EMC TEST REPORT For CE

Test Report No.	:	KES-E1-16T0057-R1
Date of Issue	:	Oct. 23, 2017
Product name	:	NETWORK CAMERA
Model/Type No.	:	SNB-6010BP
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	1204, Changwon-daero, Seongsan-gu, Changwon-si, Gyeongsangnam-do, korea.
Manufacturer	:	Hanwha Techwin(Tianjin) Co., Ltd.
Manufacturer Address	:	No.11 Weiliu Rd,Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China
Date of Receipt	:	Jan. 20, 2016
Test date	:	Feb. 16, 2016 – Feb. 18, 2016
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Hyo Jin, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 19, 2016	KES-E1-16T0057	Issued
Oct. 23, 2017	KES-E1-16T0057-R1	Standard Revision

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1.0 General Product Description

Main Specifications of E.U.T are:

	SNB-6010B
Video	
Imaging Device	1/2.8" PS 2.38M CMOS
Total Pixels	1952(H) x 1116(V)
Effective Pixels	1944(H) x 1104(V)
Scanning System	Progressive
Min. Illumination(50IRE)	Color : 0.3Lux (1/30sec, F2.5, 50IRE)
S / N Ratio	-
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation - DIP connector type
Lens	
Focal Length (Zoom Ratio)	4.6mm pinhole
Max. Aperture Ratio	2.5
Angular Field of View	H : 71° / V : 38°
Min. Object Distance	0.3m
Focus Cotrol	-
Lens Type	-
Mount Type	RJ-12 connected with main unit
Operational	
Camera Title	Off / On (Displayed up to 45 characters)
Day & Night	Auto(S/W) / Color / B/W / Schedule
Backlight Compensation	Off / BLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Samsung Super Dynamic Range)
Digital Noise Reduction	SSNR3 (2D + 3D noise filter)(Off/On)
Digital Image Stabilization	Off / On
Defog	Off / Auto / Manual
Motion Detection	Off / On (4ea 4 Points Polygonal zones)
Privacy Masking	Off / On (32 Zones with 4 Points of Polygonal)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital PTZ	-
Flip / Mirror	Off / On

Intelligent Video Analytics	Tampering, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection with Metadata
Audio In	Selectable (Mic IN/Line IN), Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm stereo mini jack), Max output level: 1 Vrms
Alarm I/O	Input 1ea / Output 1ea
Serial Interface	-
Alarm Triggers	Motion detection, Alarm Input, Video Anaytics, Network Disconnection, Audio Detection
Alarm events	File upload via FTP and E-Mail Notification via E-Mail local storage(SD/SDHC/SDXC) or NAS recording at Event (Alarm Triggers) External output
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.264 (MPEG-4 Part 10/AVC), Motion JPEG
Resolution	1920x1080 / 1280x1024 /1280x960 / 1280x720 / 1024x768 / 800x600 / 800x450 / 640x480 / 640x360 / 320x240 / 320x180
Max. Framerate	H.264 : Max. 30fps at all resolutions MJPEG : 1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768 : Max. 15fps 800 x 600, 800 x 450, 640 x 480, 640 x 360, 320 x 240, 320 x 180 : Max. 30fps
Smart Codec	-
Video Quality Adjustment	H.264 : Compression Level, Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate Control Method	H.264 : CBR or VBR Motion JPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
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
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	Bi-dierctional (2-Way)
Max. User Access	15 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC - motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS (network attached storage)
Application Programming Interface	ONVIF Profile S HTTP API(SUNAPI) 2.0 SVNP 1.2
Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Denish, 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 : Supported Browser: MS Explore 11 , Mozilla Firefox 43 , Apple Safari 9 * Mac OS X only
Central Management Software	SmartViewer, SSM
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Electrical	
Input Voltage / Current	DC12V, PoE(IEEE802.3af)
Power Consumption	PoE : 7.5W DC12V : 6.5W
Mechanical	
Color / Material	Camera Header : Black / Plastic Main Unit : Ivory / Plastic
Dimension (WxHxD)	Camera Header : Φ24×42.4 Main unit : W131.1xH28xD86mm
Weight	Camera unit (Include 1.5M Cable) : 80g or Camera unit (Include 8M Cable) : 315g Main unit : 255g

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 ☒ PoE ☐ 24 Vac ☒ 12 Vdc

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	SNB-6010BP	-	Hanwha Techwin(Tianjin) Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE ADAPTER	PD3001GC/AC	RD9356082016964200	Power Dsine	-
NOTEBOOK	NT-R410Y	Z9YJ93CS300631H	Samsung Electronics Co., Ltd.	-
AC/DC ADAPTER	AD-6019	-	LI SHIN INTERNATIONAL ENTERPRISE CORP.	-
HEADSET	RHS-2000	-	ROYCHE	-
ALARM JIG	-	-	-	-

1.6 External I/O Cabling

- DC IN

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (E.U.T)	RJ-45	NOTEBOOK	RJ-45	3.0	U
	ALRAM	ALARM JIG	ALARM	3.0	U
	AUDIO IN, OUT	HEADSET	LINE IN, OUT	1.5	U
	MICRO SD	MICRO SD	MICRO SD	-	-

- PoE

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (E.U.T)	RJ-45	POE ADAPTER	RJ-45	3.0	U
	ALRAM	ALARM JIG	ALARM	3.0	U
	AUDIO IN, OUT	HEADSET	LINE IN, OUT	1.5	U
	MICRO SD	MICRO SD	MICRO SD	-	-
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:

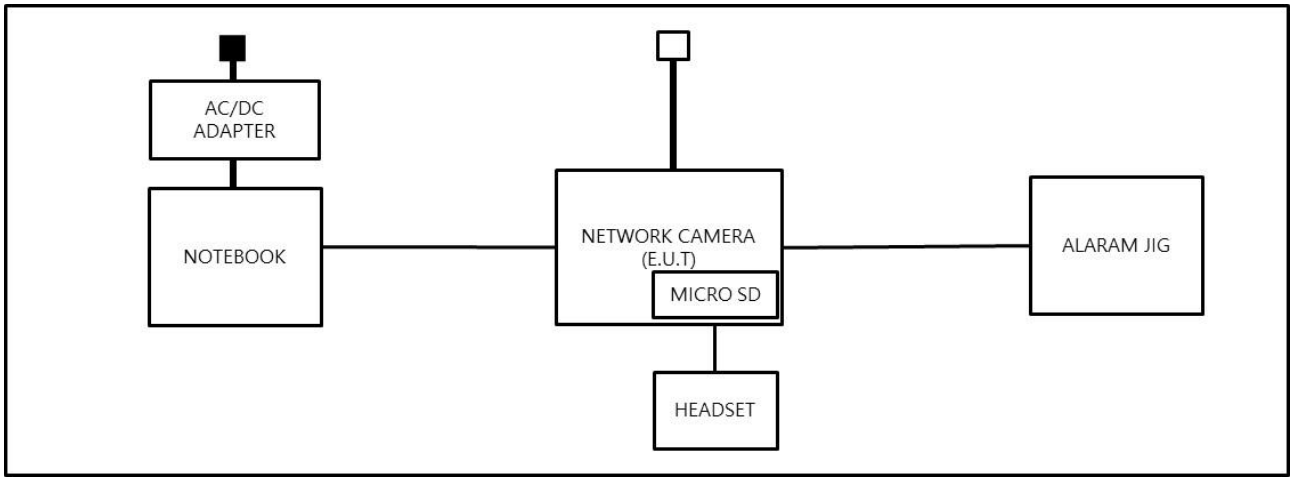
Test mode	Normal operating
OP	MONITORING

- Input power condition during the measurements was 12 V (dc), POE

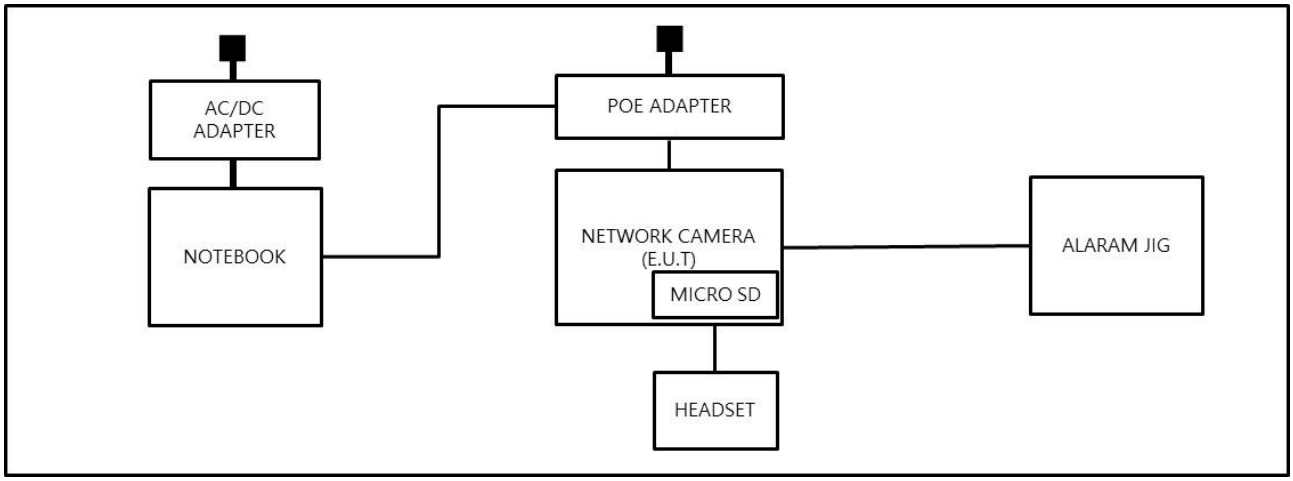
1.8 Configuration

■ AC Main
□ DC Main

- DC IN



- PoE



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, Yeoju-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)	KOREA LABORATORY ACCREDITATION SCHEME KOLAS TESTING NO. 489

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **EMC – Directive 2014/30/EU**

☐ 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 55032:2012	☒ Class A	☐ Class B
☐ EN 55024:2010		
☒ EN 50130-4:2011		
☐ 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: ℃
Relative Humidity: %

.

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date
Feb. 16, 2016

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
☒	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04, 02, 2016
☒	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04, 02, 2016
☐	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08, 14, 2016
☒	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions
Temperature: 18,3 ℃
Relative Humidity: 36,7 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Feb. 17, 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: 2,2 ℃
Relative Humidity: 52,0 %

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Feb. 17, 2016

Test Location
Semi Anachoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESU26	R&S	100552	05, 06, 2016
☒	Broadband Coaxial Preamplifier	BBV 9718	Schwarzbeck Mess - Elektronik	9718-246	10, 23, 2016
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 07, 2017
☒	Semi Anachoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions
Temperature: 25,8 ℃
Relative Humidity: 37,1 %

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.5 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: ℃
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.

2.6 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: ℃
Relative Humidity: %

Test Results
The requirements are:

☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks
Because the E.U.T power is 12 V (dc) and POE, limits are not specified.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:
EN 50130-4:2011 +A1:2014 Alarm systems-Part 4: Electromagnetic compatibility Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

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

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

A functional description and a definition of performance by the manufacture and noted in the test report, based on the following criteria:

Electrostatic discharge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing that is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change, and no such Flickering of indicators occurs at a field strength of 3 V/m.

For components of CCTV systems, where the picture is allowed at 10 V/m, providing.

(a) there is no permanent damage or change to EUT

(e.g. no corruption of memory or changes to programmable setting etc.)

(b) at 3 V/m, any deterioration of the picture is so minor that the system could still be used; and

(c) there is no observable deterioration of the picture at 1 V/m.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any

change in outputs, which could be interpreted by associated equipment as a change.

Conducted RF immunity

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the application of discharge is permissible, providing

That there is no residual is permissible, providing that there is no residual change in the EUT or any

change in outputs, which could be interpreted by associated equipment as a change,

and no such flickering of indicators oeuvres at U = 130 $dB\mu V$.

For component of CCTV systems, where the status is monitored by observing the TV picture,

then deterioration of the picture is allowed at U = 140 $dB\mu V$, providing:

(a) there is no permanent damage or change to the EUT

(e.g. no corruption of memory or changes to programmable settings etc.)

(b) at U = 130 $dB\mu V$, any deterioration of the picture is so minor that the system could

still be used; and

(c) there in no observable deterioration of the picture at U = 120 $dB\mu V$.

Voltage dip/interruption / Voltage variation

There shall be no damage, malfunction or change of status due to the conditioning.

Flickering of an indicator during the conditioning is permissible, providing that there is no residual

change in the EUT or any change in outputs, which could be interpreted by associated equipment

as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.

3.1 Electrostatic Discharge

Reference Standard
EN 61000-4-2:2009

Test Date
Feb. 16, 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	ESS01Z0454	2016.10.23
☒	HCP	-	KES	-	-
☒	VCP	-	KES	-	-

Test Conditions
Temperature: 18,7 ℃
Relative Humidity: 39,8 %
Atmospheric Pressure: 100,3 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	Air	HCP	VCP
☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

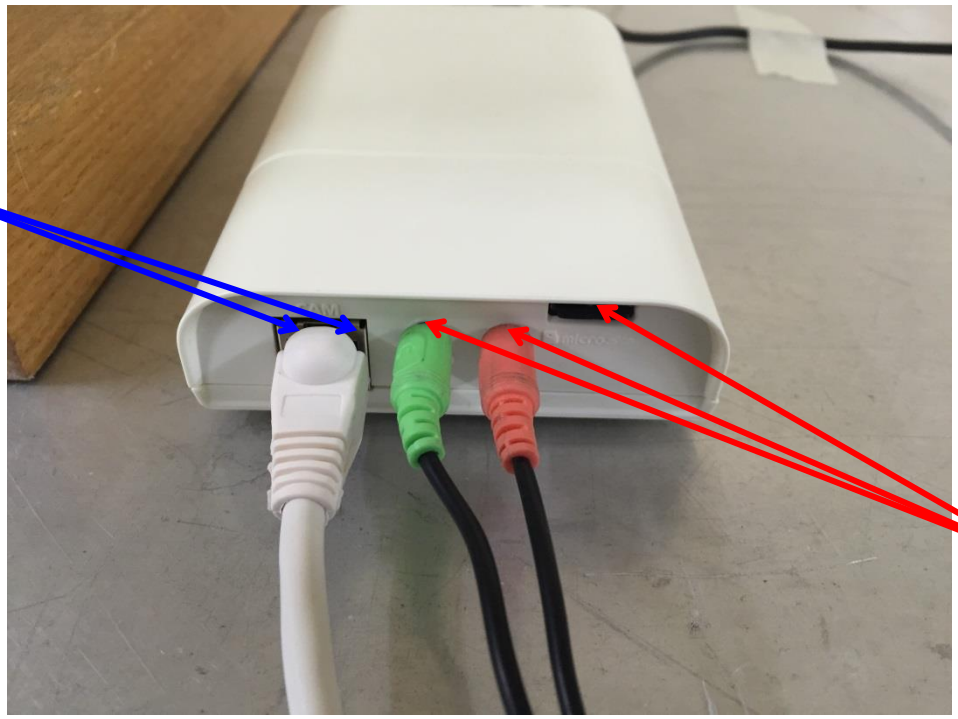
Notes: HCP: Horizontal coupling plane
VCP: Vertical coupling plane

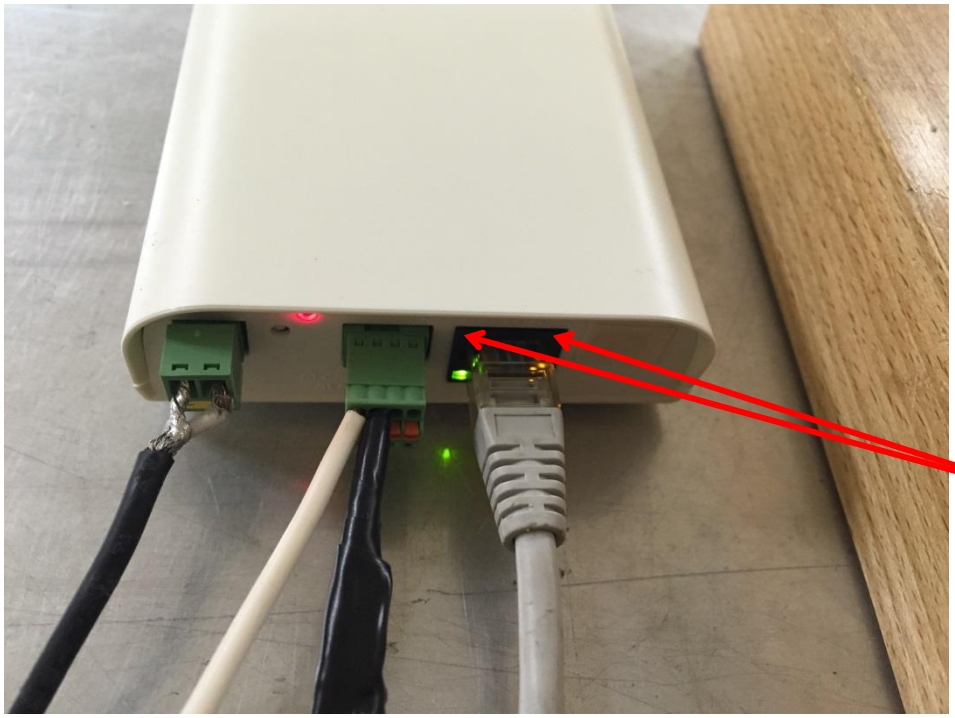
Required Performance Criteria: ☒ Complied

Location of Discharge:

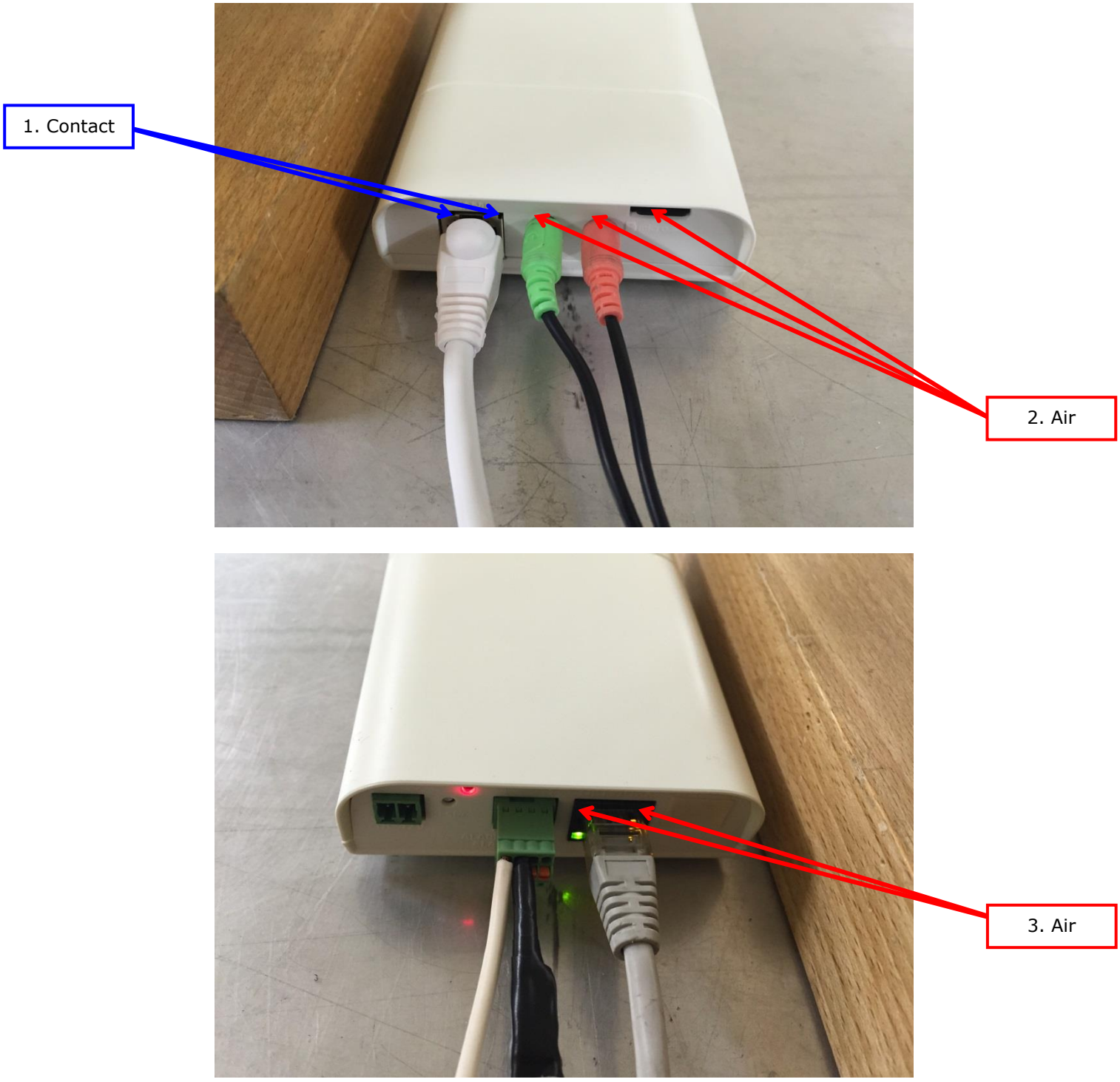
Air →
Contact →

- DC IN





- PoE



Test Data

- DC IN

Indirect Discharge

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

Direct Discharge

No.	Test Point	Discharge Method	Performance Observation	Remarks
1	CAM Port	Contact Discharge	Complied	-
2	AUDIO IN, OUT MICRO SD	Air Discharge	Complied	-
3	RJ-45 Port	Air Discharge	Complied	-
-	-	-	-	-

- PoE

Indirect Discharge

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

Direct Discharge

No.	Test Point	Discharge Method	Performance Observation	Remarks
1	CAM Port	Contact Discharge	Complied	-
2	AUDIO IN, OUT MICRO SD	Air Discharge	Complied	-
3	RJ-45 Port	Air Discharge	Complied	-
-	-	-	-	-

Note: "Blank" = Not performed

Observations:
Complied – No degradation 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
Feb. 17, 2016

Test Location
EMS-RS: ☐ Semi Anachoic Chamber #1 ☒ Semi Anachoic Chamber #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	Integrated measurement system for EMS	IMS	R&S	100027	08, 13, 2016
☐	Average Power Sensor	NRP-Z91	R&S	100784	08, 13, 2016
☐	Power Amplifier	100W1000M1	AMPLIFIER RESEARCH	19510	08, 13, 2016
☐	High Power Dual Directional Coupler	C3910	WERLATONE	30447	08, 13, 2016
☐	Hybrid Log-Periodic Antenna	HLP-2603	EMC Automation (TDK)	100400	-
☐	Semi Anachoic Chamber #1	-	KES	-	-
☒	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 Anachoic Chamber #2		SEMITEC	-	-

Test Conditions

Temperature: 25,8 ℃
Relative Humidity: 37,1 %
Atmospheric Pressure: 100,6 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: ☒ Complied

Test Data

- DC IN

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

- PoE

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

Note: "Blank" = Not performed

Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

3.3 Electrical Fast Transients/Bursts

Reference Standard
EN 61000-4-4:2012

Test Date
Feb. 18, 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
☐	Transient Test System	TRA3000F-S-D-V	EMC PARTNER AG	1524	04, 01, 2016
☐	MotorVariac	VAR-EXT1000	EMC PARTNER AG	1507	04, 01, 2016
☐	Capacitive Coupling Clamp	CN-EFT1000	EMC PARTNER AG	1528	04, 01, 2016

Test Conditions

Temperature:	25,7 ℃
Relative Humidity:	38,2 %
Atmospheric Pressure:	100,4 ㎪

Test Specifications

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

Test Data

- DC IN

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

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

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

Mode of Application	OBSERVATIONS	
	(+) Burst (㎸)	(-) Burst (㎸)
L - N	Complied	Complied

☒ Signal ports and telecommunication ports – Coupling Clamp used

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

- PoE

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

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

Note: "Blank" = Not performed

Observations:
Complied – No degradation 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
Feb. 18, 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 504N	EM TEST	V0936105121	04, 01, 2016
☐	Transient Test System	TRA3000F-S-D-V	EMC PARTNER AG	1524	04, 01, 2016
☐	MotorVariac	VAR-EXT1000	EMC PARTNER AG	1507	04, 01, 2016

Test Conditions
Temperature: 25,3 ℃
Relative Humidity: 55,7 %
Atmospheric Pressure: 99,3 kPa

Test Specifications

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

Surge Amplitude:
Common Mode
☐ (0,5 / 1,0 / 2,0) kV
Differential Mode
☐ (0,5 / 1,0) kV

Number of Surges: ☐ 5 surges per angle

Angle: ☐ 0°, 90°, 180°, 270° (input a.c. power port)

Polarity: ☐ Positive & Negative

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

Required Performance Criteria: ☐ Complied

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: ☒ Complied

Test Data

- DC IN

☐ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

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

- PoE

☐ Line to Line – Differential Mode

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

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

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

Note: "Blank" = Not performed

Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

No any function degraded during the test.

3.5 Conducted Disturbance

Reference Standard
EN 61000-4-6:2009

Test Date
Feb. 18, 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
☐	Continuous Wave Generator	CWS 500 N1	EM TEST	P1251106910	04, 01, 2016
☐	6 dB Attenuator	ATT6/75	EM TEST	1012-35	04, 01, 2016
☐	CDN	CDN-M2/M3N	EM TEST	0213-10	04, 01, 2016
☐	EM Injection Clamp	EM 101	Liithi	36152	04, 06, 2016

Test Conditions
Temperature: 25,7 ℃
Relative Humidity: 38,2 %
Atmospheric Pressure: 100,4 kPa

Test Specifications

Frequency range: ☒ 150 ㎑ to 100 ㎒ ☐ 10 ㎑ to 30 ㎒
☐ 150 ㎑ to 230 ㎒ ☐ 10 ㎑ to 100 ㎒

Voltage Level: ☐ 1 Vrms ☐ 3 Vrms
☒ 10 Vrms

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

Required Performance Criteria: ☒ Complied

Test Data

- DC IN

☐ 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)	Complied

☒ Signal ports and telecommunication ports

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

- PoE

☐ Input a.c. power ports

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

☐ Input d.c. power ports

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

☒ Signal ports and telecommunication ports

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

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

Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

No any function degraded during the test.

3.6 Voltage Dips and Short Interruptions

Reference Standard
N/A

Test Date
Electro wave Shieldroom

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
☐	Transient Test System	TRA3000F-S-D-V	EMC PARTNER AG	1524	04, 01, 2016
☐	MotorVariac	VAR-EXT1000	EMC PARTNER AG	1507	04, 01, 2016
☐	Capacitive Coupling Clamp	CN-EFT1000	EMC PARTNER AG	1528	04, 01, 2016

Test Conditions
Temperature: ℃
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 cariations

☐ 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
Because the E.U.T power is 12 V (dc) and POE, limits are not specified.

APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

N/A

[NEUTRAL]

N/A

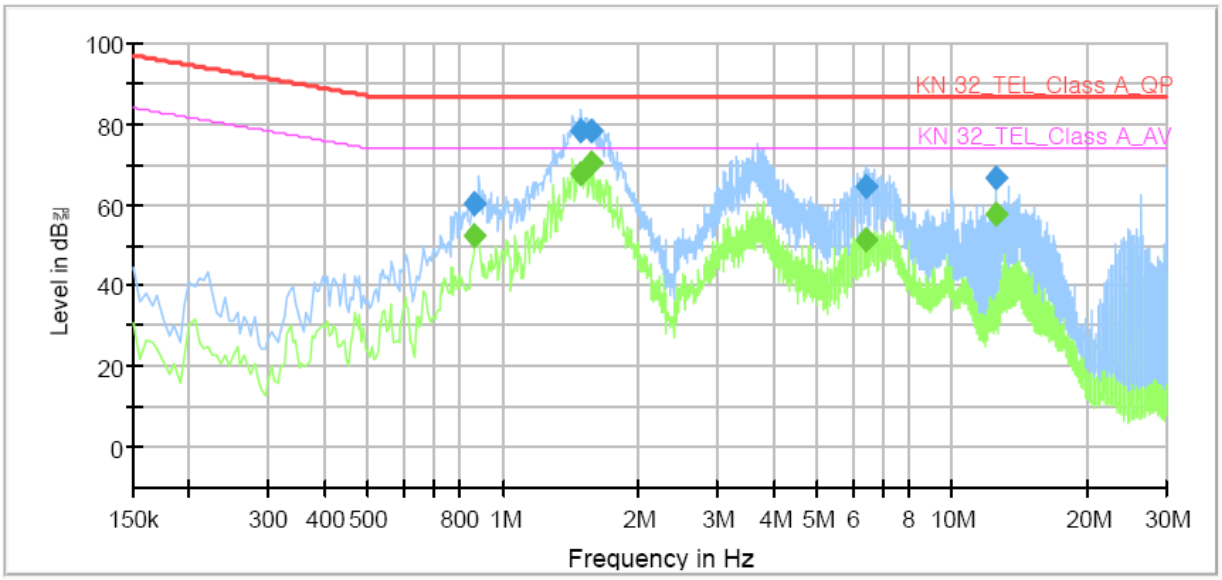
Conducted Emissions at Telecommunication Ports

- DC IN

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6010BP
Mode	DC_10 MBps
Operator Name:	KES



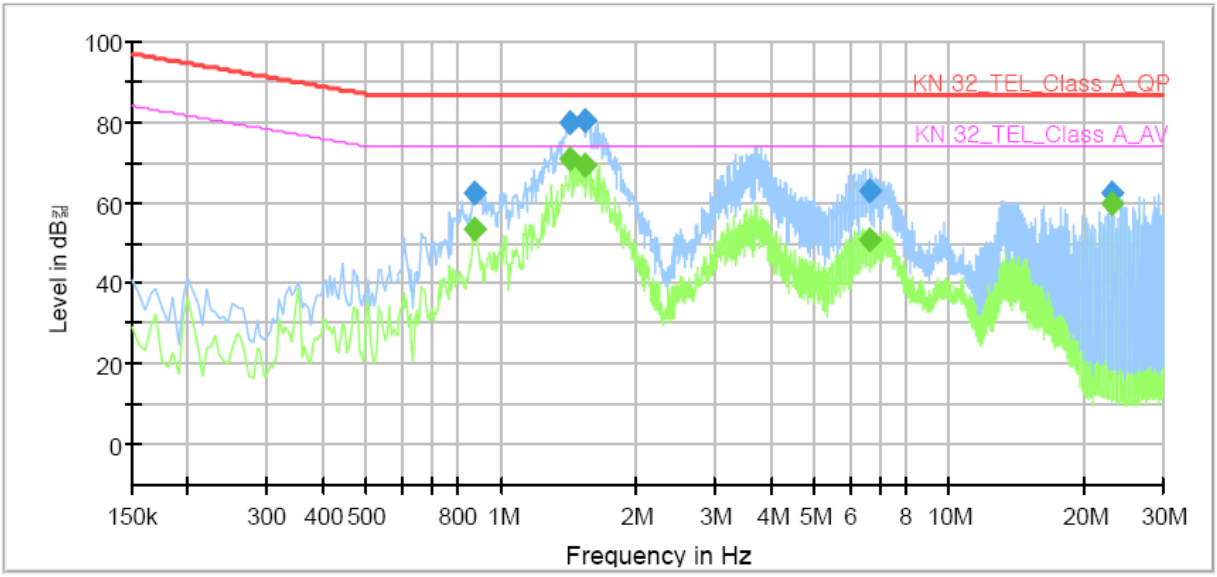
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.865000	---	52.32	74.00	21.68	1000.0	9.000	Single Line	9.9
0.865000	60.43	---	87.00	26.57	1000.0	9.000	Single Line	9.9
1.495000	---	67.76	74.00	6.24	1000.0	9.000	Single Line	9.9
1.495000	78.42	---	87.00	8.58	1000.0	9.000	Single Line	9.9
1.565000	---	70.18	74.00	3.82	1000.0	9.000	Single Line	9.9
1.565000	78.06	---	87.00	8.94	1000.0	9.000	Single Line	9.9
6.455000	---	51.36	74.00	22.64	1000.0	9.000	Single Line	10.1
6.455000	64.70	---	87.00	22.30	1000.0	9.000	Single Line	10.1
12.500000	---	57.77	74.00	16.23	1000.0	9.000	Single Line	10.3
12.500000	66.78	---	87.00	20.22	1000.0	9.000	Single Line	10.3

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6010BP
Mode	DC_100 MBps
Operator Name:	KES



Final_Result

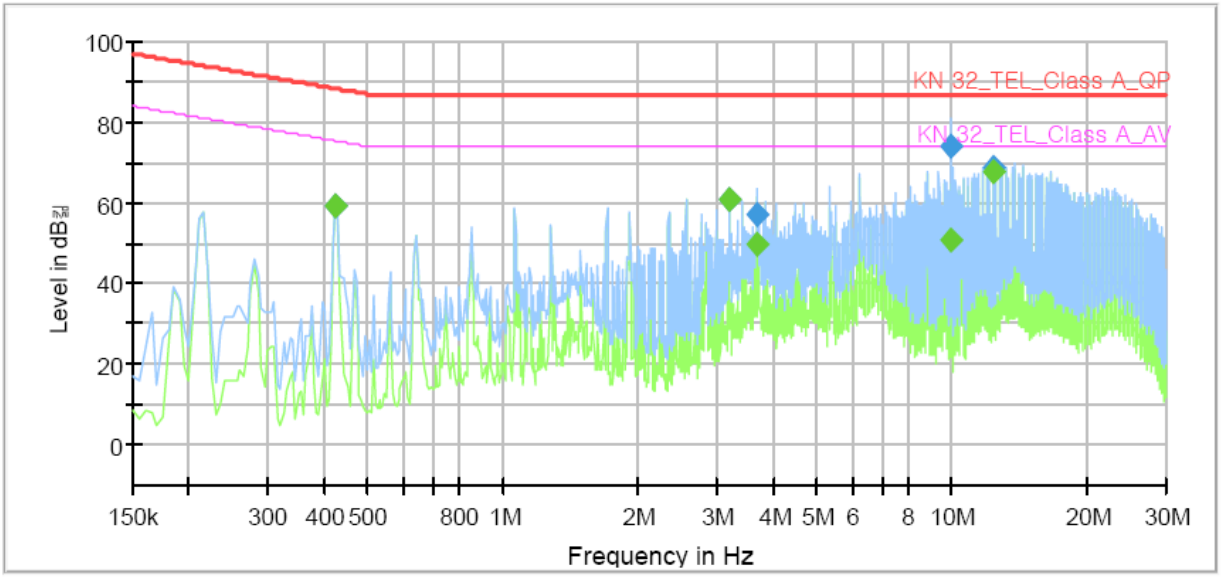
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.870000	---	53.36	74.00	20.64	1000.0	9.000	Single Line	9.8
0.870000	62.36	---	87.00	24.64	1000.0	9.000	Single Line	9.8
1.430000	---	70.72	74.00	3.28	1000.0	9.000	Single Line	9.8
1.430000	79.70	---	87.00	7.30	1000.0	9.000	Single Line	9.8
1.540000	---	69.11	74.00	4.89	1000.0	9.000	Single Line	9.8
1.540000	80.54	---	87.00	6.46	1000.0	9.000	Single Line	9.8
6.675000	---	50.68	74.00	23.32	1000.0	9.000	Single Line	10.1
6.675000	62.75	---	87.00	24.25	1000.0	9.000	Single Line	10.1
23.130000	---	60.04	74.00	13.96	1000.0	9.000	Single Line	10.8
23.130000	62.69	---	87.00	24.31	1000.0	9.000	Single Line	10.8

- PoE

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6010BP
Mode	POE_10 MBps
Operator Name:	KES



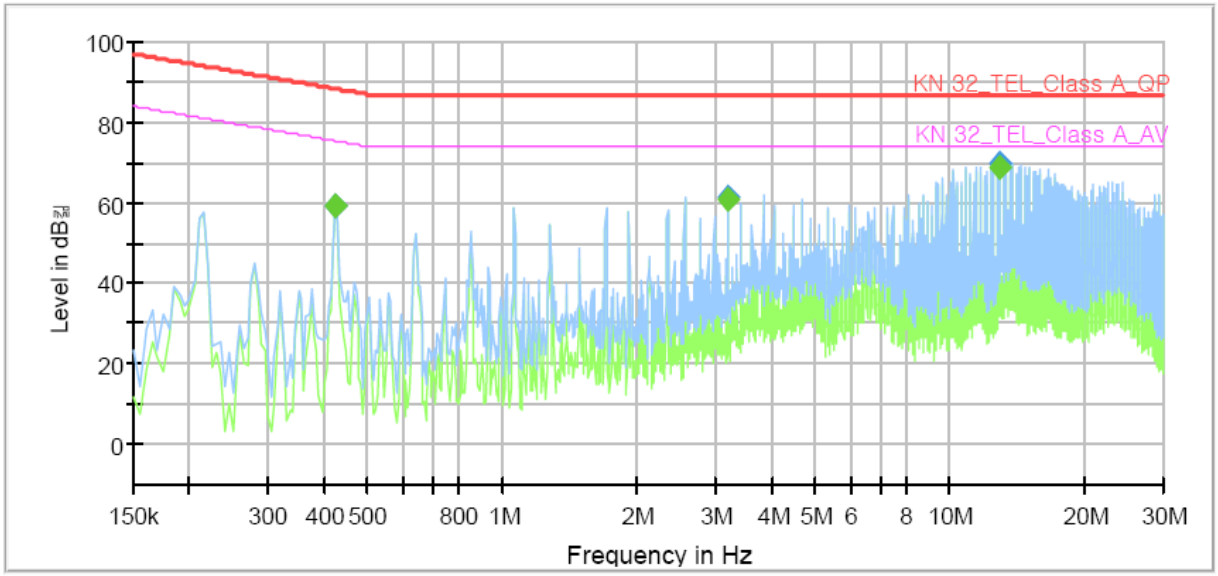
Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.425000	---	59.28	75.35	16.07	1000.0	9.000	Single Line	10.0
0.425000	59.28	---	88.35	29.07	1000.0	9.000	Single Line	10.0
3.195000	---	60.71	74.00	13.29	1000.0	9.000	Single Line	10.0
3.195000	61.10	---	87.00	25.90	1000.0	9.000	Single Line	10.0
3.695000	---	49.79	74.00	24.21	1000.0	9.000	Single Line	10.1
3.695000	57.18	---	87.00	29.82	1000.0	9.000	Single Line	10.1
9.995000	---	50.90	74.00	23.10	1000.0	9.000	Single Line	10.3
9.995000	74.13	---	87.00	12.87	1000.0	9.000	Single Line	10.3
12.355000	---	67.87	74.00	6.13	1000.0	9.000	Single Line	10.3
12.355000	68.93	---	87.00	18.07	1000.0	9.000	Single Line	10.3

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6010BP
Mode	POE_100 MBps
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.425000	---	59.36	75.35	15.99	1000.0	9.000	Single Line	9.9
0.425000	59.35	---	88.35	29.00	1000.0	9.000	Single Line	9.9
3.195000	---	61.12	74.00	12.88	1000.0	9.000	Single Line	10.0
3.195000	61.20	---	87.00	25.80	1000.0	9.000	Single Line	10.0
12.995000	---	69.01	74.00	4.99	1000.0	9.000	Single Line	10.4
12.995000	69.71	---	87.00	17.29	1000.0	9.000	Single Line	10.4

Radiated Electric Field Emissions(Below 1 ㎓)

- DC IN

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	
409.27	17.37	H	2.67	15.83	5.11	38.31	47.00	8.69
446.27	18.10	H	2.61	16.35	5.37	39.82	47.00	7.18
495.60	14.10	H	2.53	17.04	5.72	36.86	47.00	10.14
519.75	17.45	V	2.34	17.53	5.86	40.84	47.00	6.16
557.68	16.23	H	2.09	18.37	6.08	40.68	47.00	6.32
594.54	14.20	H	1.97	19.18	6.29	39.67	47.00	7.33

* H : Horizontal, V : Vertical

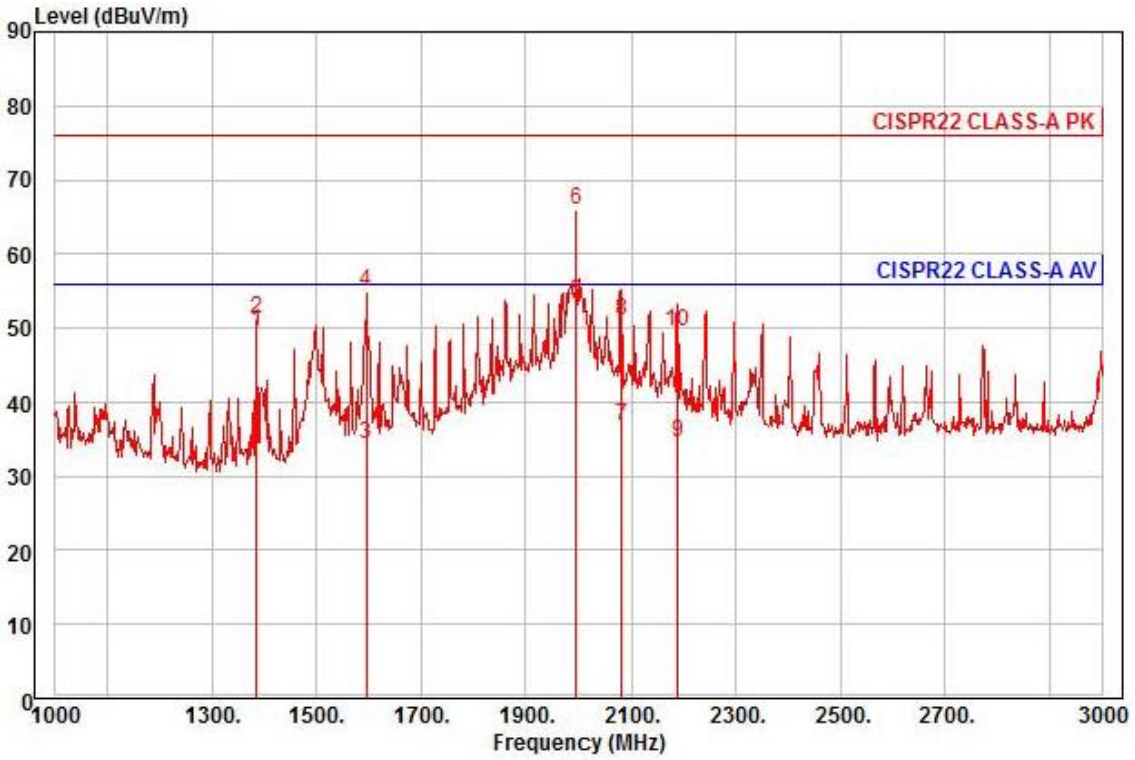
- PoE

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	
48.43	15.73	H	4.00	13.88	1.43	31.04	40.00	8.96
156.10	14.30	H	4.00	8.42	2.81	25.53	40.00	14.47
325.85	17.53	V	1.00	13.98	4.44	35.95	47.00	11.05
409.27	15.84	V	2.81	15.83	5.11	36.78	47.00	10.22
519.85	16.06	H	2.63	17.54	5.86	39.46	47.00	7.54
593.99	16.01	V	2.20	19.17	6.29	41.47	47.00	5.53

* H : Horizontal, V : Vertical

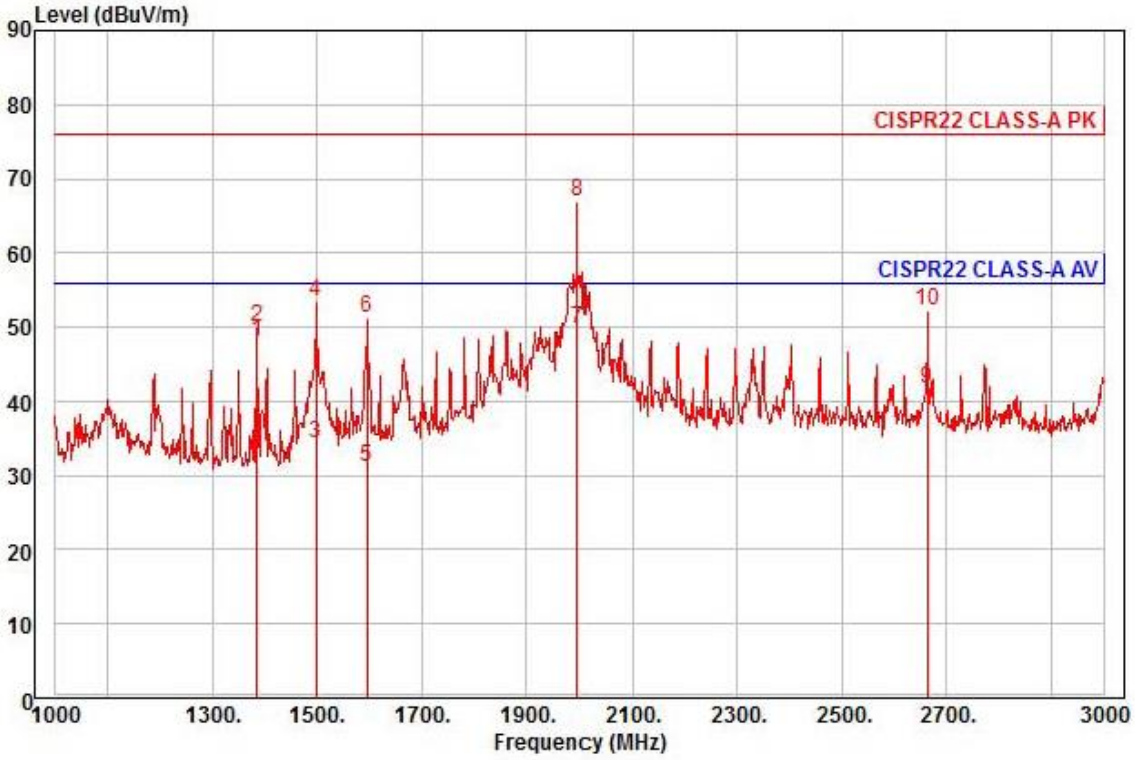
Radiated Electric Field Emissions(Above 1 ㎓)

- DC IN



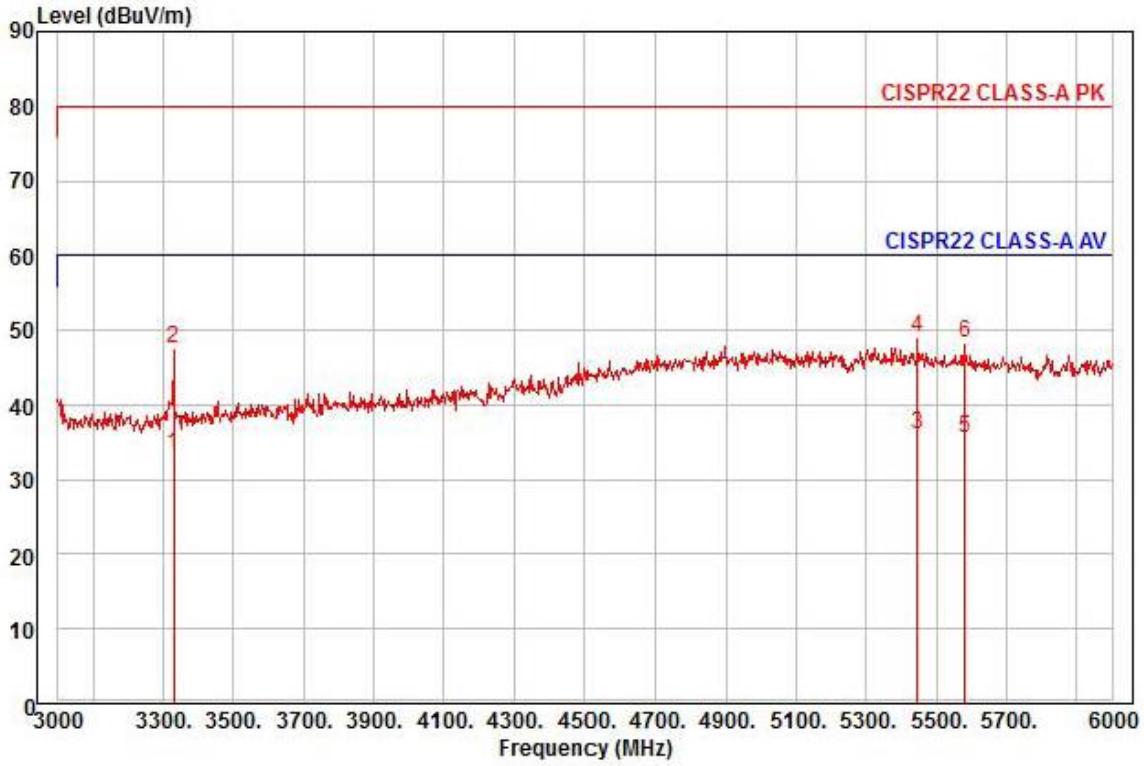
Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : DC
Memo : (1 - 3) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1386.00	56.40	25.44	7.63	39.93	48	56.00	-6.46	horizontal	Average
2	1386.00	58.21	25.44	7.63	39.93	48	76.00	-24.65	horizontal	Peak
3	1596.00	39.73	26.28	8.24	39.83	259	56.00	-21.58	horizontal	Average
4	1596.00	60.26	26.28	8.24	39.83	259	76.00	-21.05	horizontal	Peak
5 pp	1998.00	55.86	27.87	9.34	39.63	13	56.00	-2.56	horizontal	Average
6 pk	1998.00	68.34	27.87	9.34	39.63	13	76.00	-10.08	horizontal	Peak
7	2080.00	38.82	28.08	9.47	39.68	13	56.00	-19.31	horizontal	Average
8	2080.00	53.15	28.08	9.47	39.68	13	76.00	-24.98	horizontal	Peak
9	2188.00	36.39	28.34	9.64	39.74	25	56.00	-21.37	horizontal	Average
10	2188.00	51.30	28.34	9.64	39.74	25	76.00	-26.46	horizontal	Peak



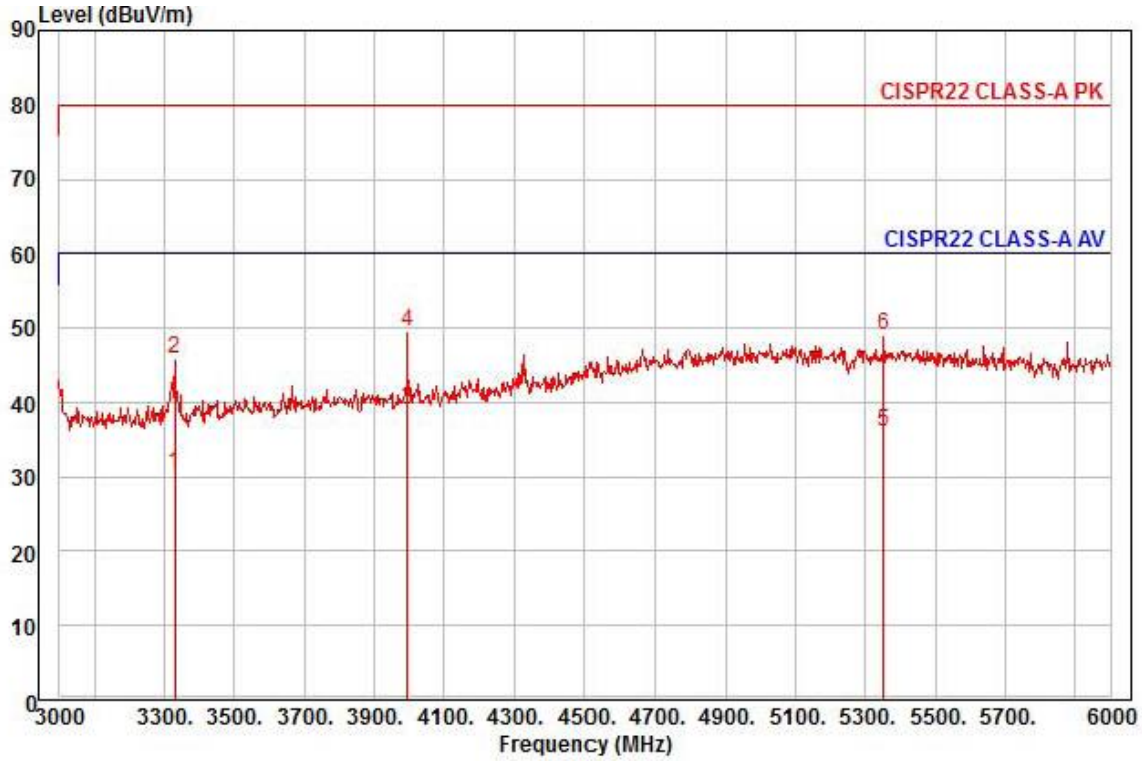
Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : DC
Memo : (1 - 3) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1386.00	54.98	25.44	7.63	39.93	44	56.00	-7.88	vertical	Average
2	1386.00	56.78	25.44	7.63	39.93	44	76.00	-26.08	vertical	Peak
3	1498.00	40.36	25.89	7.95	39.88	128	56.00	-21.68	vertical	Average
4	1498.00	59.44	25.89	7.95	39.88	128	76.00	-22.60	vertical	Peak
5	1596.00	36.48	26.28	8.24	39.83	30	56.00	-24.83	vertical	Average
6	1596.00	56.57	26.28	8.24	39.83	30	76.00	-24.74	vertical	Peak
7 pp	1998.00	52.11	27.87	9.34	39.63	281	56.00	-6.31	vertical	Average
8 pk	1998.00	69.27	27.87	9.34	39.63	281	76.00	-9.15	vertical	Peak
9	2664.00	41.72	29.51	10.42	40.02	207	56.00	-14.37	vertical	Average
10	2664.00	52.39	29.51	10.42	40.02	207	76.00	-23.70	vertical	Peak



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : DC
Memo : (3 - 6) GHz

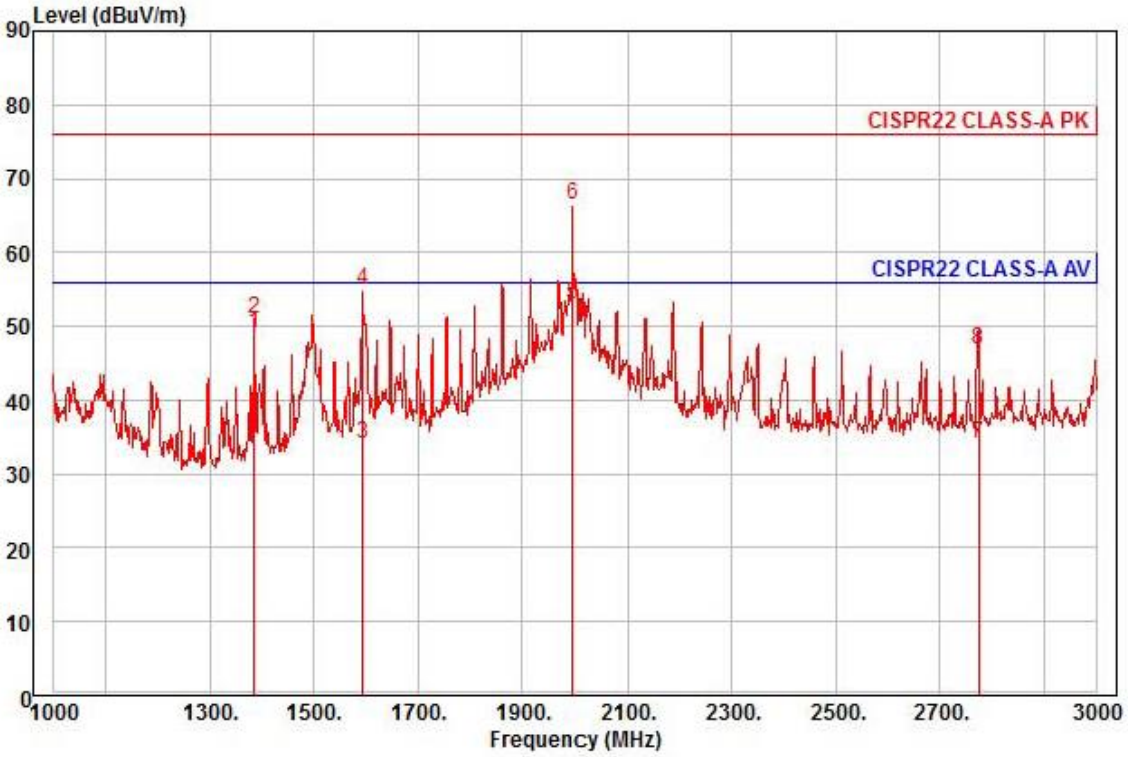
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3330.00	30.78	30.88	12.07	40.28	3	60.00	-26.55	horizontal	Average
2	3330.00	44.83	30.88	12.07	40.28	3	80.00	-32.50	horizontal	Peak
3 pp	5445.00	23.63	36.82	15.86	40.35	226	60.00	-24.04	horizontal	Average
4 pk	5445.00	36.63	36.82	15.86	40.35	226	80.00	-31.04	horizontal	Peak
5	5580.00	23.26	36.55	16.07	40.33	156	60.00	-24.45	horizontal	Average
6	5580.00	36.01	36.55	16.07	40.33	156	80.00	-31.70	horizontal	Peak



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : DC
Memo : (3 - 6) GHz

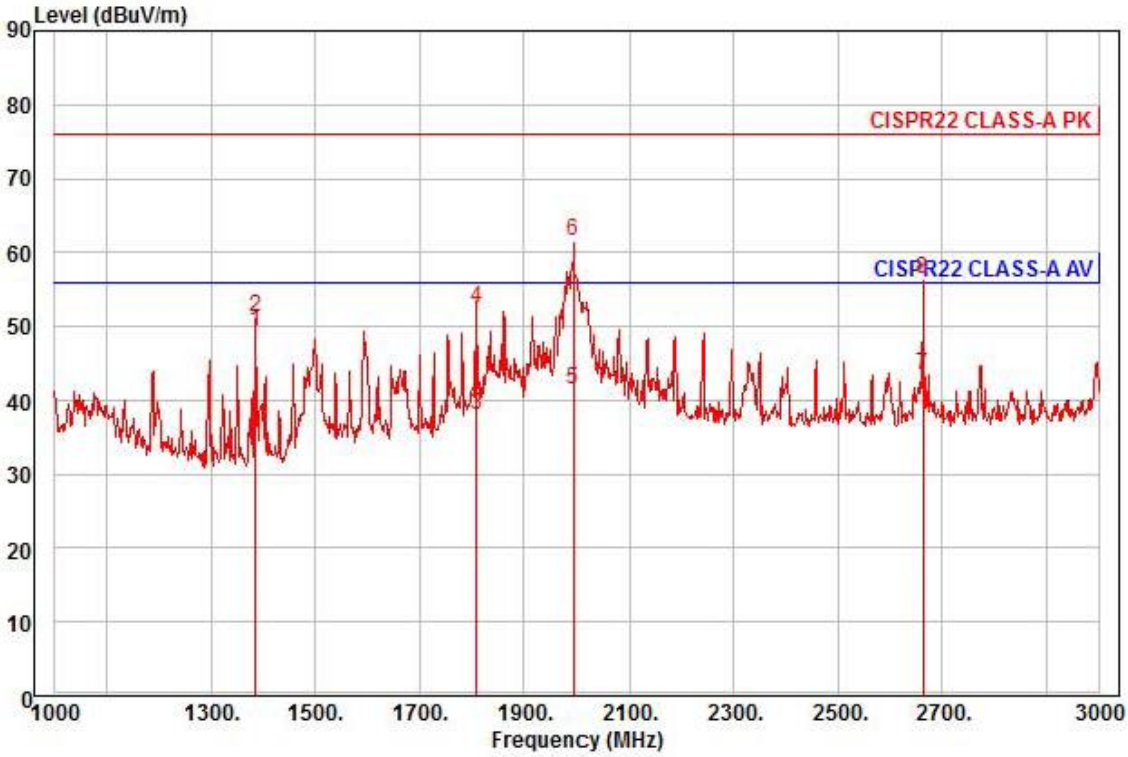
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3330.00	27.63	30.88	12.07	40.28	112	60.00	-29.70	vertical	Average
2	3330.00	43.30	30.88	12.07	40.28	112	80.00	-34.03	vertical	Peak
3 pp	3996.00	33.95	32.00	13.50	40.41	274	60.00	-20.96	vertical	Average
4 pk	3996.00	44.42	32.00	13.50	40.41	274	80.00	-30.49	vertical	Peak
5	5352.00	23.76	37.01	15.75	40.36	18	60.00	-23.84	vertical	Average
6	5352.00	36.76	37.01	15.75	40.36	18	80.00	-30.84	vertical	Peak

- PoE



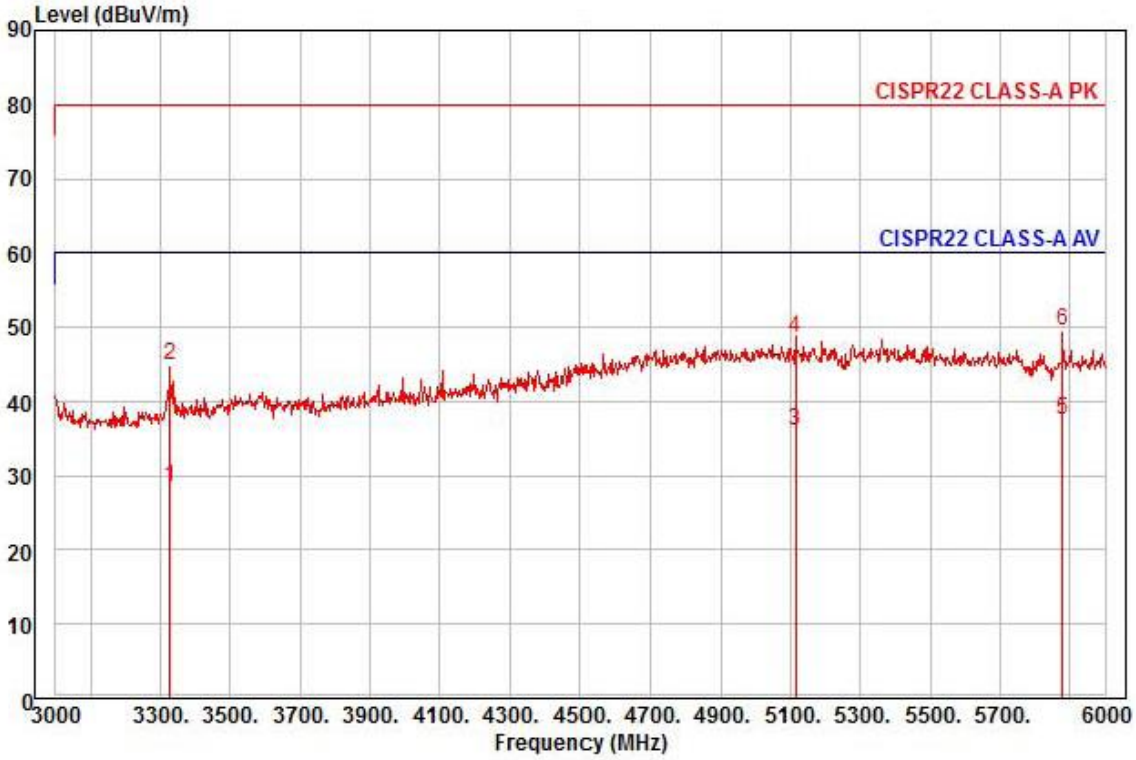

```
Site      : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
          : RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project   :
Model     : SNB-6010BP
Mode      : POE
Memo      : (1 - 3) GHz
```

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1386.00	55.86	25.44	7.63	39.93	30	56.00	-7.00	horizontal	Average
2	1386.00	57.89	25.44	7.63	39.93	30	76.00	-24.97	horizontal	Peak
3	1594.00	39.35	26.27	8.23	39.83	95	56.00	-21.98	horizontal	Average
4	1594.00	60.20	26.27	8.23	39.83	95	76.00	-21.13	horizontal	Peak
5 pp	1998.00	55.32	27.87	9.34	39.63	355	56.00	-3.10	horizontal	Average
6 pk	1998.00	68.91	27.87	9.34	39.63	355	76.00	-9.51	horizontal	Peak
7	2774.00	33.83	29.78	10.68	40.08	27	56.00	-21.79	horizontal	Average
8	2774.00	46.36	29.78	10.68	40.08	27	76.00	-29.26	horizontal	Peak



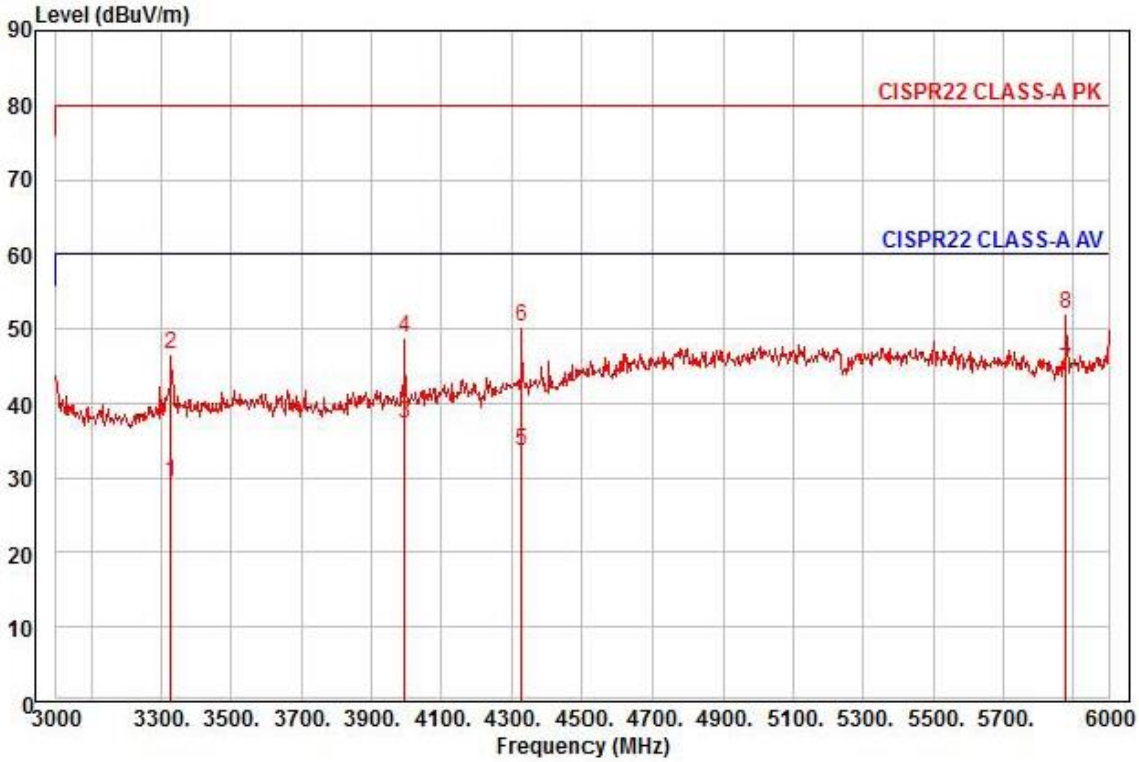
Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : POE
Memo : (1 - 3) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1 pp	1386.00	56.10	25.44	7.63	39.93	18	56.00	-6.76	vertical	Average
2	1386.00	58.23	25.44	7.63	39.93	18	76.00	-24.63	vertical	Peak
3	1810.00	41.82	27.13	8.83	39.72	6	56.00	-17.94	vertical	Average
4	1810.00	56.33	27.13	8.83	39.72	6	76.00	-23.43	vertical	Peak
5	1996.00	43.98	27.86	9.34	39.63	276	56.00	-14.45	vertical	Average
6 pk	1996.00	64.08	27.86	9.34	39.63	276	76.00	-14.35	vertical	Peak
7	2664.00	43.46	29.51	10.42	40.02	280	56.00	-12.63	vertical	Average
8	2664.00	56.48	29.51	10.42	40.02	280	76.00	-19.61	vertical	Peak



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : POE
Memo : (3 - 6) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3327.00	25.69	30.88	12.06	40.28	346	60.00	-31.65	horizontal	Average
2	3327.00	42.11	30.88	12.06	40.28	346	80.00	-35.23	horizontal	Peak
3	5115.00	23.40	37.49	15.47	40.39	355	60.00	-24.03	horizontal	Average
4	5115.00	35.91	37.49	15.47	40.39	355	80.00	-31.52	horizontal	Peak
5 pp	5880.00	25.30	35.94	16.63	40.29	38	60.00	-22.42	horizontal	Average
6 pk	5880.00	37.33	35.94	16.63	40.29	38	80.00	-30.39	horizontal	Peak



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6010BP
Mode : POE
Memo : (3 - 6) GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3327.00	26.86	30.88	12.06	40.28	265	60.00	-30.48	vertical	Average
2	3327.00	43.90	30.88	12.06	40.28	265	80.00	-33.44	vertical	Peak
3	3996.00	32.14	32.00	13.50	40.41	257	60.00	-22.77	vertical	Average
4	3996.00	43.71	32.00	13.50	40.41	257	80.00	-31.20	vertical	Peak
5	4329.00	26.08	33.89	14.12	40.41	274	60.00	-26.32	vertical	Average
6	4329.00	42.56	33.89	14.12	40.41	274	80.00	-29.84	vertical	Peak
7 pp	5880.00	32.15	35.94	16.63	40.29	123	60.00	-15.57	vertical	Average
8 pk	5880.00	39.71	35.94	16.63	40.29	123	80.00	-28.01	vertical	Peak

Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

Test Setup Photos and Configuration

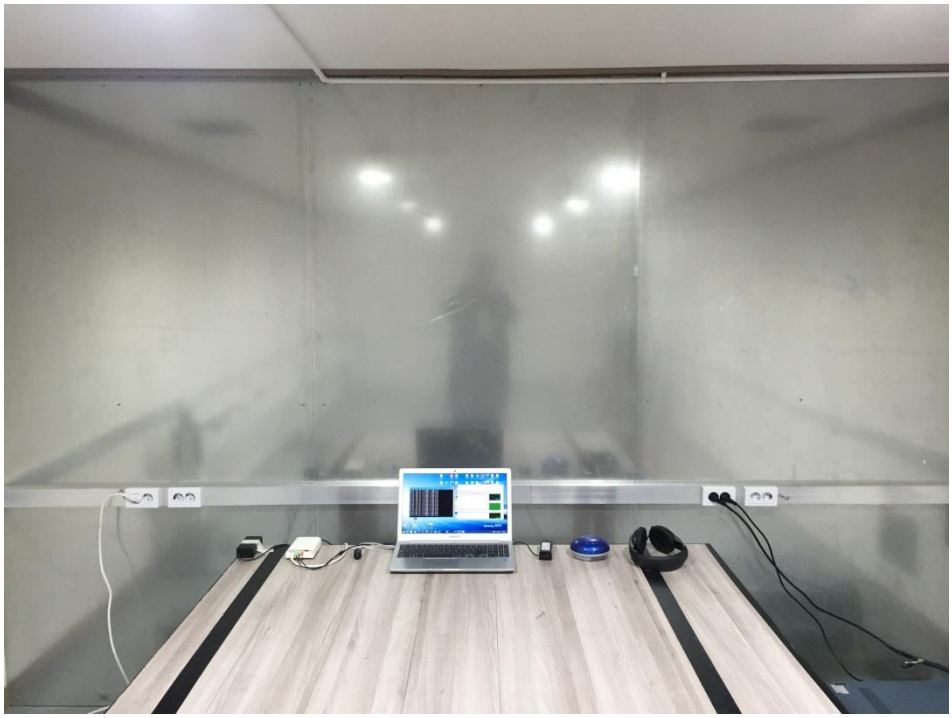
Conducted Voltage Emissions

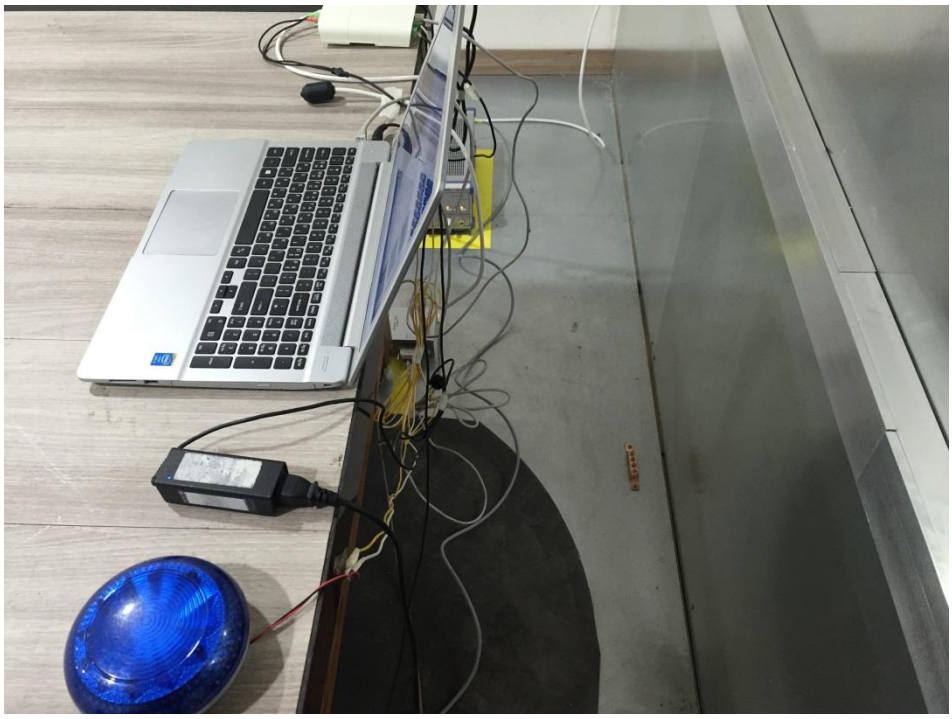
N/A

N/A

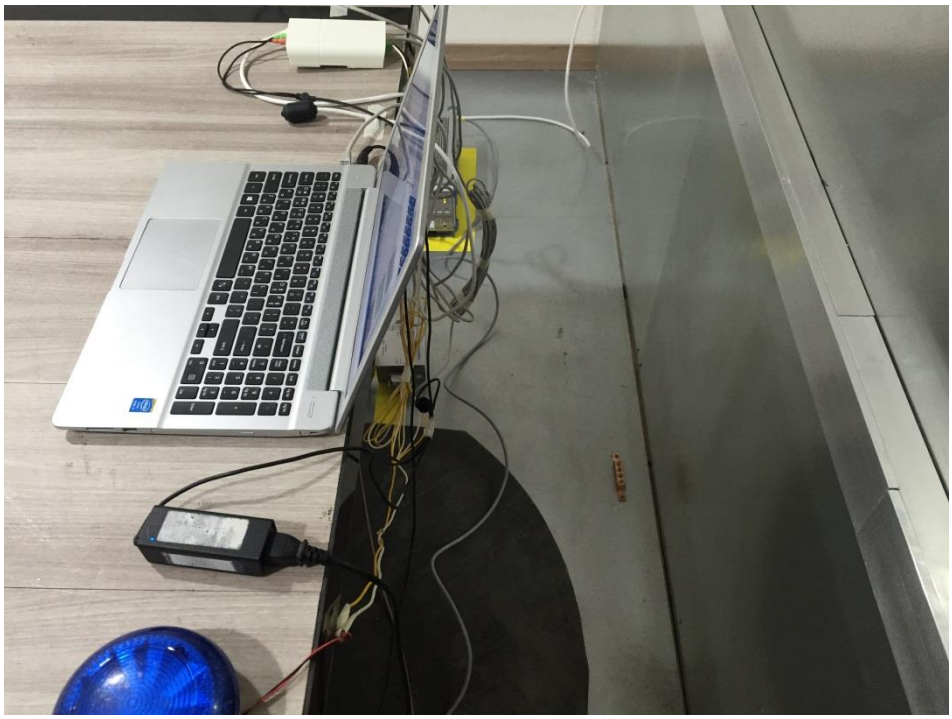
Conducted Emissions at Telecommunication Ports

- DC IN



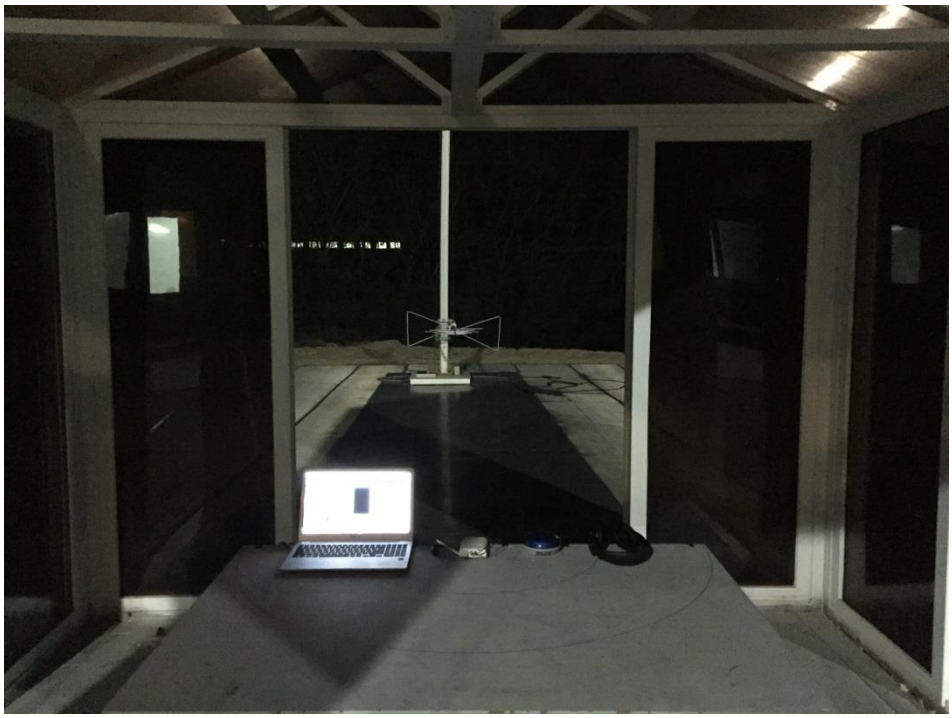


- PoE

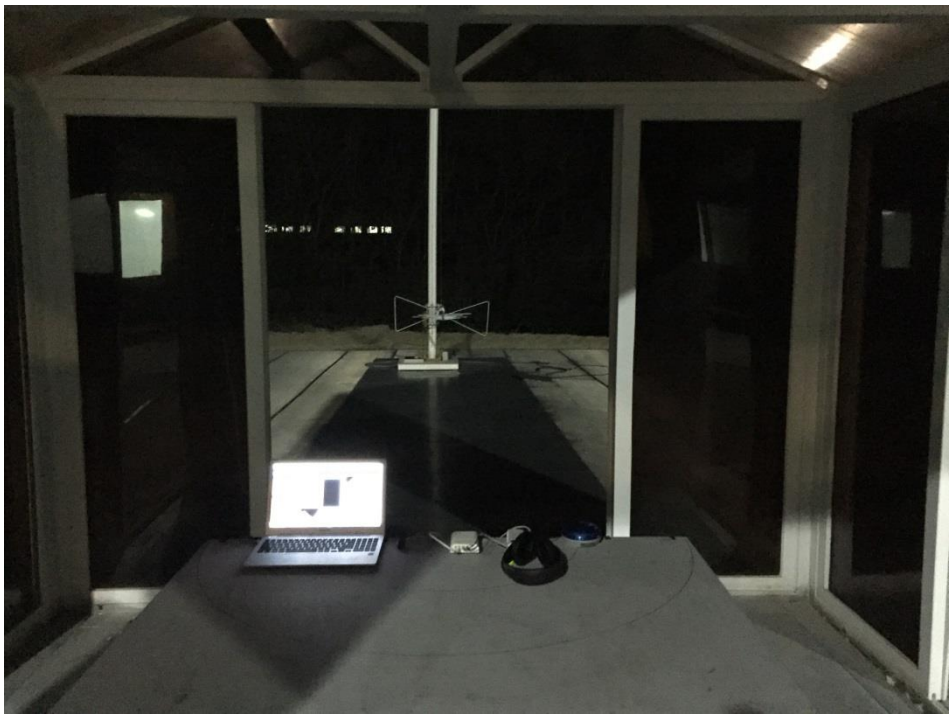


Radiated Electric Field Emissions(Below 1 ㎓)

- DC IN

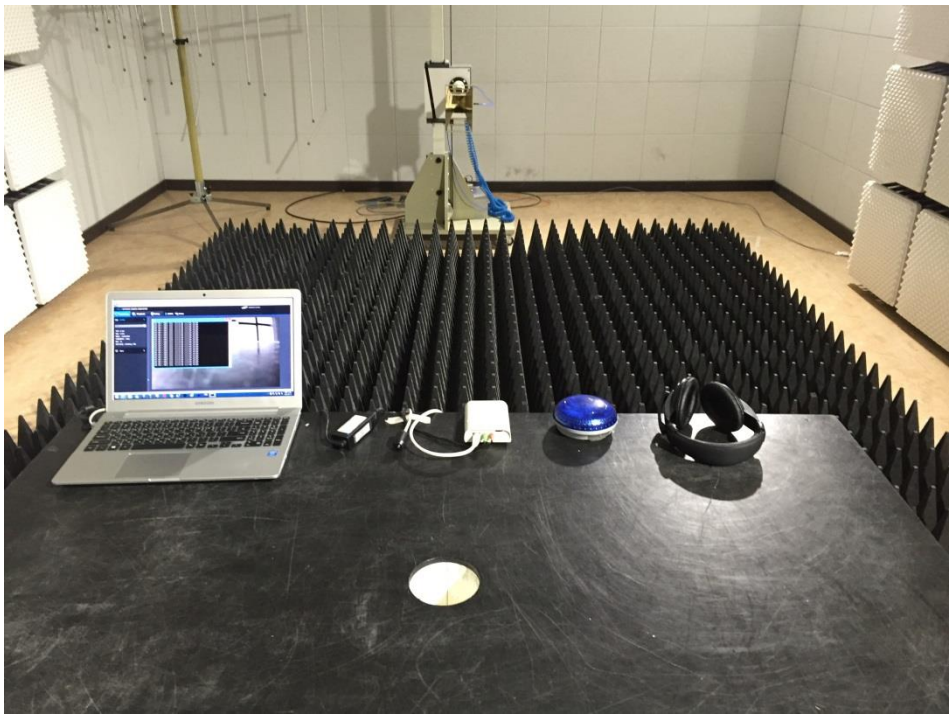


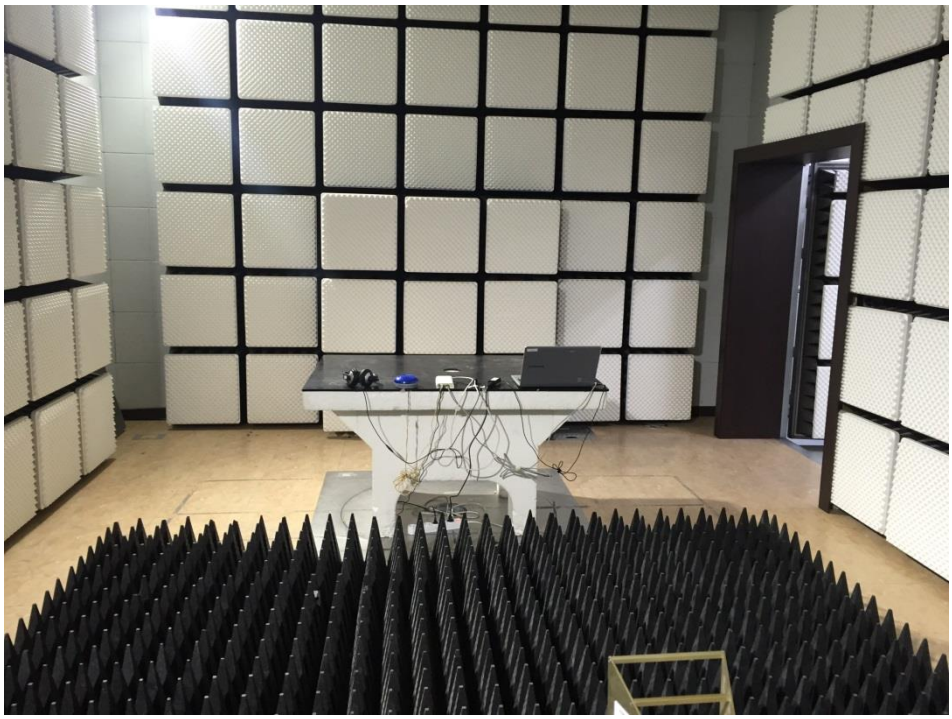
- PoE



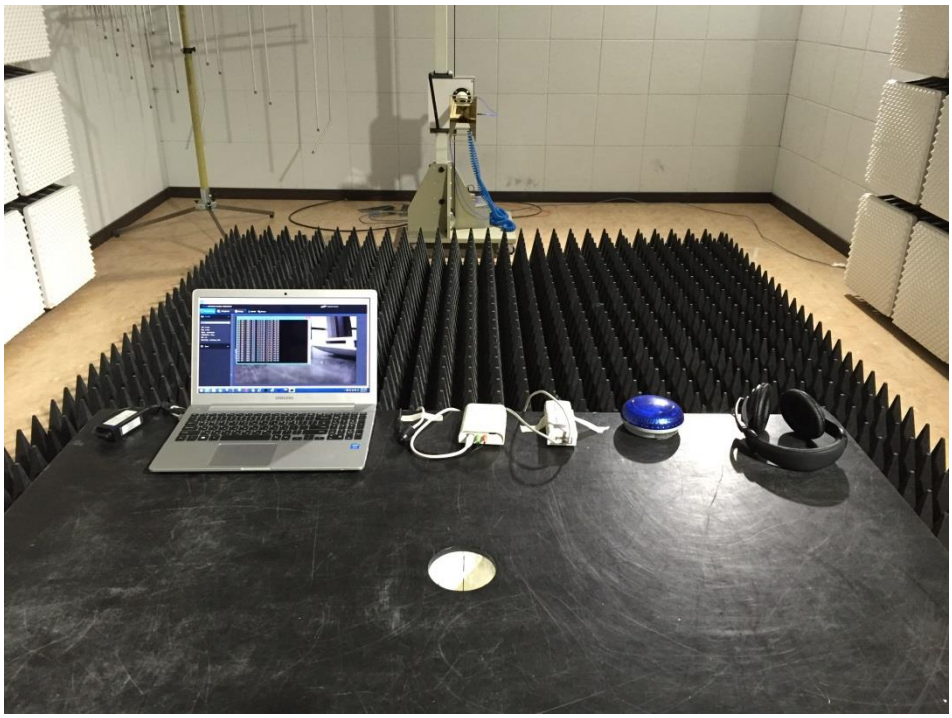
Radiated Electric Field Emissions(Above 1 ㎓)

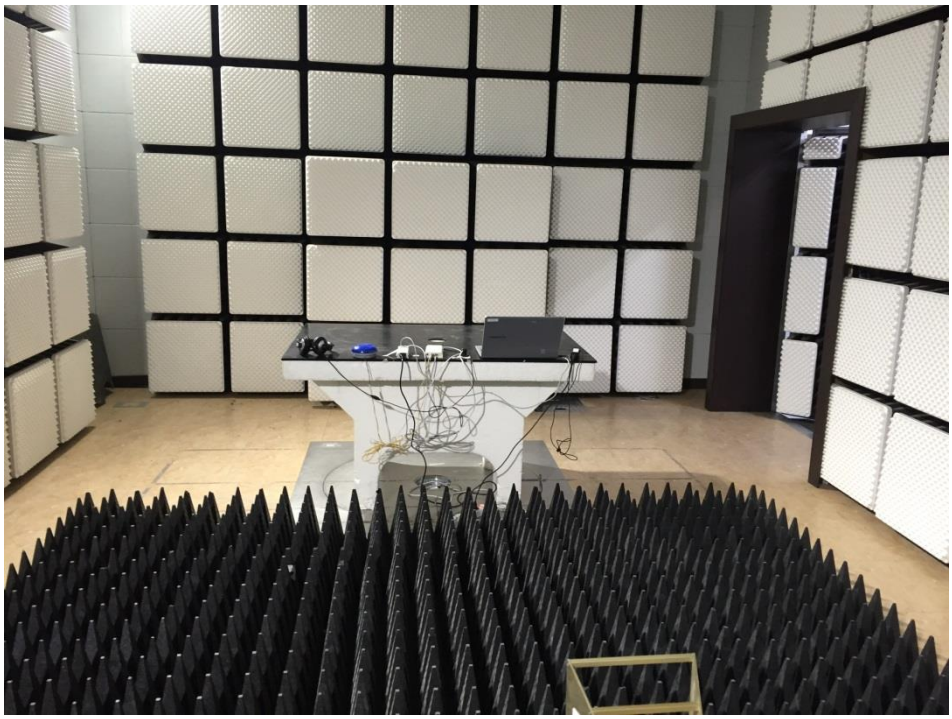
- DC IN





- PoE



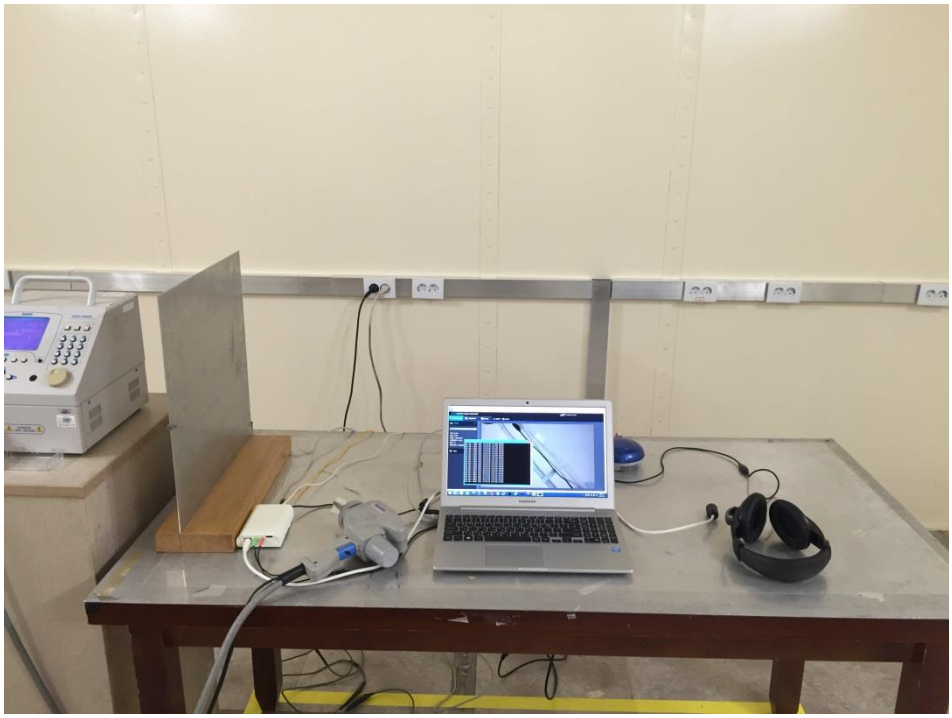


Harmonic Current Emissions and Voltage Fluctuations and Flicker

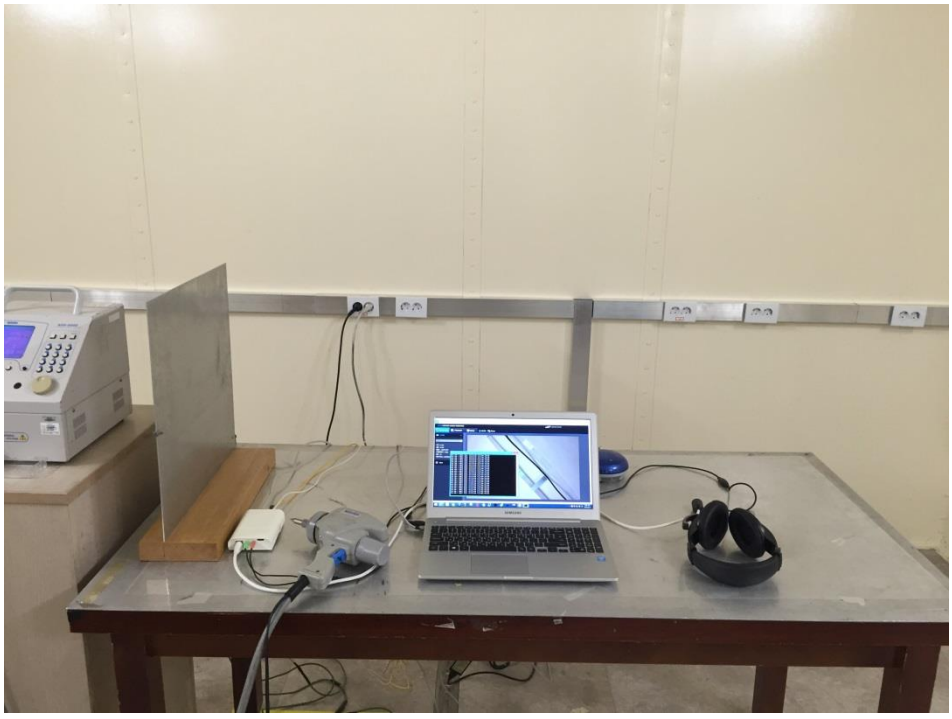
N/A

Electrostatic Discharge

- DC IN

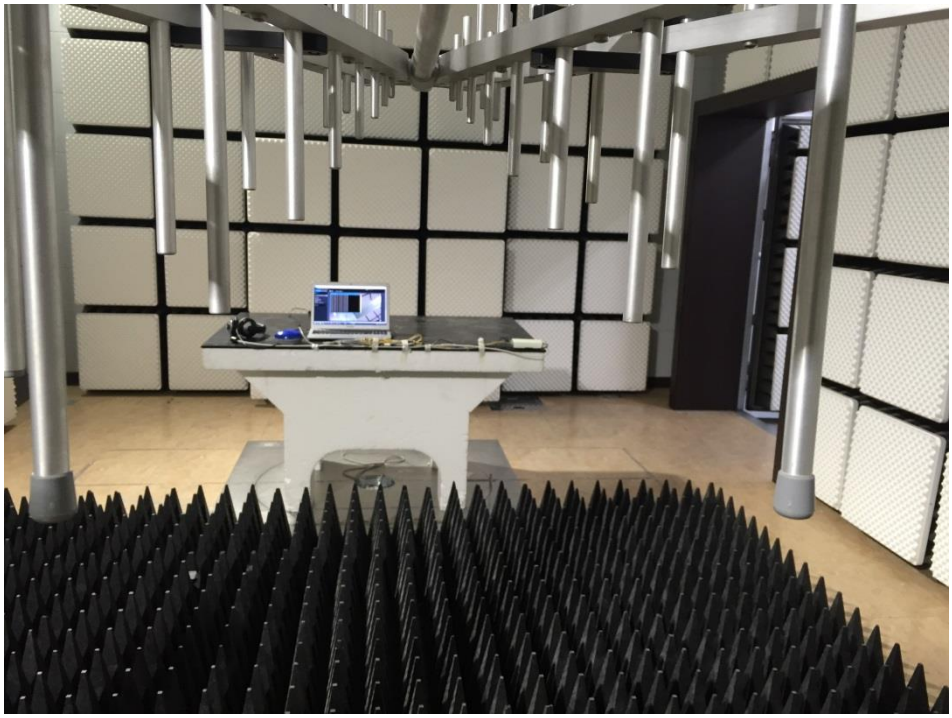


- PoE

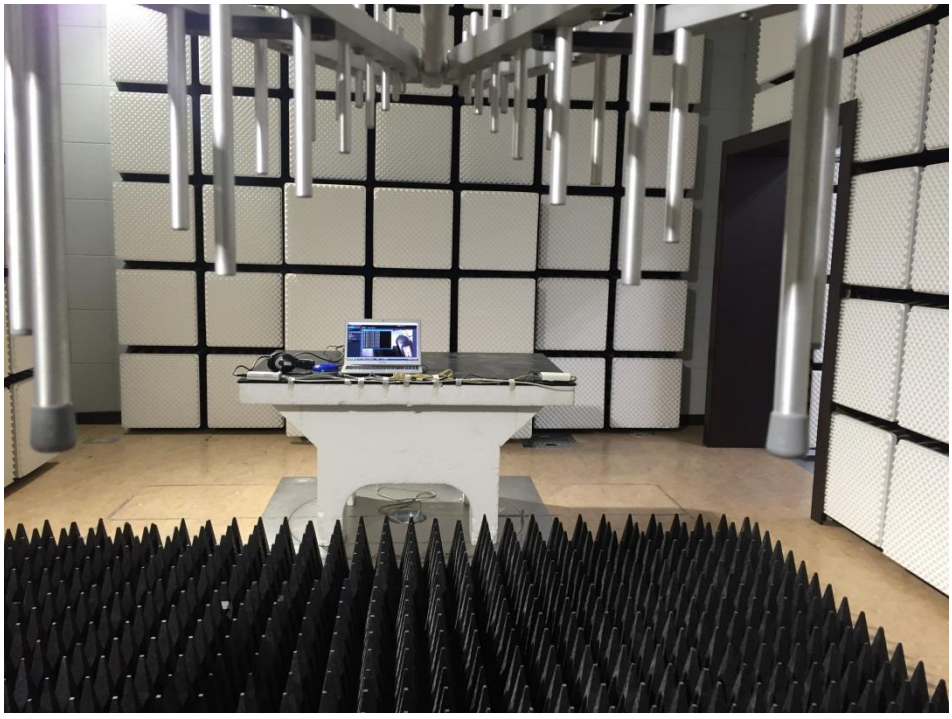


Radiated Electric Field Immunity

- DC IN



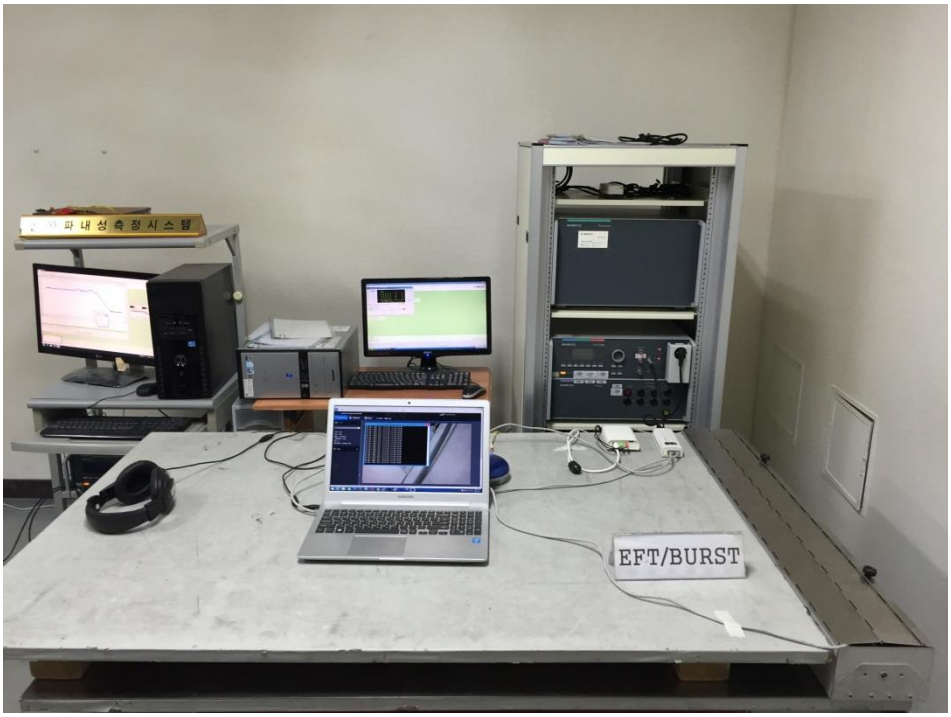
- PoE



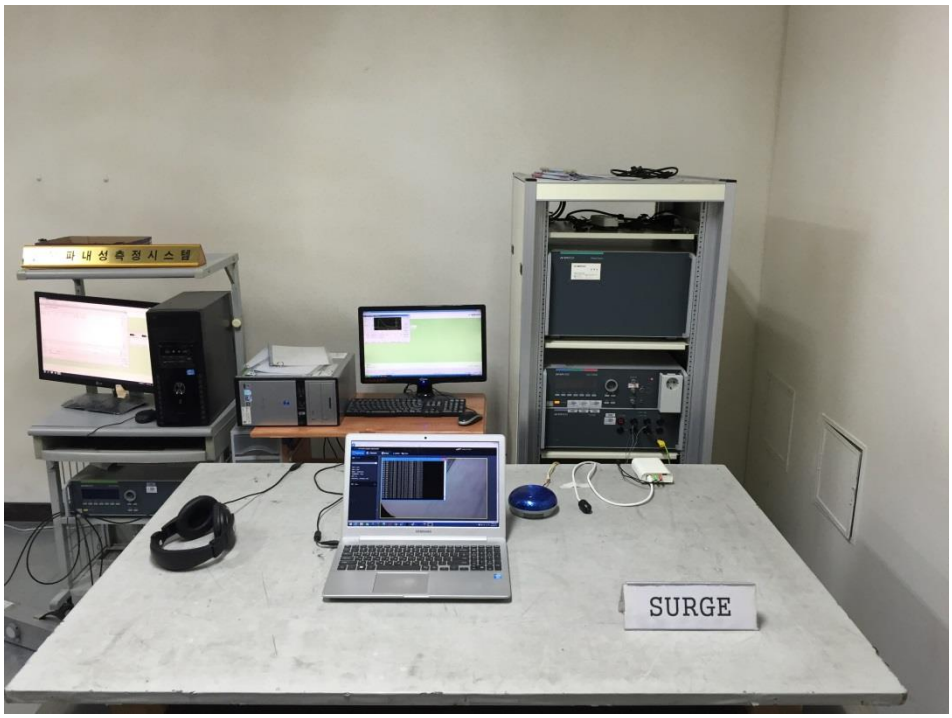
Electrical Fast Transients/Bursts

- DC IN

- PoE

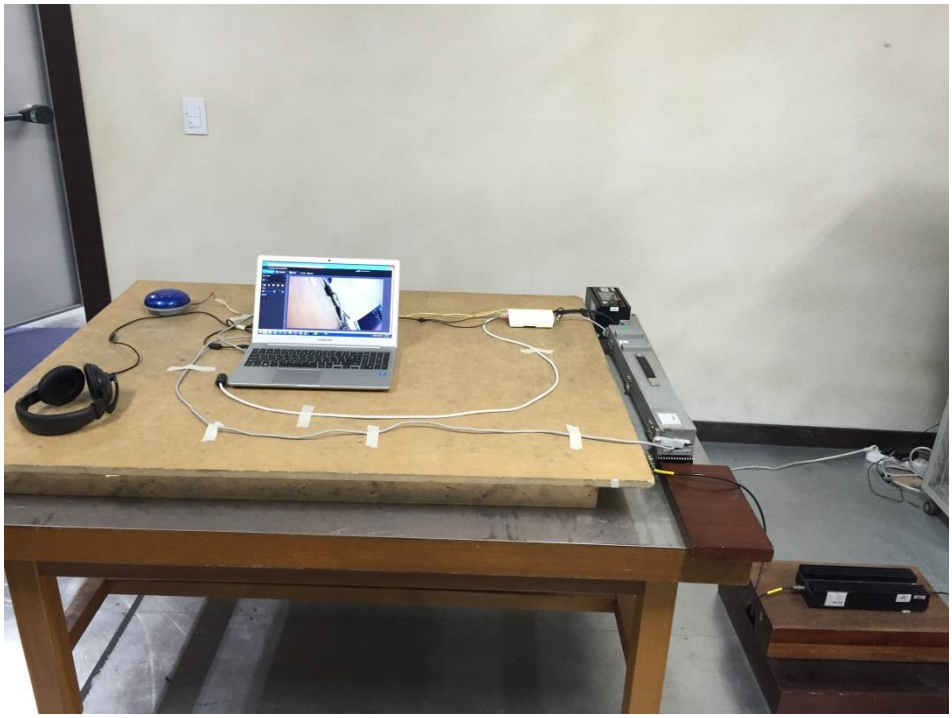


Surge Transients



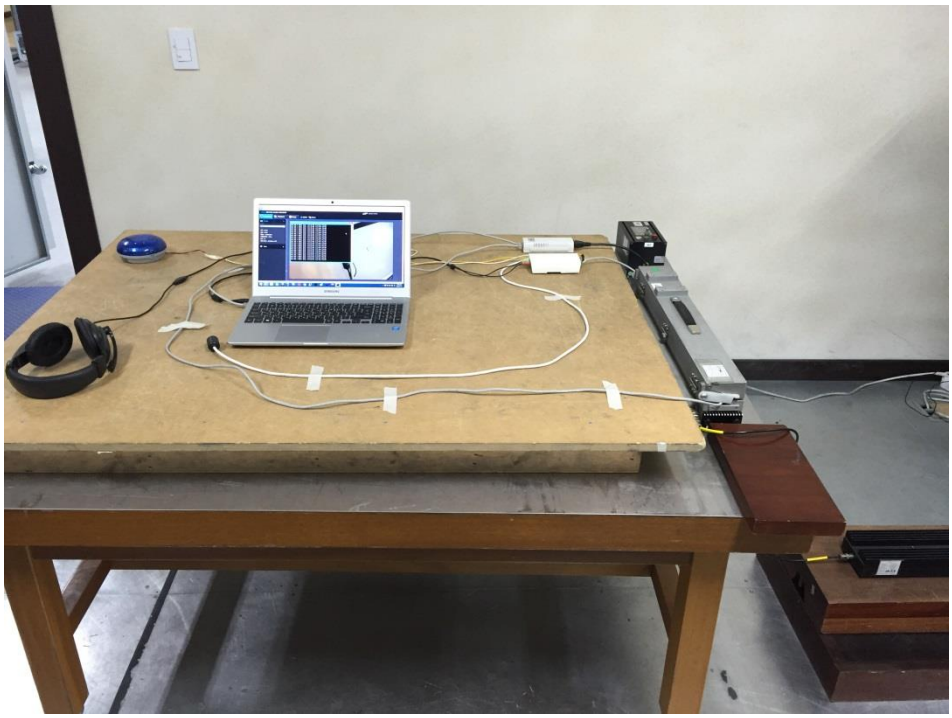
Conducted Disturbance

- DC IN



- PoE

N/A



Voltage Dips and Short Interruptions

N/A

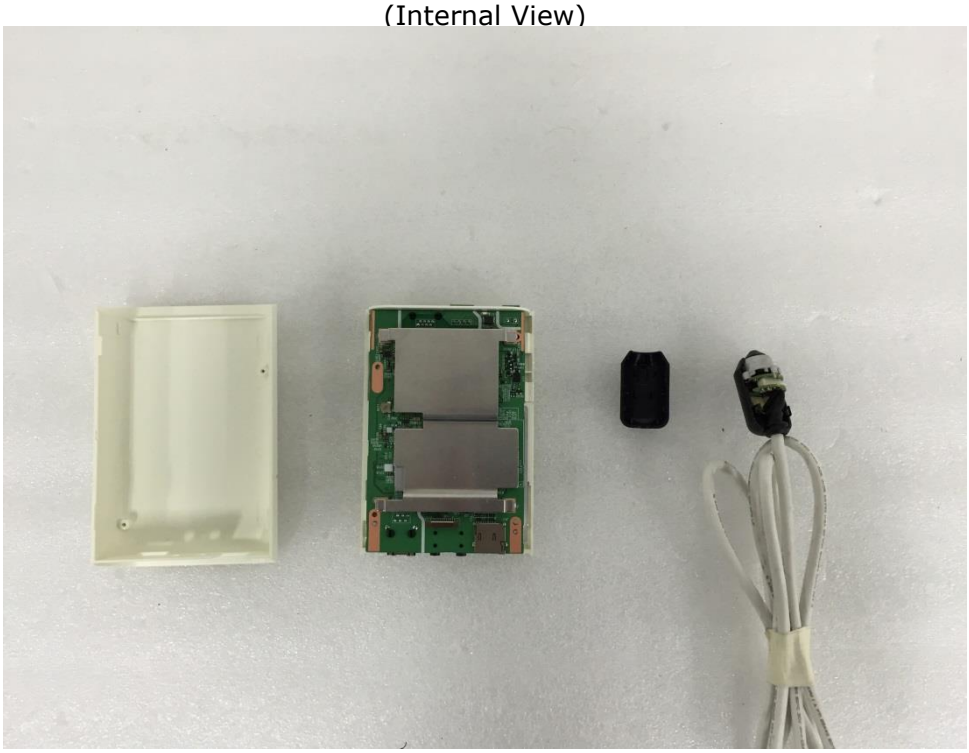
E.U.T External Photographs

(Top)

(Bottom)

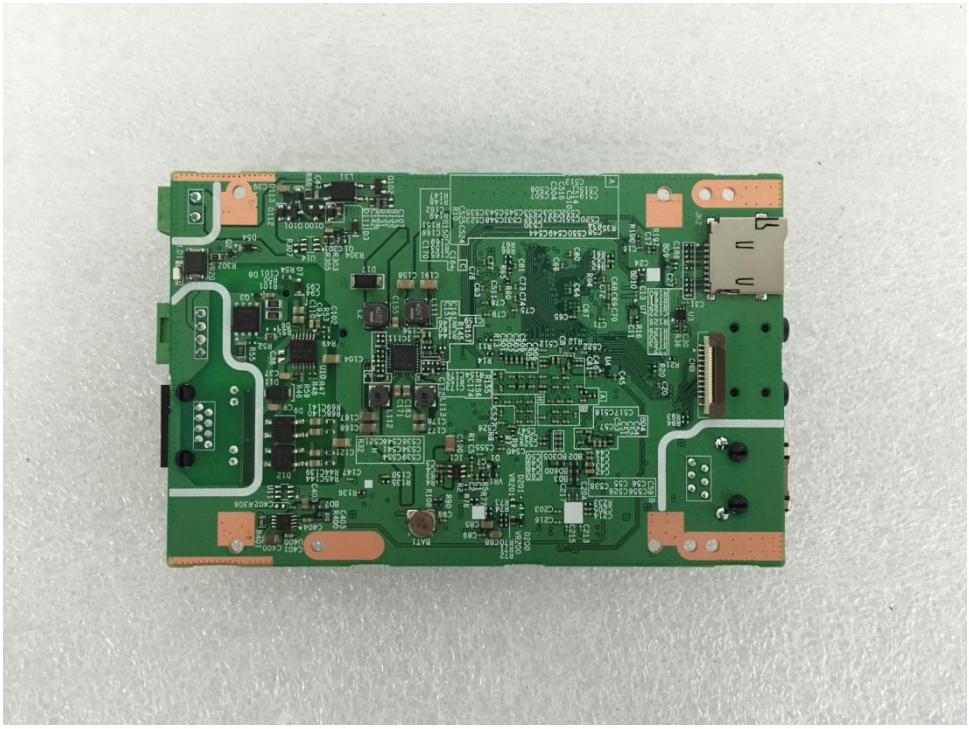
E.U.T Internal Photographs

(Internal View)

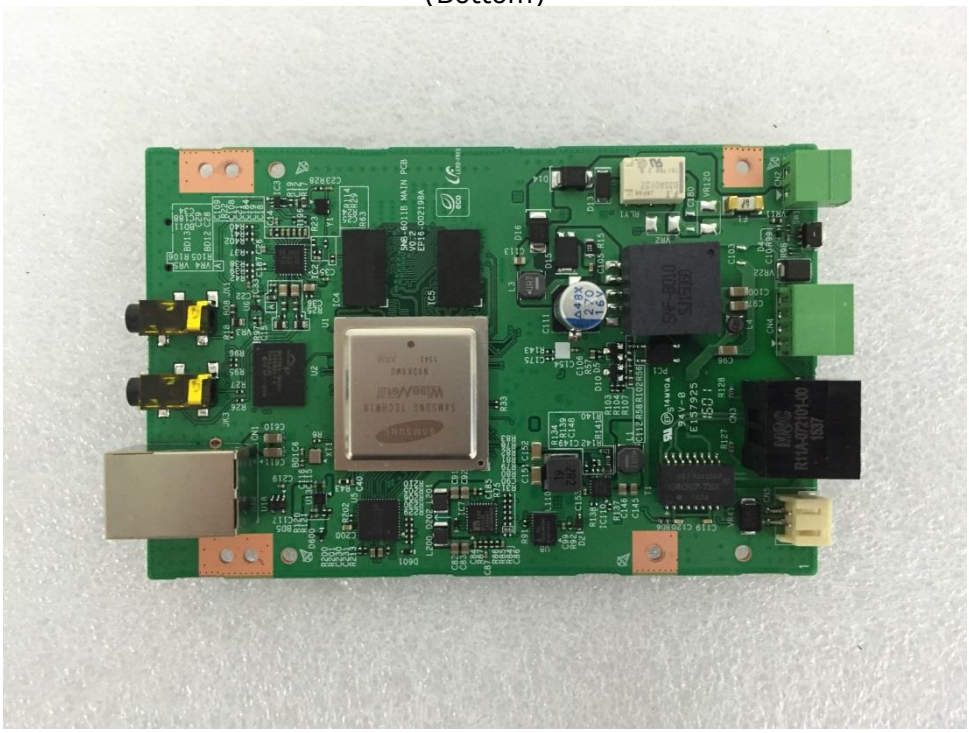


Main Board EUT Internal View – Main Board

(Top)

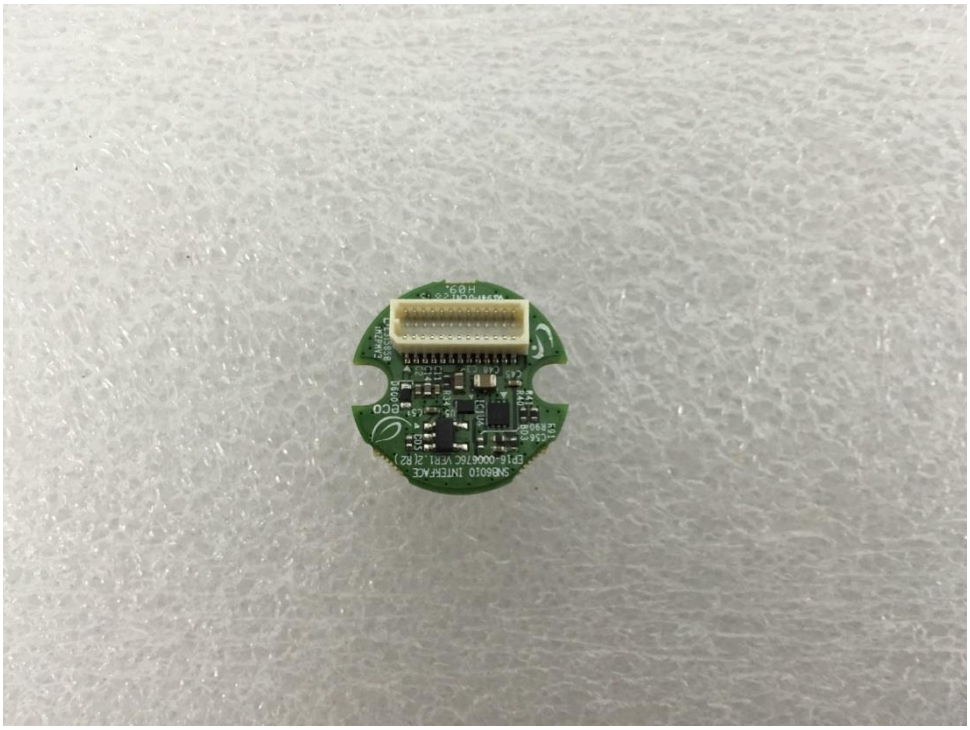


(Bottom)



Main Board EUT Internal View –Camera Board

(Top)



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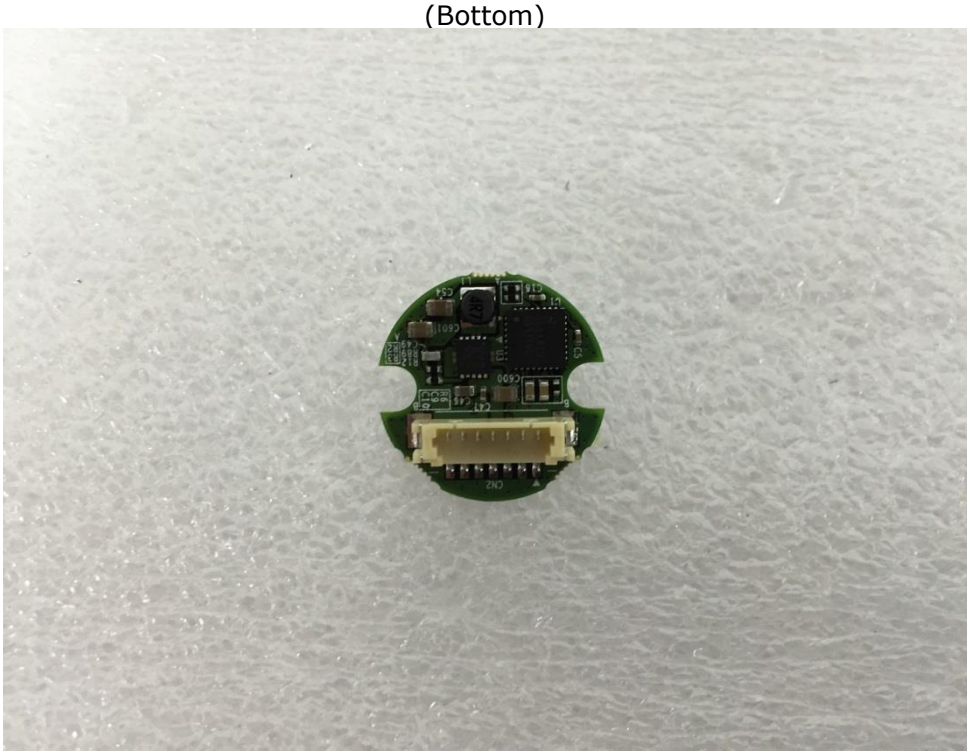
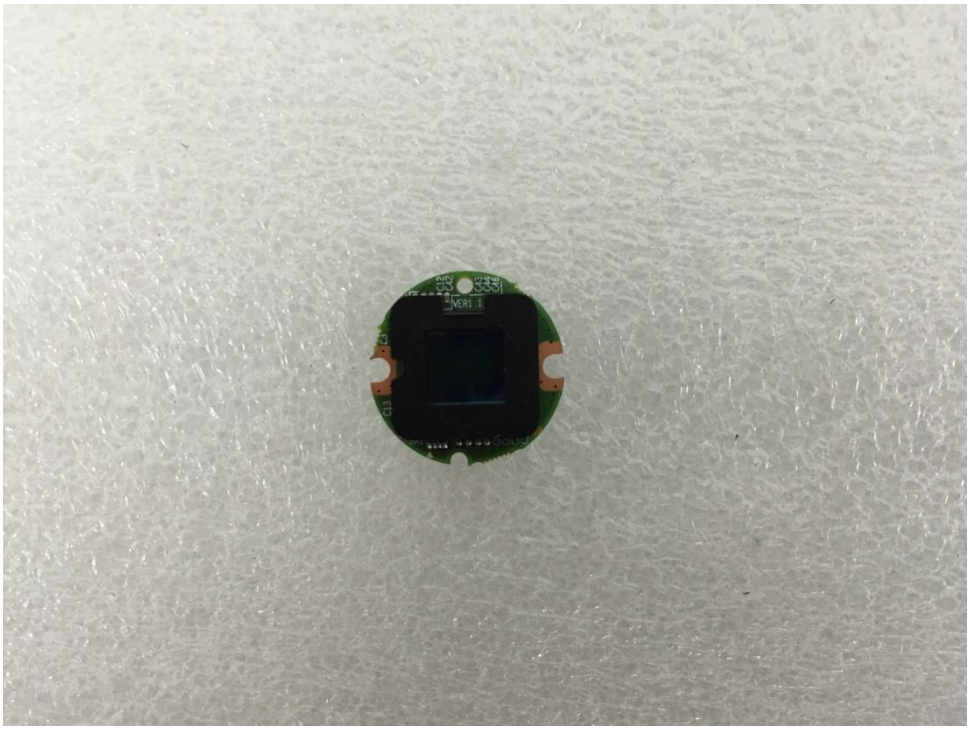


Main Board EUT Internal View –Lens Board

(Top)



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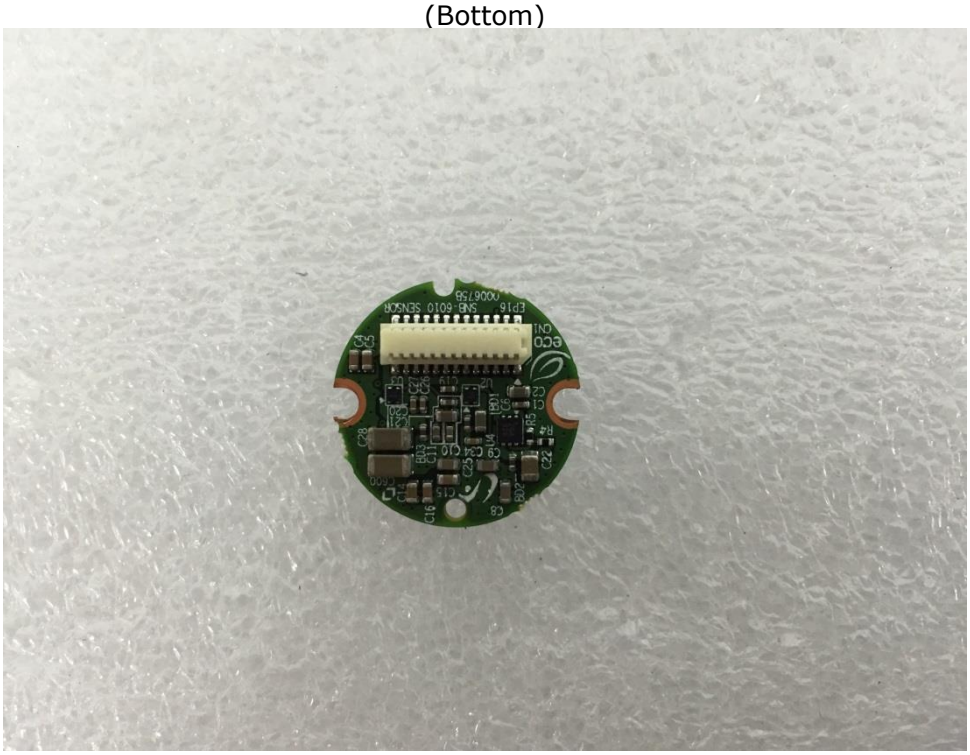
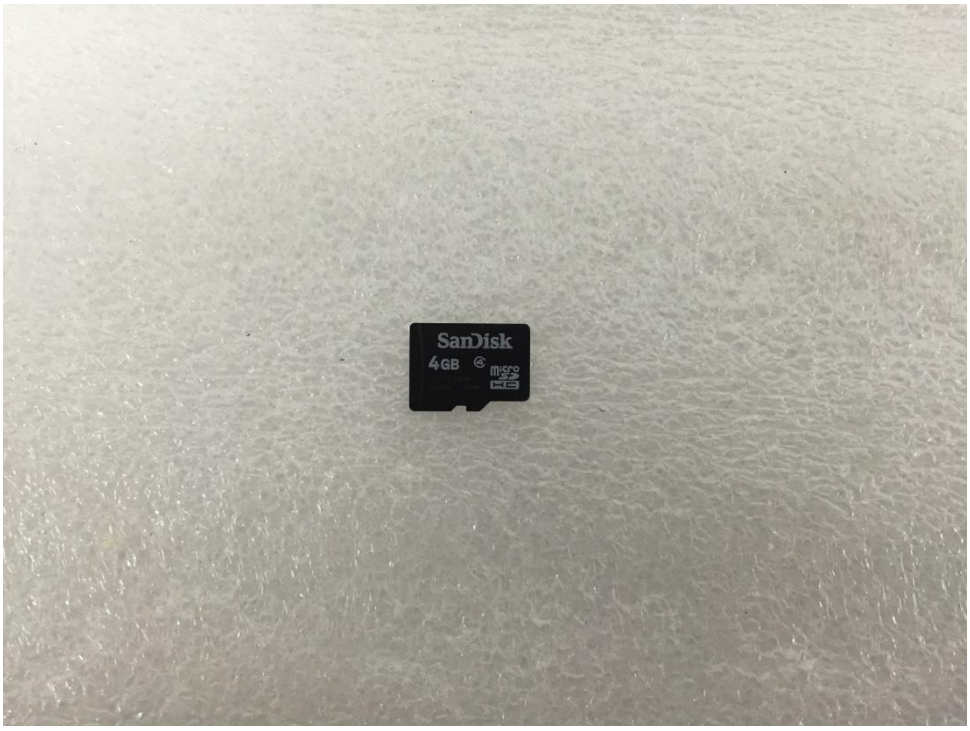


Main Board EUT Internal View – MICRO SD

(Top)



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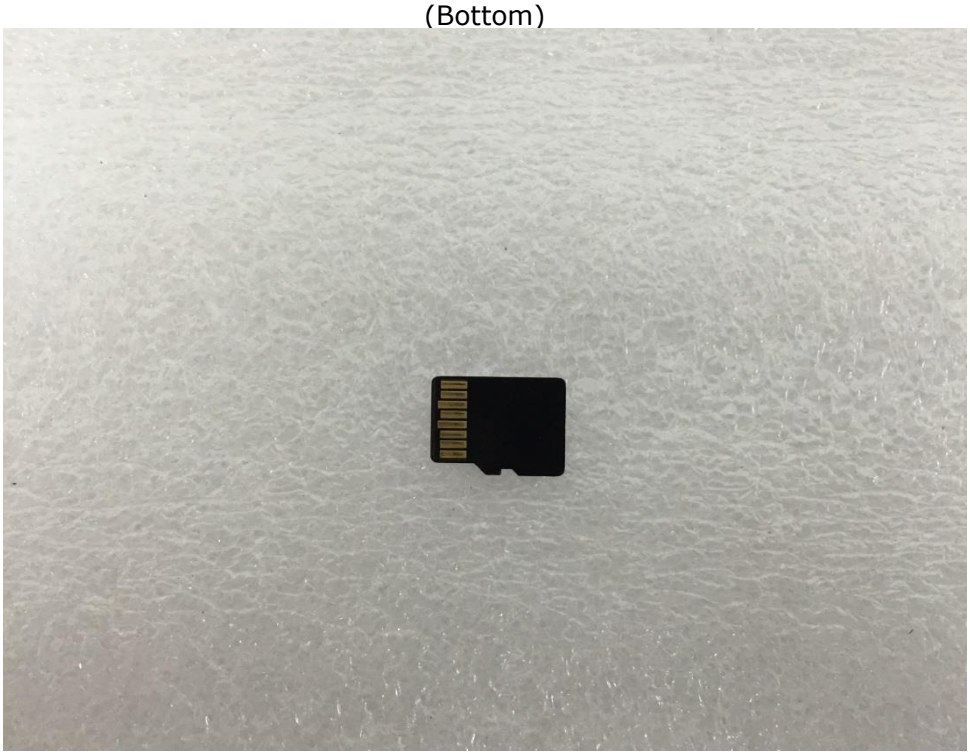
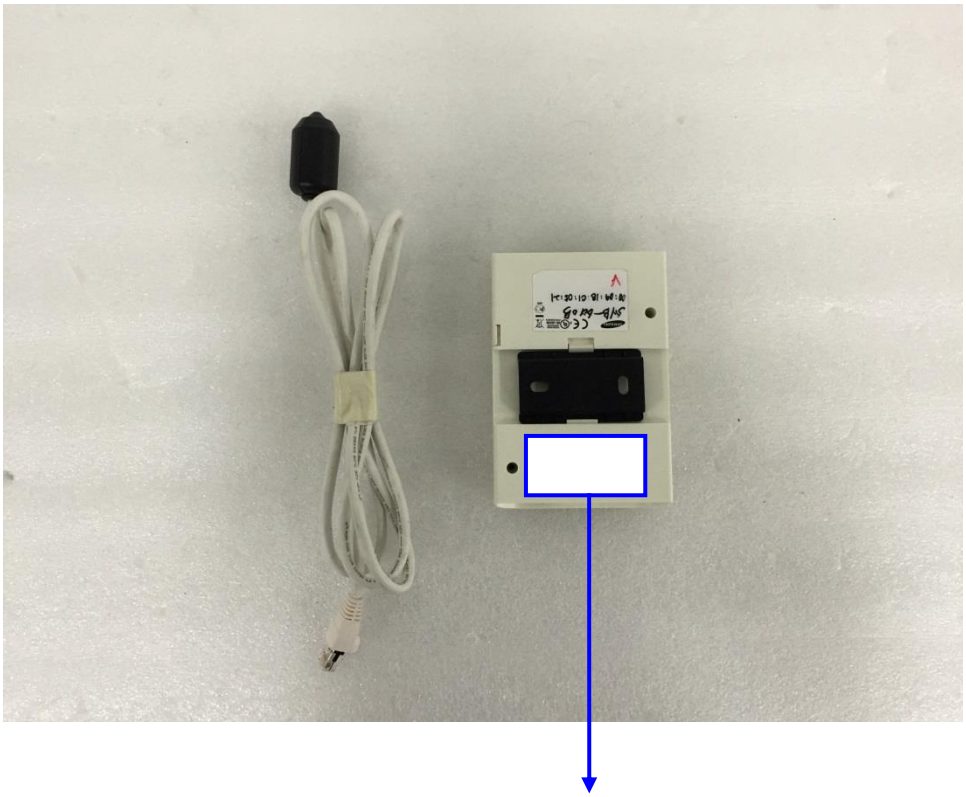


Label and Location



NETWORK CAMERA

Model No : SNB-6010BP

Manufacturer : Hanwha Techwin(Tianjin) Co., Ltd.

Made in of China