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FCC MPE REPORT

On Model Name: IP Camera

Model Numbers: GXV3615WP_HD/GXV3615W_HD/ GXV3615P_HD/GXV3615_HD

Brand Name: Grandstream

FCC ID Number: YZZGXV3615WP-HD

Prepared for Grandstream Networks,INC

Test Report #:	SHE-1202-10783-FCC MPE
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.

List of Test and Measurement Instruments

Equipment	*Manufacturer*	*Model No.*	*Serial No.*	*Calibrated Untill*
Spectrum Analyzer	*R&S*	*FSP30*	*100755*	*2012-11-30*
EMI Receiver	*SCHAFFNER*	*SMR4503*	*11725*	*2012-11-30*
LISN	*ETS*	*4825/2*	*1161*	*2012-11-30*
Coaxial Cable	*ATC*	*N/A*	*N/A*	*2012-11-30*
Double-ridged Wave guide horn	*ETS*	*3115*	*6587*	*2012-11-30*
Amplifier	*Agilent*	*83017A*	*MY39500438*	*2012-11-30*
Band filter	*ASI*	*82346*	*S06389*	*2012-11-30*
Biconilog Antenna	*ETS*	*3142C*	*00042672*	*2012-11-30*
Semi-anechoic Chamber	*ETS*	*N/A*	*N/A*	*2012-11-30*

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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 resultin additional deviation.

Administrative Data

Test Sample	*: IP Camera*
Model Name	*: GXV3615WP_HD/GXV3615W_HD/ GXV3615P_HD/GXV3615_HD*
Model Tested	*: GXV3615WP_HD*
Receipt Date	*: February 16, 2012*
Date Tested	*: February 17, 2012 to February 24,2012*
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="6">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>--</td><td>--</td></tr>
</table>
</td></tr>
<tr><td>Frequency of Number</td><td>IEEE 802.11b/g: 11 channels;
802.11n HT 20MHz: 11channels;
802.11n HT 40MHz: 7 channels.</td></tr>
<tr><td>Modulation Type</td><td>IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)
IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)
IEEE 802.11n HT20: OFDM
IEEE 802.11n H420: OFDM</td></tr>
<tr><td>Data Rate</td><td>IEEE 802.11b: 1/2/5.5/11Mbps;
IEEE 802.11g: 6/9/12/18/24/36/48/54Mbps;
IEEE 802.11n HT20: 65/58.5/52/39/26/19.5/13/6.5Mbps;
IEEE 802.11n HT40: 135/121.5/108/81/54/40.5/21/13.5Mbps</td></tr>
</table>

<table>
<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>2412-2462</td><td>16±15%</td><td>22.91-69.18</td></tr>
<tr><td>IEEE 802.11g</td><td>2412-2462</td><td>12±15%</td><td>10.47-23.99</td></tr>
<tr><td>802.11n HT 20MHz</td><td>2412-2462</td><td>12±15%</td><td>10.47-23.99</td></tr>
<tr><td>802.11n HT 40MHz</td><td>2422-2452</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 Ports</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>
<tr><td rowspan="4">AC/DC Adapter</td><td>Input</td><td>100-240VAC 50/60Hz max 0.18A</td></tr>
<tr><td>Output</td><td>12VDC,0.5A</td></tr>
<tr><td>Model</td><td>SDF1200050A1BB</td></tr>
<tr><td>Brand name</td><td>Mass</td></tr>
</table>

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

ATTACHMENT 1 – RF EXPOSURE COMPLIANCE REQUIREMENT

Applicable Standard:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

Limits for General Population/Uncontrolled Exposure

a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	*Electric Field Strength (E) (V/m)*	*Magnetic Field Strength (H) (A/m)*	*Power Density (S) (mW/cm2)*	*Averaging Times / E / 2 , / H / 2 or S (minutes)*
0.3-3.0	*614*	*1.63*	*(100)**	*6*
3.0-30	*1842/f*	*4.89/f*	*(900/f)**	*6*
30-300	*61.4*	*0.163*	*1.0*	*6*
300-1500			*F/300*	*6*
1500-100000			*5*	*6*

(b) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	*Electric Field Strength (E) (V/m)*	*Magnetic Field Strength (H) (A/m)*	*Power Density (S) (mW/cm2)*	*Averaging Times / E / 2 , / H / 2 or S (minutes)*
0.3-1.34	*614*	*1.63*	*(100)**	*30*
1.34-30	*824/f*	*2.19/f*	*(180/f)**	*30*
30-300	*27.5*	*0.073*	*0.2*	*30*
300-1500			*F/1500*	*30*
1500-100000			*1.0*	*30*

*Note: f=frequency in MHz; *Plane-wave equivalent power density*

MPE Calculation Method

$E (V/m) = (30*P*G)^{0.5}/d$ Power Density: $S (mW/m2) = E^2/377$

E = Electric Field (V/m)
P = Peak RF output Power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)

The formula can be changed to
$S = (30*P*G) / (377*d^2)$

From the peak EUT RF output power, the minimum mobile separation distance d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Note :
*The maximal conducted peak output power is **12.35dBm(0.017W)** in the Low channel(2.412GHz).*

The best case gain of the antenna is 2.0dBi.
2.0dB logarithmic terms convert to numeric result is nearly 1.58.

Test Result:

Channel (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (W)	Power Density (S) (mW/cm2)	Limit of Power Density (S) (mW/cm2)	Test Result
2412	1.58	12.35	0.017	**0.00534**	1.0	Compliant

The unit does meet the requirement.