

VERIFICATION OF FCC PART 15 COMPLIANCE

*KES hereby verify that the subject product complies with all the
electromagnetic emission specified in the FCC Rule Part 15*

Product Description:	NETWORK CAMERA
Model/Brand Name:	XND-8030RN
Variant Model:	-
FCC Rule Part(s):	FCC 47CFR Part 15 Subpart B Class A Part 15.107(b) & Part 15.109(b)
FCC Procedure:	Verification
Applicant Name:	Hanwha Techwin Co., Ltd.
Applicant Address:	Changwon-dareri, Seongsan-gu Changwon-si, Gy eongsangn am-do
Manufacturer Name:	Hanwha Techwin (Tianjin) Co.,Ltd.
Manufacturer Address:	No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China
Test Report Reference No.:	KES-E1-17T0044

NETWORK CAMERA, Model **XND-8030RN** has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class A and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class A. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-17T0044

Date of Issue: 01. 23, 2017

Dong Hun, Jang
Technical Manager
Signature:



KES.Co., Ltd.

C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 431-716, Korea
Tel: +82-31-425-6200 // Fax: +82-31-424-0450



EMC TEST REPORT For FCC

Test Report No. : KES-E1-17T0044

Date of Issue : Jan. 23, 2017

Product name : NETWORK CAMERA

Model/Type No. : XND-8030RN

Variant Model : -

Applicant : Hanwha Techwin Co., Ltd.

Applicant Address : Changwon-daero, Seongsan-gu Changwon-si, Gyeongsangnam-do

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

Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China

Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification

Date of Receipt : Jan, 10, 2017

Test date : Jan. 13, 2017

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Jin Bae, Lee
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-E1-17T0044
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 23, 2017	KES-E1-17T0044	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	XND-8030R
Video	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3096(H) x 2094(V)
Effective Pixels	2616(H) x 1976(V)
Scanning System	Progressive Scan
Min. Illumination	Color : 0.2 lux(F1.6, 1/30sec) B/W : 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation USB : Micro USB type B, 1280x720, for installation
Lens	
Focal Length (Zoom Ratio)	4.6mm Fixed
Max. Aperture Ratio	F1.6
Angular Field of View	H: 77.9°, V: 57.9°, D: 98.7°
Min. Object Distance	0.4m
Focus Control	Manual
Lens Type	Fixed
Mount Type	Board-in type
Pan / Tilt / Rotate	
Pan / Tilt / Rotate range	0° ~ 354° / 0° ~ 87° / 0° ~ 355°
Operational	
IR Viewable Length	30m(98.43ft)
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC(Masking/Dimming), WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Auto(input from fog detection) / Manual / Off
Motion Detection	Off/ On(8ea, 8point Polygonal zones), Handover
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor(included Mercury & Sodium)
Contrast	level adjustment
LDC	On/Off (5 levels with Min/Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital PTZ	24X, Digital PTZ(Preset, Group)
Flip / Mirror	Flip : On/Off Mirror : On/Off Hallway view : 90°/270°
Video & Audio Analytics	Tampering, Loitering, Directional Detection, Defocus Detection, Fog&Dust Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Digital Auto Tracking, Sound Classification, People counting, Heat map, Queue management
Alarm I/O	Input 1ea / Output 1ea
Remote Control Interface	-
RS-485 Protocol	-
Alarm Triggers	Alarm Input, Motion Detection, Video & Audio Analytics, Network Disconnect
Alarm events	File upload via FTP, E-Mail Notification via E-Mail local storage(SD/SDHC/SDXC) or NAS recording at Event Triggers External output DPTZ preset



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
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Audio In	Selectable (Mic IN/Line IN), Built-in MIC. Max output level : 1Vrms Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out, Max output level: 1 Vrms
Pixel Counter	Support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Form	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265/H.264 : Max. 30fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStream II	Support
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Form	G.711 u-law /G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 8/16/32/48KHz
Audio Communication	Bi-directional (2-Way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, 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 (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC 2slot (up to 512 GB) - Continuous recording(1'st slot to 2'nd slot) - Motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
Application Programming	ONVIF Profile S/G SUNAPI(HTTP API) Open Platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Non-plugin Webviewer Supported Browser: Google Chrome 54, MS Edge 38, Mozilla Firefox 49(Window 64bit only) , Apple Safari 9 (Mac OS X only) Plug-in Webviewer Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only)
Central Management Soft	SmartViewer, SSM
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C (-14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	IK08
Electrical	
Input Voltage / Current	DC12V,PoE(IEEE802.3af,Class3)
Power Consumption	Max. 8W(12VDC), Max. 9W(PoE)
Mechanical	

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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 ☐ 100 Vac ☐ 120 Vac ☐ 24 Vac ☒ 12 Vdc ☒ 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	XND-8030RN	-	Hanwha Techwin (Tianjin) Co.,Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE Adapter	KPL-060F	-	CHANNEL WELL TECHNOLOGY	-
Notebook	X56K	HN11N5151FJ0045W	HANSUNG	-
Notebook Adapter	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Phone	A1530	-	APPLE	-
MIC	CMK-303	-	CAMAC	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Alarm	-	-	-	-
SD card	-	-	SanDisk	-



1.6 External I/O Cabling

- DC 12 V Mode

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
	7 Pin	MIC	3.5 mm	1.7	U
		Speaker	3.5 mm	1.6	U
		Alarm	2 pin	3.0	U
	Slot	SD card	Slot	-	-
Notebook	Audio in	Phone	Audio out	1.7	U

- PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45 (POE)	POE Adapter	RJ-45 (POE)	3.0	U
	7 Pin	MIC	3.5 mm	1.7	U
		Speaker	3.5 mm	1.6	U
		Alarm	2 pin	3.0	U
	Slot	SD card	Slot	-	-
Notebook	Audio in	Phone	Audio out	1.7	U
	RJ-45 (DATA)	POE Adapter	RJ-45 (DATA)	3.0	U

* Unshielded = U, Shielded = S

**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
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1.7 EUT Operating Mode(s)

Test mode	operating
DC 12 V, POE	E.U.T Monitoring, 1 kHz, Ping Test

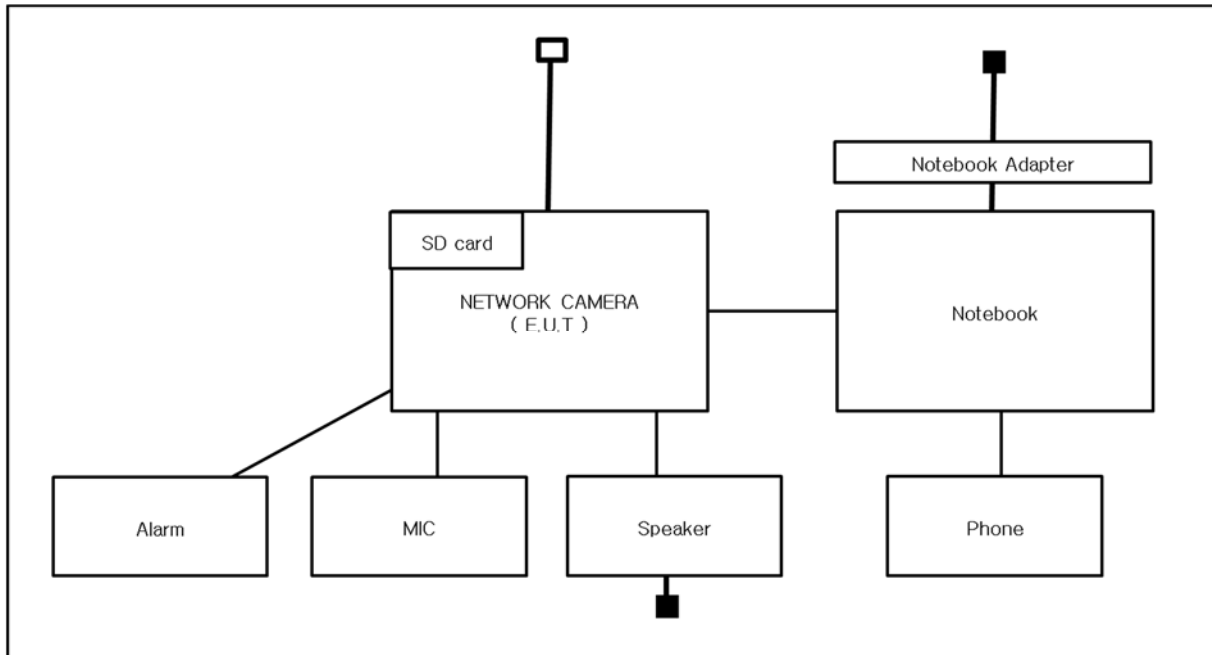
E.U.T Test operating S/W		
Name	Version	Manufacture Company
SmartViewer	-	Hanwha Techwin Co., Ltd.

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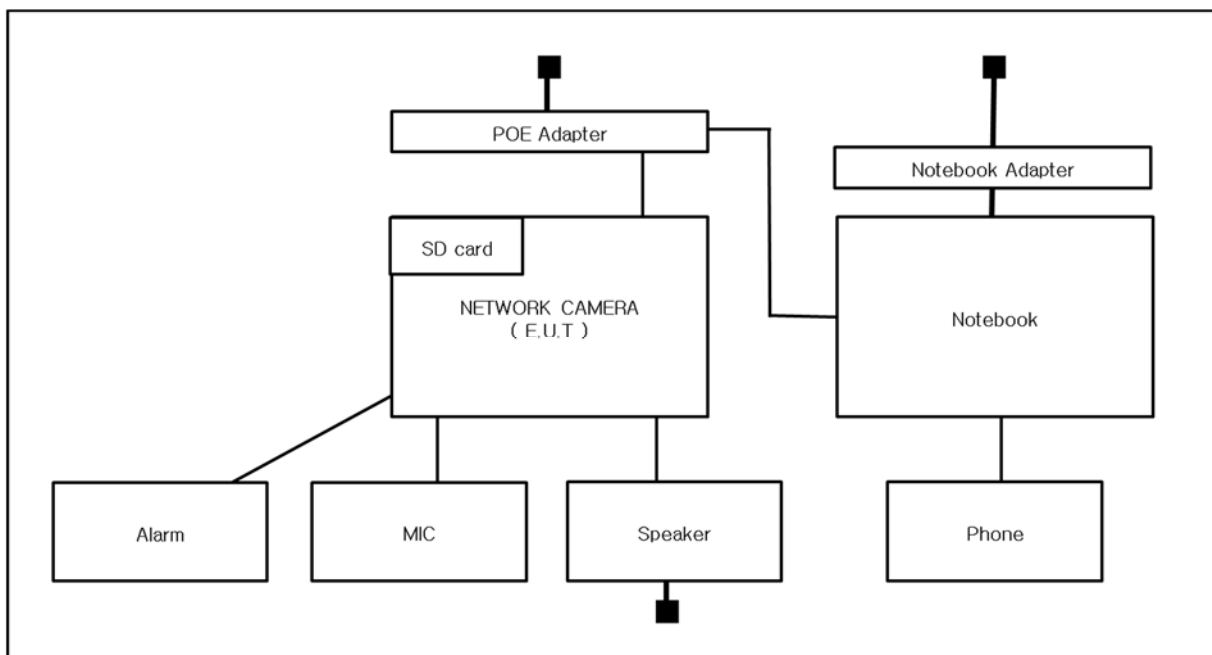
1.8 Configuration

■ AC Main
 □ DC Main

- DC 12 V Mode



- PoE Mode



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 473-21 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 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 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 / 2015.04 | ☐ Class A | ☐ Class B |
| ☐ AS/NZS CISPR22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☒ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☒ ANSI C63.4-2014 | ☒ Class A | ☐ Class B |
| ☐ IC Regulation ICES-003 : 2016 | | |
| ☐ CAN/CSA CISPR 22-10 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2014 | | |
| ☐ MEDICAL – Directive 93/42/EEC | | |
| ☐ EN 60601-1-2 :2007 | | |
| ☐ RE– Directive 2014/53/EU | | |
| ☐ 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, 03, 2017
☐	LISN	ENV216	R & S	101137	02, 04, 2017
☐	LISN	ENV216	R & S	101786	05, 02, 2017
☐	Electro wave Shieldroom	-	SEMITEC	-	-
☐	EMI Test S/W	EMC32	R & S	9.12.00	-

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

N/A Because the E.U.T power is 12 v (dc) power and PoE, limits are not specified.

2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan, 13, 2017

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, 03, 2017
☒	Trilog-Broadband Antenna	VULB9163	Schwarzbeck	714	11, 28, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions

Temperature: 0,3 °C
Relative Humidity: 81,0 %

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 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jan, 13, 2017

Test Location

Semi Anechoic Chamber #1

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Log-Periodic Antenna	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018
☒	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Preamplifier	SCU 18	R&S	102232	06, 29, 2017
☒	Semi Anechoic Chamber #1	-	KES	-	-
☒	Tilt Antenna Mast	TAM 4.0-E	maturro	18100116	-
☒	Turn Table	DT 2000-1,5T	INN-CO	-	-
☒	EMI Test S/W	N/A	N/A	N/A	N/A

Test Conditions

Temperature: 21,1 °C

Relative Humidity: 43,8 %

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

[HOT]

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR+ Cable Loss)



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
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[NEUTRAL]

N/A

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR+ Cable Loss)

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Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
250.11	13.62	H	3.94	12.49	4.72	30.83	46.40	15.57
300.82	11.79	V	1.86	13.44	5.16	30.39	46.40	16.01
301.18	14.42	H	3.71	13.45	5.16	33.03	46.40	13.37
449.19	11.12	V	1.00	16.47	6.79	34.38	46.40	12.02
700.02	13.78	H	4.00	19.65	8.52	41.95	46.40	4.45
700.22	11.88	V	1.00	19.65	8.52	40.05	46.40	6.35

* H : Horizontal, V : Vertical

◆ Calculation

Corrected Amplitude [dBμV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

- PoE Mode

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dBμV]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
40.68	16.40	V	1.14	12.09	1.86	30.35	39.00	8.65
150.22	15.39	H	3.79	7.89	3.57	26.85	43.50	16.65
250.18	13.62	H	3.85	12.49	4.72	30.83	46.40	15.57
300.53	13.40	V	1.00	13.43	5.16	31.99	46.40	14.41
375.11	11.86	H	3.41	15.06	5.91	32.83	46.40	13.57
700.02	12.98	V	1.00	19.65	8.52	41.15	46.40	5.25

* H : Horizontal, V : Vertical

◆ Calculation

Corrected Amplitude [dBμV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss



Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode

- PK

Frequency [MHz]	Amplitude [dB μ V]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dB μ V/m]	Applicable Limit [dB μ V/m]	Margin [dB]
				ANT. [dB /m]	Cable [dB]	AMP [dB]			
1 392.000	74.610	H	3.740	22.490	3.640	43.630	57.110	76.000	18.890
1 671.000	75.390	V	2.890	23.920	4.020	43.680	59.650	76.000	16.350
1 872.000	64.810	H	3.710	24.950	4.340	43.740	50.360	76.000	25.640
1 995.000	69.540	V	3.930	25.570	4.400	43.780	55.730	76.000	20.270
2 058.000	64.590	H	2.800	25.840	4.510	43.810	51.130	76.000	24.870
2 381.000	61.250	V	1.360	27.200	4.890	43.960	49.380	76.000	26.620
2 410.000	58.350	H	1.280	27.320	4.920	43.970	46.620	76.000	29.380
3 574.000	45.460	V	1.360	30.710	6.170	44.240	38.100	80.000	41.900
3 581.000	42.560	H	1.000	30.720	6.180	44.240	35.220	80.000	44.780
4 000.000	46.110	V	2.400	31.390	6.620	44.210	39.910	80.000	40.090
4 562.000	39.600	H	3.100	32.420	6.800	44.270	34.550	80.000	45.450

**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.:
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- AV

Frequency [MHz]	Amplitude [dBμV]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dBμV/m]	Applicable Limit [dBμV/m]	Margin [dB]
				ANT. [dB /m]	Cable [dB]	AMP [dB]			
1 382.000	68.370	H	3.740	22.440	3.630	43.630	50.810	56.000	5.190
1 688.000	67.470	V	2.890	24.010	4.050	43.690	51.840	56.000	4.160
1 733.000	45.370	H	3.710	24.240	4.150	43.700	30.060	56.000	25.940
2 003.000	42.240	V	3.930	25.610	4.410	43.780	28.480	56.000	27.520
2 060.000	43.460	H	2.800	25.850	4.520	43.810	30.020	56.000	25.980
2 356.000	38.150	V	1.360	27.090	4.880	43.940	26.180	56.000	29.820
2 364.000	51.950	H	1.280	27.130	4.880	43.950	40.010	56.000	15.990
3 581.000	32.890	V	1.360	30.720	6.180	44.240	25.550	60.000	34.450
3 588.000	31.130	H	1.000	30.730	6.190	44.240	23.810	60.000	36.190
3 999.000	32.600	V	2.400	31.390	6.620	44.210	26.400	60.000	33.600
4 651.000	25.860	H	3.100	32.590	6.870	44.280	21.040	60.000	38.960

◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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

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- PoE Mode

- PK

Frequency [MHz]	Amplitude [dBμV]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dBμV/m]	Applicable Limit [dBμV/m]	Margin [dB]
				ANT. [dB /m]	Cable [dB]	AMP [dB]			
1 061.000	68.460	V	3.610	20.800	3.190	43.640	48.810	76.000	27.190
1 096.000	69.680	H	3.770	20.980	3.240	43.640	50.260	76.000	25.740
1 473.000	70.310	V	3.850	22.910	3.730	43.630	53.320	76.000	22.680
1 592.000	77.100	V	2.130	23.520	3.850	43.660	60.810	76.000	15.190
1 593.000	83.100	H	2.450	23.520	3.850	43.660	66.810	76.000	9.190
2 061.000	65.190	H	3.860	25.860	4.520	43.810	51.760	76.000	24.240
2 408.000	52.880	H	1.120	27.310	4.910	43.970	41.130	76.000	34.870
3 581.000	44.030	V	1.000	30.720	6.180	44.240	36.690	80.000	43.310
3 599.000	45.980	H	1.490	30.750	6.210	44.240	38.700	80.000	41.300
4 906.000	37.410	H	1.660	33.060	6.990	44.320	33.140	80.000	46.860
4 998.000	37.290	V	3.080	33.230	6.990	44.330	33.180	80.000	46.820

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

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- AV

Frequency [MHz]	Amplitude [dBμV]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dBμV/m]	Applicable Limit [dBμV/m]	Margin [dB]
				ANT. [dB /m]	Cable [dB]	AMP [dB]			
1 068.000	53.690	V	3.610	20.840	3.200	43.640	34.090	56.000	21.910
1 130.000	53.610	H	3.770	21.150	3.290	43.640	34.410	56.000	21.590
1 573.000	66.530	V	3.850	23.420	3.830	43.650	50.130	56.000	5.870
1 599.000	59.960	H	2.130	23.550	3.860	43.660	43.710	56.000	12.290
1 698.000	66.260	V	2.450	24.060	4.080	43.690	50.710	56.000	5.290
2 107.000	41.050	H	3.860	26.050	4.610	43.830	27.880	56.000	28.120
2 436.000	45.470	H	1.120	27.430	4.950	43.980	33.870	56.000	22.130
3 591.000	31.920	H	1.000	30.740	6.190	44.240	24.610	60.000	35.390
3 763.000	29.000	V	1.490	31.010	6.340	44.230	22.120	60.000	37.880
4 911.000	26.540	H	1.660	33.070	6.990	44.320	22.280	60.000	37.720
4 960.000	36.850	V	3.080	33.160	6.990	44.320	32.680	60.000	27.320

◆ Calculation

Over Limit [dB] = (Read Level[dBuV] + Ant Factor[dB/m] + Cable Loss [dB] - Preamp Factor [dB]) - Limit Line[dBuV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

N/A

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Radiated Electric Field Emissions(Below 1 GHz)

- DC 12 V Mode



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- PoE Mode



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Radiated Electric Field Emissions(Above 1 GHz)

- DC 12 V Mode



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- PoE Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



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EUT Internal View – Board 1

(Top)



(Bottom)



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EUT Internal View – Board 2

(Top)



(Bottom)



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EUT Internal View – Board 3

(Top)



(Bottom)



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EUT Internal View – Board 4

(Top)



(Bottom)



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Label Photographs



This device complies with part 15 of the FCC Rules. Operation in subject to the following two conditions: (1) This device Sep not cause harmful interference, and (2) this device must accept any interference received, including interference that Sep cause undesired operation.