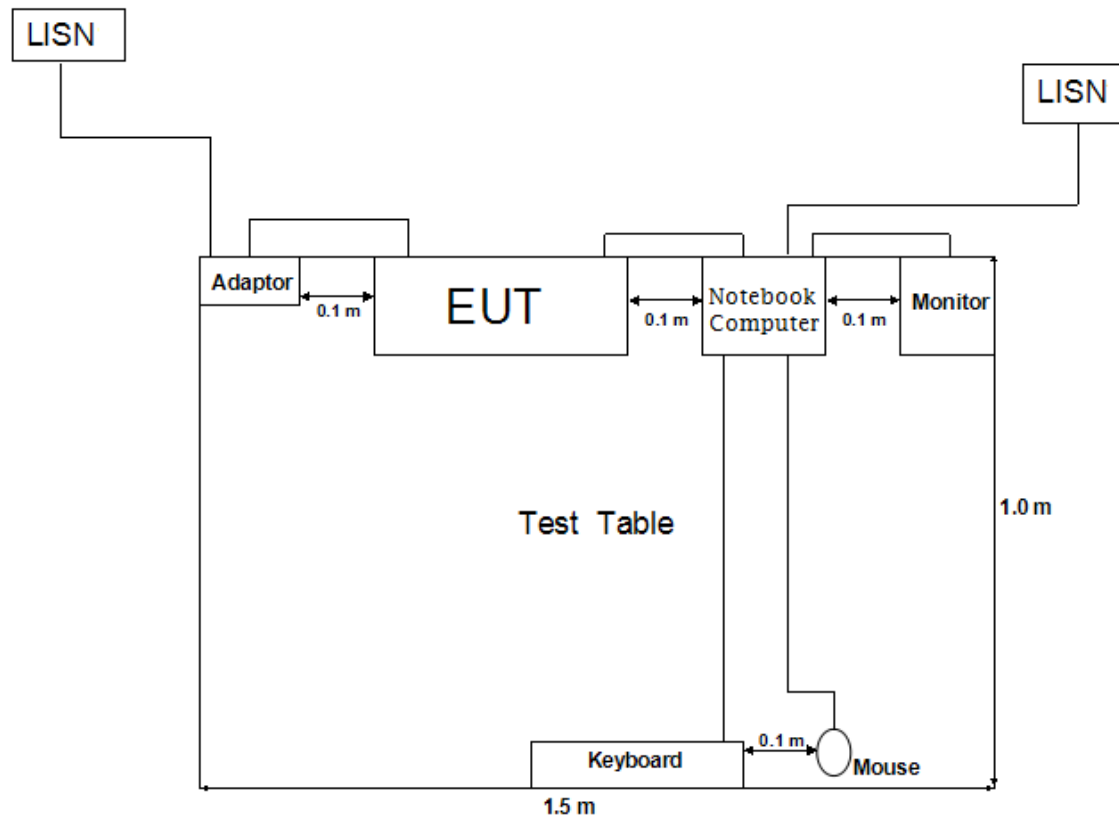
EUT			
Model Number:	GXV3610_HD v2,GXV3610_FHD v2		
Model Tested:	GXV3610_FHD v2		
Description:	IP Camera		
Input:	AC 120V/60Hz		
Manufacturer:	Grandstream Networks, Inc.		
Support Equipment			
Description	Model Number	Serial Number	Manufacturer
Notebook COMPUTER	ThinkPad X121e	---	Lenovo
Mouse	MO32B0	23-033131	IBM
Keyboard	SK-1788	---	LENOVO
Monitor	TFT1780PS	---	AOC

<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>Adaptor Cord Of Notebook COMPUTER</i>	<i>AC Adaptor</i>	<i>Notebook COMPUTER</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>Power cord of monitor</i>	<i>Monitor</i>	<i>Plug</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Mouse cord</i>	<i>Mouse</i>	<i>Notebook COMPUTER</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Keyboard cord</i>	<i>keyboard</i>	<i>Notebook COMPUTER</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>VGA cord</i>	<i>Notebook COMPUTER</i>	<i>Monitor</i>	<i>1.2</i>	<i>Y</i>	<i>Y</i>
<i>RJ-45 Cord</i>	<i>EUT</i>	<i>Notebook COMPUTER</i>	<i>2.0</i>	<i>N</i>	<i>N</i>
<i>Power Adaptor 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 "IP Camera".</i>					

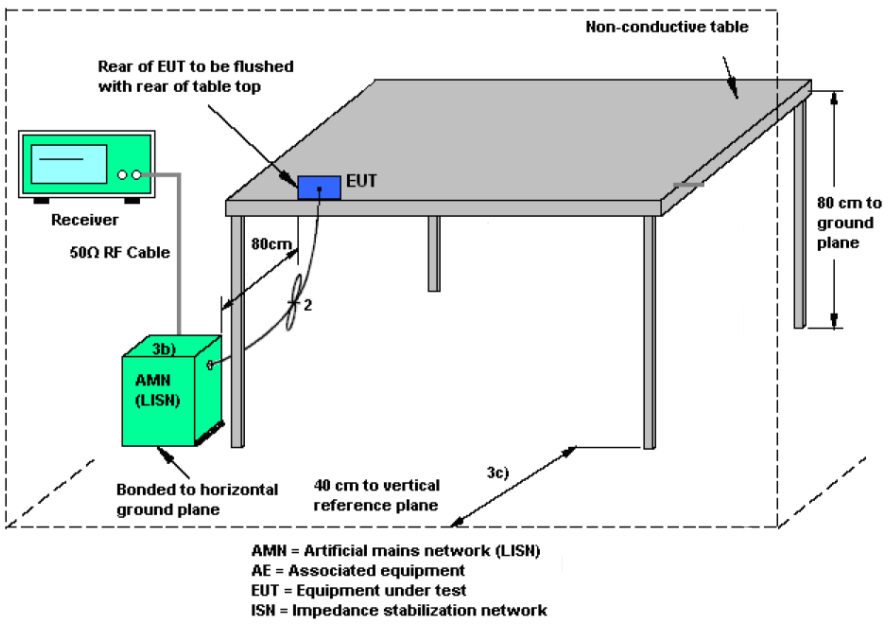
NOTE:

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.

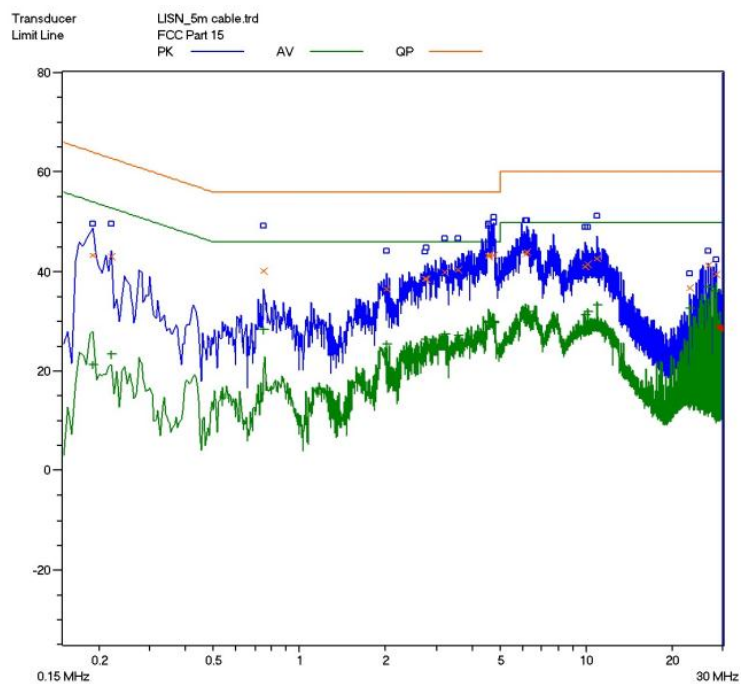
Configuration of Tested System



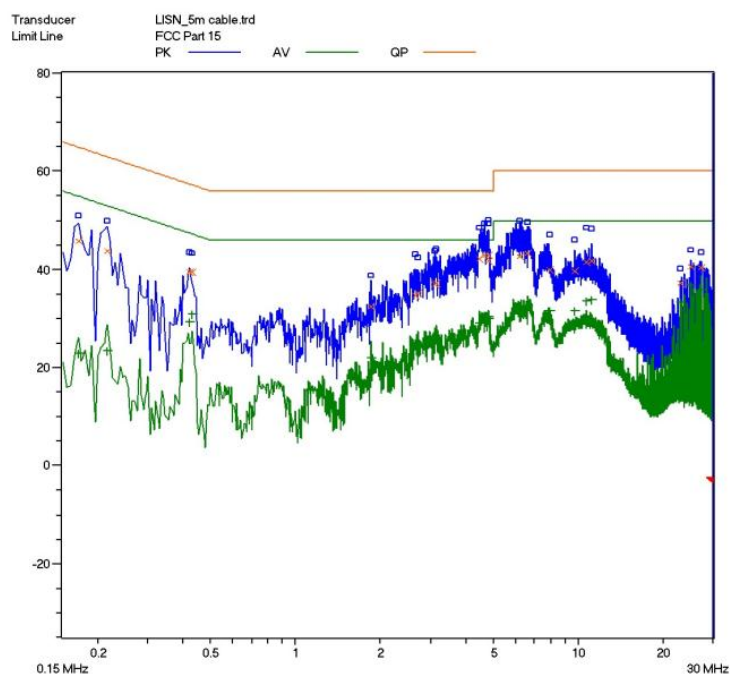
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks, Inc.	TEST STANDERD:	Section 15.107
MODEL NUMBERS:	GXV3610_HD v2, GXV3610_FHD v2	PRODUCT:	IP Camera
MODEL TESTED:	GXV3610_FHD v2	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22 °C	HUMIDITY:	48%
ATM PRESSURE:	103kPa	GROUNDING:	None
TESTED BY:	Daomen	DATE OF TEST:	November 4 th , 2014
TEST REFERENCE:	ANSI C63.4- 2003		
TEST PROCEDURE:	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.		
TEST MODE:	Mode 1, Mode 2		
TEST SET UP:	 <p>Non-conductive table</p> <p>Rear of EUT to be flushed with rear of table top</p> <p>Receiver</p> <p>50Ω RF Cable</p> <p>EUT</p> <p>80cm</p> <p>80 cm to ground plane</p> <p>3b)</p> <p>AMN (LISH)</p> <p>Bonded to horizontal ground plane</p> <p>40 cm to vertical reference plane</p> <p>3c)</p> <p>AMN = Artificial mains network (LISH) AE = Associated equipment EUT = Equipment under test ISN = Impedance stabilization network</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		

Mode 1:

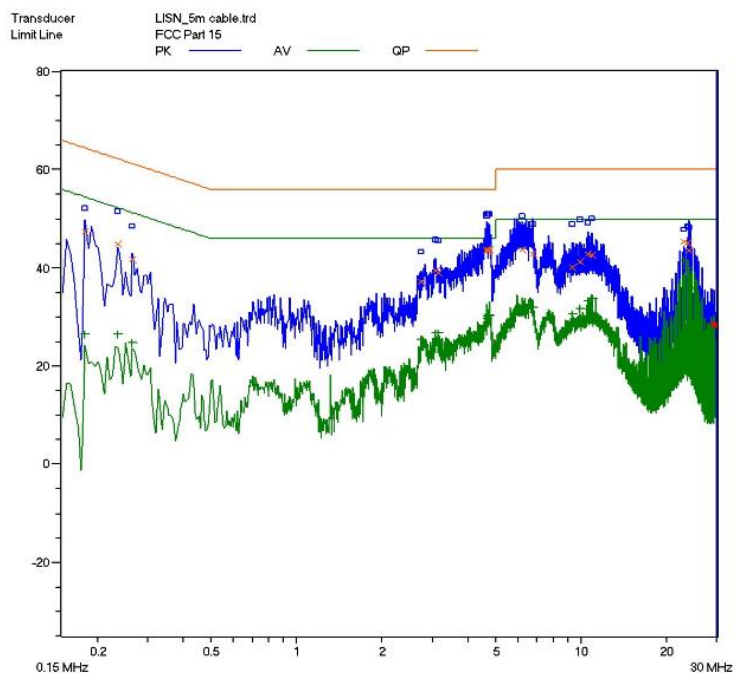


Line L Conducted Emission Graph

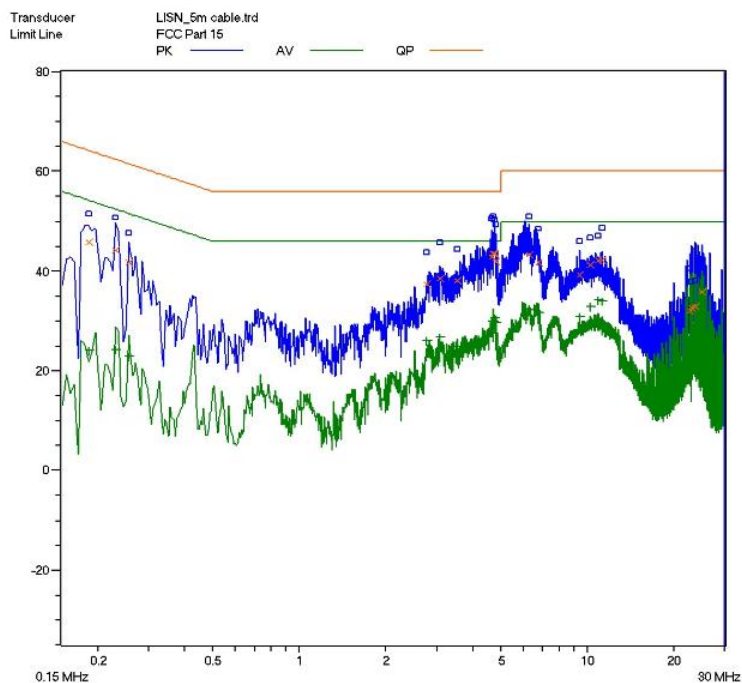


Line N Conducted Emission Graph

Mode 2:



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Test Data:**Mode 1:**

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)
L	4.755	43.4	56	-12.6	4.755	30.0	46	-16.0
L	6.150	43.5	60	-16.5	6.150	31.8	50	-18.2
L	6.240	44.0	60	-16.0	6.240	31.9	50	-18.1
N	0.170	45.9	65	-19.1	0.170	22.9	55	-32.1
N	0.215	43.9	63	-19.1	0.215	23.4	53	-29.6
N	0.420	39.5	57.4	-17.9	0.420	29.3	47.4	-18.1

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.

Mode 2:

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)
L	4.660	43.3	56	-12.7	4.660	29.1	46	-17.1
L	4.675	43.1	56	-12.9	4.675	30.0	46	-16.0
L	4.730	43.4	56	-12.6	4.730	30.3	46	-15.7
N	0.185	45.1	64.3	-19.2	0.185	23.7	54.3	-30.6
N	0.230	44.0	62.4	-18.4	0.230	24.1	52.4	-28.3
N	0.255	41.7	61.6	-19.9	0.255	23.0	51.6	-28.6

Note :

- 1) All readings are using a bandwidth of 9 kHz, with a 500ms 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:

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
EMI Teat Receiver	SMR4503	SCHAFFNER	11725	2014.07.08	2015.07.07
Line impedance stabilization network	ESH2-Z5	R&S	0338.5219.53-100396-vj	2014.03.14	2015.03.13
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY: Daomen ECMG
ENGINEER COMPANY NAME

REVIEWED BY: Jamartia ECMG
SENIOR ENGINEER COMPANY NAME



Conducted Emission Test Set-up -Front view



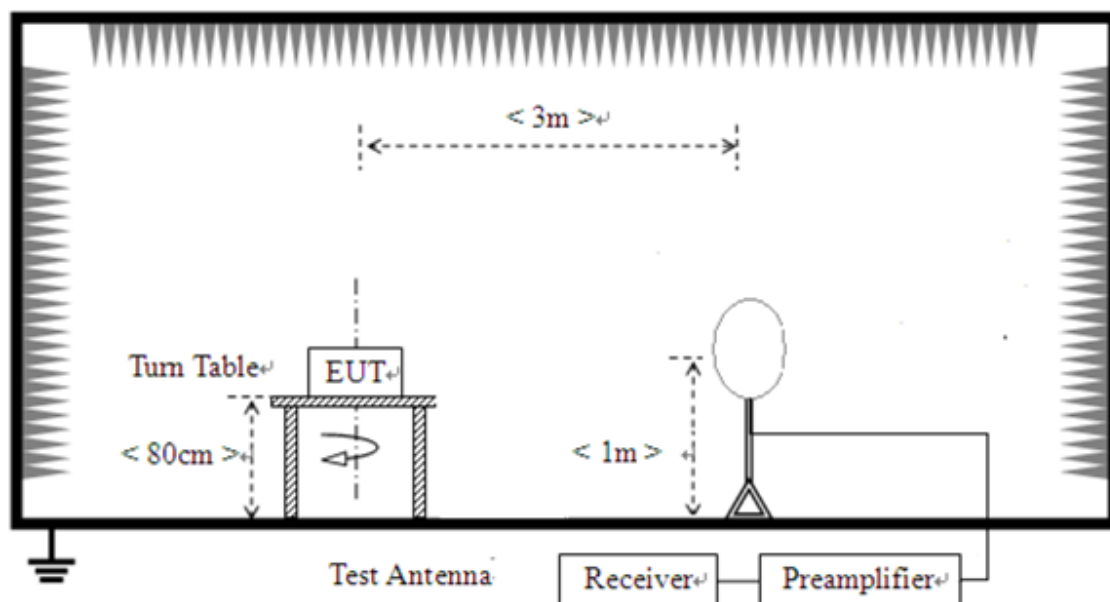
Conducted Emission Test Set-up -Rear view

ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

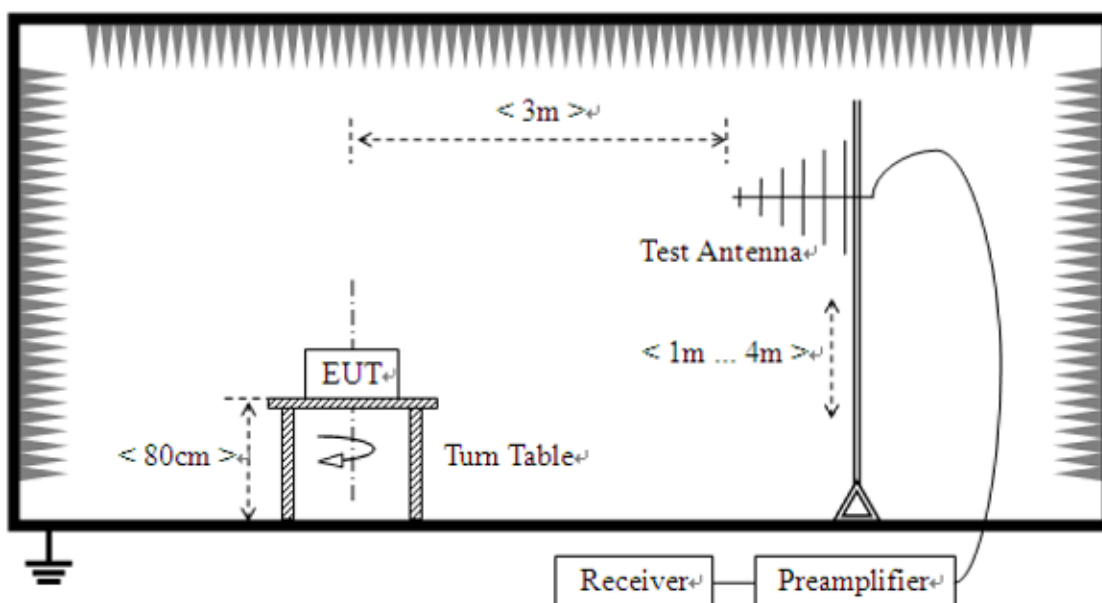
CLIENT:	Grandstream Networks, Inc.	TEST STANDERD:	Section 15.109
MODEL NUMBERS:	GXV3610_HD v2, GXV3610_FHD v2	PRODUCT:	IP Camera
EUT MODEL:	GXV3610_FHD v2	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22° C	HUMIDITY:	47%RH
ATM PRESSURE:	103.0kPa	GROUNDING:	None
TESTED BY:	Daomen	DATE OF TEST:	November 4 th , 2014
TEST REFERENCE:	ANSI C63.4: 2003		
TEST PROCEDURE:	<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 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 2, Mode 3		
TESTED RANGE:	As the highest operating frequency of the EUT is 680MHz,so test upper frequency range is up 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 ± 3.6 dB		

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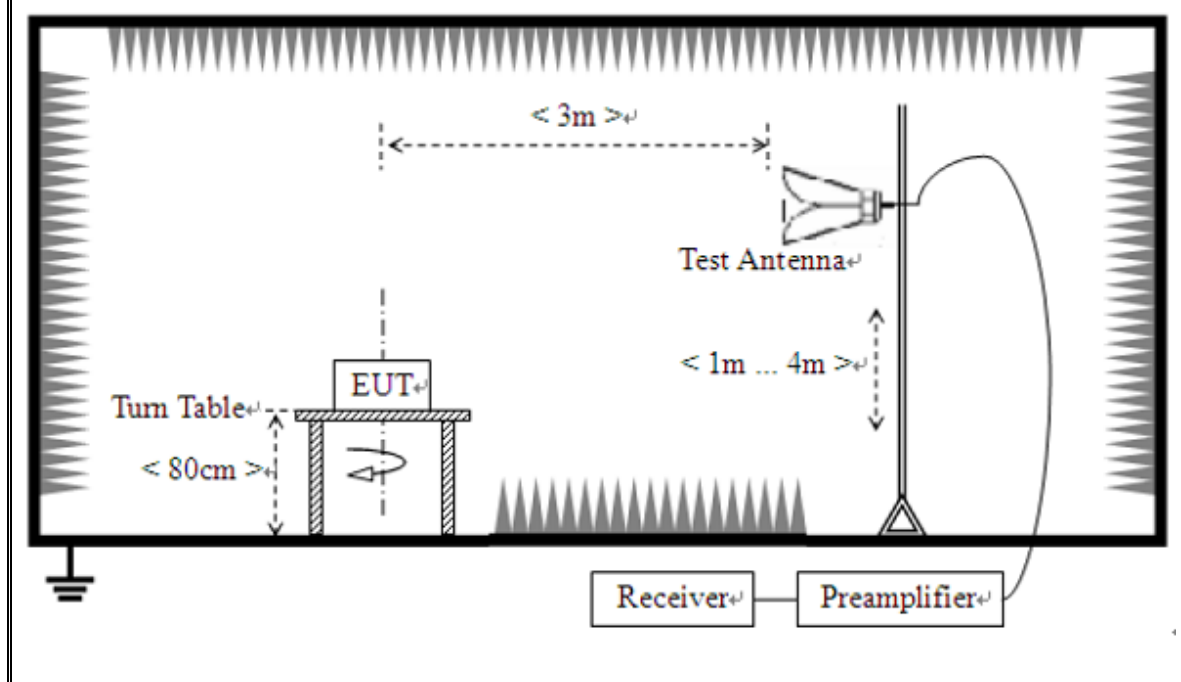
Frequency measured at 9KHz to 30MHz:



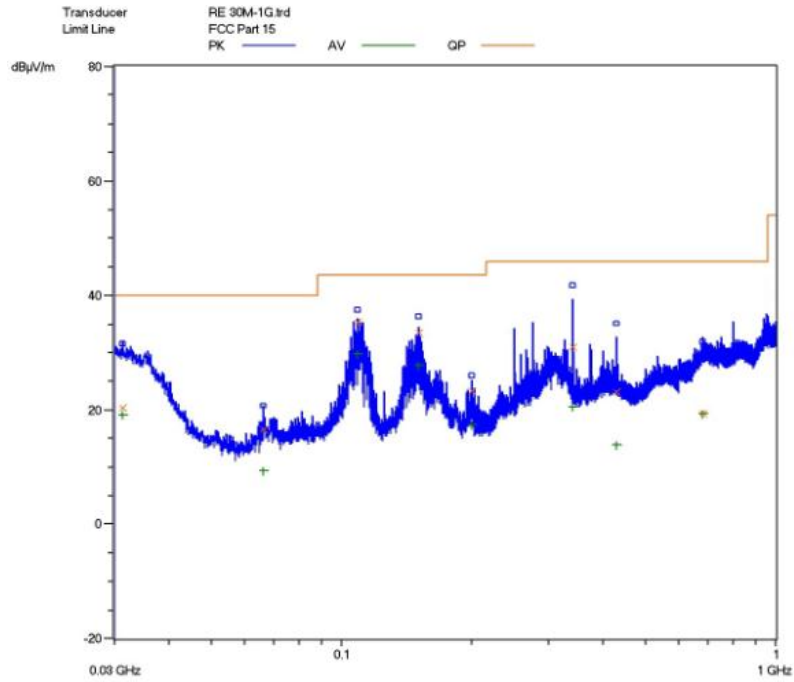
Frequency measured at 30MHz to 1000MHz:



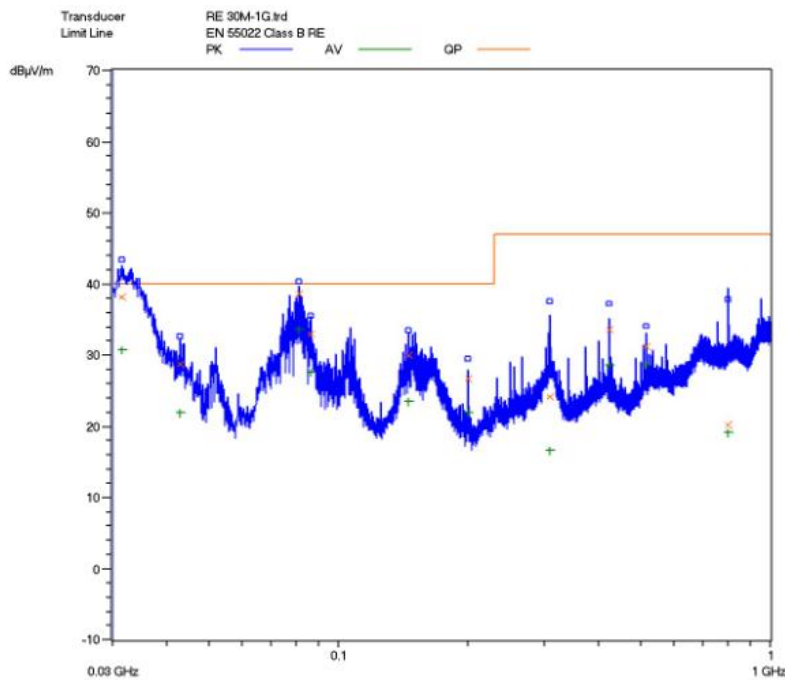
Frequency measured at Above 1GHz:



Mode 1:

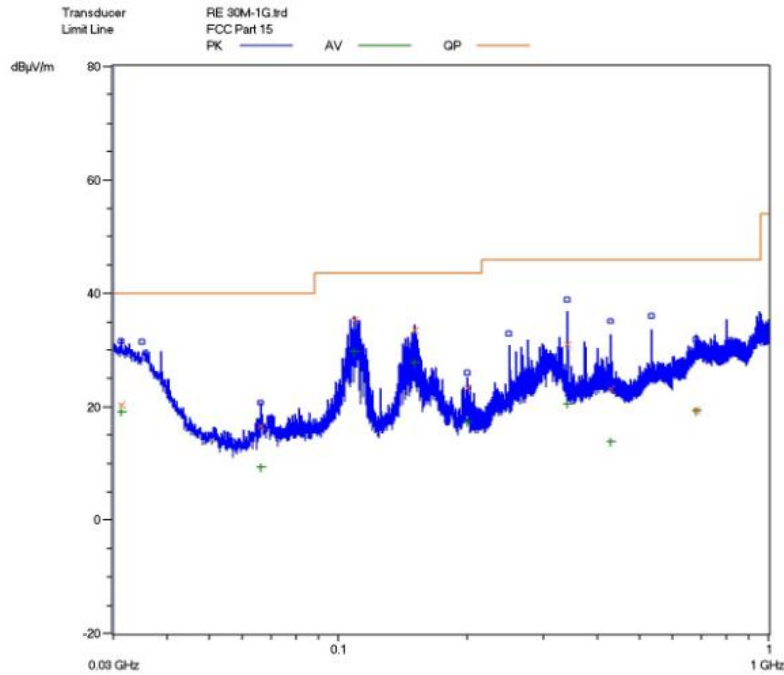


**30-1000MHz: Horizontal:Radiated Emission
Test Plot(Peak,Max. hold)**

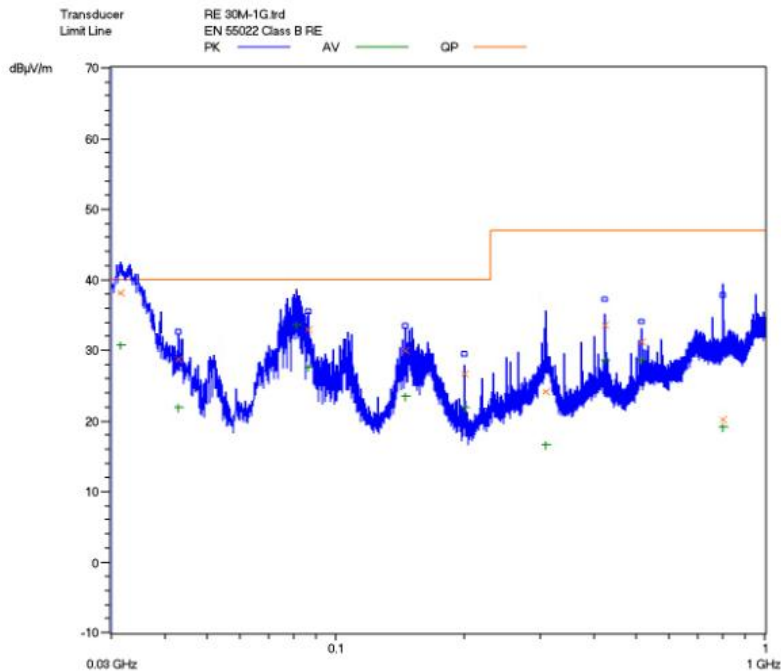


**30-1000MHz: Vertical:Radiated Emission
Test Plot (Peak,Max. hold)**

Mode 2:

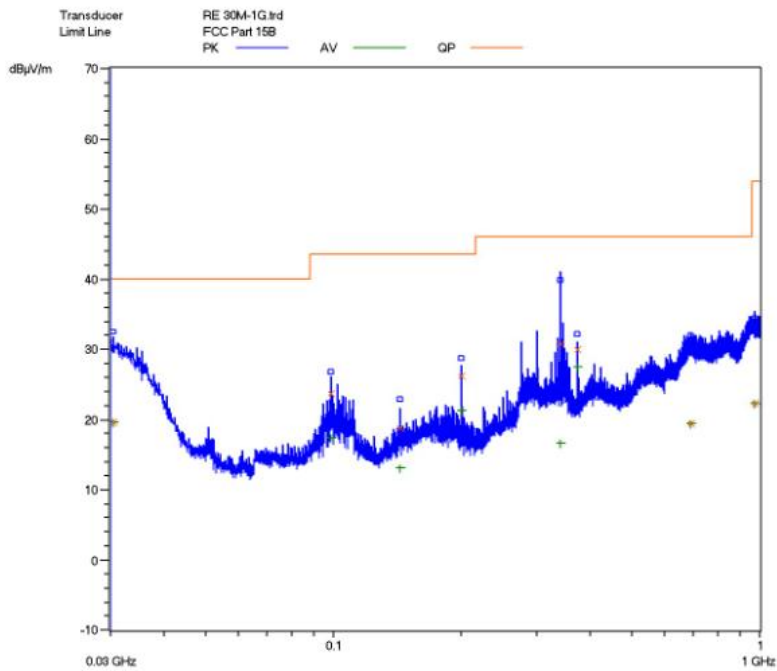


30-1000MHz: Horizontal:Radiated Emission Test Plot(Peak,Max. hold)

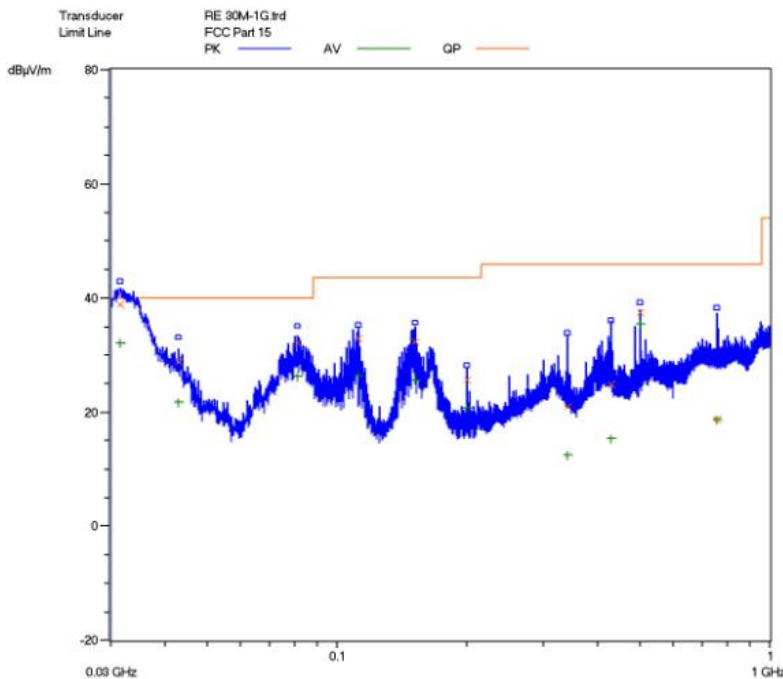


30-1000MHz: Vertical:Radiated Emission Test Plot (Peak,Max. hold)

Mode 3:



**30-1000MHz: Horizontal:Radiated Emission
Test Plot(Peak,Max.hold)**



**30-1000MHz: Vertical:Radiated Emission
Test Plot (Peak,Max.hold)**

Test Data:

Pre-scan has been conducted to determine the worst-case from all possible combinations between available operation mode. The worst-case is mode 1 was selected for the final testing.

Mode 1:

Test No. #:	Frequency (MHz)	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 + Factor.*
- 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. All emission levels in the frequency range of 9KHz to 30MHz are 20dB below the official limits that are not reported.*

Test Data:**Mode 1&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							
31.260	0.12	23.2	/	-2.92	20.4	40	-19.6
108.780	0.23	7.3	/	27.77	35.3	43.5	-8.2
150.000	0.28	8.9	/	24.42	33.6	43.5	-9.9
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
Vertical							
31.440	0.13	22.1	/	16.67	38.9	40	-1.1
81.1800	0.21	5.7	/	26.29	32.2	40	-7.8
111.600	0.23	7.3	/	25.47	33.0	43.5	-10.5
151.560	0.28	8.9	/	23.12	32.3	43.5	-11.2
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

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.

Mode 1&Above 1GHz:

Frequency (GHz)	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								
1.016	1.40	23.9	-33.6	21.81	47.11	74	-26.89	H
1.190	1.45	24.5	-33.6	23.76	49.71	74	-24.29	H
1.330	1.57	25.1	-33.6	23.53	50.20	74	-23.8	H
1.365	1.58	25.1	-33.6	24.62	51.30	74	-22.7	V
1.450	1.65	25.7	-33.6	22.47	49.82	74	-24.18	V
1.590	1.76	26.7	-33	23.3	51.76	74	-22.24	V
Average Measurement								
1.016	1.40	23.9	-33.6	18.42	43.72	54	-10.28	H
1.190	1.45	24.5	-33.6	19.65	45.60	54	-8.4	H
1.330	1.57	25.1	-33.6	13.6	40.27	54	-13.73	H
1.365	1.58	25.1	-33.6	14.95	41.63	54	-12.37	V
1.450	1.65	25.7	-33.6	18.42	45.77	54	-8.23	V
1.590	1.76	26.7	-33	11.66	40.12	54	-13.88	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.

Mode 2&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							
31.260	0.12	23.2	/	-1.92	21.4	40	-18.6
108.780	0.23	7.3	/	27.74	35.0	43.5	-8.5
150.000	0.28	8.9	/	24.41	33.5	43.5	-10.0
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
Vertical							
31.440	0.13	22.1	/	15.67	37.9	40	-2.1
81.1800	0.21	5.7	/	26.27	32.0	40	-8.0
111.600	0.23	7.3	/	24.47	34.0	43.5	-9.5
151.560	0.28	8.9	/	23.12	32.3	43.5	-11.2
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

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.

Mode 2&Above 1GHz:

Frequency (GHz)	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								
1.016	1.40	23.9	-33.6	21.81	47.11	74	-26.89	H
1.190	1.45	24.5	-33.6	23.76	49.71	74	-24.29	H
1.330	1.57	25.1	-33.6	23.53	50.20	74	-23.8	H
1.365	1.58	25.1	-33.6	24.62	51.30	74	-22.7	V
1.450	1.65	25.7	-33.6	22.47	49.82	74	-24.18	V
1.590	1.76	26.7	-33	23.3	51.76	74	-22.24	V
Average Measurement								
1.016	1.40	23.9	-33.6	18.42	43.72	54	-10.28	H
1.190	1.45	24.5	-33.6	19.65	45.60	54	-8.4	H
1.330	1.57	25.1	-33.6	13.6	40.27	54	-13.73	H
1.365	1.58	25.1	-33.6	14.95	41.63	54	-12.37	V
1.450	1.65	25.7	-33.6	18.42	45.77	54	-8.23	V
1.590	1.76	26.7	-33	11.66	40.12	54	-13.88	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.

Mode 3&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							
30.240	0.12	23.2	/	6.28	29.6	40.0	-10.4
98.480	0.22	7.2	/	16.28	23.7	40.0	-16.3
339.920	0.51	12.4	/	17.89	30.8	46	-15.2
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
Vertical							
34.640	0.02	16.7	/	15.28	32.0	40	-8.0
98.480	0.22	7.2	/	29.28	36.7	40	-3.3
957.120	0.89	23.4	/	13.51	37.8	46	-8.2
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/

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.

Mode 3&Above 1GHz:

Frequency (GHz)	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								
1.016	1.40	23.9	-33.6	29.37	54.67	74	-19.33	H
1.190	1.45	24.5	-33.6	26.28	52.23	74	-21.77	H
1.330	1.57	25.1	-33.6	23.03	49.70	74	-24.3	H
1.365	1.58	25.1	-33.6	21.68	48.36	74	-25.64	V
1.450	1.65	25.7	-33.6	22	49.35	74	-24.65	V
1.590	1.76	26.7	-33	24.25	52.71	74	-21.29	V
Average Measurement								
1.016	1.40	23.9	-33.6	21.2	46.50	54	-7.5	H
1.190	1.45	24.5	-33.6	17.26	43.21	54	-10.79	H
1.330	1.57	25.1	-33.6	19	45.67	54	-8.33	H
1.365	1.58	25.1	-33.6	16.09	42.77	54	-11.23	V
1.450	1.65	25.7	-33.6	14.75	42.10	54	-11.9	V
1.590	1.76	26.7	-33	11.9	40.36	54	-13.64	V

Note:

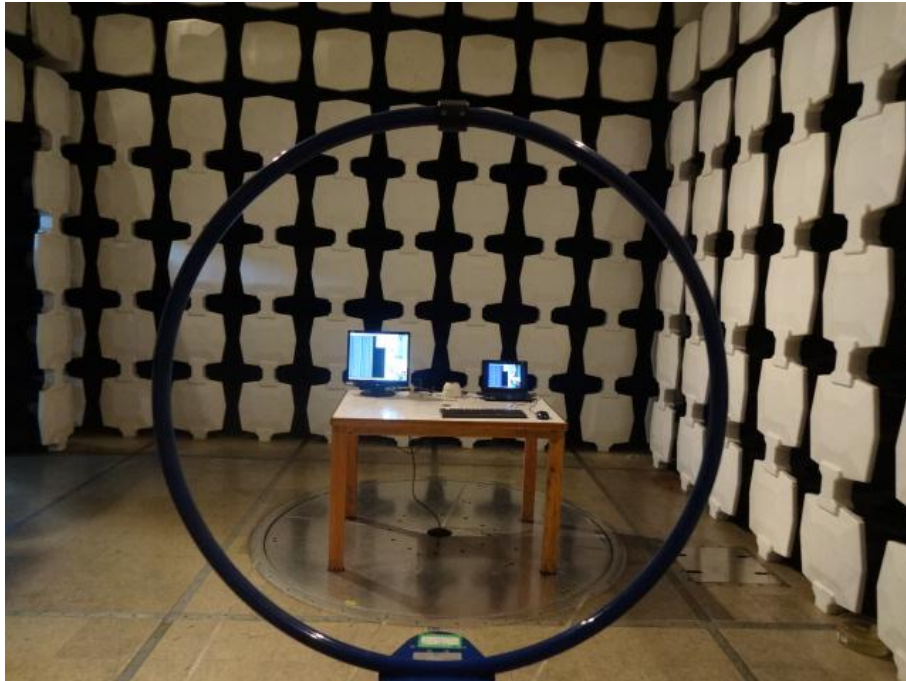
1. The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level = Reading Level + Antenna Factor + Cable Loss - Preamplifier Factor.
2. The limits shown are based on Peak value and Average value 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:

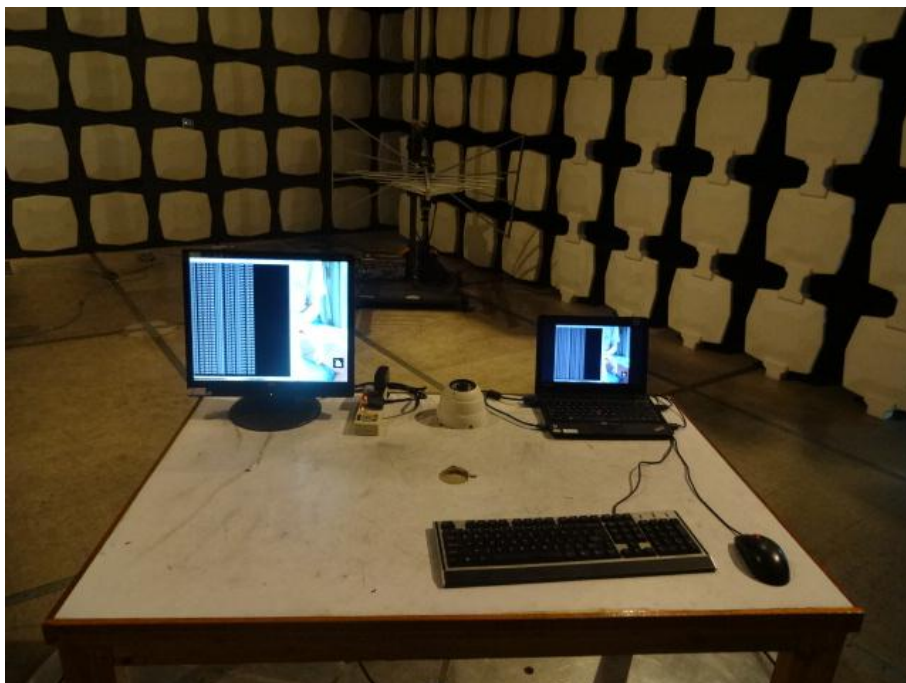
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
Receiver	SMR4503	SCHAFFNER	11725	2014.07.08	2015.07.07
Double-ridged Wave guide horn	3115	ETS	6587	2014.08.02	2015.08.01
Microwave system amplifier	83017A	Agilent	MY39500438	2014.07.11	2015.07.10
Biconilog Antenna	3142C	ETS	00042672	2014.09.28	2015.09.27
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
HF Loop Antenna	HLA6120	TESEQ	26348	2013-10-11	2014-10-12
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY: Daomen ECMG
ENGINEER COMPANY NAME

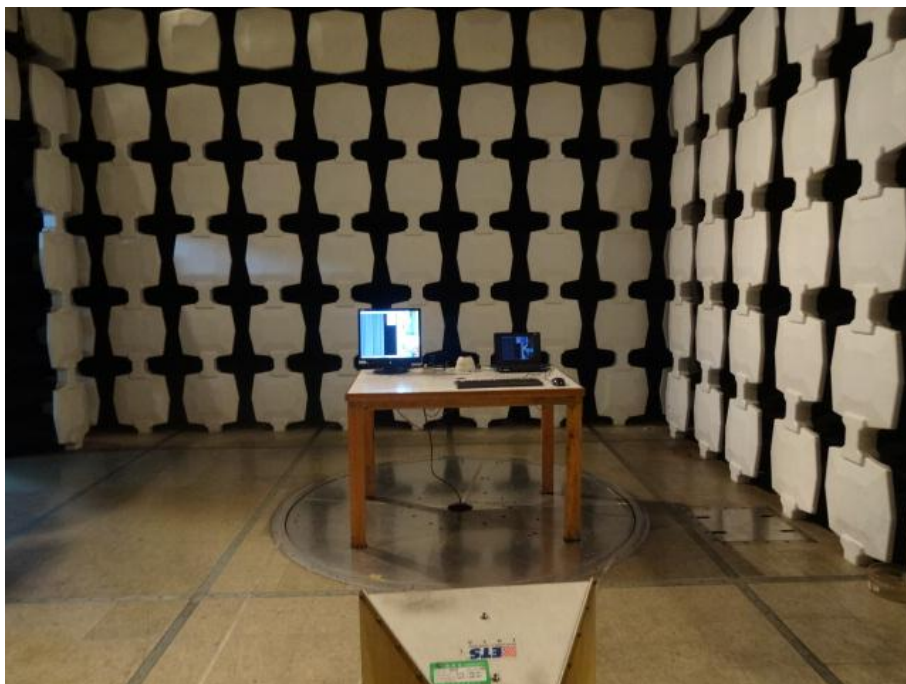
REVIEWED BY: James Jia ECMG
SENIOR ENGINEER COMPANY NAME



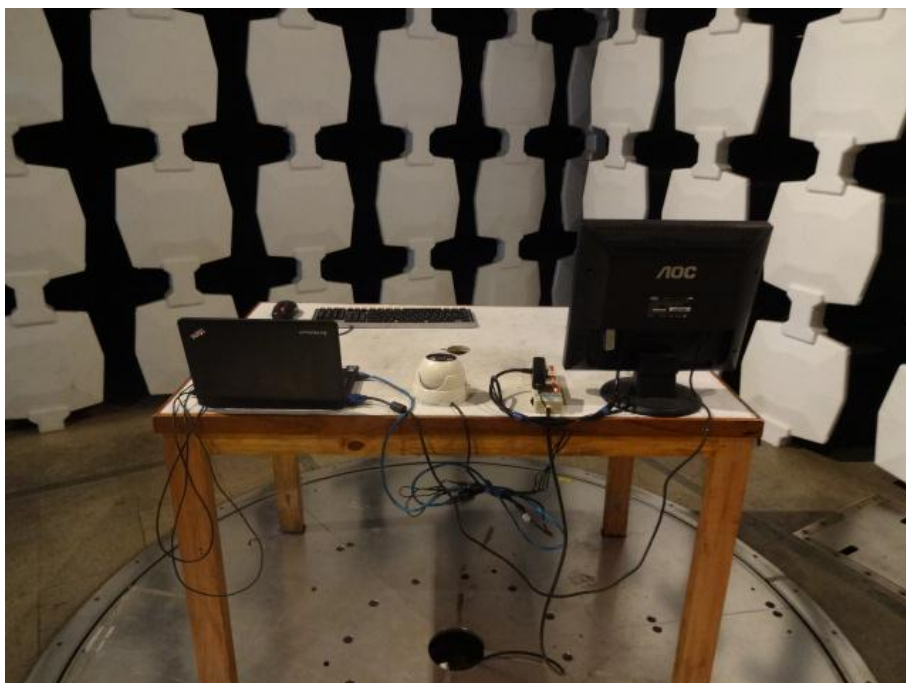
Radiated Emission Test Set-up(9KHz-30MHz)



Radiated Emission Test Set-up(Below 1 GHz)



Radiated Emission Test Set-up(Above 1GHz)



Radiated Emission Test Set-up (Rear View)

***** End Of Report *****