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EMI TEST REPORT

On Model Name: IP Camera

Model Number: GXV3615WP_HD/ GXV3615W_HD/GXV3615P_HD/GXV3615_HD

Brand Name: Grandstream

Prepared for Grandstream Networks, INC

FCC ID Number: YZZGXV3615WP-HD

According to FCC 47 CFR Part 15, Subpart B

Test Report #:	SHE-1202-10783-FCC
Prepared by:	Sewen Guo
Reviewed by:	Jawen Yin
QC Manager:	Swall Zhang

Test Report Released by: Swall Zhang — February 28, 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.

Table of Contents

List Attached Files

Exhibit Type	File Description	File Name
Test Report	Test Report	YZZGXV3615WP-HD _Test report.pdf
Operation Description	Technical Description	YZZGXV3615WP-HD _operation description.pdf
External Photos	External Photos	YZZGXV3615WP-HD _External Photos
Internal Photos	Internal Photos	YZZGXV3615WP-HD _Internal Photos
Block Diagram	Block Diagram	YZZGXV3615WP-HD _Block Diagram.pdf
Schematics	Circuit Diagram	YZZGXV3615WP-HD _Schematics.pdf
ID Label/Location	Label and Location	YZZGXV3615WP-HD _Label & Location.pdf
User Manual	User Manual	YZZGXV3615WP-HD _User Manual.pdf
Test setup photos	Test setup photos	YZZGXV3615WP-HD _Test Setup Photos

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Opinions and Interpretations

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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	*: GXV3615WP_HD/GXV3615W_HD/ GXV3615P_HD/GXV3615_HD*
Model Tested	*: GXV3615WP_HD*
Receipt Date	*: February 16, 2012*
Date Tested	*: February 17, 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 GXV3615WP_HD (referred to as the EUT in this report) is an IP Camera.

The EUT is an IP Camera which integrates an IEEE 802.11b/g/n wireless adapter. Main technical specifications of the EUT as belows:

<table>
<tr><th colspan="2">Parameter</th><th>Range</th></tr>
<tr><td rowspan="2">Basic parameters</td><td>Rated voltage</td><td>DC12V</td></tr>
<tr><td>Rated Current</td><td>0.5A</td></tr>
<tr><td rowspan="5">802.11b/g/n Adapter Parameters</td><td>Operating band</td><td>2400-2483.5MHz</td></tr>
<tr><td>WIFI Module Voltage</td><td>+3V3 supply for WIFI module</td></tr>
<tr><td>Working Frequency of Each Channel</td><td>
<table>
<tr><th>Channel No.</th><th>Frequency (MHz)</th><th>Channel No.</th><th>Frequency (MHz)</th></tr>
<tr><td>001</td><td>2412</td><td>007</td><td>2442</td></tr>
<tr><td>002</td><td>2417</td><td>008</td><td>2447</td></tr>
<tr><td>003</td><td>2422</td><td>009</td><td>2452</td></tr>
<tr><td>004</td><td>2427</td><td>010</td><td>2457</td></tr>
<tr><td>005</td><td>2432</td><td>011</td><td>2462</td></tr>
<tr><td>006</td><td>2437</td><td>012</td><td>2467</td></tr>
<tr><td>--</td><td>--</td><td>013</td><td>2472</td></tr>
</table>
</td></tr>
<tr><td>Frequency of Number</td><td>IEEE 802.11b/g: 13 channels;
Draft 802.11n standard 20MHz: 13channels;
Draft 802.11n standard 40MHz: 13channels.</td></tr>
<tr><td>Modulation Type</td><td>IEEE 802.11b/g/n adapter modulation technique as below:
<table>
<tr><th colspan="2">IEEE 802.11b</th><th colspan="2">IEEE 802.11g</th></tr>
<tr><th>Modulation Technique</th><th>Data Rate (Mbps)</th><th>Modulation Technique</th><th>Data Rate (Mbps)</th></tr>
<tr><td rowspan="4">DSSS</td><td>1</td><td rowspan="8">OFDM</td><td>6</td></tr>
<tr><td rowspan="2">2</td><td>9</td></tr>
<tr><td>12</td></tr>
<tr><td rowspan="2">5.5</td><td>18</td></tr>
<tr><td>24</td></tr>
<tr><td rowspan="2">11</td><td>36</td></tr>
<tr><td>48</td></tr>
<tr><td>54</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>Modulation Type</td><td>
<table>
<tr><th colspan="3">draft 802.11n Standard-20 MHz</th></tr>
<tr><th rowspan="2">MCS Index</th><th rowspan="2">Modulation</th><th>Data Rate (Mbps)</th></tr>
<tr><th>800ns GI</th></tr>
<tr><td>0</td><td>BPSK</td><td>6.5</td></tr>
<tr><td>1</td><td>QPSK</td><td>13.0</td></tr>
<tr><td>2</td><td>QPSK</td><td>19.5</td></tr>
<tr><td>3</td><td>16-QAM</td><td>26.0</td></tr>
<tr><td>4</td><td>16-QAM</td><td>39.0</td></tr>
<tr><td>5</td><td>64-QAM</td><td>52.0</td></tr>
<tr><td>6</td><td>64-QAM</td><td>58.5</td></tr>
<tr><td>7</td><td>64-QAM</td><td>65.0</td></tr>
</table>
<table>
<tr><th colspan="4">draft 802.11n Standard-40 MHz</th></tr>
<tr><th rowspan="2">MCS Index</th><th rowspan="2">Modulation</th><th colspan="2">Data Rate (Mbps)</th></tr>
<tr><th>800 ns GI</th><th>400ns GI</th></tr>
<tr><td>0</td><td>BPSK</td><td>13.5</td><td>15.0</td></tr>
<tr><td>1</td><td>QPSK</td><td>27.0</td><td>30.0</td></tr>
<tr><td>2</td><td>QPSK</td><td>40.5</td><td>45.0</td></tr>
<tr><td>3</td><td>16-QAM</td><td>54.0</td><td>60.0</td></tr>
<tr><td>4</td><td>16-QAM</td><td>81.0</td><td>90.0</td></tr>
<tr><td>5</td><td>64-QAM</td><td>108.0</td><td>120.0</td></tr>
<tr><td>6</td><td>64-QAM</td><td>121.5</td><td>135.0</td></tr>
<tr><td>7</td><td>64-QAM</td><td>135.0</td><td>150.0</td></tr>
</table>
</td></tr>
<tr><td></td><td>Tranmit Power</td><td>
<table>
<tr><th>Operating mode</th><th>Frequency Range (MHz)</th><th>Output Power (dBm)</th><th>Output Power (mW)</th></tr>
<tr><td>IEEE 802.11b</td><td>2412-2472</td><td>16±15%</td><td>22.91-69.18</td></tr>
<tr><td>IEEE 802.11g</td><td>2412-2472</td><td>12±15%</td><td>10.47-23.99</td></tr>
<tr><td>Draft 802.11n standard 20MHz</td><td>2412-2472</td><td>12±15%</td><td>10.47-23.99</td></tr>
<tr><td>Draft 802.11n standard 40MHz</td><td>2412-2472</td><td>12±15%</td><td>10.47-23.99</td></tr>
</table>
</td></tr>
<tr><td></td><td>Antenna Spec.</td><td>1. Gain: 2dBi
2. Impedance: 50ohm</td></tr>
<tr><td rowspan="5">I/O Port</td><td>NETWORK</td><td>10/100 Switch LAN port for connecting to Ethernet. The indicator will be steady for connection and flashing for network activity.</td></tr>
<tr><td>DC 12V</td><td>12V DC power jack; UL Certified.</td></tr>
<tr><td>RESET</td><td>Press the Reset button for 6 seconds to</td></tr>
<tr><td>Speaker</td><td>GXV3615WP_HD built-in speaker</td></tr>
<tr><td>Microphone</td><td>GXV3615WP_HD built-in microphone</td></tr>
</table>

AC/DC Adapter	*Input*	*100-240VAC 50/60Hz max 0.18A*
	Output	*12VDC,0.5A*
	Model	*SDF1200050A1BB*
	Brand name	*Mass*

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

EUT Model derived

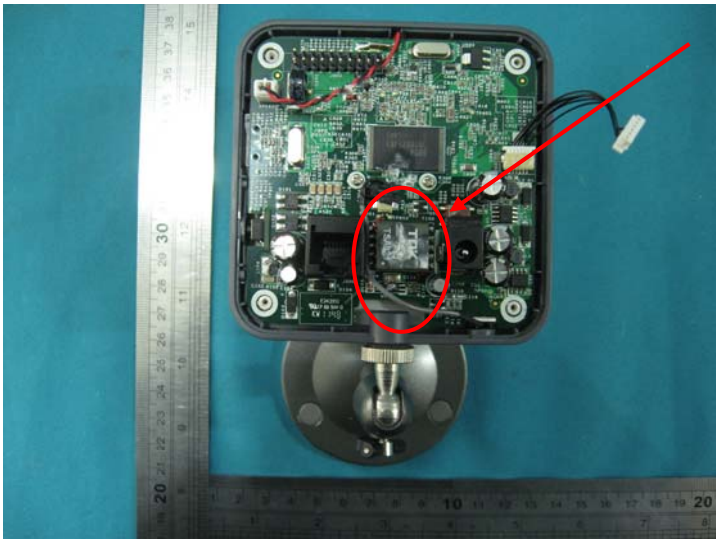
Models of GXV3615WP_HD/GXV3615W_HD/ GXV3615P_HD/GXV3615_HD are the same product,differences between these models are only if they contain a wifi module and a PoE module or not. For more detailed informations are as belows:

Model of GXV3615WP_HD contains a wifi module and a PoE module.
Model of GXV3615W_HD contains only a wifi module but no PoE module.
Model of GXV3615P_HD contains only a PoE module but no wifi module.
Model of GXV3615_HD contains neither wifi module nor PoE module.

GXV3615WP_HD Exterior view

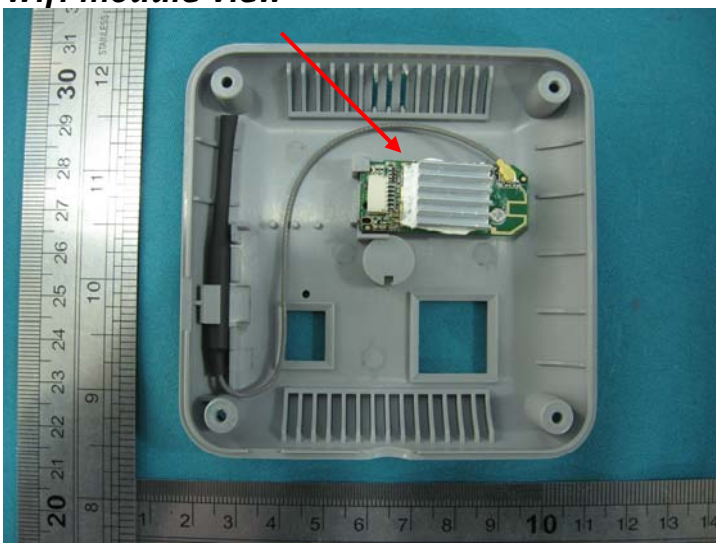
Models of GXV3615WP_HD, GXV3615W_HD,GXV3615P_HD and GXV3615_HD have the same exterior and structure.

GXV3615WP_HD Exterior view



Integrates a PoE circuit

Wifi module view



Model of GXV3615WP_HD was selected for the final testing.

Test Summary

The Electromagnetic Compatibility requirements on model GXV3615WP _HD for these tests are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

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

Test Mode Justification

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between IP Camera mode and PoE mode. The worst-case IP Camera mode was selected for the final testing as belows:

IP Camera mode:
Closed WiFi function of EUT, connected the EUT to an notebook PC by an RJ-45 cable and established a communication link. All test shall be performed at this mode.

EUT Exercise Software

No test sofware 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

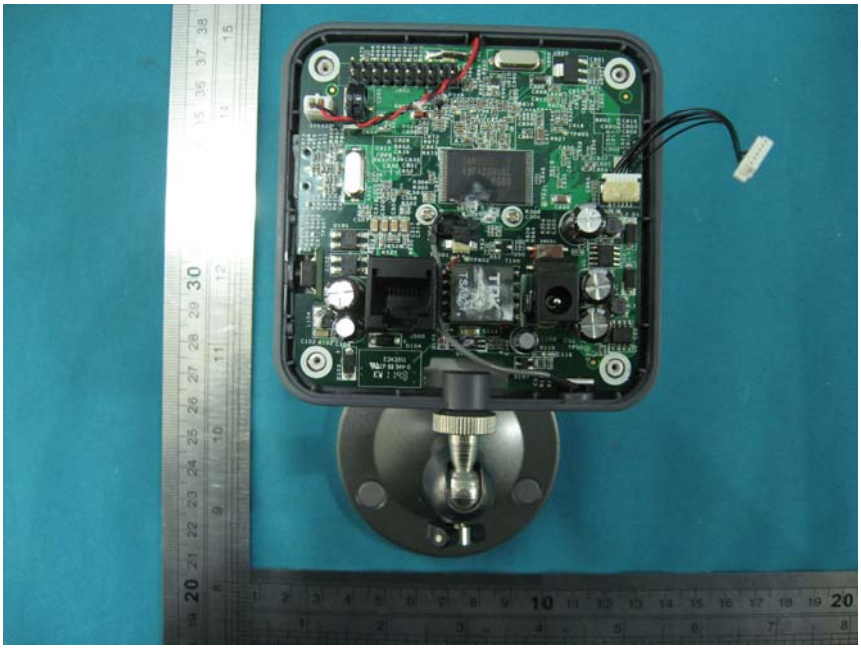
EUT Model: GXV3615WP_HD

EUT- Front View

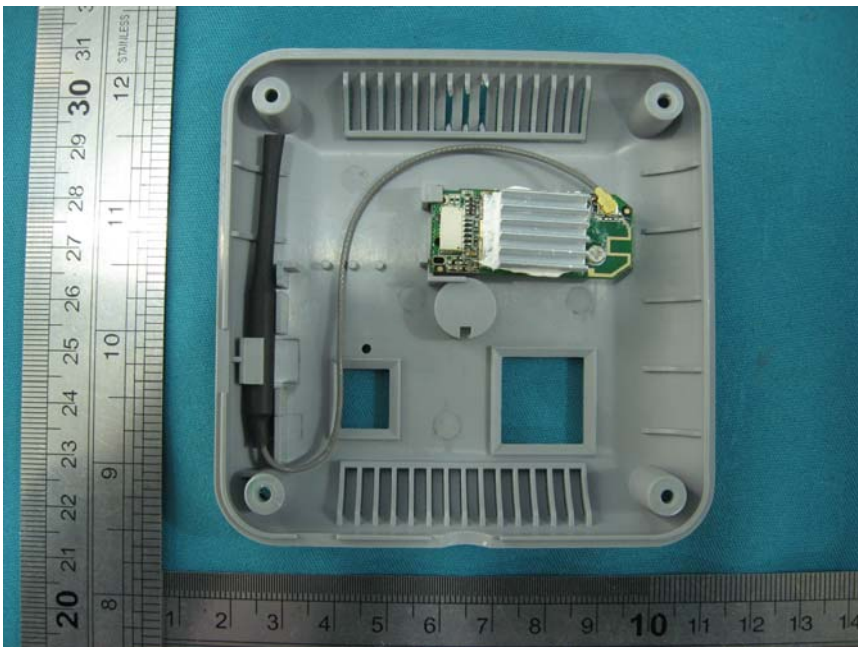
EUT- Rear View

Power Adaptor View(Manufacturer: Mass Power)

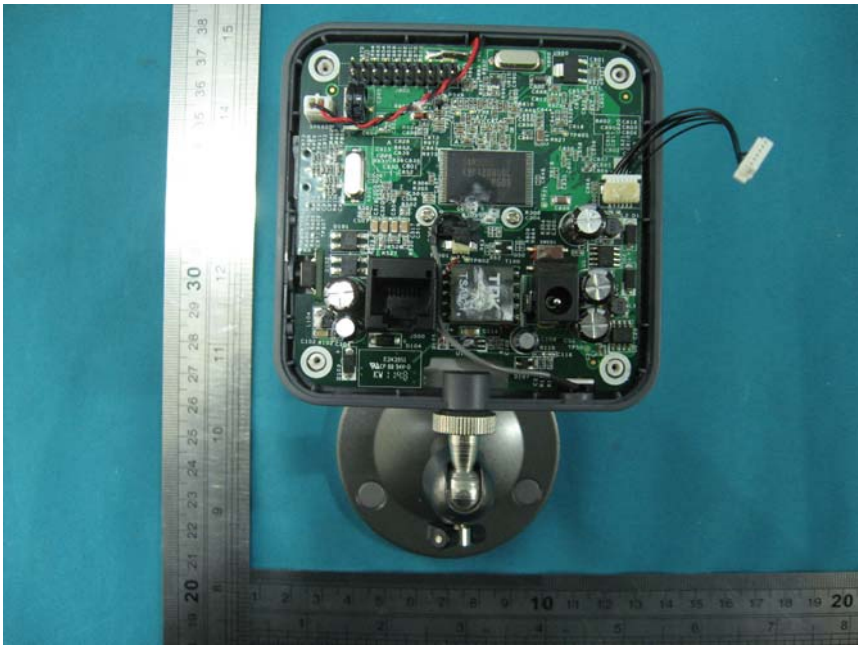
Side View



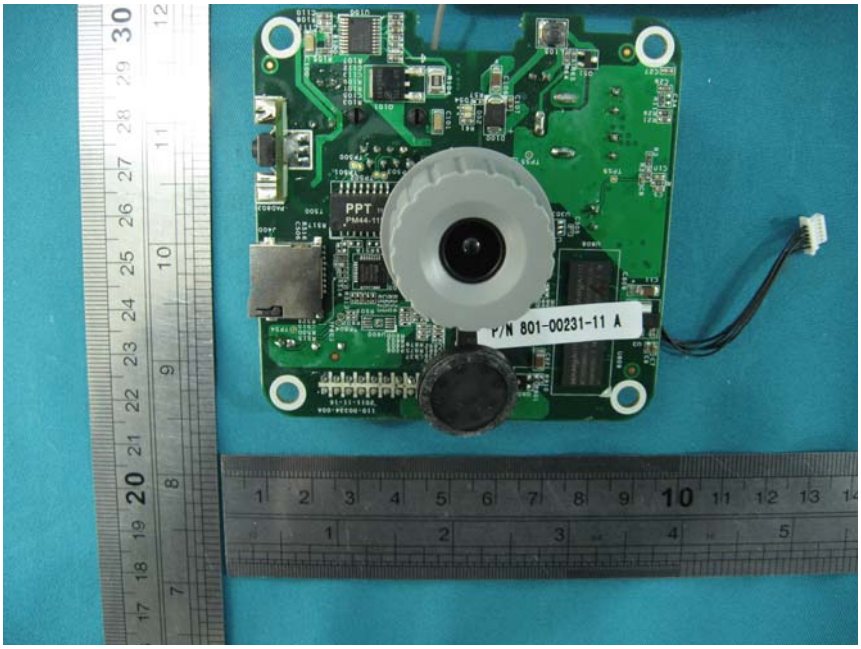
Inside view #1



Inside view #2



Mainboard Top View



Mainboard Bottom View

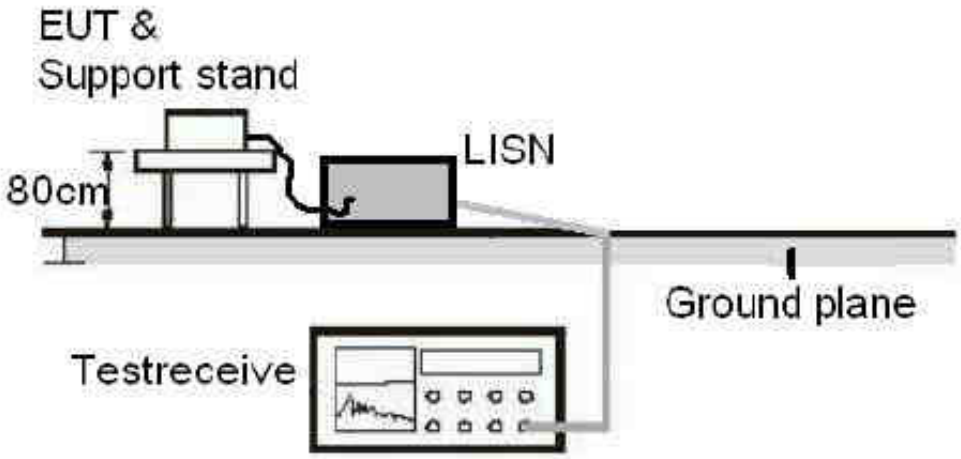
Test System Details

EUT			
Model Number:	GXV3615WP_HD/GXV3615W_HD/GXV3615P_HD/GXV3615_HD		
Model Tested:	GXV3615WP_HD		
Description:	IP Camera		
Input:	AC 120V/60Hz		
Manufacturer:	Grandstream Networks, INC		
Support Equipment			
Description	**Model Number**	**Serial Number**	**Manufacturer**
Notebook PC	NC4000	CNU4122BCL	HP
Adapter Of Notebook PC	PPP009H	239427-003	HP
Mouse	MO32B0	23-033131	HP
Keyboard	SK-1788	N/A	LENOVO

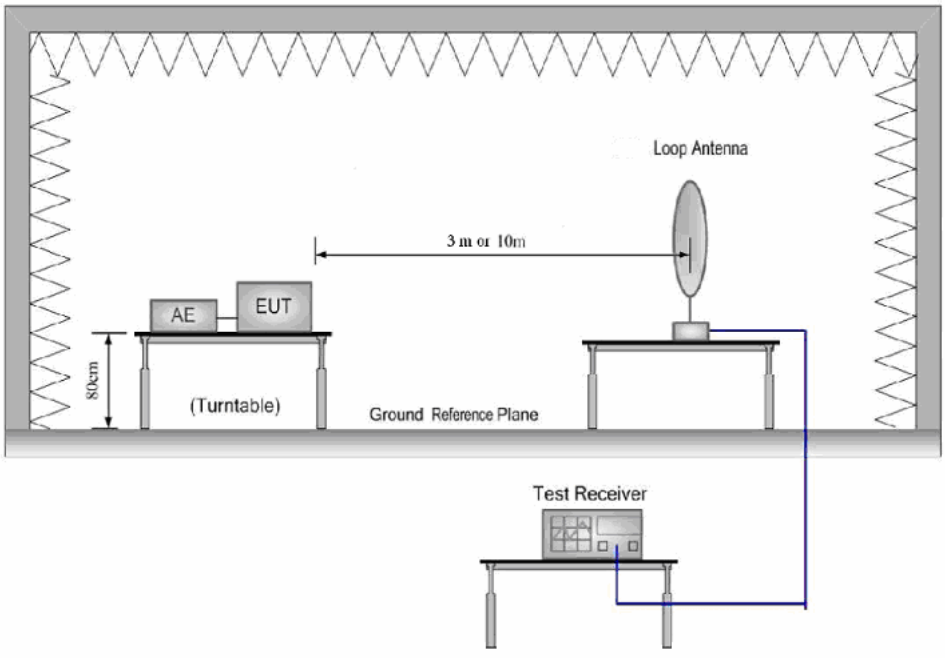
Cable Description					
Description	**From**	**To**	**Length (Meters)**	**Shielded (Y/N)**	**Ferrite (Y/N)**
Adapter Cord Of Notebook	AC Adapter	Notebook PC	1.6	N	Y
	AC Adapter	Plug	1.2	N	Y
Mouse cord	Mouse	Plug	1.2	N	Y
Keyboard cord	Keyboard	Plug	1.2	N	Y
RJ-45 Cord	EUT	Notebook PC	>3.0	N	N
Power Adapter cord of EUT	EUT	Plug	1.8	N	N
Note:The "EUT" means "IP Camera".					

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



Conducted Emission Test Set-up Photograph



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

Figure 1 : Frequencies measured below 1 GHz configuration

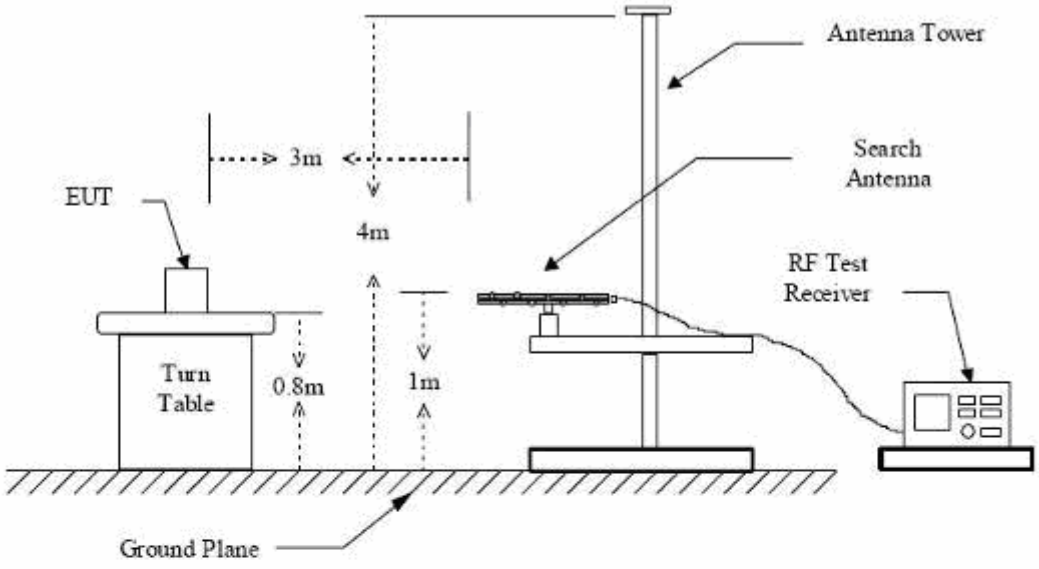
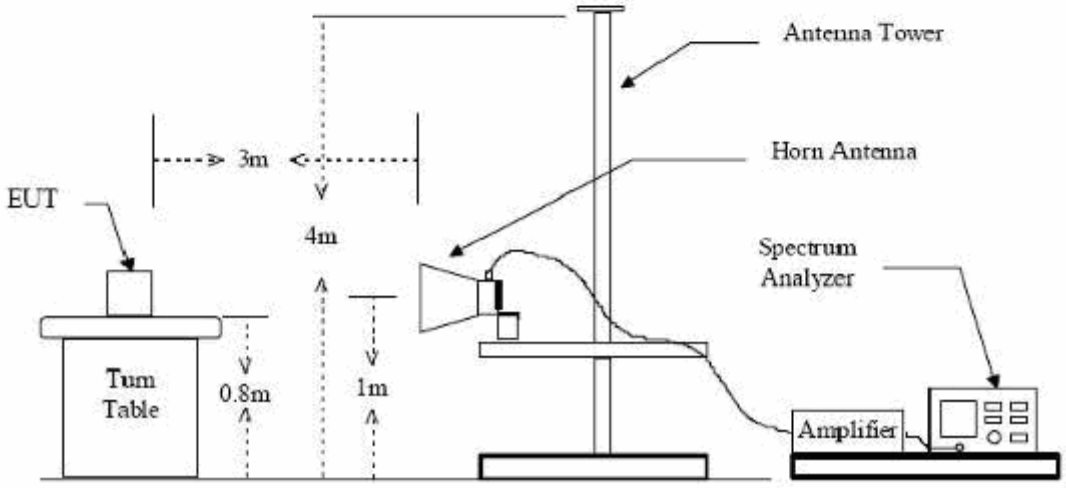


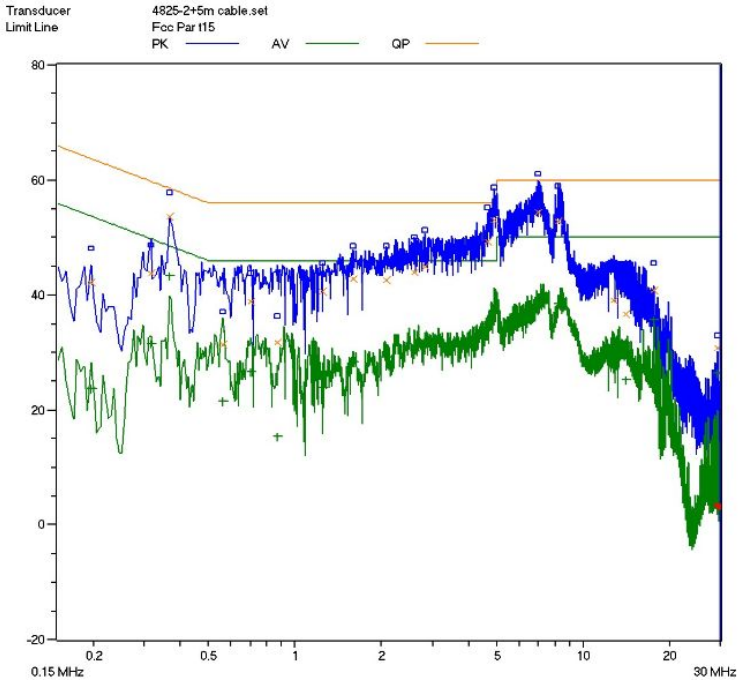
Figure 2 : Frequencies measured above 1 GHz configuration



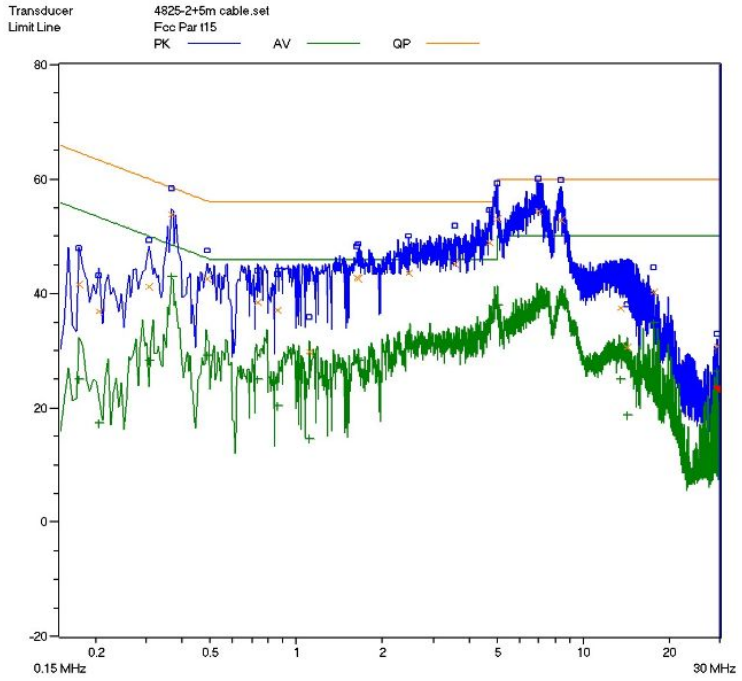
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks, INC	**TEST STANDERD:**	FCC Part 15, Subpart B, Section 15.107
MODEL NUMBERS:	GXV3615WP_HD/GXV3615W_HD/GXV3615P_HD/GXV3615_HD	**PRODUCT:**	IP Camera
MODEL TESTED:	GXV3615WP_HD	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	23°C	**HUMIDITY:**	51%
ATM PRESSURE:	103kPa	**GROUNDING:**	None
TESTED BY:	Sewen Guo	**DATE OF TEST:**	February 17, 2012
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.		
DESCRIPTION OF TEST MODE	IP Camera mode		
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. ± 2x10-7 x Center Freq., Amp ± 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)
IP Camera mode								
L	4.685	49.3	56	-6.7	4.685	35	46	-11.0
L	4.925	53.1	56	-2.9	4.925	38.3	46	-7.7
L	7.015	54.4	60	-5.6	7.015	39	50	-11.0
N	4.690	48.8	56	-7.2	4.690	35	46	-11.0
N	5.000	53.	56	-3.0	5.000	38	46	-8.0
N	6.980	54.4	60	-5.6	6.980	38.8	50	-11.2

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*	*2011.07.08*	*2012.07.08*
Line impedance stabilization network	*4825/2*	*ETS*	*1161*	*2011.07.08*	*2012.07.08*
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: _____ ***REVIEWED BY:*** _____

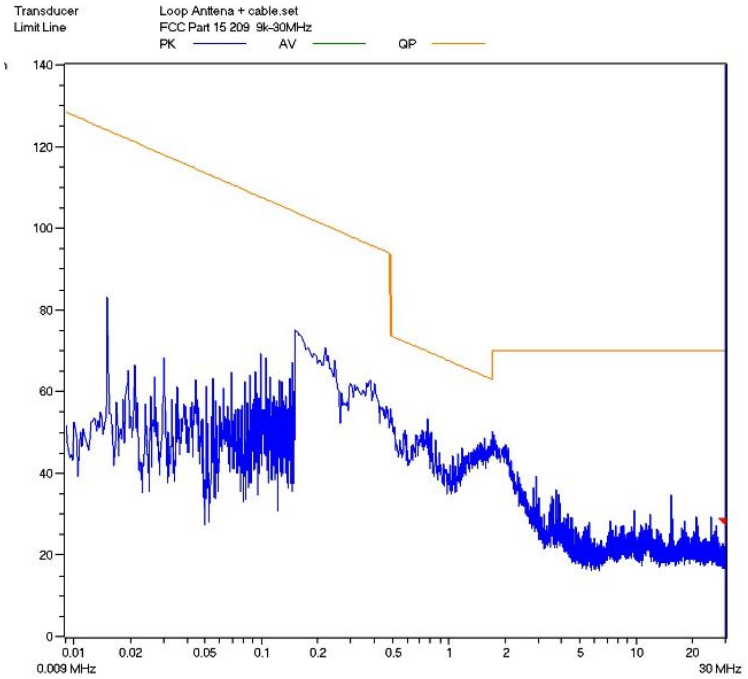
ENGINEER ***SENIOR ENGINEER***

Conducted Emission Test Set-up:

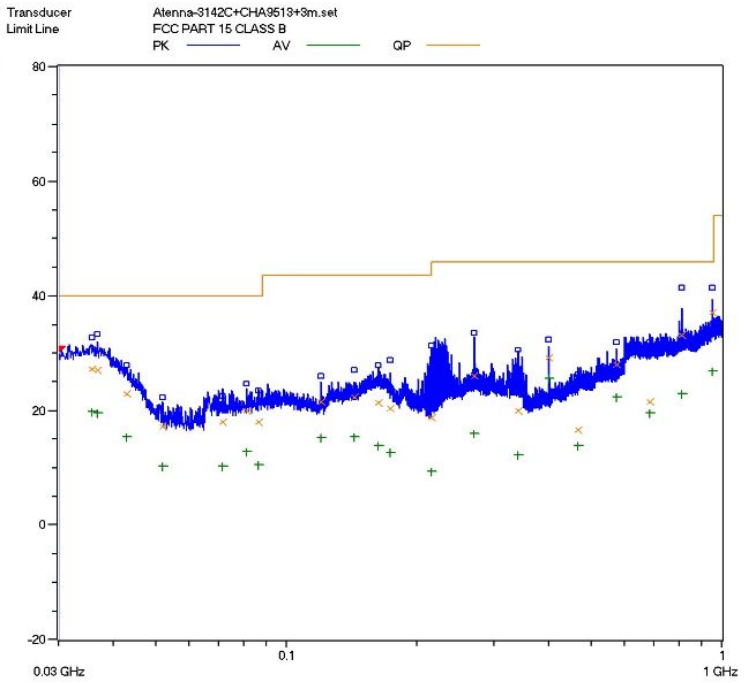
ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

CLIENT:	Grandstream Networks, INC	**TEST STANDERD:**	FCC Part 15,Subpart B, Section 15.109
MODEL NUMBERS:	GXV3615WP_HD/GXV3615W_HD/GXV3615P_HD/GXV3615_HD	**PRODUCT:**	IP Camera
EUT MODEL:	GXV3615WP_HD	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	23°C	**HUMIDITY:**	49%RH
ATM PRESSURE:	103.0kPa	**GROUNDING:**	None
TESTED BY:	Sewen Guo	**DATE OF TEST:**	February 17, 2012
TEST REFERENCE:	ANSI C63.4- 2003		
TEST PROCEDURE:	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 3GHz at an anechoic chamber. 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: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TEST MODE	IP Camera 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. ± 2x10-7 x Center Freq., Amp ± 2.6 dB		

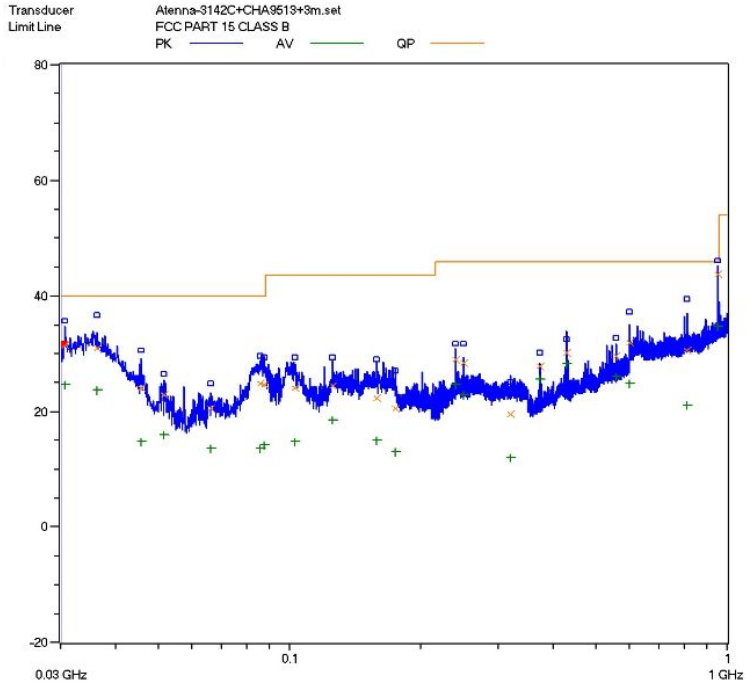
IP Camera mode:



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



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



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

Test Data:

IP Camera 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:

a) *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.*

b) *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.*

c) *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)*
Horizontal							
35.680	*0.02*	*18.1*	*/*	*9.18*	*27.3*	*40*	*-12.7*
36.800	*0.02*	*18.4*	*/*	*8.68*	*27.1*	*40*	*-12.9*
400.00	*0.16*	*14.7*	*/*	*14.44*	*29.3*	*46*	*-16.7*
575.040	*0.3*	*18.6*	*/*	*9.1*	*28.0*	*46*	*-18.0*
809.920	*0.42*	*22.1*	*/*	*10.68*	*33.2*	*46*	*-12.8*
954.240	*0.44*	*23.8*	*/*	*12.86*	*37.1*	*46*	*-8.9*
Vertical							
30.650	*0.02*	*16.7*	*/*	*14.98*	*31.7*	*40*	*-8.3*
36.160	*0.02*	*18.4*	*/*	*12.58*	*31.0*	*40*	*-9.0*
557.520	*0.3*	*18.5*	*/*	*10.9*	*29.7*	*46*	*-16.3*
600.00	*0.3*	*19.1*	*/*	*12.5*	*31.9*	*46*	*-14.1*
809.920	*0.42*	*22.1*	*/*	*7.98*	*30.5*	*46*	*-15.5*
954.160	*0.44*	*23.8*	*/*	*19.56*	*43.8*	*46*	*-2.2*

Note:

a) All readings1 are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.

b) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.

c) The other emission levels are 20dB below the official limits that are not reported.

IP Camera mode/Above 1GHz:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.080	1.39	23.9	-33.6	-12.78	46.11	74	-27.89	H
1.328	1.56	24.7	-33.6	-8.54	51.32	74	-22.68	H
1.592	1.78	26.7	-33.6	-11.4	50.68	74	-23.32	H
1.608	1.76	26.7	-33.5	-13.8	48.16	74	-25.84	V
1.952	1.96	27.8	-33	-10.05	52.71	74	-21.29	V
2.124	2.12	28.3	-33	-8.78	53.64	74	-20.36	V
Average Measurement								
1.080	1.39	23.9	-33.6	-22.22	36.67	54	-17.33	H
1.252	1.47	24.2	-33.6	-22.49	36.78	54	-17.22	H
1.304	1.51	24.6	-33.6	-22.8	36.91	54	-17.09	H
1.328	1.56	24.7	-33.6	-25.63	34.23	54	-19.77	V
1.616	1.76	26.7	-33.5	-28.27	33.69	54	-20.31	V
1.952	1.96	27.8	-33	-25.55	37.21	54	-16.79	V

Note:

a) *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*

b) *The limits shown are based on Peak value and Average value detector above 1GHz,the bandwidth of Test Receiver was set at 1MHz above 1GHz.*

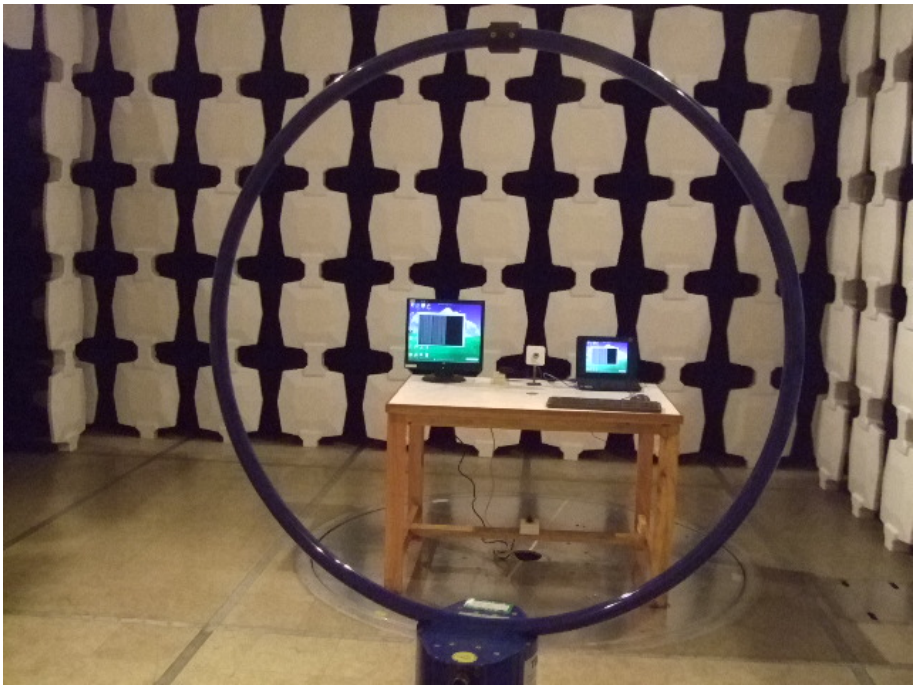
c) *The other emission levels are 20dB below the official limits that are not reported.*

Test Equipment List:

Test Equipment	*Model No.*	*Manufacturer*	*Serial No.*	*Last Cal.*	*Cal. Due*
Receiver	*SMR4503*	*SCHAFFNER*	*11725*	*2011.07.08*	*2012.07.07*
HF Loop Antenna	*HLA6120*	*TESEQ*	*26348*	*2011.09.27*	*2012.09.26*
Double-ridged Wave guide horn	*3115*	*ETS*	*6587*	*2011.08.02*	*2012.08.01*
Microwave system amplifier	*83017A*	*Agilent*	*MY39500438*	*2011.07.11*	*2012.07.10*
Biconilog Antenna	*3142C*	*ETS*	*00042672*	*2011.09.28*	*2012.09.27*
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.					

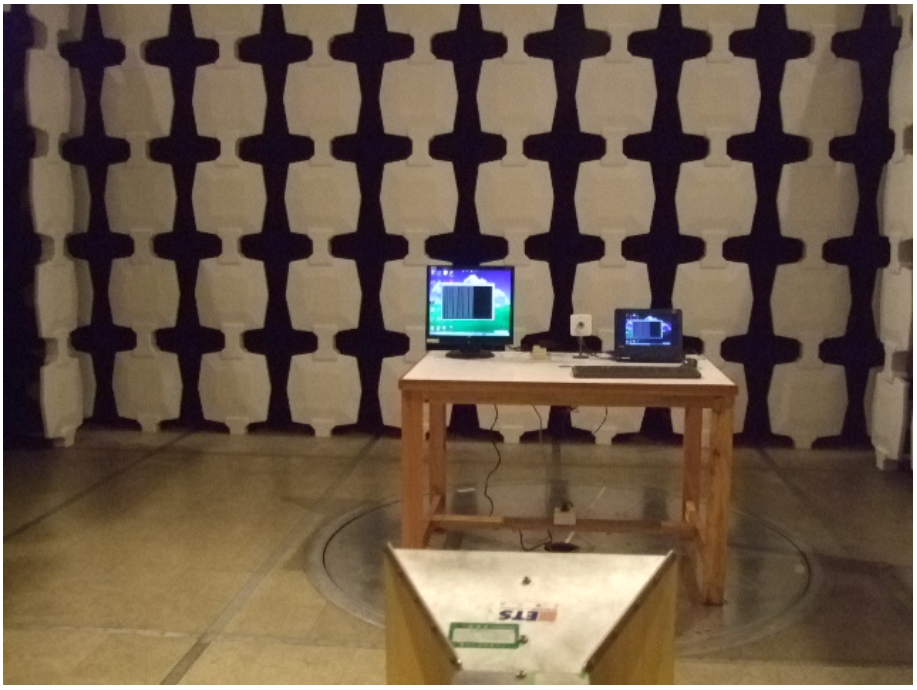
SIGNED BY: _____ ***REVIEWED BY:*** _____

ENGINEER ***SENIOR ENGINEER***



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

Radiated Emission Test Set-up(Below 1GHz)



Radiated Emission Test Set-up(Above 1GHz)