

SAMSUNG

Declaration of Conformity



Type of equipment: NETWORK CAMERA
Brand Name /Trade Mark: SAMSUNG
Type designation /model: SNV-L6013RP
Variant Model: -
Applicant: Hanwha Techwin Co., Ltd.

In accordance with the following Directives:

2004/108/EC The Electromagnetic Compatibility Directive
Including amendments by the CE Marking Directive 93/68/EEC

2011/65/EU Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

The following harmonized European standards or technical specifications have been applied:

EN 55011:2009+A1:2010	Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 50121-3-2:2015	Railway applications
EN 61000-4-2:2009	Electrostatic discharge immunity test
EN 61000-4-3 :2006+A2:2010	Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4:2012	Electrical fast transient/burst immunity test
EN 61000-4-5:2014	Surge immunity test
EN 61000-4-6:2009	Immunity to conducted disturbances, induced by radio-frequency fields

The CE Marking on the products and/or their packaging signifies that Hanwha Techwin Company Limited holds the reference technical file available to the European Union authorities.

Place and date of issue: 1204, Changwon-daero, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea / Apr. 08, 2016

Authorized Signatory: Name : Jei Soon, Kang
Title : Principal Research Engineer

Signatur :



EMC TEST REPORT For CE

Test Report No. : KES-E1-16T0155
Date of Issue : Apr. 08, 2016
Product name : NETWORK CAMERA
Model/Type No. : SNV-L6013RP
Variant Model : -
Applicant : Hanwha Techwin Co., Ltd.
Applicant Address : 1204, Changwon-daero, Seongsan-gu, Changwon-si,
Gyeongsangnam-do, korea
Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co., Ltd.
Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,
300385, People's Republic of China
Date of Receipt : Mar. 30, 2016
Test date : Mar. 31, 2016 – Apr. 02, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Hyo Jin, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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Test report No.:
KES-E1-16T0155
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Apr. 08, 2016	KES-E1-16T0155	Issued

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1.0 General Product Description

Main Specifications of E.U.T are:

	SNV-L6013R
Video	
Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000(H) x 1,121(V)
Effective Pixels	1,984(H) x 1,105(V)
Scanning System	Progressive
Min. Illumination	Color : 0.15Lux (1/30sec, F1.8), 0.003Lux(2sec, F1.8) B/W : 0Lux (IR LED on)
Lens	
Focal Length (Zoom Ratio)	3.6mm
Max. Aperture Ratio	F1.8
Angular Field of View	H: 86.5°, V: 47.8°, D: 101.2°
Min. Object Distance	0.5m
Lens Type	Fixed
Mount Type	Board type
Pan / Tilt / Rotate	
Pan Range	-5°~+5°
Tilt Range	0~67°
Rotate Range	90°
Operational	
IR Viewable Length	15m
Camera Title	Off / On (Displayed up to 15 characters)
Day & Night	True Day & Night
Backlight Compensation	Off / BLC
Contrast Enhancement(DWDR)	SSDR (Samsung Super Dynamic Range) (Off / On)
Digital Noise Reduction	SSNR(Off / On)
Motion Detection	Off / On (4ea rectangler zones)
Privacy Masking	Off / On (6ea rectangler zones)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC(Lens distortion control)	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Hallway view
Intelligent Video Analytics	Motion Detection with metadata, Tampering
Alarm Triggers	Motion detection, Tampering Detection, SD card error, NAS error
Alarm Events	File upload via FTP and E-Mail Local storage recording at Event Notification via E-Mail
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.264, MJPEG
Resolution	1920x1280 / 1280x960 / 1280x720 / 1024x768 / 800x600 / 720x576 / 640x480 / 320x240
Max. Framerate	H.264 : Max 30fps at all resolutions MJPEG : Max 1fps at 1920x1080/1280x960/1280x720/1024x768, Max. 15fps at other resolution
Video Quality Ajustment	H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate control method	H.264 : CBR or VBR MJPEG : VBR



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Audio I/O	Line-in
Audio Compression Format	G.711 u-law /G.726 Selectable G.726(ADPCM) : 8KHz, G.711 : 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps
Audio Communication	Uni-directional
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL, DHCP, PPPoE FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication
Streaming Method	Unicast / Multicast
Max. User Access	6 users at Unicast Mode
Edge storage	Micro SD/SDHC Max 32G, NAS - Motion images recorded in the SD memory card can be downloaded - Manual recording at Local PC
Application Programming Inter	ONVIF Profile S, G SUNAPI(HTTP API)
Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Danish, Portuguese, Turkish, Polish, Czech, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Finnish, Norwegian
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.8, 10.9, 10.10, 10.11 Supported Browser: Explore 11, Mozilla Firefox 43, Apple Safari 9 * Mac OS X only
Central Management Software	SmartViewer
Environmental	
Operating Temperature / Humi	-30°C ~ +55°C / Less than 90% RH * Start up should be done at above -20°C
Storage Temperature / Humidit	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10 EN50155 class T3 (Vibration, Shock, bump, temperature) EN50121, ISO 16750-3(Vibration) NEMA 250 type 4x
Electrical	
Input Voltage / Current	PoE(IEEE802.3af, Class2)
Power Consumption	Max. 5.8W
Mechanical	
Color / Material	Ivory / Metal
Dimension (WxHxD)	99x100x52mm
Weight	300g

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 220 Vac ☐ 230 Vac ☐ 240 Vac ☐ 48 Vac ☒ PoE
Frequency ☐ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	SNV-6013RP	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE Adapter	KST-PSE-G808SR	-	-	-
Notebook	NT-R410Y	Z9YJ93CS300631H	Samsung Electronics Co., Ltd.	-
AC/DC Adapter	AD-6019	-	LI SHIN INTERNATIONAL ENTERPRISE CORP.	-
MIC	CMK-303	-	CAMAC	-



1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	POE Adapter	Notebook	3.0	U
	MIC	MIC	Line Out	1.5	U
POE Adapter	RJ-45	Notebook	RJ-45	1.0	U

* Unshielded=U, Shielded=S

1.7 E.U.T Operating Mode(s)

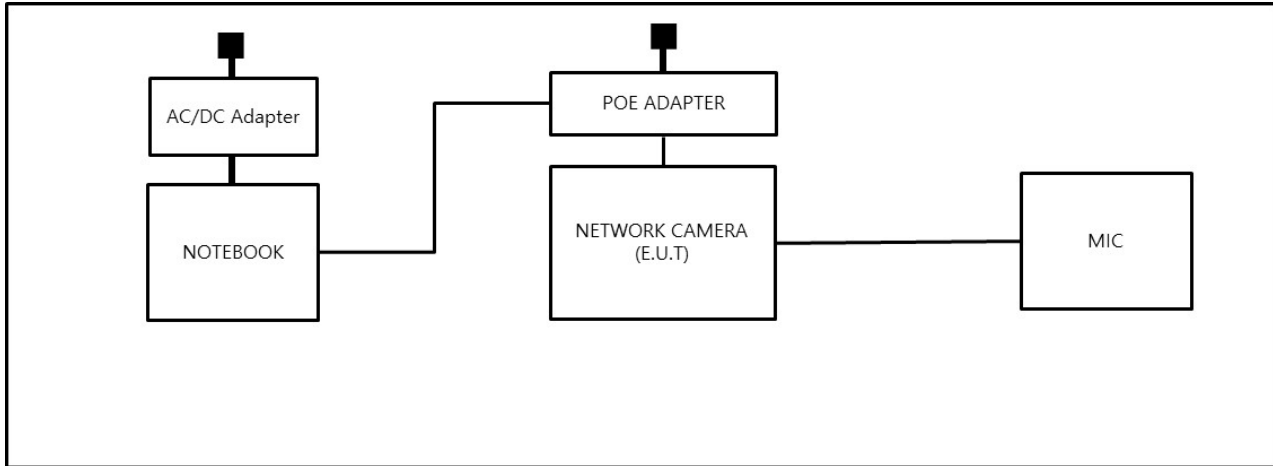
Equipment under test was operated during the measurement under the following conditions:

Test mode	Normal operating
OP	MONITORING Network ping test

- Input power condition during the measurements was POE

1.8 Configuration

■ AC Main
□ DC Main



1.9 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.10 Test Facility

The measurement facility is located at 473-29 Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2004/108/EC**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☒ EN 55011:2007 +A1:2010

☒ Group 1
☒ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55022:2010

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☒ EN 50121-3-2:2015

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☐ VCCI V-3 / 2013.04

☐ Class A

☐ Class B

☐ AS / NZS CISPR22:2009 +A1:2010

☐ Class A

☐ Class B

☐ 47 CFR Part 15, Subpart B / ANSI C63.4-2009

☐ Class A

☐ Class B

☐ IC Regulation ICES-003 : 2012
/ ANSI C63.4-2014

☐ Class A

☐ Class B

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B



☐ **R&TTE – Directive 1999/5/EC**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002



2.1 Conducted Emissions at Mains Power Ports

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test Receiver	ESR3	R&S	101783	05, 06, 2016
☐	LISN	ENV216	R&S	101137	02, 04, 2017
☐	LISN	ENV216	R&S	101786	05, 06, 2016
☐	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: °C
Relative Humidity: %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

Because the E.U.T power is PoE power, limits are not specified.



2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Apr. 01, 2016

Test Location

☐ Open Area Test Site #1 ☒ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R&S	101781	05, 06, 2016
☒	Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9168-713	05, 15, 2017
☒	Open Area Test Site	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 20,1 °C

Relative Humidity: 31,0 %

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.3 Harmonic Current Emissions

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	AC Source	ACS 500 N	EM TEST	V1024106760	08, 13, 2016
☐	Digital Power Analyzer	DPA 500 N	EM TEST	V1024106759	08, 13, 2016

Test Conditions

Temperature: °C
Relative Humidity: %

Classification of Equipment for Harmonic Current Emissions

- ☐ Class A
- ☐ Class B
- ☐ Class C(Below 25 W)
- ☐ Class C(Above 25 W)
- ☐ Class D

Test Results

The requirements are:

- ☐ PASS
- ☐ NOT PASS
- ☒ NOT APPLICABLE

Remarks

Because the E.U.T power is less than 75 W, limits are not specified.



2.4 Voltage Fluctuations and Flicker

Test Date

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	AC Source	ACS 500 N	EM test	V1024106760	08, 13, 2016
☐	Digital Power Analyzer	DPA 500 N	EM test	V1024106759	08, 13, 2016

Test Conditions

Temperature: °C
Relative Humidity: %

Test Results

The requirements are:

- ☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks

Because the E.U.T power PoE power, limits are not specified.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

The variety and the diversity of the apparatus within the scope of this set standards makes it difficult to define to define precise criteria for the evaluation of the immunity results.

if, as a result of the application of the tests defined in this set standards, the apparatus becomes dangerous or unsafe, the apparatus shall be deemed to have failed the test.

A functional description and a definition of performance criteria, during or as a consequence of the EMC testing shall be provided by manufacturer and noted in the test report, based of the following criteria:

Performance criterion A: The apparatus shall continue to operate as intended during and after the test.

No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible description and documentation, and from what the user may reasonably expect from the apparatus if used intended.

* Though the noise appeared on the display during the testing, it is judged criterion A if there is no problem to distinguish the things. This is the criterion set by the manufacturer.

Performance criterion B: The apparatus shall continue of operate as intended after the test.

No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

No change of actual operating state or stored data is allowed. If the minimum performance level of the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from what the user may reasonable expect from the apparatus if used as intended.

Performance criterion C: Temporary loss of function as allowed, provided the function is self-recoverable or can restored by the operation of the controls.

3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Mar. 31, 2016

Test Location

EMS-ESD: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 24, 2017
☒	HCP	-	Noise Ken	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 25,3 °C
Relative Humidity: 42,1 %
Atmospheric Pressure: 99,9 kPa

Test Specifications

Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

Kind of Discharge: Air, Contact (direct and indirect)

Polarity: Positive and Negative

Number of Discharge: 10 at all locations for Air discharge
10 at all locations for Contact discharge

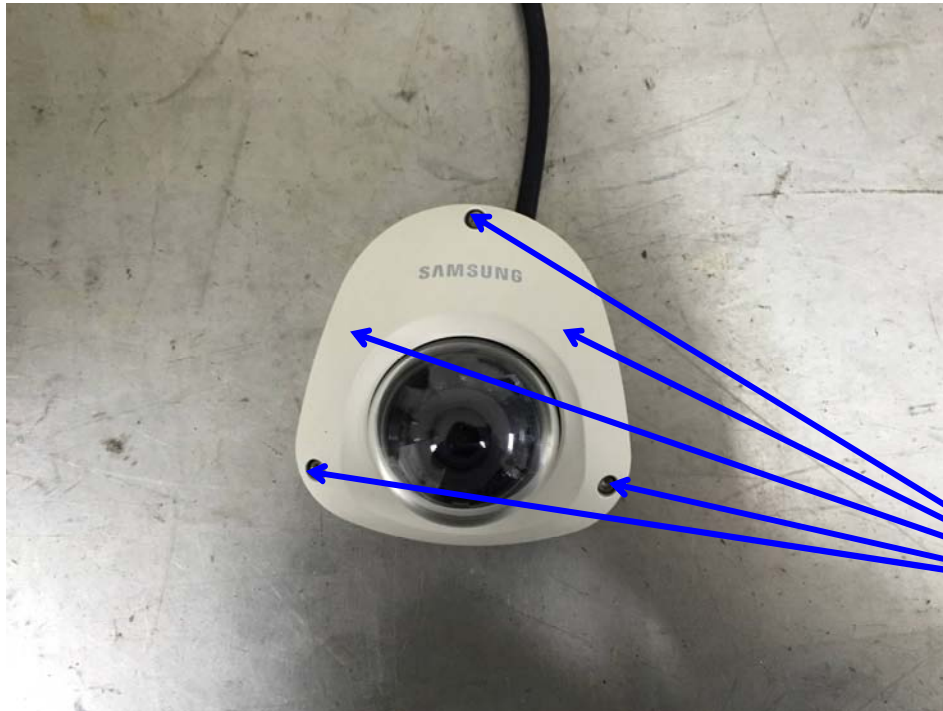
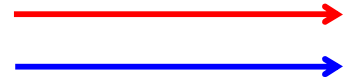
Discharge Voltage:	Contact ☐ 2 kV ☐ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	Air ☒ 2 kV ☒ 4 kV ☐ 6 kV ☒ 8 kV ☐ 15 kV	HCP ☒ 2 kV ☒ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV	VCP ☒ 2 kV ☒ 4 kV ☒ 6 kV ☐ 8 kV ☐ 15 kV
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Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

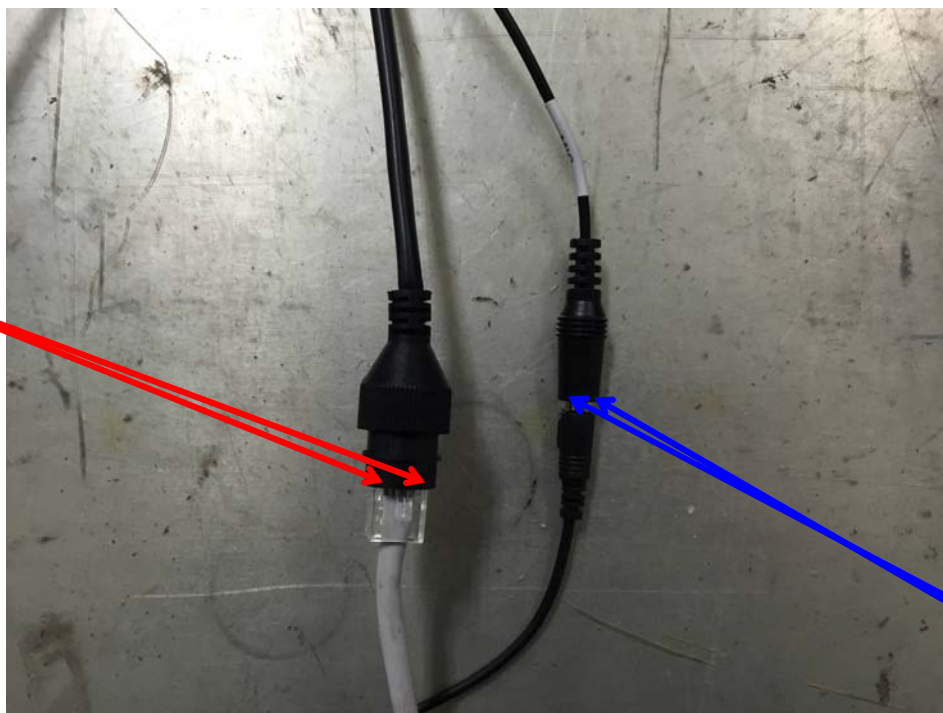
Required Performance Criteria: ☒ B

Location of Discharge:

Air
Contact



1. Contact



2. Contact

3. Contact

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Test Data**Indirect Discharge**

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	HCP Contact	Contact Discharge	A	-
2	VCP Contact	Contact Discharge	A	-

Direct Discharge

No.	Test Point	Discharge Method	Performance	Remarks
			Observation	
1	Enclosure, Screw	Contact Discharge	A	-
2	RJ-45 Port	Air Discharge	A	-
3	MIC Port	Contact Discharge	A	-

Note: "Blank" = Not performed

Observations:

- A – No degradation of function
- B – Distortion/Error of function (self-recoverable)
- C – Loss of function

Test Results

- ☒ PASS Required Performance Criteria
- ☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.2 Radiated Electric Field Immunity

Reference Standard

EN 61000-4-3:2006 +A2:2010

Test Date

N/A

Test Location

EMS-RS: ☐ Semi Anchoic Chamber #1 ☐ Semi Anchoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	SIGNAL GENERATOR	SMB 100A	R&S	108252	08, 13, 2016
☐	BROADBAND AMPLIFIER	BBA100	R&S	101239	08, 13, 2016
☐	BROADBAND AMPLIFIER	100S1G6M1	AR	579931	08, 13, 2016
☐	POWER METER	NRP2	R&S	103475	08, 13, 2016
☐	AVG POWER SENSOR	NRP-Z91	R&S	102526	08, 13, 2016
☐	AVG POWER SENSOR	NRP-Z91	R&S	102527	08, 13, 2016
☐	Stacked Log.-Per.Antenna	STLP 9128 D	Schwarzbeck	9128D038	-
☐	Semi Anchoic Chamber #2		SEMITEC	-	-

Test Conditions

Temperature: °C
Relative Humidity: %
Atmospheric Pressure: kPa



Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☐ 3 m

Field Strength: ☐ 1 V/m ☐ 3 V/m
☐ 10 V/m

Frequency Range: ☐ 80 MHz to 1 GHz ☐ 1,4 GHz to 2,7 GHz
☐ 80 MHz to 2,7 GHz

Modulation: ☐ AM, 80 %, 1 kHz sine wave
☐ PM, 1 Hz (0,5 s ON : 0,5 s OFF)

Frequency step: ☐ 1 % step

Dwell Time: ☐ 1 s ☐ 3 s

of Sides Radiated: ☐ 4

Required Performance Criteria: ☐ A

Test Data

Side Exposed	Observation	
	Horizontal	Vertical
Front	-	-
Right	-	-
Back	-	-
Left	-	-

Note: "Blank" = Not performed

Observations:

A – No degradation of function

B – Distortion/Error of function (self-recoverable)

C – Loss of function

Test Results

- ☐ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria
☒ NOT APPLICABLE

Remarks

Radiated Electric Field Immunity test are SGS laboratory test data.
See Appendix B for test report.

3.3 Electrical Fast Transients/Bursts

Reference Standard

EN 61000-4-4:2012

Test Date

Apr. 02, 2016

Test Location

EMS-EFT: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	07, 14, 2016
☒	Capacitive Coupling Clamp	HFK	EM TEST	070925	07, 14, 2016
☒	MotorVariac	MV2616	EM TEST	V0936105123	07, 14, 2016

Test Conditions

Temperature: 24,0 °C
Relative Humidity: 41,5 %
Atmospheric Pressure: 100,0 kPa

Test Specifications

Pulse Amplitude & Polarity: (Power Lines)	☐ ± 1.0 kV ☐ ± 4.0 kV	☐ ± 2.0 kV
Pulse Amplitude & Polarity: (Signal Lines)	☐ ± 0.5 kV ☒ ± 2.0 kV	☐ ± 1.0 kV
Burst Period:	☒ 300 ms	☐ 2 s
Repetition Rate:	☒ 5 klz	☐ 100 klz
Duration of Test Voltage:	☒ ≥ 1 min	
Required Performance Criteria:	☒ A	

Test Data

☐ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45	A	A

Note: “Blank” = Not performed

Observations:

A – No degradation of function

B – Distortion/Error of function (self-recoverable)

C – Loss of function

Test Results

☒ PASS Required Performance Criteria

☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.4 Surge Transients

Reference Standard

EN 61000-4-5:2014

Test Date

Apr. 02, 2016

Test Location

EMS-Surge: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	07, 14, 2016
☒	MotorVariac	MV2616	EM TEST	V0936105123	07, 14, 2016
☒	CDN	CNV 508T5	EM TEST	P1530162238	01, 25, 2017

Test ConditionsTemperature: 24,0 °C
Relative Humidity: 41,5 %
Atmospheric Pressure: 100,0 kPa**Test Specifications****Signal Lines**

Source Impedance: 12 ohm for common mode and 2 ohm for differential mode

Surge Amplitude : Common Mode
☐ (0,5 / 1,0 / 2,0) kVDifferential Mode
☐ (0,5 / 1,0) kVSignal lines
☐ (0,5 / 1,0) kVNumber of Surges: ☐ 5 surges per angleAngle: ☐ 0°, 90°, 180°, 270° (input a.c. power port)Polarity: ☐ Positive & NegativeRepetition Rate: ☐ 1 surge per min ☐ 1 surge per 30 sec.Required Performance Criteria: ☐ B

Signal Lines

Source Impedance: 42 ohm for common mode

Surge Amplitude: Common Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

Repetition Rate: ☐ 1 surge per min ☒ 1 surge per 30 sec.

Required Performance Criteria: ☒ B

Test Data

☐ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

☐ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45	A	A

Note: "Blank" = Not performed

Observations:

- A – No degradation of function
- B – Distortion/Error of function (self-recoverable)
- C – Loss of function

Test Results

- ☒ PASS Required Performance Criteria
- ☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2009

Test Date

Apr. 02, 2016

Test Location

EMS-CS: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Continuous Wave Generator	CWS 500N1	EM TEST	V0936105119	09, 25, 2016
☒	6dB Attenuator	ATT6	EM TEST	1208-34	08, 13, 2016
☒	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 13, 2016
☐	CDN	CDN-T2-RJ11	EM TEST	0909-07	08, 13, 2016
☐	CDN	CDN-T4	EM TEST	0909-08	08, 13, 2016
☐	CDN	CDN-T8RJ45	EM TEST	0909-09	08, 13, 2016
☐	CDN	CDN-AF2	EM TEST	0909-10	08, 13, 2016
☐	CDN	CDN-AF4	EM TEST	0909-11	08, 13, 2016
☒	EM Injection Clamp	EM 101	Liithi	35943	02, 04, 2017

Test Conditions

Temperature: 24,0 °C
Relative Humidity: 41,5 %
Atmospheric Pressure: 100,0 kPa

**Test Specifications**

- Frequency range: ☒ 150 kHz to 80 MHz ☐ 10 kHz to 30 MHz
☐ 150 kHz to 230 MHz ☐ 10 kHz to 100 MHz
- Voltage Level: ☐ 1 Vrms ☐ 3 Vrms
☒ 10 Vrms
- Modulation: ☒ AM, 80 %, 1 kHz sine wave
☐ PM, 1 Hz (0,5 s ON : 0,5 s OFF)
- Frequency step: ☒ 1 % step
- Dwell Time: ☐ 1 s ☒ 3 s
- Required Performance Criteria: ☒ A

Test Data☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	-	-

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
Input d.c. power port	CDN (☐ M2, ☐ M3)	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observation
RJ-45	EM Injection Clamp	A

Notes: CDN = Coupling Decoupling Network
EMC = Electro Magnetic Clamp
"blank" = Not performed

Observations:

- A – No degradation of function
B – Distortion/Error of function (self-recoverable)
C – Loss of function

Test Results

- ☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.



3.6 Voltage Dips and Short Interruptions

Reference Standard

N/A

Test Date

N/A

Test Location

EMS-Voltage dip: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	Ultra Compact Simulator	UCS 500 N5	EM TEST	V0936105120	07, 14, 2016
☐	Capacitive Coupling Clamp	HFK	EM TEST	070925	07, 14, 2016
☐	MotorVariac	MV2616	EM TEST	V0936105123	07, 14, 2016

Test Conditions

Temperature: °C
Relative Humidity: %
Atmospheric Pressure: kPa



Test Specifications & Observations/Remarks

Test Level	Duration [in period/ms (50 Hz)]	Results
☐ 20 % dip	☐ 250 /10	_____
☐ 30 % dip	☐ 25 /10	_____
☐ 60 % dip	☐ 10 /10	_____
☐ 100 % dip	☐ 250 /10	_____

- Voltage variations

☐ Unom + 10 %	☐ 253 V (ac)	_____
☐ Unom + 15 %	☐ 195.5 V (ac)	_____

Observations:

- A - No response observed from E.U.T
- B - Unit shuts down then automatically restarts when full voltage is restored.
- C - Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

- ☐ PASS Required Performance Criteria
- ☐ NOT PASS Required Performance Criteria
- ☒ NOT APPLICABLE

Remarks

NOT APPLICABLE.



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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

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[NEUTRAL]

N/A

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Conducted Emissions at Telecommunication Ports

[10 Mbps]

N/A

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[100 Mbps]

N/A

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Radiated Electric Field Emissions(Below 1 GHz)

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
77.53	15.83	H	4.00	7.71	1.89	25.43	40.00	14.57
137.67	16.11	H	4.00	8.05	2.69	26.85	40.00	13.15
156.10	14.30	H	4.00	8.42	2.81	25.53	40.00	14.47
163.86	15.32	V	1.00	8.72	2.88	26.92	40.00	13.08
205.57	12.70	H	4.00	11.42	3.33	27.45	40.00	12.55
445.50	20.93	H	4.00	16.34	5.36	42.63	47.00	4.37

* H : Horizontal, V : Vertical



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Radiated Electric Field Emissions(Above 1 GHz)

N/A

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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APPENDIX B – Radiated Electric Field Immunity test report



Test Report No. : F690501/RF-EMC000617(H)
Page : 1 of 8

EMC TEST REPORT

Reference No. : G-44-2016-01140
Applicant : Hanwha Techwin Co., Ltd.
Equipment Under Test (EUT) :
Product Name : NETWORK CAMERA
Model Name : SNV-L6013RP
Applied Standards : EN 50121-3-2:2015 (Only RS test)
Date of Receipt : April 04, 2016
Date of Test : April 04, 2016
Date of Re-Issue : April 05, 2016
Test Results : Complied

Tested by :


Rina Bae

Reviewed by :


Julia Choi

Remarks :

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4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 435-040 Korea t: +82 31 428 5700 f: +82 31 427 2370 www.sgsgroup.kr

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TEST 001

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Test report No.:
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Test Report No. : F690501/RF-EMC000617(H)
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1. General Information

1.1 Client Information

Applicant : Hanwha Techwin Co., Ltd.
Address of : 1204, Changwon-daero, Seongsan-gu Changwon-si,
Gyeongsangnam-do
Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co., Ltd.
Address of : No.11 Weiliu RD, Micro-Electronic Industrial Park, TEDA,
Tianjin, 300385, People's Republic of China

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
- Giheung 1 Lab : 35, Giheungdanji-ro 121beon-gil, Giheung-gu,
Yongin-si, Gyeonggi-do, Republic of Korea
- Giheung 2 Lab : 23, Giheungdanji-ro 24beon-gil, Giheung-gu,
Yongin-si, Gyeonggi-do, Republic of Korea
Phone : + 82 31 548 0711
Fax : + 82 31 548 0719
e-mail : julia.choi@sgs.com

1.3 General Information of E.U.T.

Product Name	NETWORK CAMERA
Model Name	SNV-L6013RP
Serial No.	00-16-60-F7-48-EF
Rating Power	PoE(IEE802.3af, Class3), 75 W

1.4 Operating Modes and Conditions

Operating mode	Operating Condition
Normal Operating Mode	Output video data through connected notebook continuously.

1.4.1 Monitoring Method

- Observation of the video data status of the EUT via the eyes.

1.5 Peripheral Equipments

Description	Model	Serial No.	Manufacturer
POE adapter	POE31U-1AT	-	PHIHONG
Mobile Phone	SM-A700S	-	Samsung Electronics Co., Ltd.

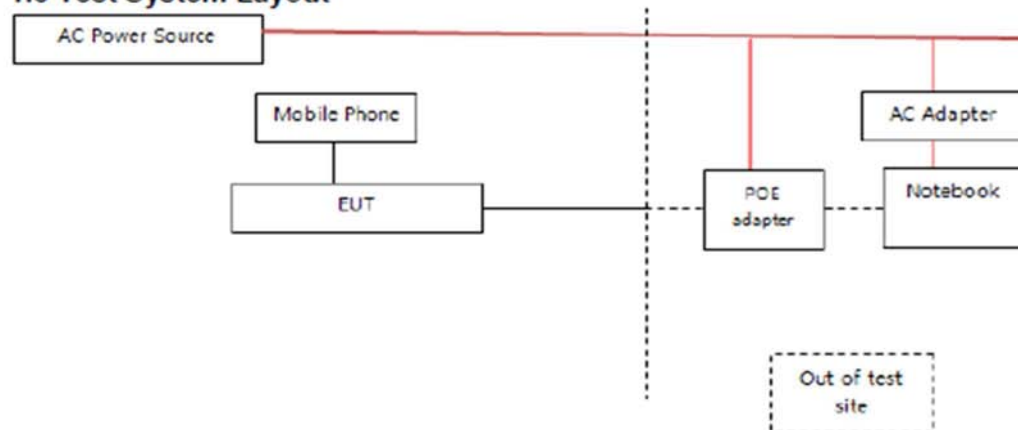
1.6 Cable List

Start		END		Cable Spec.		Used core
Name	I/O Port	Name	I/O Port	Length	Shield	
EUT	PoE Input	POE adapter	OUT	10.0	Shield	No
	MIC	Mobile Phone	AUX	1.5	Unshield	No
POE adapter	OUT	EUT	PoE Input	10.0	Shield	No
	IN	Notebook Computer	LAN	2.0	Unshield	No
	AC IN	AC Source	-	1.5	Unshield	No

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
-	-	-	-

1.8 Test System Layout



1.9 Modifications

There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
EN 50121-3-2:2015	Applicable	No Deviation
EN 61000-4-3:2006/A1:2008/A2:2010	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Standards	Results
Radiated Immunity	EN 61000-4-3:2006/A1:2008/A2:2010	Complied

Note 1 : Test methods of all test items are performed according to the basic standards in this table.



2. IMMUNITY

2.1 Test Results

Test Items	Standards	Test Results
Radiated Immunity	EN 61000-4-3:2006/A1:2008/A2:2010	Complied

2.2 Performance Criteria

Criterion A - The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion B - The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion C - Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls

2.3 Radiated RF Electromagnetic Field

2.3.1 Test Equipments

Description	Model	Manufacturer	Serial No	Cal Due. Date
LOG-PERIODIC ANT	HL046E	R&S	100043	-
SIGNAL GENERATOR	SML 03	R&S	100692	2017.01.07
POWER METER	NRVD	R&S	101297	2017.01.08
AMPLIFIER	250W1000A	AR	327278	-
AMPLIFIER	60S1G3	AR	327239	-
SIGNAL GENERATOR	SMR40	R&S	100540	2016.11.18
Double Ridged Horn Antenna	HF906	R&S	100608	-
POWER METER	NRVD	R&S	101939	2016.12.04
POWER SENSOR	NRV-Z4	R&S	100419	2016.12.04
POWER SENSOR	NRV-Z4	R&S	100420	2016.12.04
Power Amplifier	TWAL 0418-20	BONN	149680	-

Note : The calibration period of every equipment is 1 year.

2.3.2 Test Site

RS Chamber in Giheung 2 Laboratory & Giheung 1 Laboratory

2.3.3 Environment Conditions

Temperature : (minimum 20.1, maximum 20.8) °C
Humidity : (minimum 37.0, maximum 38.0) %R.H.
Atmospheric Pressure : (101.9) kPa

Test Date : April 4, 2016

2.3.4 Performance Criterion : A

2.3.5 Test Results

Frequency Range (MHz)	Position	Polarity	Field Strength	Modulation	Results
80 ~ 800	Front	Horizontal, Vertical	20 V/m	80 %, AM (1 kHz)	Complied
	Rear				Complied
	Left				Complied
	Right				Complied
800 ~ 1 000	Front	Horizontal, Vertical	20 V/m	80 %, AM (1 kHz)	Complied
	Rear				Complied
	Left				Complied
	Right				Complied
1 400 ~ 2 000	Front	Horizontal, Vertical	10 V/m	80 %, AM (1 kHz)	Complied
	Rear				Complied
	Left				Complied
	Right				Complied
2 000 ~ 2 700	Front	Horizontal, Vertical	5 V/m	80 %, AM (1 kHz)	Complied
	Rear				Complied
	Left				Complied
	Right				Complied
5 100 ~ 6 000	Front	Horizontal, Vertical	3 V/m	80 %, AM (1 kHz)	Complied
	Rear				Complied
	Left				Complied
	Right				Complied

Measurement Uncertainty : 1.47 dB (The confidential level is 95 %, $k=2$)

Performance Criteria A, the EUT was operated without degradation and loss of function during and after the test.

2.3.6 Photograph of Radiated RF Electromagnetic Field



EMC5101-01A(2013.08.12)(0)

A4(210mm*297mm)

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3. Photographs of EUT

[Front]



[Rear]





Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A



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Conducted Emissions at Telecommunication Ports

N/A

N/A

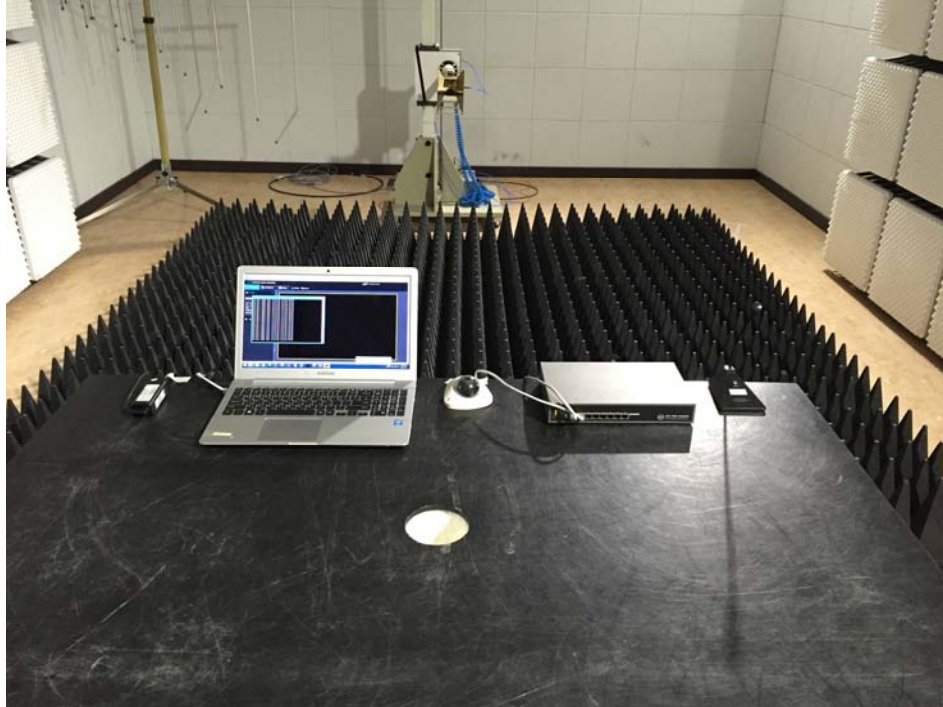
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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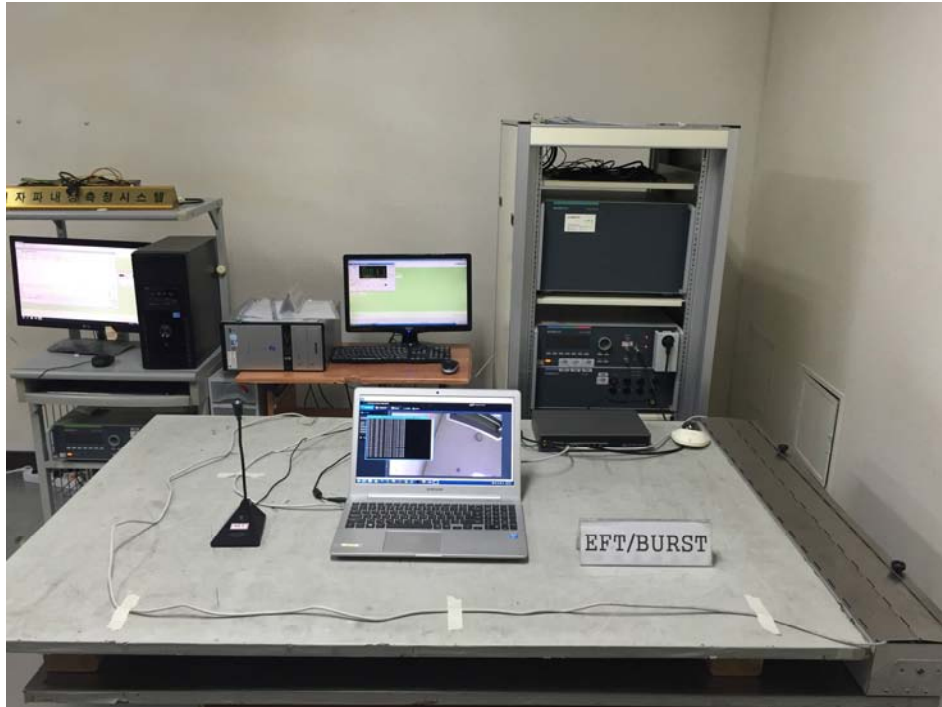
Electrostatic Discharge



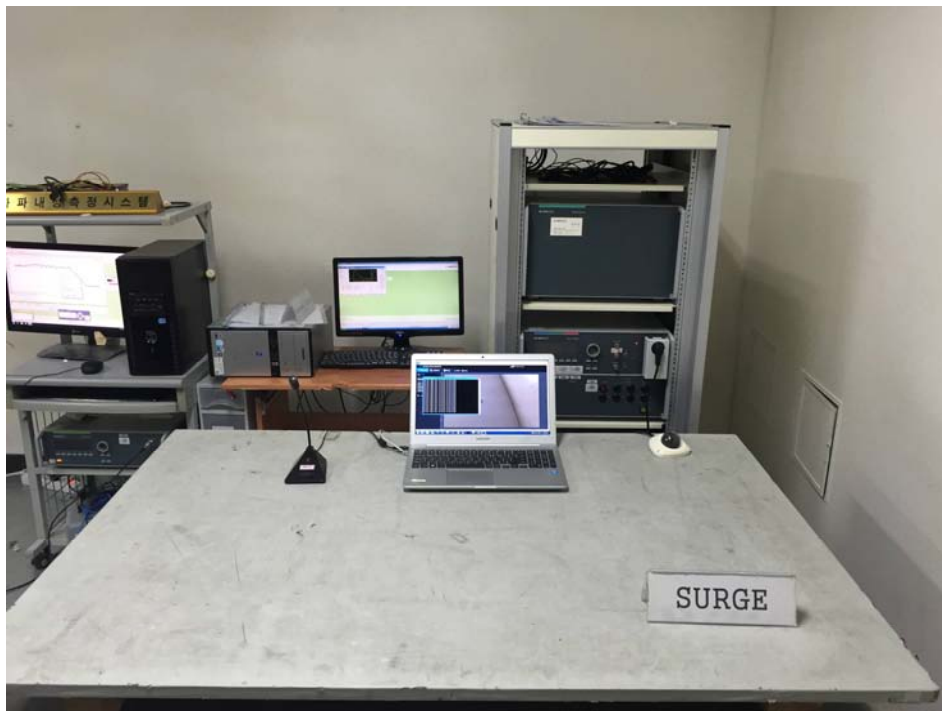
Radiated Electric Field Immunity

N/A

Electrical Fast Transients/Bursts



Surge Transients



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Conducted Disturbance



Voltage Dips and Short Interruptions

N/A

EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



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Main Board EUT Internal View – IR Board

(Top)



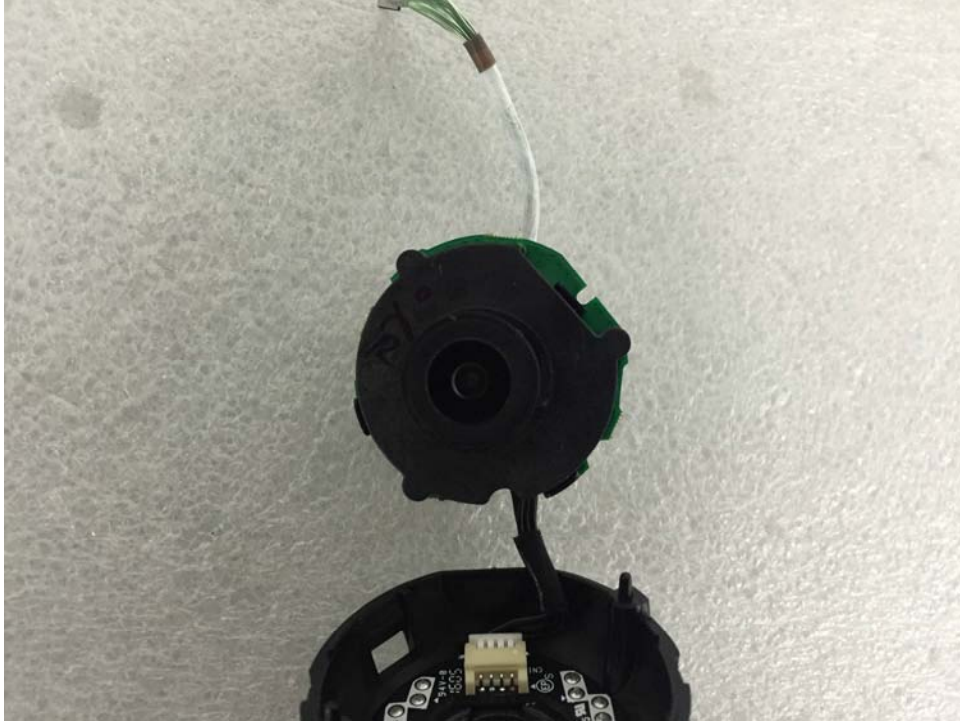
(Bottom)



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Main Board EUT Internal View – Camera Board

(Top)



(Bottom)



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Main Board EUT Internal View – Main Board

(Top)



(Bottom)



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Label and Location



NETWORK CAMERA

Model No : SNV-L6013RP

Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co.,Ltd.

Made in of China