

## EMI TEST REPORT

On Model Name: IP Camera

Model Number: GXV3674HD\_VF, GXV3674\_FHD\_VF

Brand Name: Grandstream

Prepared for Grandstream Networks, INC

FCC ID Number: YZZGXV3674-FHD

According to FCC 47 CFR Part 15, Subpart B

Test Report #: SHE-1306-11009-FCC

Tested by: Daomen Galanz  
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 August 7<sup>th</sup>, 2013  
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.*

# Table of Contents

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GOVERNMENT DISCLAIMER NOTICE.....	2
REPRODUCTION CLAUSE.....	2
OPINIONS AND INTERPRETATIONS.....	2
STATEMENT OF MEASUREMENT UNCERTAINTY .....	2
ADMINISTRATIVE DATA.....	3
EUT DESCRIPTION .....	4
EUT MODEL DERIVED .....	5
TEST SUMMARY.....	6
TEST MODE JUSTIFICATION.....	7
EUT EXERCISE SOFTWARE.....	7
EQUIPMENT MODIFICATION.....	7
EUT SAMPLE PHOTOS .....	8
TEST SYSTEM DETAILS.....	16
CONFIGURATION OF TESTED SYSTEM.....	18
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS .....	19
ATTACHMENT 2 - RADIATED EMISSION MEASUREMENT .....	23

### **List Attached Files**

<b>Exhibit Type</b>	<b>File Description</b>	<b>File Name</b>
Test Report	Test Report	YZZGXV3674-FHD _Test report.pdf
Operation Description	Technical Description	YZZGXV3674-FHD _operation description.pdf
External Photos	External Photos	YZZGXV3674-FHD _External Photos
Internal Photos	Internal Photos	YZZGXV3674-FHD _Internal Photos
Block Diagram	Block Diagram	YZZGXV3674-FHD _Block Diagram.pdf
Schematics	Circuit Diagram	YZZGXV3674-FHD _Schematics.pdf
ID Label/Location	Label and Location	YZZGXV3674-FHD _Label & Location.pdf
User Manual	User Manual	YZZGXV3674-FHD _User Manual.pdf
Test setup photos	Test set-up photos	YZZGXV3674-FHD _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 Data**

*Test Sample* : *IP Camera*

*Model Numbers* : *GXV3674\_HD\_VF, GXV3674\_FHD\_VF*

*Model Tested* : *GXV3674\_FHD\_VF*

*Date of Received* : *August 1<sup>st</sup>, 2013*

*Date Tested* : *August 2<sup>nd</sup>, 2013*

*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 GXV3674\_FHD\_VF (referred to as the EUT in this report) is an IP Camera.*

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

<b>Parameter</b>		<b>Ranges</b>
<i>Basic parameters</i>	<i>Rated voltage</i>	<i>12V</i>
	<i>Rated Current</i>	<i>1A</i>
<i>I/O Ports</i>	<i>Network Port</i>	<i>RJ-45 Ethernet cable to power over Ethernet (POE)switch</i>
	<i>Power Jack</i>	<i>12V DC power port; UL Certified</i>
<i>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 power</i>
<i>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 power</i>

**Note:**

- 1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available power adapter.power adapter #1 was selected for the final test.*
- 2. For more detailed informations or features please refer to user's manual of EUT.*

### ***EUT Model Derived***

*Models of GXV3674\_HD\_VF and GXV3674\_FHD\_VF are series product. Differences between them are as follows:*

*GXV3674\_HD\_VF is HD digital which uses the DSP of DM365-300 and the Sensor of AR0130. GXV3674\_FHD\_VF is Full HD digital which uses the DSP of DM368-400 and the Sensor of AR0331. The others are the same. The worst-case model GXV3674\_FHD\_VF was selected for the final testing.*



## **Test Summary**

*The Electromagnetic Compatibility requirements on model GXV3674\_FHD\_VF 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.*

<b>Emission Tests</b>				
<b>Specifications</b>	<b>Description</b>	<b>Test Results</b>	<b>Test Point</b>	<b>Remark</b>
<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>

### **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 Camera mode:**

*Connected EUT to PC by an RJ-45 signal line and kept a video communication link with PC 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 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 for model GXV3674\_FHD\_VF***



***EUT- Left Side View***



***EUT- Right Side View***



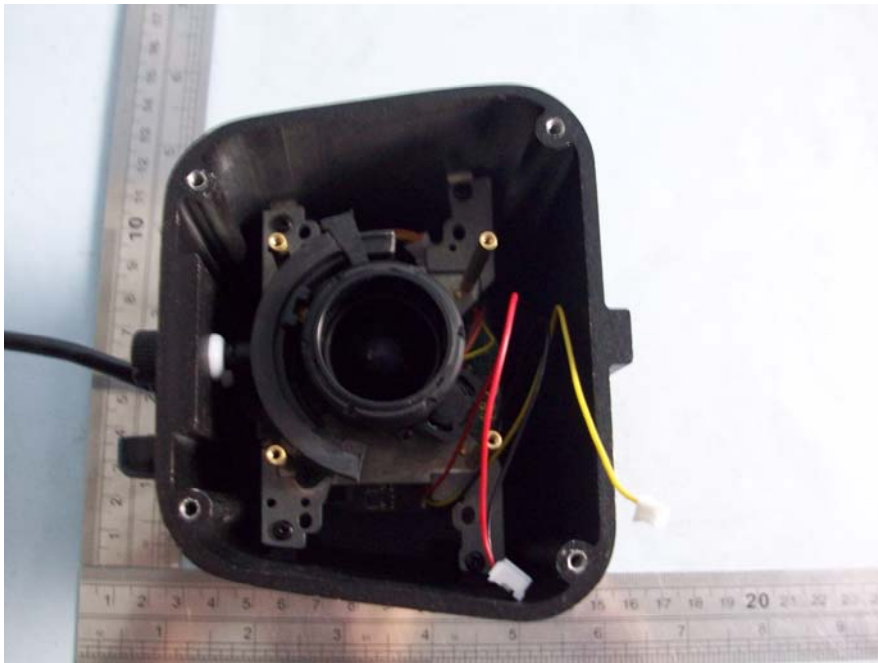
***EUT- Top View***



***EUT- Bottom View***

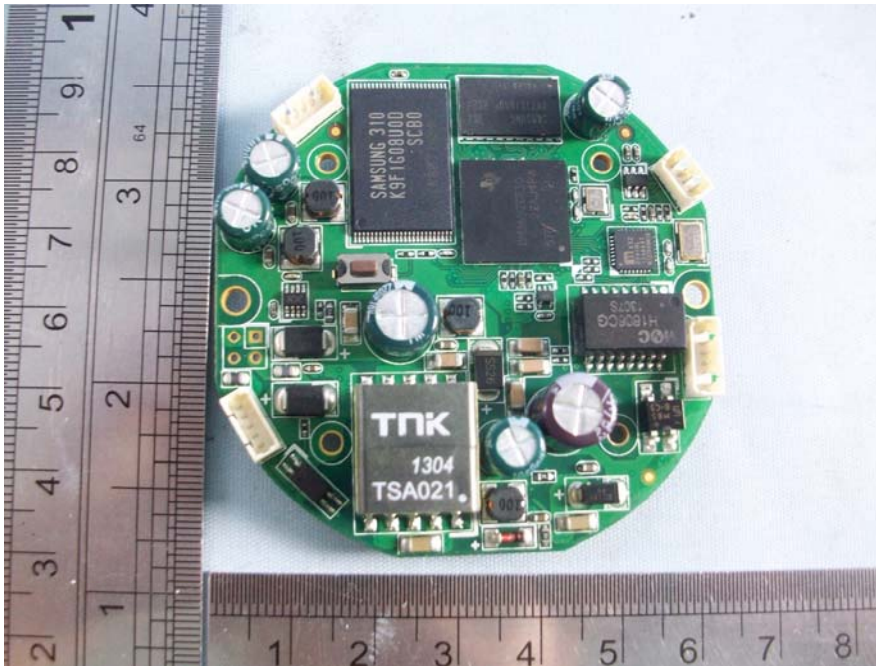


***EUT-Uncovered View 1#***

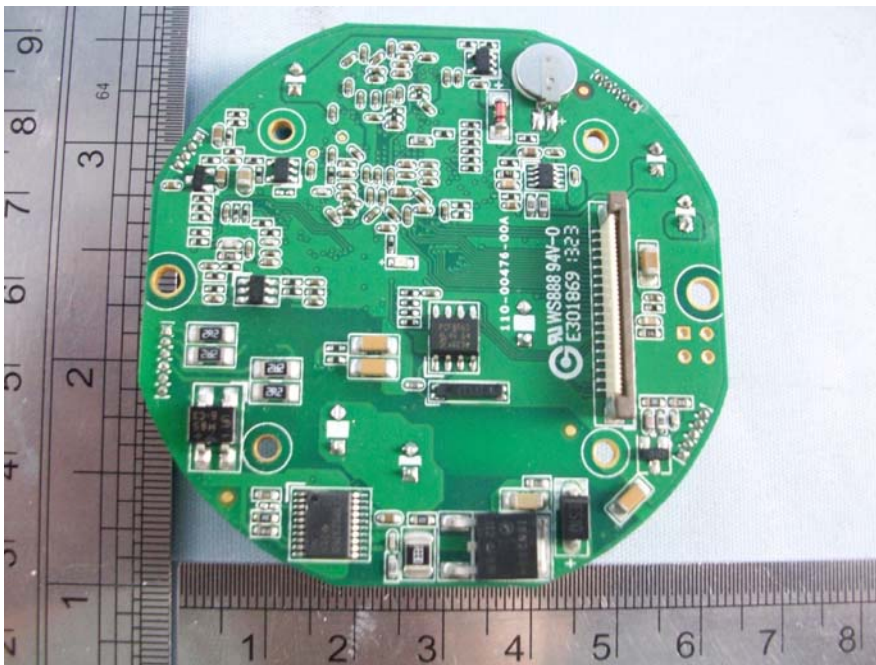


***EUT-Uncovered View 2#***

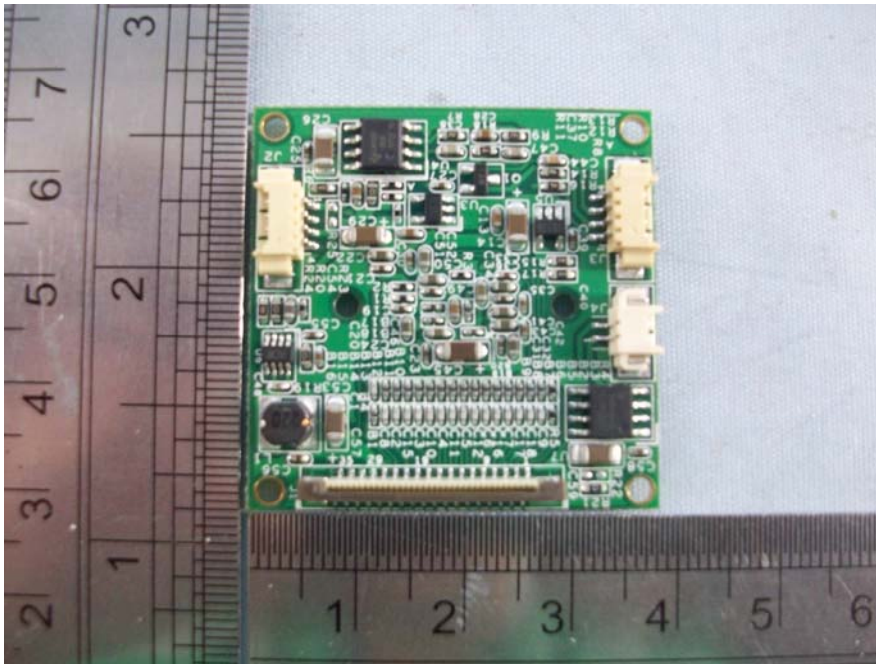




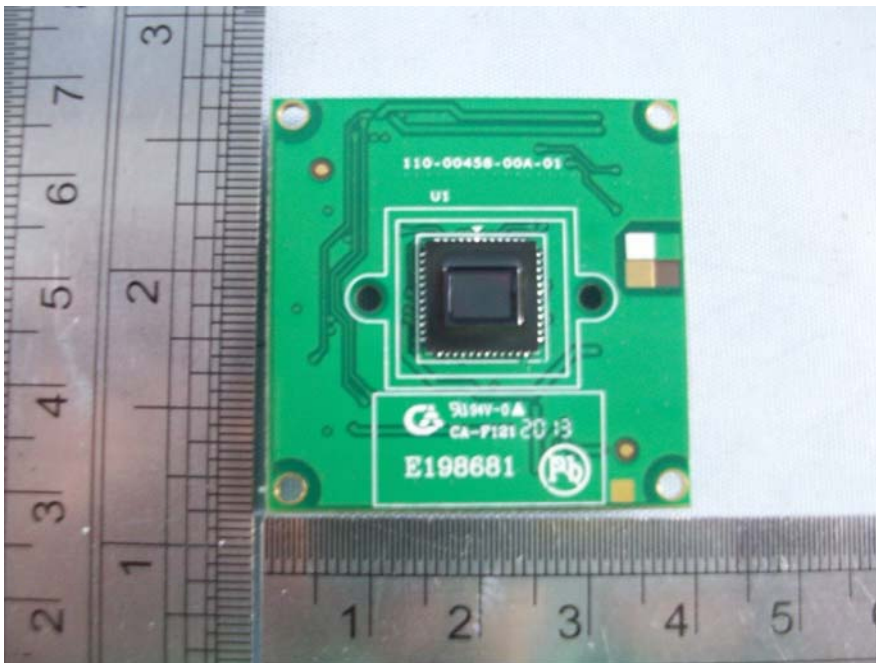
**Main board- Top View**



**Main board- Bottom View**



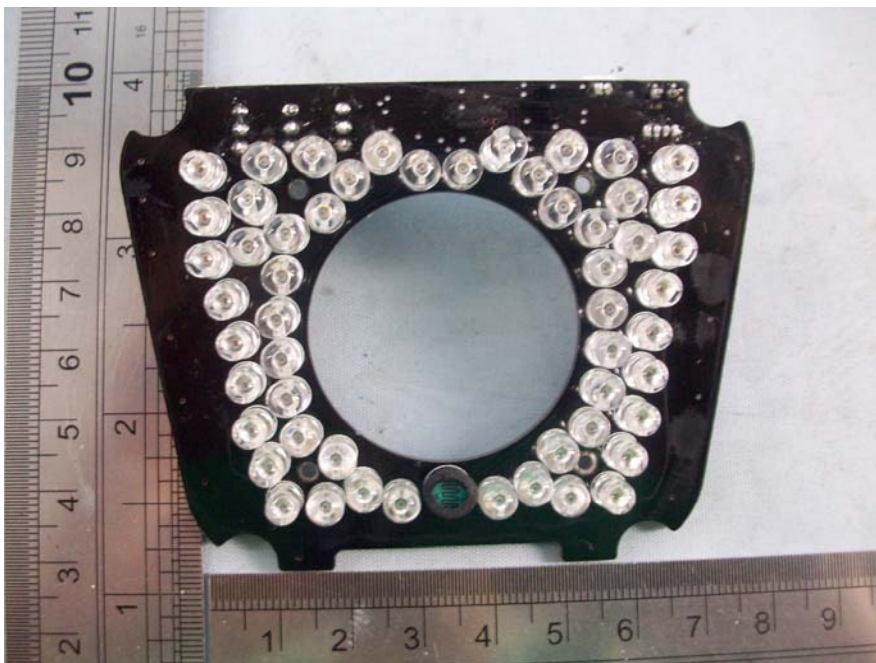
**Sensor board - Top View**



**Sensor board - Bottom View**

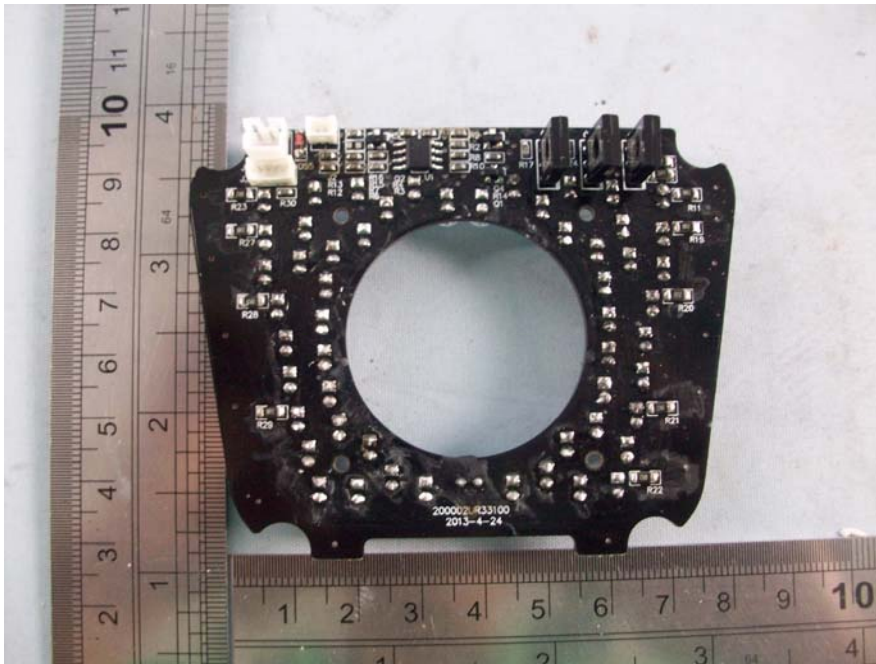


***Lens View***



***LED board - Top View***





**LED board - Bottom View**



**Adaptor View #1 (Manufacturer: Mass Power)**



**Adaptor View #2 (Manufacturer: Mass Power)**

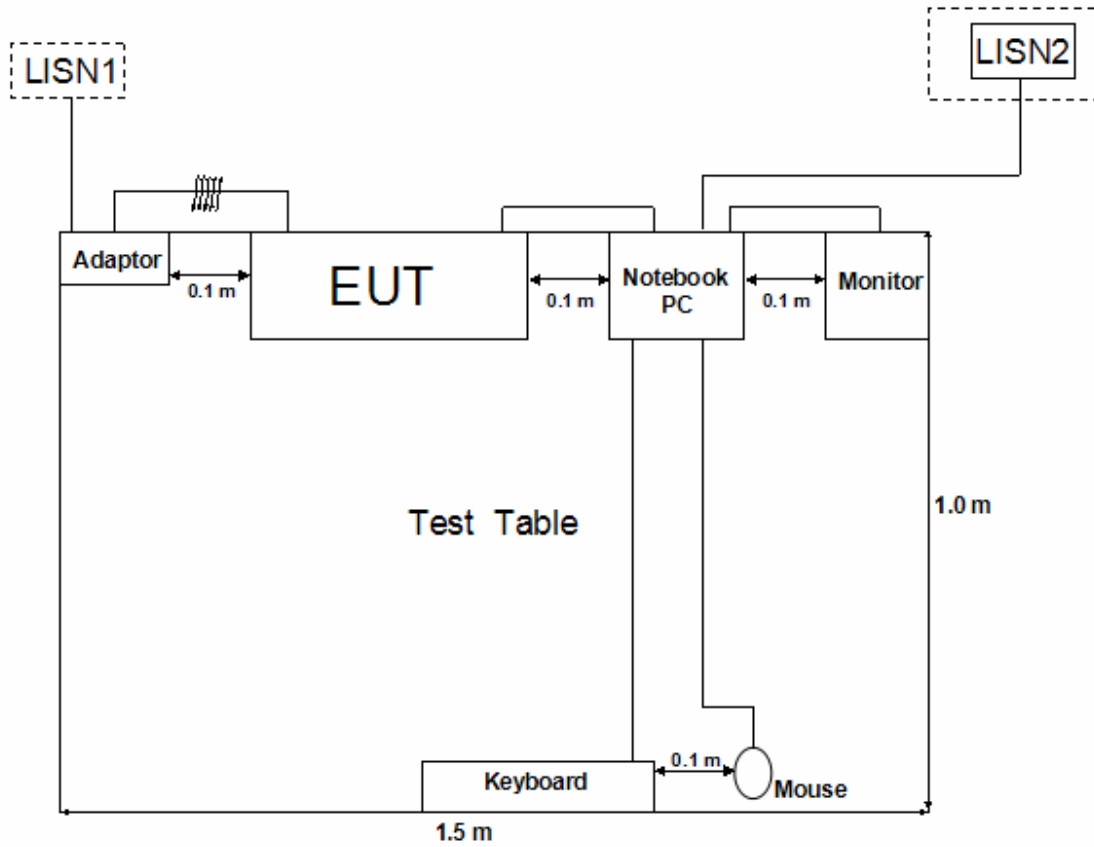
### **Test System Details**

EUT			
Model Number:	GXV3674_HD_VF,GXV3674_FHD_VF		
Model Tested:	GXV3674_FHD_VF		
Description:	IP Camera		
Input:	AC 120V/60Hz		
Manufacturer:	Grandstream Networks, INC		
Support Equipment			
Description	Model Number	Serial Number	Manufacturer
Notebook PC	ThinkPad X121e	---	Lenovo
Mouse	MO32B0	23-033131	IBM
Keyboard	SK-1788	---	LENOVO
Monitor	TFT1780PS	---	AOC

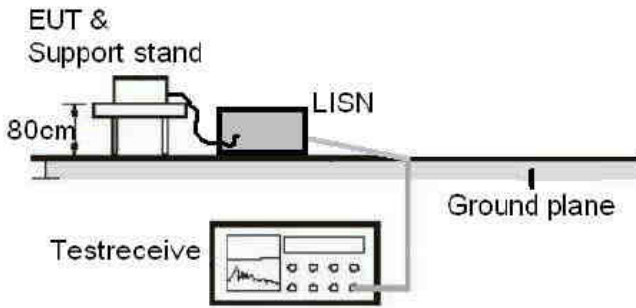
<i>Cable Description</i>					
<i>Description</i>	<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite (Y/N)</i>
<i>Adaptor Cord Of Notebook</i>	<i>AC Adaptor</i>	<i>Notebook PC</i>	<i>1.6</i>	<i>N</i>	<i>Y</i>
	<i>AC Plug</i>	<i>AC Adaptor</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Power 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 PC</i>	<i>1.2</i>	<i>N</i>	<i>Y</i>
<i>Keyboard cord</i>	<i>keyboard</i>	<i>Notebook PC</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>2.0</i>	<i>N</i>	<i>Y</i>
<i>AC Adaptor cord</i>	<i>EUT</i>	<i>Plug</i>	<i>1.8</i>	<i>N</i>	<i>Y</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.

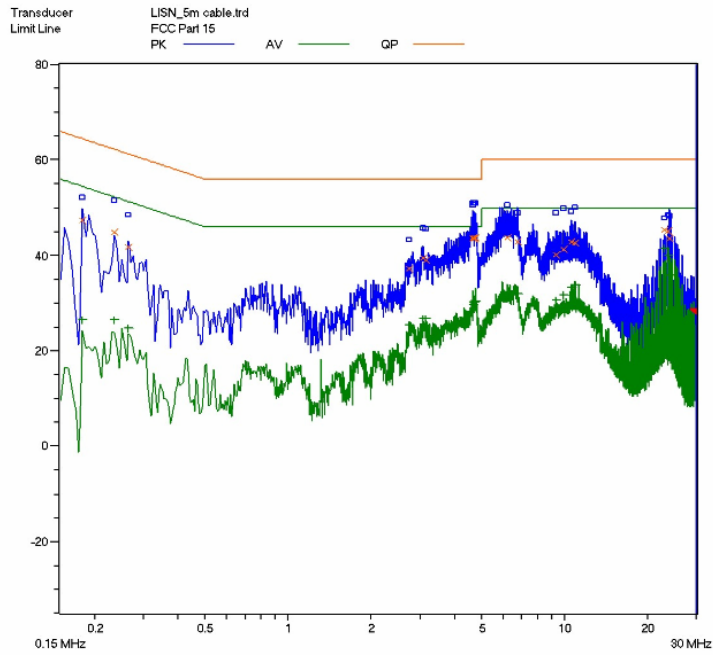
## Configuration of Tested System



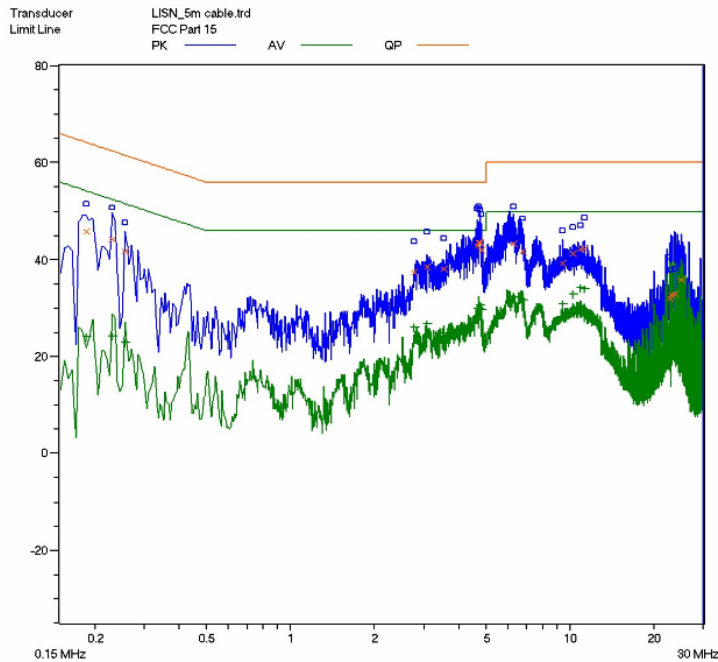
**ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS**

<b>CLIENT:</b>	Grandstream Networks, INC	<b>TEST STANDERD:</b>	FCC Part 15, Subpart B, Section 15.107
<b>MODEL NUMBERS:</b>	GXV3674_HD_VF,GXV3674_F HD_VF	<b>PRODUCT:</b>	IP Camera
<b>MODEL TESTED:</b>	GXV3674_FHD_VF	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	48%
<b>ATM PRESSURE:</b>	103kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Daomen	<b>DATE OF TEST:</b>	August 2 <sup>nd</sup> , 2013
<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>	IP Camera mode		
<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 ECMG Electronic Technical Testing Corp(Shenzhen) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp $\pm 2.6$ dB		

***IP Camera mode:***



***Line L Conducted Emission Graph***



***Line N Conducted Emission Graph***

**Test Data:**

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	43.6	56	-12.4	4.660	29.8	46	-16.2
L	4.675	43.7	56	-12.3	4.675	30.1	46	-15.9
L	4.730	43.4	56	-12.6	4.730	30.3	46	-15.7
N	0.185	45.8	64.3	-18.5	0.185	24.0	54.3	-30.3
N	0.230	44.2	62.4	-18.2	0.230	24.3	52.4	-28.1
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 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:**

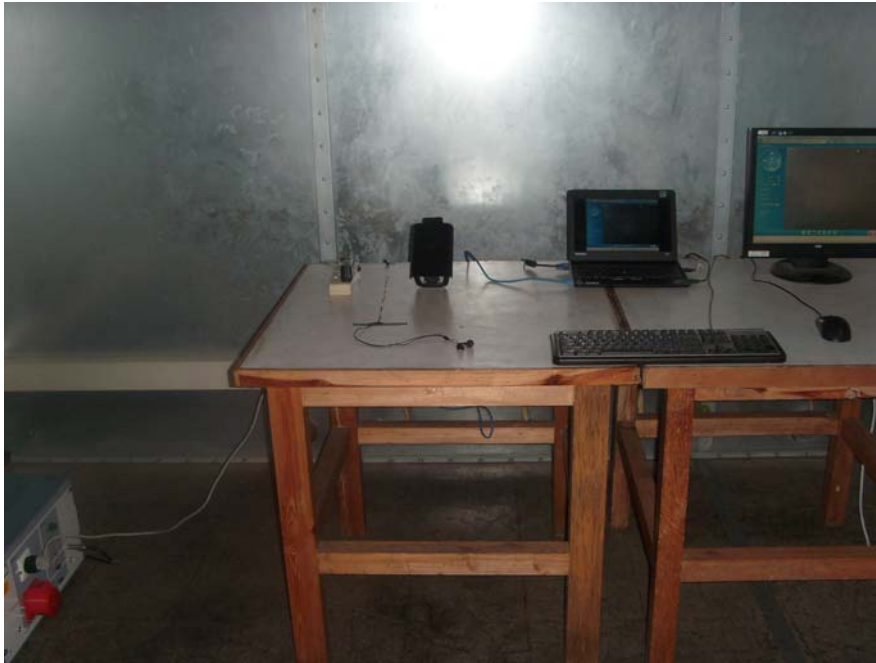
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
Receiver	SMR4503	SCHAFFNER	11725	2012.07.08	2013.07.08
Line impedance stabilization network	ESH2-Z5	R&S	0338.5219.53-100396-vj	2013.03.14	2014.03.13

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

TESTED BY: Daomen ECMG  
ENGINEER COMPANY NAME

REVIEWED BY: Janeyan ECMG  
SENIOR ENGINEER COMPANY NAME





***Conducted Emission Test Set-up -Front view***

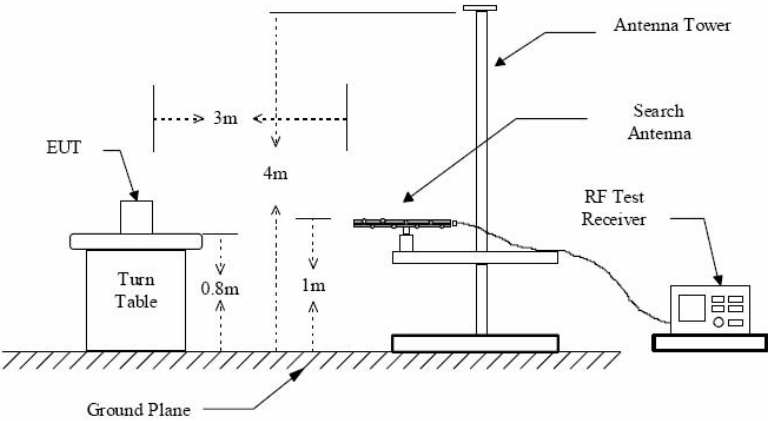
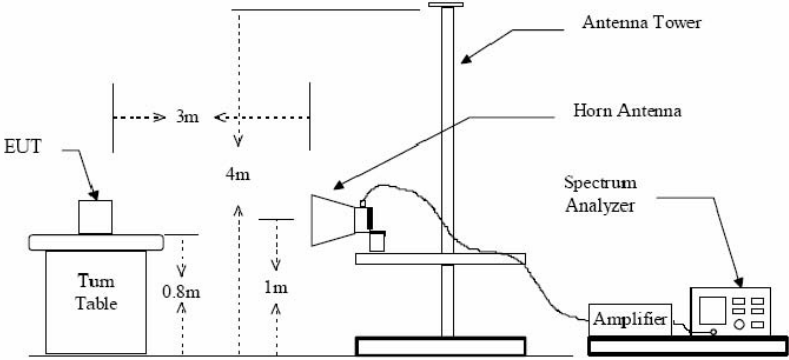


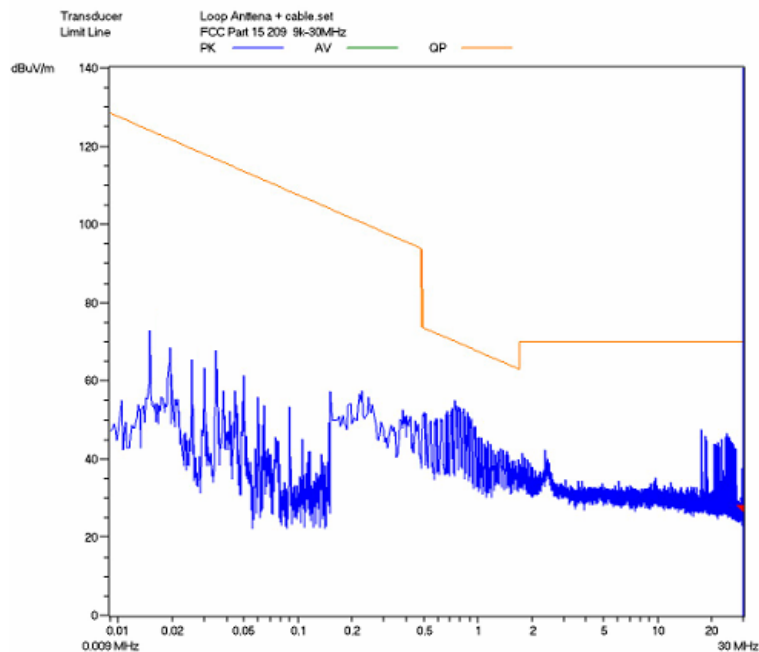
***Conducted Emission Test Set-up -Rear view***

**ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT**

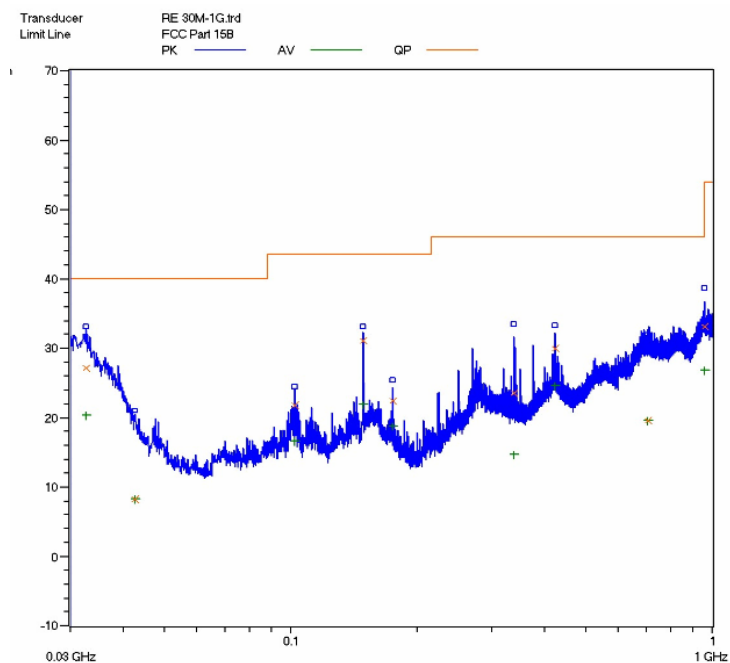
<b>CLIENT:</b>	Grandstream Networks, INC	<b>TEST STANDERD:</b>	FCC Part 15,Subpart B, Section 15.109
<b>MODEL NUMBERS:</b>	GXV3674_HD_VF,GXV3674_FH D_VF	<b>PRODUCT:</b>	IP Camera
<b>EUT MODEL:</b>	GXV3674_FHD_VF	<b>EUT DESIGNATION:</b>	Home or Office
<b>TEMPERATURE:</b>	22°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	103.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	Daomen	<b>DATE OF TEST:</b>	August 2 <sup>nd</sup> , 2013
<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. 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><math>FS = RA + AF + CF - AG</math></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>Pre-scan has been conducted to determine the worst-case modes from all possible combinations between available operation mode. The following mode was selected for the final testing.</p> <p><b>For 9KHz to 30MHz:</b> IP Camera mode</p> <p><b>For 30MHz to 5,000MHz:</b> IP Camera mode and PoE mode</p>		
<b>TESTED RANGE:</b>	30MHz to 5GHz		
<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...

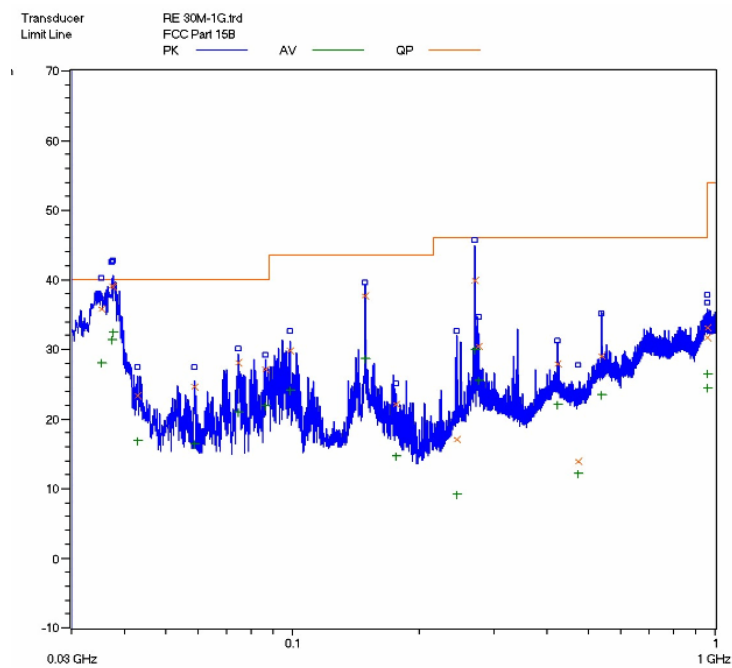
<p><b>TEST SET-UP</b></p>	<p>Figure 1 : Frequencies measured below 1 GHz configuration</p>  <p>Figure 2 : Frequencies measured above 1 GHz configuration</p> 
<p><b>CHANGES OR MODIFICATIONS:</b></p>	<p>There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). Test personnel.</p>
<p><b>M. UNCERTAINTY:</b></p>	<p>Freq. <math>\pm 2 \times 10^{-7}</math> x Center Freq., Amp <math>\pm 2.6</math> dB</p>



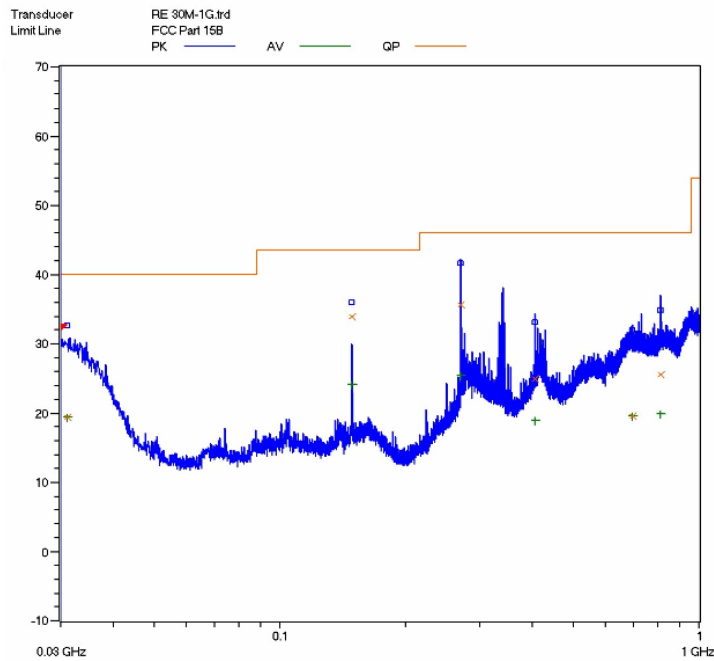
***Radiated Filed Strength Emission Test Plot  
(9KHz-30MHz)- IP Camera***



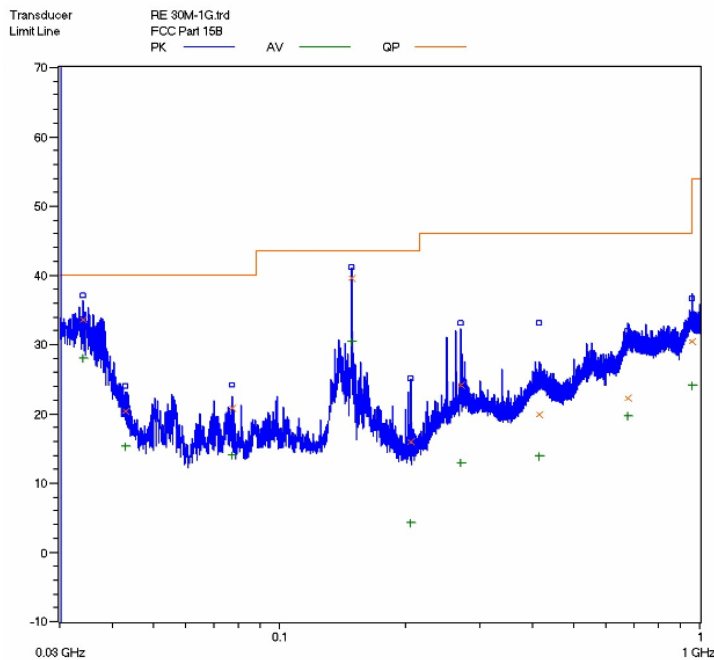
***Horizontal:Radiated Emission Test Plot  
(30-1000MHz)- IP Camera***



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



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



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

**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. All emission levels in the frequency range of 9KHz to 30MHz are 20dB below the official limits that are not reported.

**Test Data:****IP Camera 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>							
32.640	0.02	17.3	/	9.78	27.1	40	-12.9
148.480	0.02	8.8	/	22.28	31.1	43.5	-12.4
174.960	0.02	7.8	/	14.68	22.5	43.5	-21.0
337.520	0.16	13.7	/	9.64	23.5	46	-22.5
424.960	0.2	15.5	/	14.3	30.0	46	-16.0
957.200	0.44	23.8	/	8.96	33.2	46	-12.8
<b>Vertical</b>							
35.360	0.02	18.2	/	17.58	35.8	40	-4.2
37.360	0.02	18.4	/	20.68	39.1	40	-0.9
37.520	0.02	18.4	/	20.48	38.9	40	-1.1
148.480	0.02	8.8	/	28.98	37.8	43.5	-5.7
270.000	0.13	13.4	/	26.37	39.9	46	-6.1
274.960	0.15	13.4	/	16.95	30.5	46	-15.5

**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 20dB below the official limits that are not reported.



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

<i>Frequency (MHz)</i>	<i>Cable Loss (dB)</i>	<i>Antenna Factor (dB)</i>	<i>Preamplifier Factor (dB)</i>	<i>Reading Level (dBuV/m)</i>	<i>Emission Level (dBuV/m)</i>	<i>Limit (dBuV/m)</i>	<i>Margin (dB)</i>	<i>Antenna Polarization (H/V)</i>
<b>Peak Measurement</b>								
1.166	1.40	23.9	-33.6	53.97	45.67	74	-28.33	H
1.190	1.45	24.5	-33.6	54.37	46.72	74	-27.28	H
1.325	1.57	25.1	-33.6	55.29	48.36	74	-25.64	H
1.360	1.58	25.1	-33.6	54.2	47.28	74	-26.72	V
1.455	1.65	25.7	-33.6	55.64	49.39	74	-24.61	V
1.585	1.76	26.7	-33	54.55	50.01	74	-23.99	V
<b>Average Measurement</b>								
1.166	1.40	23.9	-33.6	47.04	38.74	54	-15.26	H
1.190	1.45	24.5	-33.6	49.75	42.10	54	-11.9	H
1.325	1.57	25.1	-33.6	46.94	40.01	54	-13.99	H
1.360	1.58	25.1	-33.6	46.58	39.66	54	-14.34	V
1.455	1.65	25.7	-33.6	48.97	42.72	54	-11.28	V
1.585	1.76	26.7	-33	44.64	40.10	54	-13.9	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.

**For PoE 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)
<b>Horizontal</b>							
31.040	0.02	16.7	/	2.78	19.5	40	-20.5
148.480	0.02	8.8	/	25.08	33.9	43.5	-9.6
270.000	0.13	13.4	/	22.17	35.7	46	-10.3
404.960	0.16	14.9	/	9.94	25.0	46	-21.0
694.720	0.36	20.5	/	-1.26	19.6	46	-26.4
810.000	0.42	22.1	/	3.08	25.6	46	-20.4
<b>Vertical</b>							
34.080	0.02	17.9	/	15.78	33.7	40	-6.3
148.480	0.02	8.8	/	30.78	39.6	43.5	-3.9
270.080	0.13	13.4	/	10.67	24.2	46	-21.8
415.360	0.2	15.3	/	4.4	19.9	46	-26.1
674.560	0.36	20.1	/	1.84	22.3	46	-23.7
957.280	0.44	24	/	5.96	30.4	46	-15.6

**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.

**For PoE 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)
<b>Peak Measurement</b>								
1.166	1.40	23.9	-33.6	55.5	47.20	74	-26.8	H
1.190	1.45	24.5	-33.6	57.01	49.36	74	-24.64	H
1.325	1.57	25.1	-33.6	56.03	49.10	74	-24.9	H
1.360	1.58	25.1	-33.6	59.66	52.74	74	-21.26	V
1.455	1.65	25.7	-33.6	56.61	50.36	74	-23.64	V
1.585	1.76	26.7	-33	53.2	48.66	74	-25.34	V
<b>Average Measurement</b>								
1.166	1.40	23.9	-33.6	51.01	42.71	54	-11.29	H
1.190	1.45	24.5	-33.6	47.47	39.82	54	-14.18	H
1.325	1.57	25.1	-33.6	45.6	38.67	54	-15.33	H
1.360	1.58	25.1	-33.6	48.09	41.17	54	-12.83	V
1.455	1.65	25.7	-33.6	46.61	40.36	54	-13.64	V
1.585	1.76	26.7	-33	42.93	38.39	54	-15.61	V

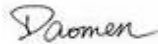
**Note:**

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:**

<i>Test Equipment</i>	<i>Model No.</i>	<i>Manufacturer</i>	<i>Serial No.</i>	<i>Last Cal.</i>	<i>Cal. Due</i>
Receiver	SMR4503	SCHAFFNER	11725	2012.07.08	2013.07.07
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	2012.11.30	2013.11.29
Spectrum Analyzer	FSP30	R&S	100755	2012.11.30	2013.11.29
HF Loop Antenna	HLA6120	TESEQ	26348	2012-10-11	2013-10-12
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY:



ENGINEER

ECMG

COMPANY NAME

REVIEWED BY:



SENIOR ENGINEER

ECMG

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)***