



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0055
Date of Issue : Feb. 19, 2016
Product name : NETWORK CAMERA
Model/Type No. : SNB-6011BN
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 : Jan. 20, 2016
Test date : Feb. 11, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Young Suk, Song
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

**KES Co., Ltd.**

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0055
Page (2) of (37)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 19, 2016	KES-E1-16T0055	Issued

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	5
1.2	Variant Model Differences.....	5
1.3	Device Modifications	5
1.4	Equipment Under Test.....	5
1.5	Support Equipments	5
1.6	External I/O Cabling	6
1.7	EUT Operating Mode(s)	7
1.8	Configuration.....	8
1.9	Calibration Details of Equipment Used for Measurement	9
1.10	Test Facility	9
1.11	Laboratory Accreditations and Listings	9
2.0	Test Regulations.....	10
2.1	Conducted Emissions at Mains Power Ports.....	12
2.2	Conducted Emissions at Telecommunication Ports.....	13
2.3	Radiated Electric Field Emissions(Below 1 GHz)	14
2.4	Radiated Electric Field Emissions(Above 1 GHz)	15
APPENDIX A – TEST DATA.....		16
Conducted Emissions at Mains Power Ports.....		16
Conducted Emissions at Telecommunication Ports		18
Radiated Electric Field Emissions(Below 1 GHz)		22
Radiated Electric Field Emissions(Above 1 GHz).....		23
EUT External Photographs		38
EUT Internal Photographs		39
Main Board EUT Internal View – Main Board		40
Main Board EUT Internal View – Lens Board		41
Main Board EUT Internal View – I/O Board		42
Main Board EUT Internal View – Power Board		오류! 책갈피가 정의되어 있지 않습니다.



1.0 General Product Description

Main Specifications of EUT are:

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, F2.0, 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)	2.4mm Fixed
Max. Aperture Ratio	2.0
Angular Field of View	H : 134.3° / V : 70.9°
Min. Object Distance	0.3m
Focus Control	-
Lens Type	-
Mount Type	RJ-12 connected with main unit
Alarm I/O	Input 1ea / Output 1ea
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.264 (MPEG-4 Part 10/AVC), Motion JPEG
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
Power Consumption	PoE : 7.5W DC12V : 6.5W
Mechanical	
Color / Material	Camera Header : Black / Plastic Main Unit : Ivory / Plastic
Dimension (WxHxD)	Camera Header : Ø24×50mm 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 ☐ 100 Vac ☐ 110 Vac ☐ 120 Vac ☐ 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-6011BP	-	Tianjin Samsung Techwin Opto-Electronic Co., Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE	PD3001GC/AC	RD9356082016964200	Power Dsine	-
Notebook	LG15N54	410NZET022292	LG Electronics Nanjing Display Co., Ltd.	-
Notebook adaptor	ADP-90WH B	84ZW19F6655	DELTA ELECTRONICS, INC.	-
Alarm Zig	-	-	-	-

1.6 External I/O Cabling

- DC 12V

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA(E.U.T)	DC 12V IN	Adaptor	DC 12V OUT	1.0	U
	RS-485	Alarm Zig	RS-485	3.0	U
	3.5 mm	Headset	3.5 mm	1.6	U
	RJ-45	Notebook	RJ-45	3.0	U
	Micro SD card slot	Micro SD card	Micro SD card slot	-	-

* Unshielded=U, Shielded=S

- PoE 12V

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA(E.U.T)	RJ-45	PoE	RJ-45	1.1	U
	RS-485	Alarm Zig	RS-485	3.0	U
	3.5 mm	Headset	3.5 mm	1.6	U
	RJ-45	Notebook	RJ-45	3.0	U
	Micro SD card slot	Micro SD card	Micro SD card slot	-	-
PoE	RJ-45	Notebook	RJ-45	3.0	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

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

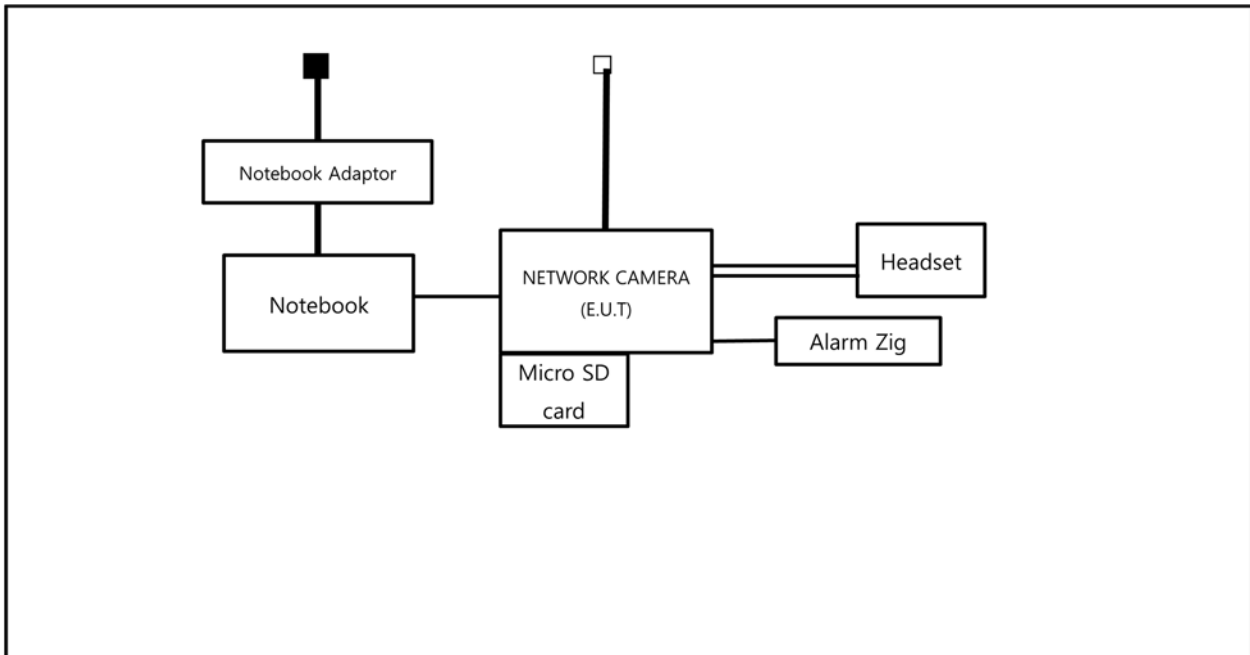
Test mode	Normal operating
DC 12V	1.Place the EUT as shown in the following layout. 2.Tested by running the PING TEST, and making sure that the camera is operating normally.
PoE	1.Place the EUT as shown in the following layout by using PoE adaptor. 2.Tested by running the PING TEST, and making sure that the camera is operating normally.

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

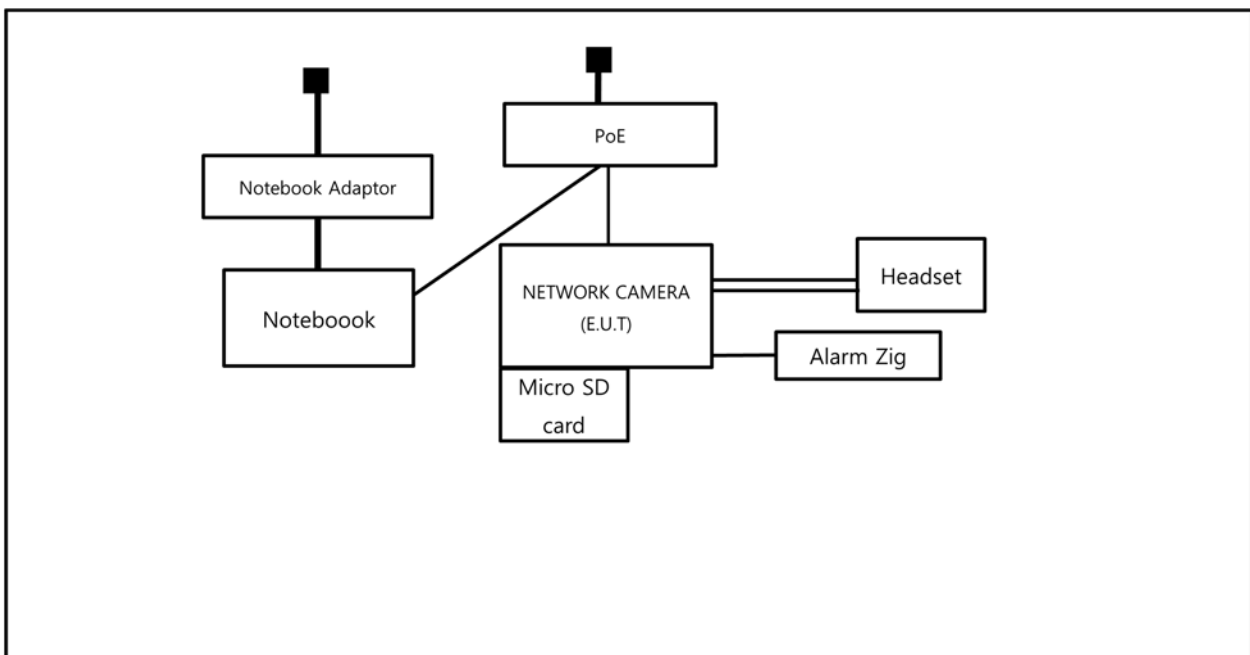
1.8 Configuration

■ AC Main
□ DC Main

- DC 12V



- PoE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

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 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



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0055
Page (11) of (37)

☐ **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

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



2.1 Conducted Emissions at Mains Power Ports

Test Date

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. 10. 2016
☐	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

See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Feb. 11, 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: 25.3 °C

Relative Humidity: 37.2 %

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

See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Feb. 11, 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
☒	OATS	-	KES	-	-
☒	Antenna Mast	-	EMCO	-	-
☒	Turn Table	-	DAEIL EMC	-	-

Test ConditionsTemperature: 2.0 °C
Relative Humidity: 47.0 %**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.

2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Feb. 11, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

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

Test Conditions

Temperature: 25.3 °C
Relative Humidity: 37,2 %

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■ MODE

[HOT]

N/A



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0055
Page (17) of (37)

[NEUTRAL]

N/A

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

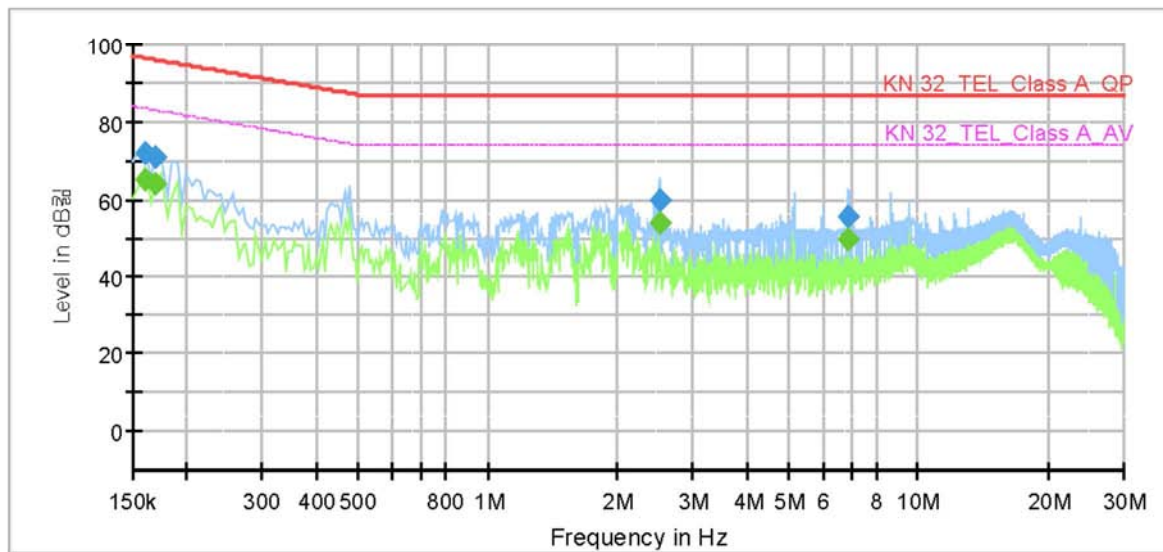
Conducted Emissions at Telecommunication Ports

■ MODE : DC 12V

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6011BN
Mode	DC 12V_10Mbps
Operator Name:	KES



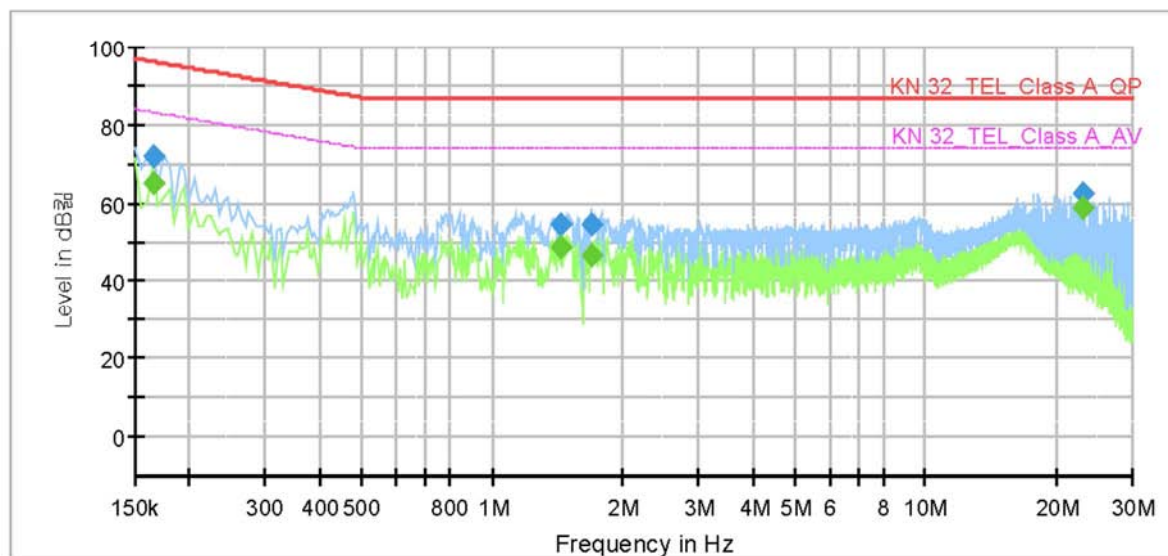
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	65.07	83.46	18.39	1000.0	9.000	Single Line	10.3
0.160000	72.05	---	96.46	24.41	1000.0	9.000	Single Line	10.3
0.170000	---	63.81	82.96	19.15	1000.0	9.000	Single Line	10.3
0.170000	70.72	---	95.96	25.24	1000.0	9.000	Single Line	10.3
2.500000	---	53.91	74.00	20.09	1000.0	9.000	Single Line	9.9
2.500000	59.55	---	87.00	27.45	1000.0	9.000	Single Line	9.9
6.900000	---	49.86	74.00	24.14	1000.0	9.000	Single Line	10.0
6.900000	55.78	---	87.00	31.22	1000.0	9.000	Single Line	10.0

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6011BN
Mode	DC 12V_100Mbps
Operator Name:	KES



Final Result

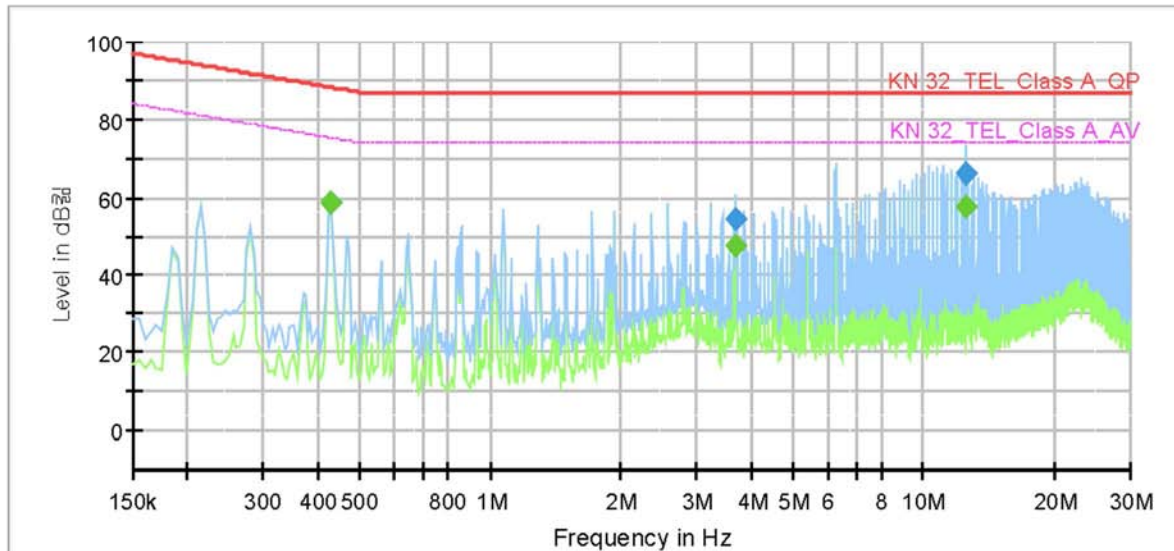
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	64.91	83.21	18.30	1000.0	9.000	Single Line	9.8
0.165000	71.88	---	96.21	24.33	1000.0	9.000	Single Line	9.8
1.435000	---	48.68	74.00	25.32	1000.0	9.000	Single Line	9.5
1.435000	54.33	---	87.00	32.67	1000.0	9.000	Single Line	9.5
1.690000	---	46.77	74.00	27.23	1000.0	9.000	Single Line	9.5
1.690000	54.35	---	87.00	32.65	1000.0	9.000	Single Line	9.5
23.130000	---	58.84	74.00	15.16	1000.0	9.000	Single Line	9.6
23.130000	62.60	---	87.00	24.40	1000.0	9.000	Single Line	9.6

■ MODE : PoE

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6011BN
Mode	PoE_10Mbps
Operator Name:	KES



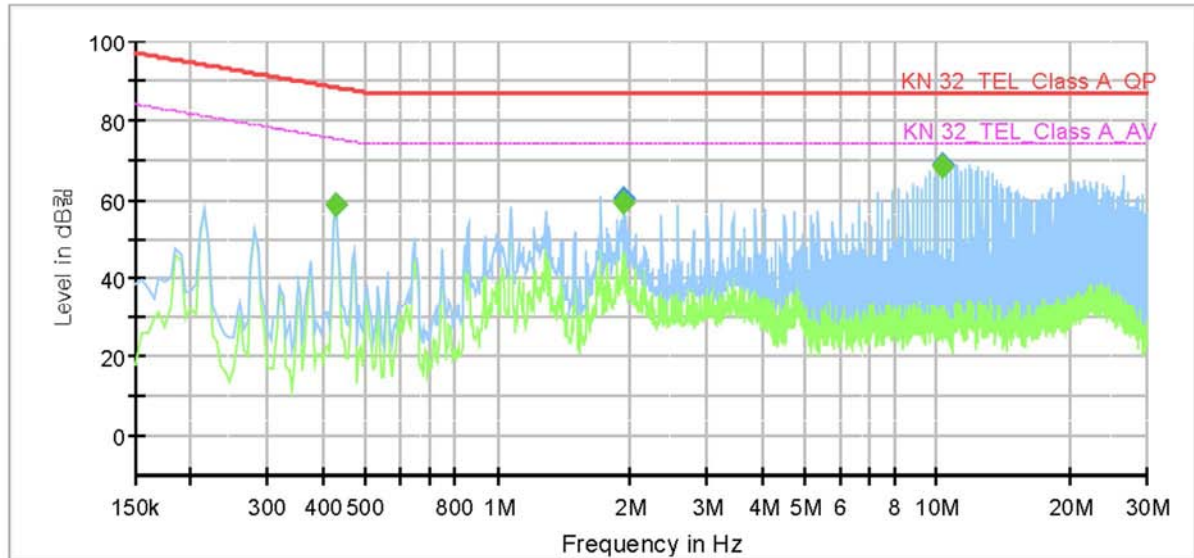
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.430000	---	58.79	75.25	16.46	1000.0	9.000	Single Line	10.1
0.430000	58.78	---	88.25	29.47	1000.0	9.000	Single Line	10.1
3.695000	---	47.77	74.00	26.23	1000.0	9.000	Single Line	9.9
3.695000	54.30	---	87.00	32.70	1000.0	9.000	Single Line	9.9
12.500000	---	57.73	74.00	16.27	1000.0	9.000	Single Line	10.1
12.500000	66.07	---	87.00	20.93	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SNB-6011BN
Mode	PoE_100Mbps
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBm)	CAverage (dBm)	Limit (dBm)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.430000	---	58.81	75.25	16.44	1000.0	9.000	Single Line	9.6
0.430000	58.79	---	88.25	29.46	1000.0	9.000	Single Line	9.6
1.930000	---	59.30	74.00	14.70	1000.0	9.000	Single Line	9.5
1.930000	60.32	---	87.00	26.68	1000.0	9.000	Single Line	9.5
10.300000	---	68.19	74.00	5.81	1000.0	9.000	Single Line	9.5
10.300000	68.55	---	87.00	18.45	1000.0	9.000	Single Line	9.5

Radiated Electric Field Emissions(Below 1 GHz)

■ MODE : DC 12V

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]
148.06	10.22	V	1.00	8.13	3.34	21.69	40.00	18.31
225.29	11.43	H	3.77	11.86	3.91	27.20	40.00	12.80
300.96	11.91	V	1.00	13.40	4.57	29.88	47.00	17.12
371.03	16.09	H	3.72	15.03	4.83	35.95	47.00	11.05
446.82	12.55	V	1.00	16.36	5.39	34.30	47.00	12.70
519.11	10.17	H	3.34	17.52	5.73	33.42	47.00	13.58

* H : Horizontal, V : Vertical

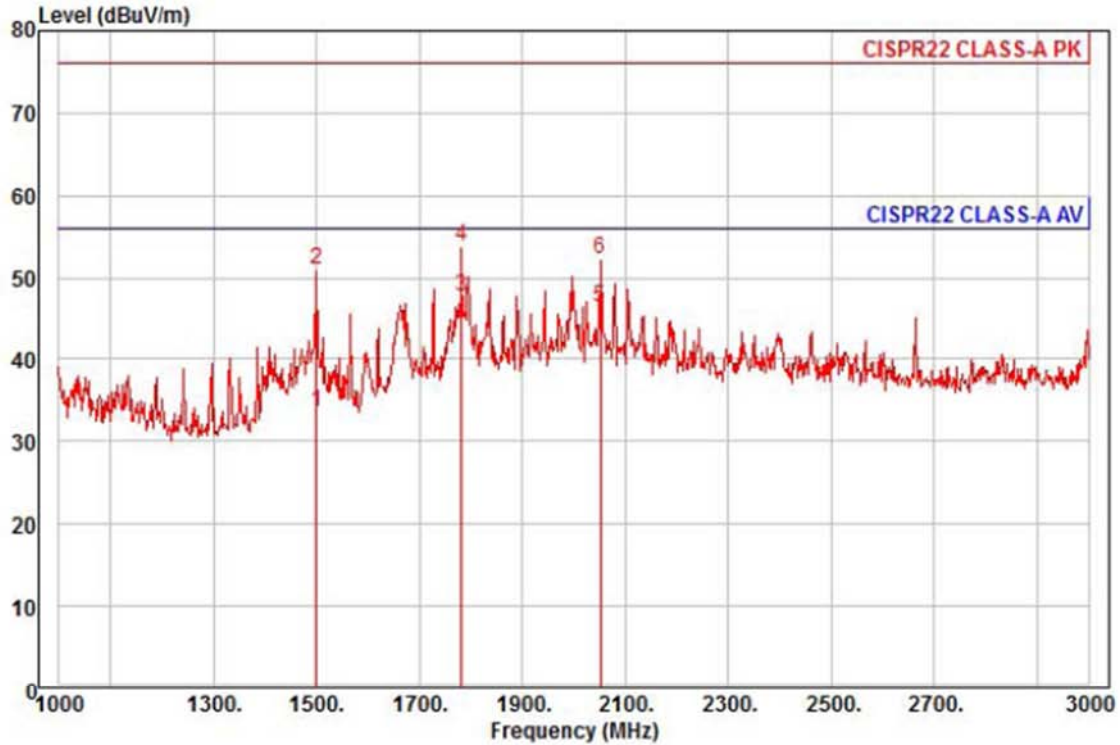
■ MODE : PoE

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]
148.19	11.15	V	1.00	8.13	3.35	22.63	40.00	17.37
250.48	9.88	H	3.34	12.42	4.00	26.30	47.00	20.70
300.02	12.54	V	1.00	13.38	4.57	30.49	47.00	16.51
350.26	11.41	H	3.90	14.55	4.59	30.55	47.00	16.45
400.39	8.19	V	1.00	15.71	5.17	29.07	47.00	17.93
519.12	7.35	H	3.12	17.52	5.73	30.60	47.00	16.40

* H : Horizontal, V : Vertical

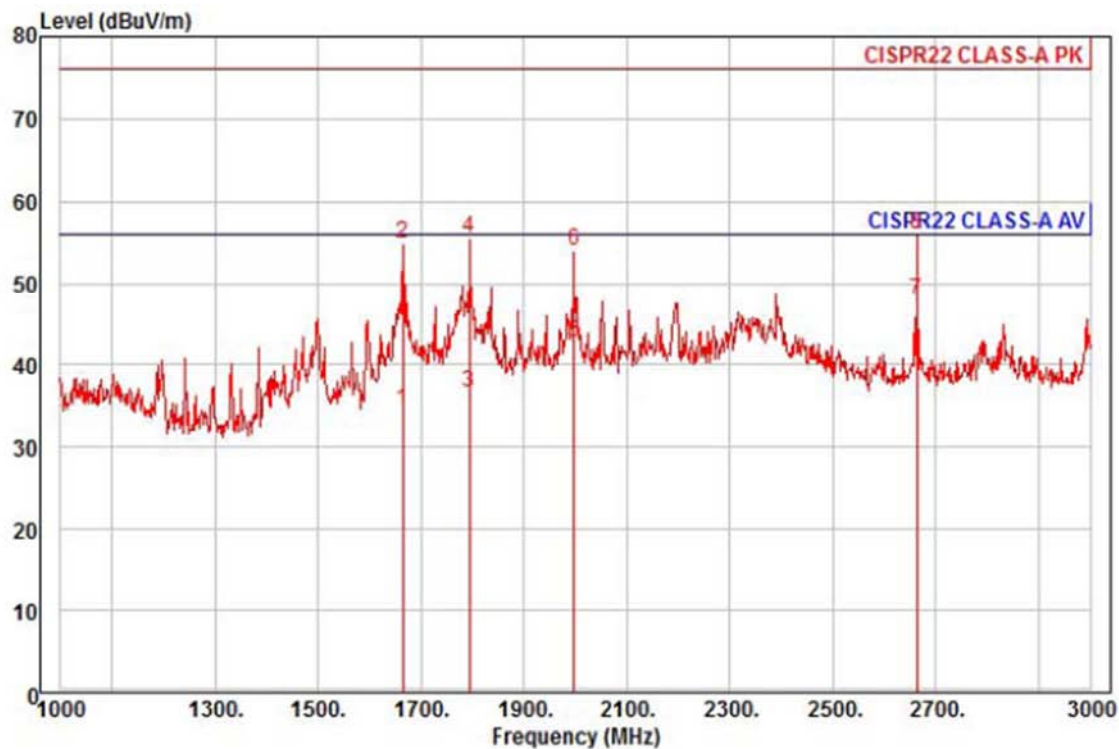
Radiated Electric Field Emissions(Above 1 GHz)

■ MODE : DC 12V



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6011BN
Mode : DC 12V
Memo :

	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	1500.00	39.66	25.90	7.96	39.88	43	56.00	-22.36	horizontal	Average
2	1500.00	57.13	25.90	7.96	39.88	43	76.00	-24.89	horizontal	Peak
3 pp	1782.00	51.67	27.01	8.75	39.74	22	56.00	-8.31	horizontal	Average
4 pk	1782.00	57.74	27.01	8.75	39.74	22	76.00	-22.24	horizontal	Peak
5	2052.00	48.70	28.01	9.43	39.66	168	56.00	-9.52	horizontal	Average
6	2052.00	54.59	28.01	9.43	39.66	168	76.00	-23.63	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-6011BN
Mode : DC 12V
Memo :

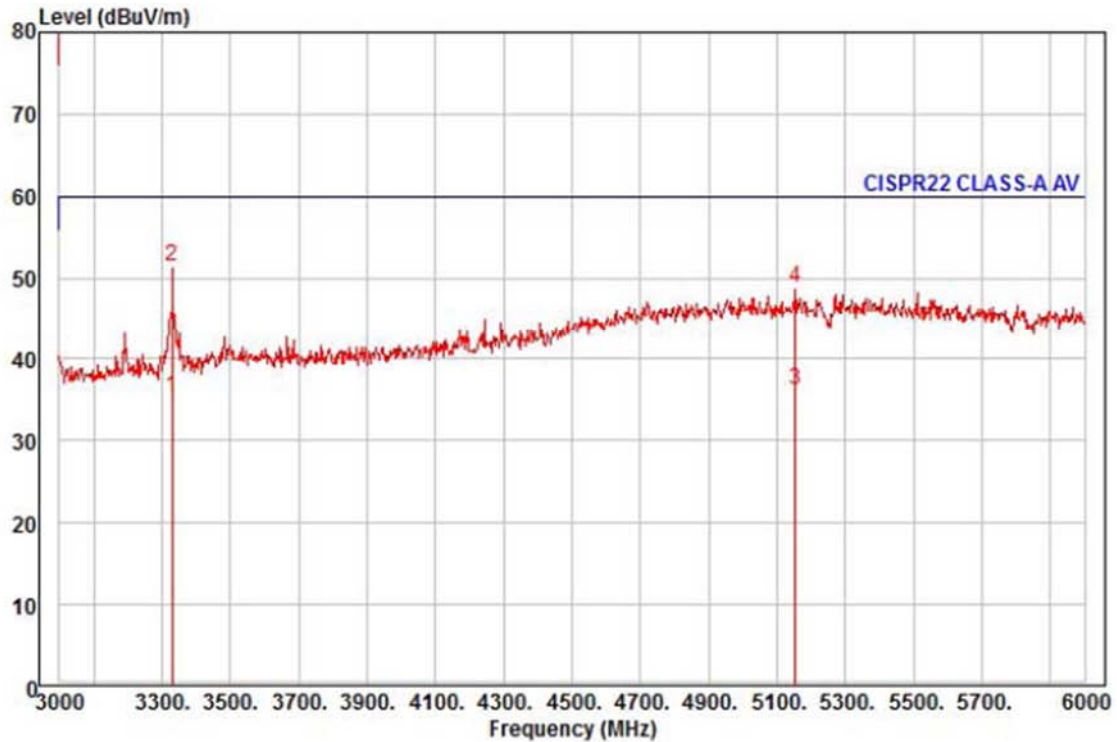
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1666.00	39.24	26.55	8.43	39.79	337	56.00	-21.57	vertical	Average
2	1666.00	59.64	26.55	8.43	39.79	337	76.00	-21.17	vertical	Peak
3	1794.00	40.58	27.06	8.78	39.73	334	56.00	-19.31	vertical	Average
4	1794.00	59.48	27.06	8.78	39.73	334	76.00	-20.41	vertical	Peak
5	1998.00	45.11	27.87	9.34	39.63	36	56.00	-13.31	vertical	Average
6	1998.00	56.45	27.87	9.34	39.63	36	76.00	-21.97	vertical	Peak
7 pp	2664.00	48.11	29.51	10.42	40.02	87	56.00	-7.98	vertical	Average
8 pk	2664.00	56.08	29.51	10.42	40.02	87	76.00	-20.01	vertical	Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

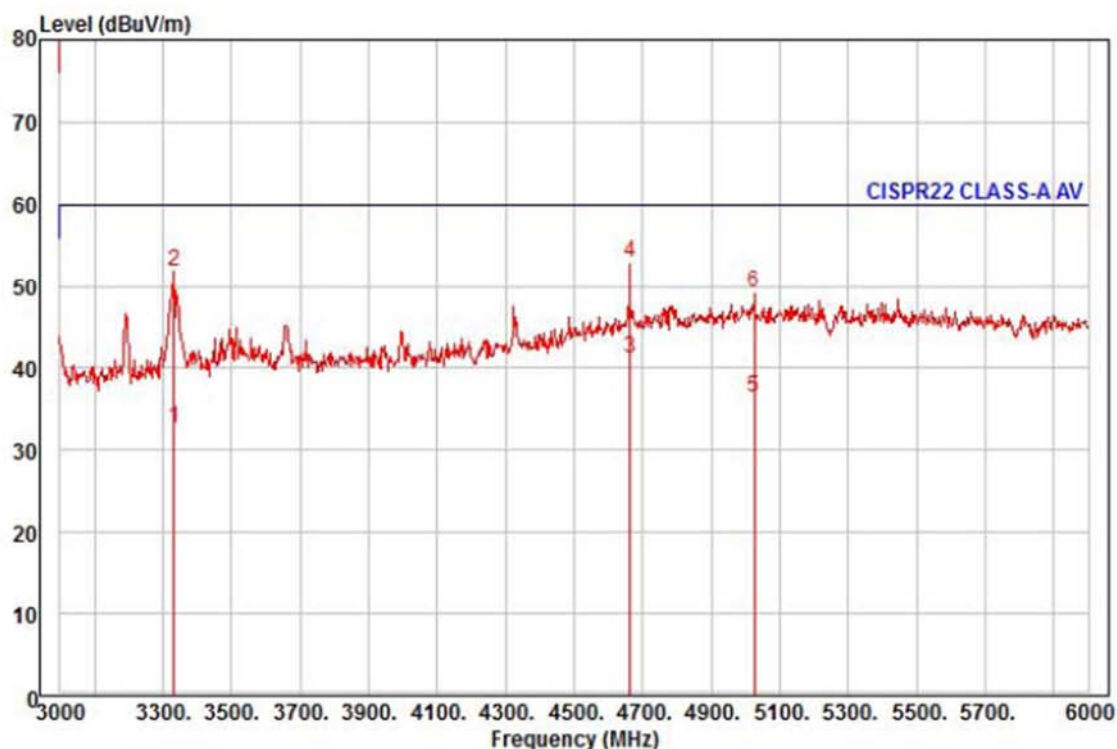
Test report No.:
KES-E1-16T0055
Page (25) of (37)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6011BN
Mode : DC 12V
Memo :

	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	32.60	30.88	12.07	40.28	222	60.00	-24.73	horizontal	Average
2 pk	3330.00	48.72	30.88	12.07	40.28	222	80.00	-28.61	horizontal	Peak
3 pp	5154.00	23.73	37.41	15.51	40.39	202	60.00	-23.74	horizontal	Average
4	5154.00	36.38	37.41	15.51	40.39	202	80.00	-31.09	horizontal	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6011BN
Mode : DC 12V
Memo :

	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	3333.00	30.00	30.89	12.08	40.28	139	60.00	-27.31	vertical	Average
2	3333.00	49.08	30.89	12.08	40.28	139	80.00	-28.23	vertical	Peak
3 pp	4662.00	31.15	35.79	14.72	40.41	4	60.00	-18.75	vertical	Average
4 pk	4662.00	42.80	35.79	14.72	40.41	4	80.00	-27.10	vertical	Peak
5	5025.00	23.69	37.67	15.36	40.41	1	60.00	-23.69	vertical	Average
6	5025.00	36.56	37.67	15.36	40.41	1	80.00	-30.82	vertical	Peak

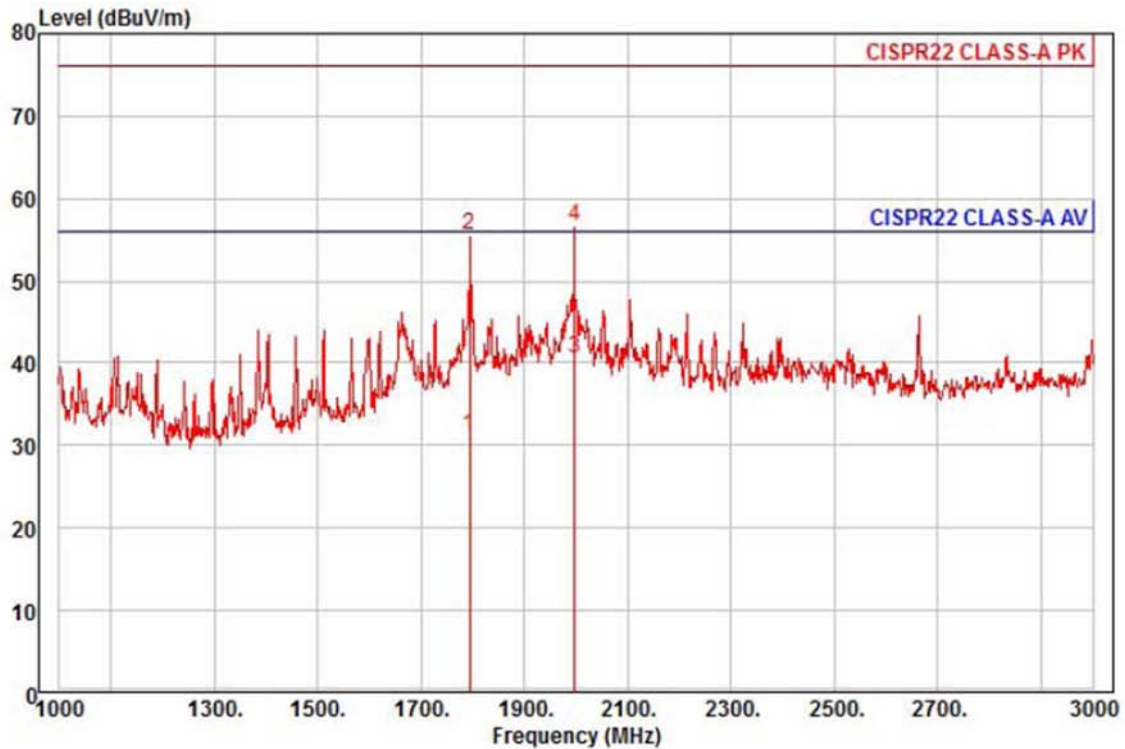


KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-EI-16T0055
Page (27) of (37)

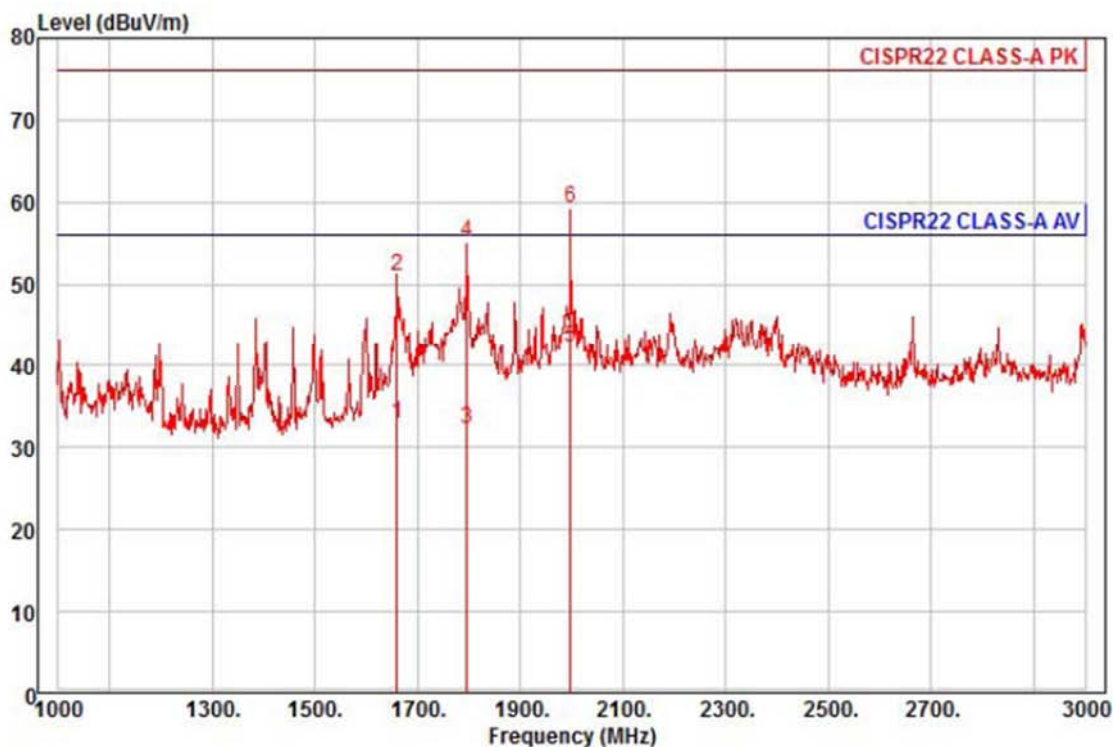
■ MODE : PoE



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6011BN
Mode : PoE
Memo :

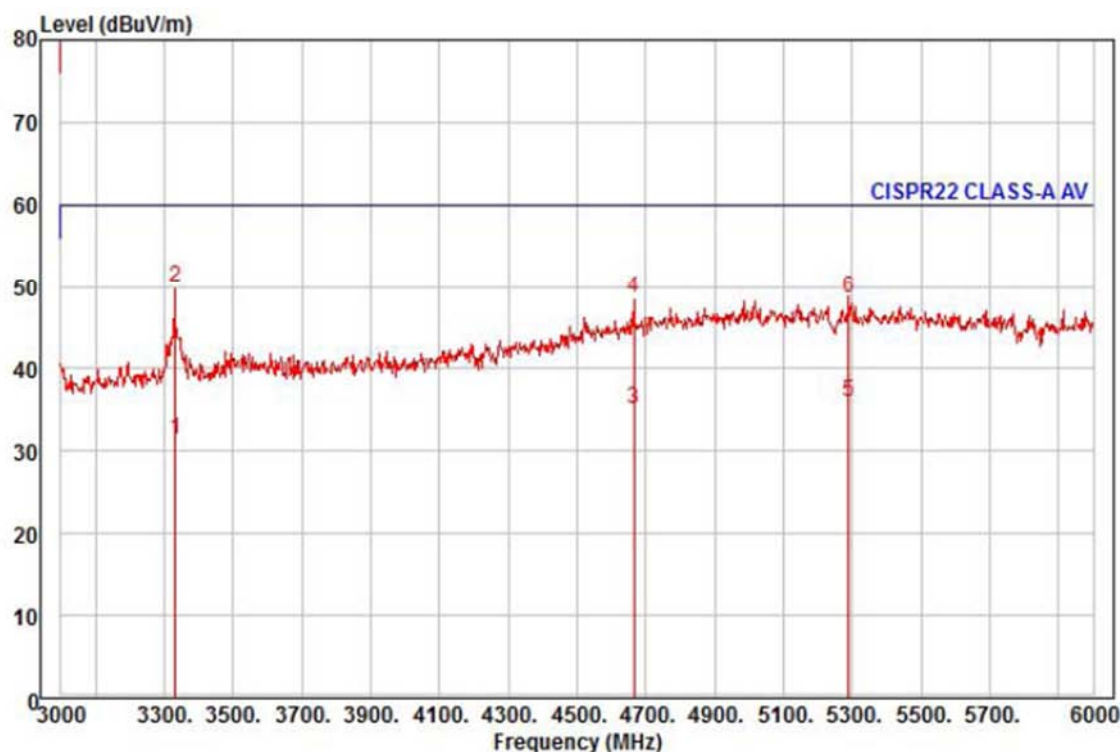
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1794.00	35.13	27.06	8.78	39.73	280	56.00	-24.76	horizontal	Average
2	1794.00	59.38	27.06	8.78	39.73	280	76.00	-20.51	horizontal	Peak
3 pp	1998.00	42.88	27.87	9.34	39.63	212	56.00	-15.54	horizontal	Average
4 pk	1998.00	59.20	27.87	9.34	39.63	212	76.00	-19.22	horizontal	Peak

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.



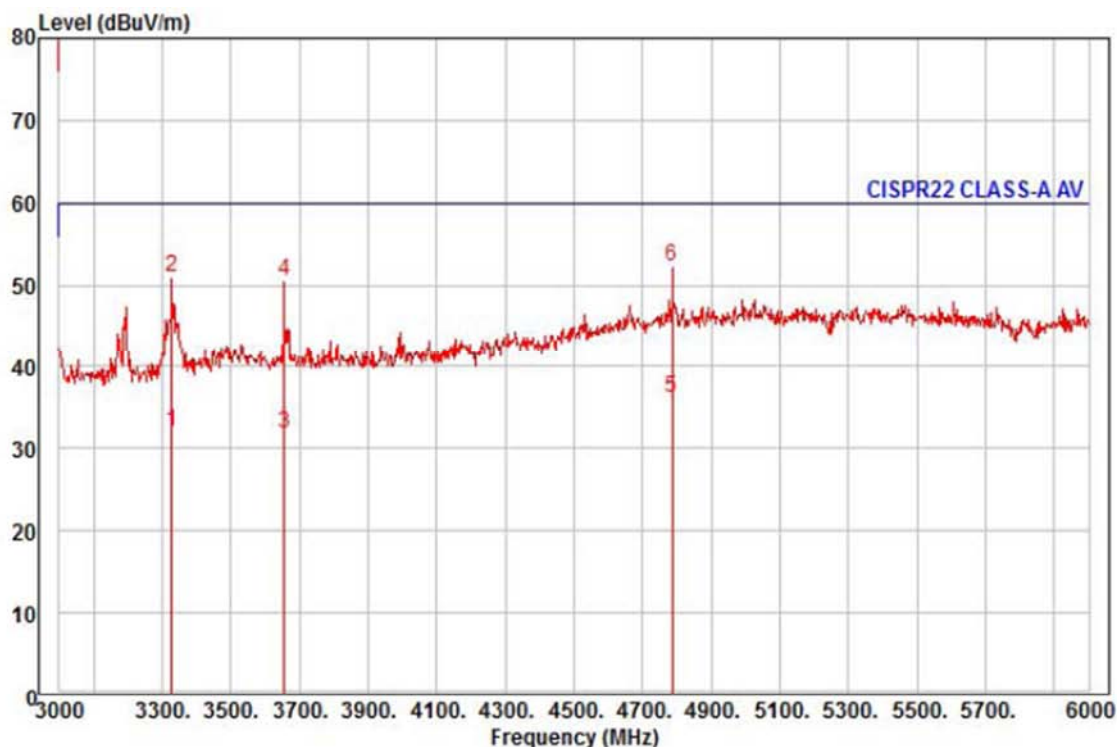
Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SNB-6011BN
Mode : PoE
Memo :

	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	1660.00	37.82	26.53	8.41	39.80	96	56.00	-23.04	vertical	Average
2	1660.00	55.87	26.53	8.41	39.80	96	76.00	-24.99	vertical	Peak
3	1796.00	36.20	27.07	8.79	39.73	10	56.00	-23.67	vertical	Average
4	1796.00	58.93	27.07	8.79	39.73	10	76.00	-20.94	vertical	Peak
5 pp	1998.00	44.64	27.87	9.34	39.63	85	56.00	-13.78	vertical	Average
6 pk	1998.00	61.72	27.87	9.34	39.63	85	76.00	-16.70	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-6011BN
Mode : PoE
Memo :

	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	3333.00	28.60	30.89	12.08	40.28	15	60.00	-28.71	horizontal	Average
2 pk	3333.00	47.24	30.89	12.08	40.28	15	80.00	-30.07	horizontal	Peak
3	4665.00	24.87	35.81	14.73	40.41	95	60.00	-25.00	horizontal	Average
4	4665.00	38.41	35.81	14.73	40.41	95	80.00	-31.46	horizontal	Peak
5 pp	5289.00	23.59	37.14	15.67	40.37	52	60.00	-23.97	horizontal	Average
6	5289.00	36.17	37.14	15.67	40.37	52	80.00	-31.39	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-6011BN
Mode : PoE
Memo :

	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	29.46	30.88	12.06	40.28	225	60.00	-27.88	vertical	Average
2	3327.00	48.25	30.88	12.06	40.28	225	80.00	-29.09	vertical	Peak
3	3657.00	27.97	31.43	12.82	40.34	150	60.00	-28.12	vertical	Average
4	3657.00	46.59	31.43	12.82	40.34	150	80.00	-29.50	vertical	Peak
5 pp	4785.00	25.10	36.49	14.94	40.41	205	60.00	-23.88	vertical	Average
6 pk	4785.00	41.37	36.49	14.94	40.41	205	80.00	-27.61	vertical	Peak



KES Co., Ltd.

C-3701, Simin-daero 365-40,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Test report No.:
KES-E1-16T0055
Page (31) of (37)

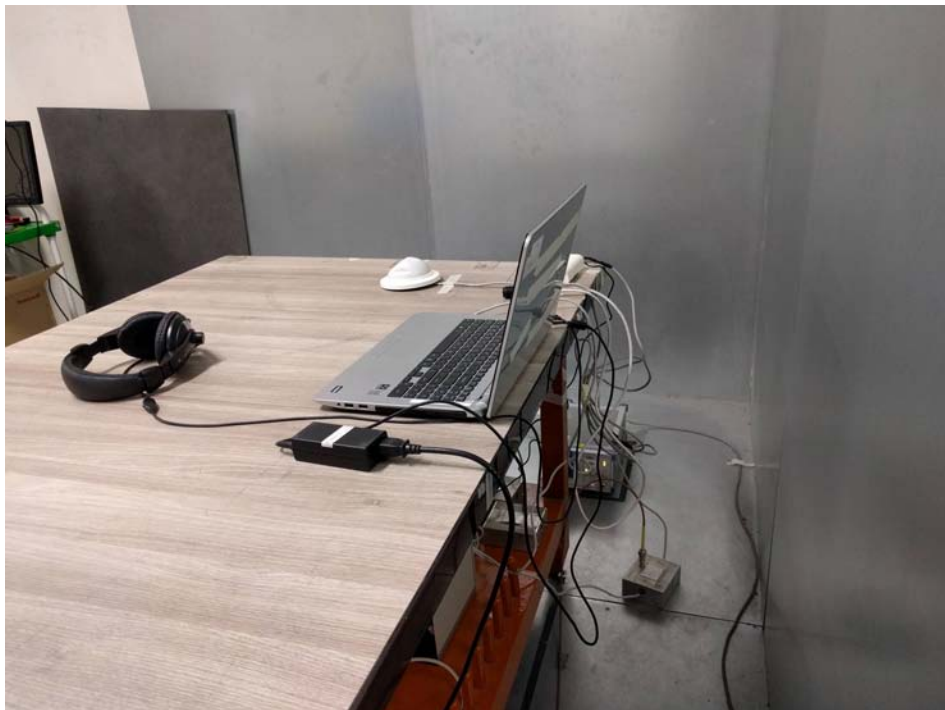
Test Setup Photos and Configuration

Conducted Voltage Emissions

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

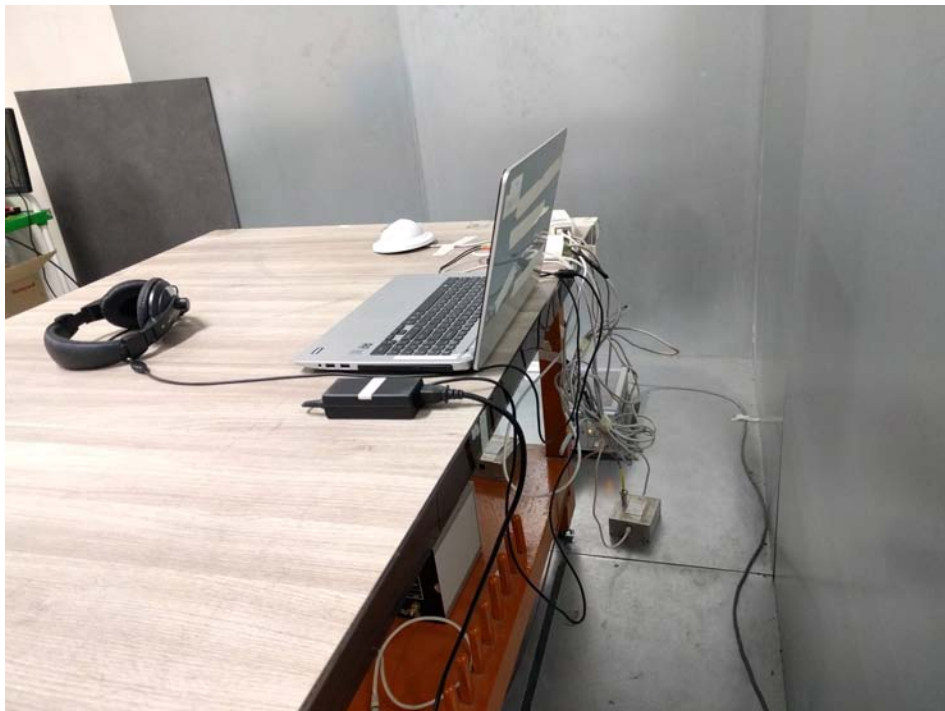
Conducted Telecommunication Emissions

- DC 12 V



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- PoE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- PoE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

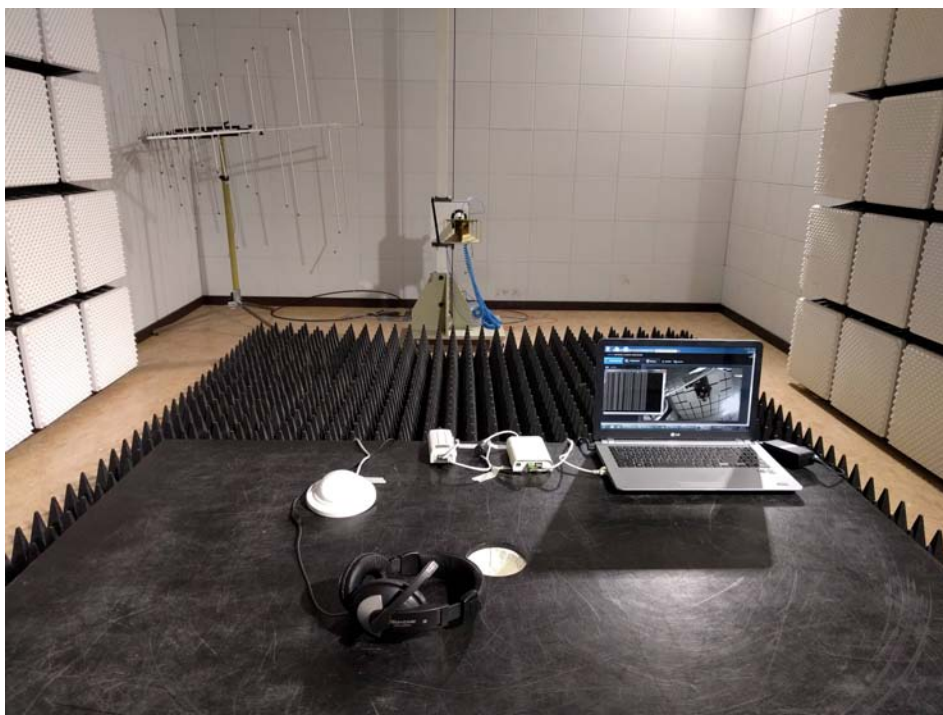
Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

- PoE



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

EUT External Photographs

(Top)

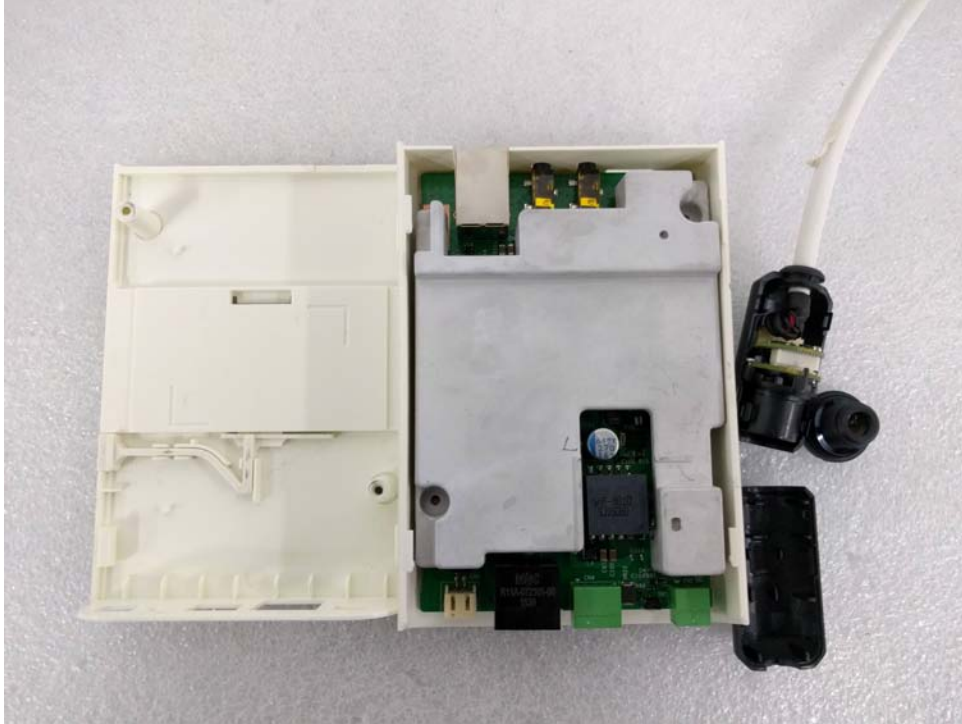


(Bottom)



EUT Internal Photographs

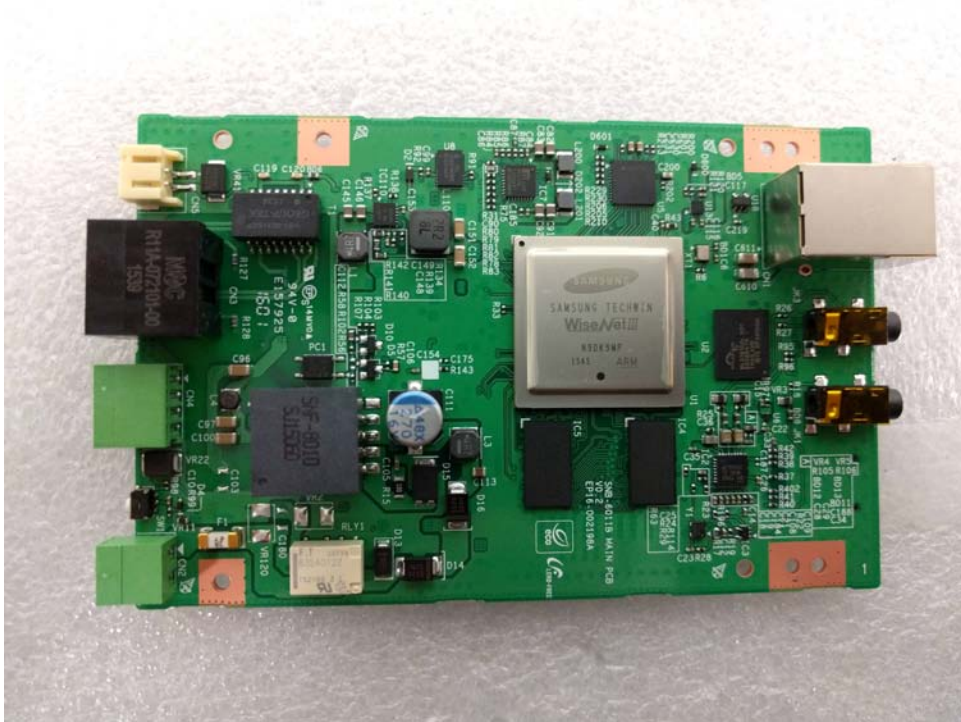
(Internal View)



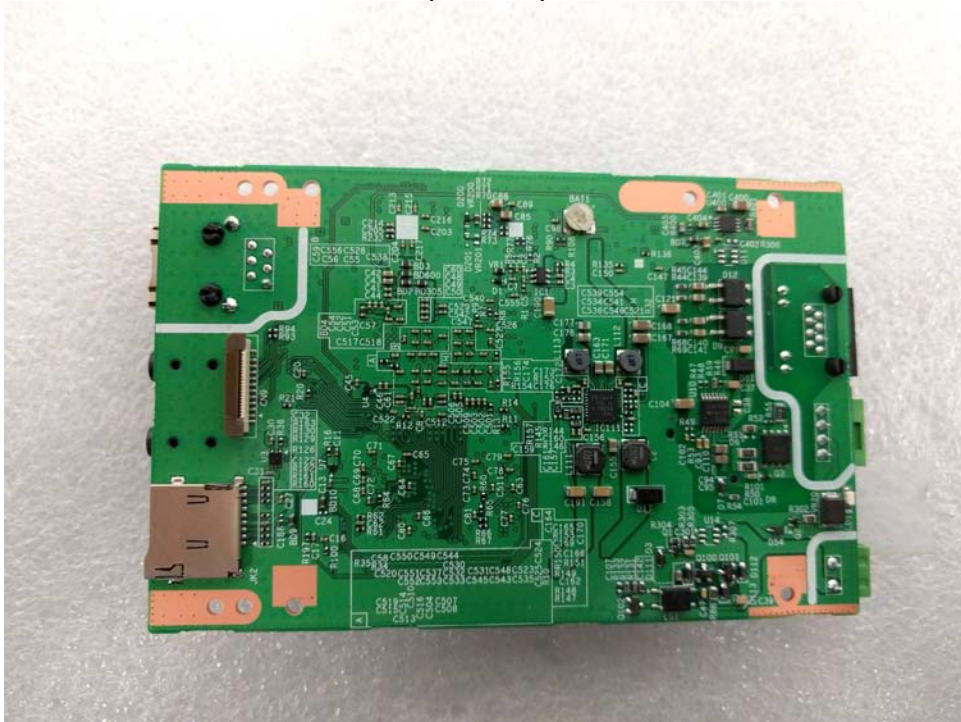
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Main Board EUT Internal View – Board 1

(Top)



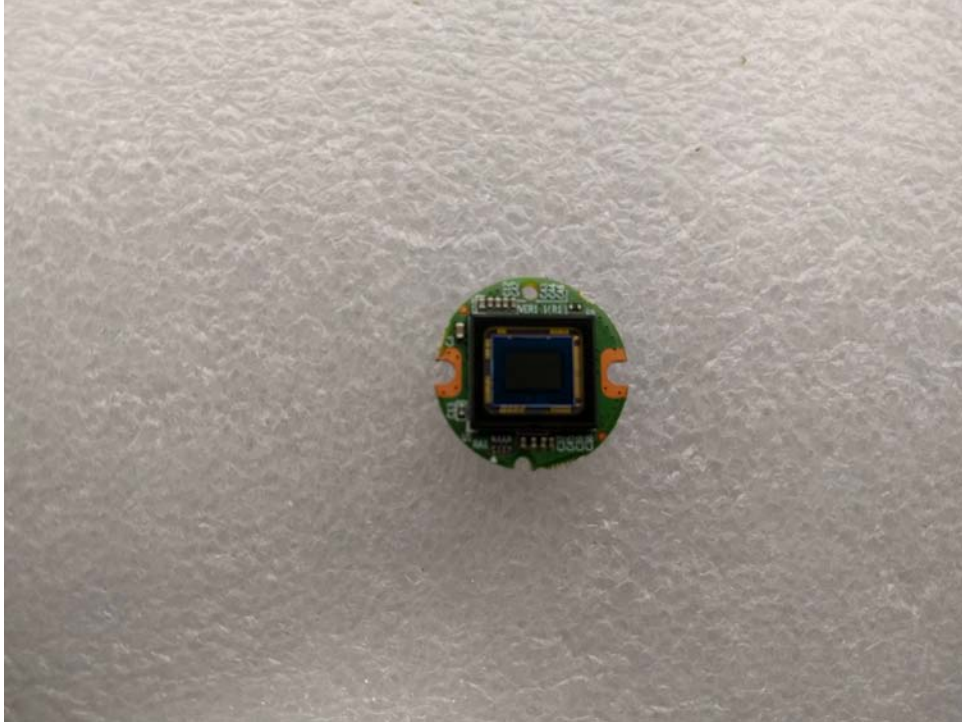
(Bottom)



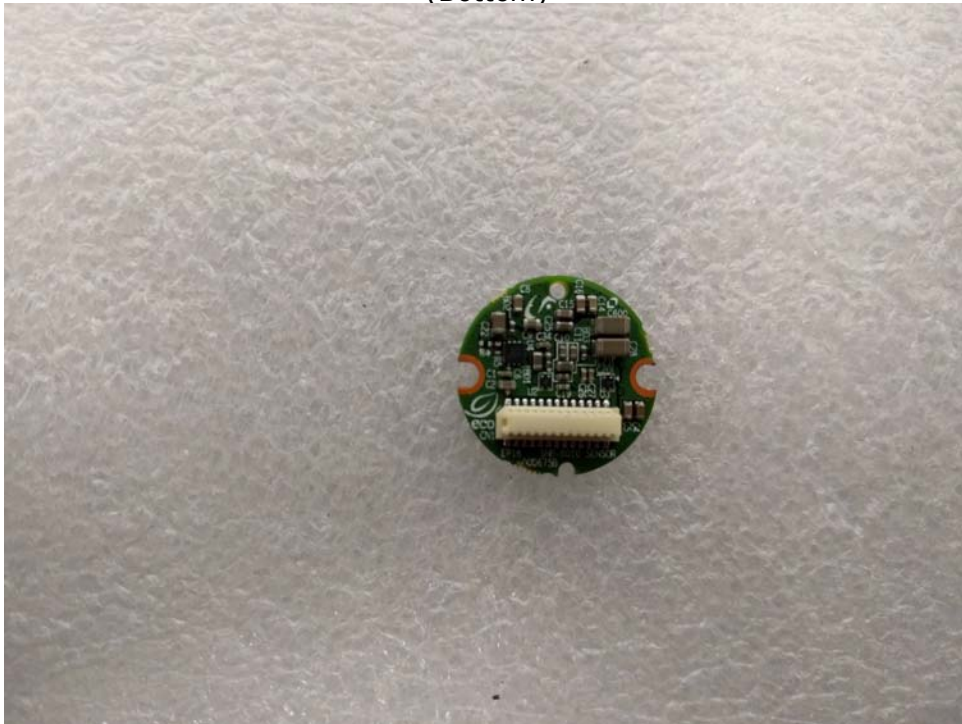
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Main Board EUT Internal View – Board 2

(Top)



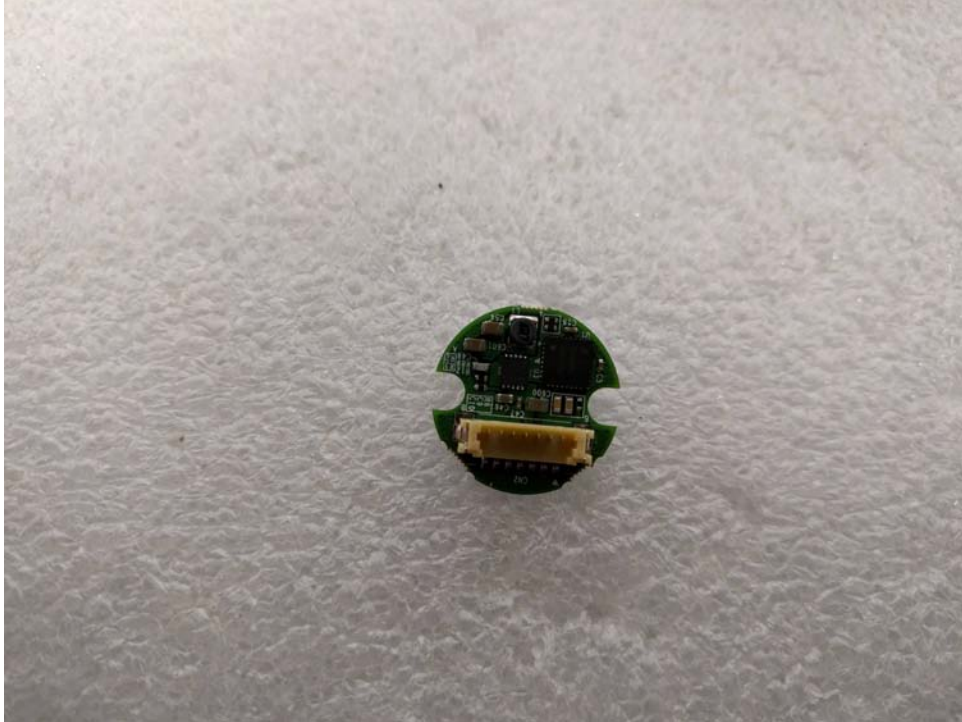
(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Main Board EUT Internal View – Board 3

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.