



EMC TEST REPORT For CE

Test Report No. : KES-E1-17T0692
Date of Issue : Nov. 03, 2017
Product name : CCTV CAMERA
Model/Type No. : SCV-5083RP
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 : Sep. 01, 2017
Test date : Sep. 06, 2017 ~ Sep. 07, 2017
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

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EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

This test report is not related to KOLAS.

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Test report No.:
KES-E1-17T0692
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Nov. 03, 2017	KES-E1-17T0692	Issued

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1.0 General Product Description

Main Specifications of E.U.T are:

Video	
Imaging Device	1/3" 1.3M CMOS
Total Pixels	1312(H) x 1069(V)
Effective Pixels	1305(H) x 1049(V)
Scanning System	Progressive Scan
Synchronization	Internal
Frequency	H : 15.734KHz / V : 50.94Hz H : 15.625KHz / V : 50Hz
Horizontal Resolution	Color : 1000 TVL B/W : 1000 TVL
Min. Illumination	Color : 0.05Lux (F1.4, 50IRE), 0.001Lux (1sec, F1.4, 50IRE) 0.02Lux (F1.4, 30IRE), 0.0006Lux (1sec, F1.4, 30IRE) B/W : 0Lux (IR LED On)
S / N Ratio	52dB (AGC off, Weight on)
Video Output	CVBS : 1.0 Vp-p / 75Ω composite
Lens Type	
Focal Length (Zoom Ratio)	3~10mm
Max. Aperture Ratio	F1.4
Angular Field of View	H: 82.0°(Wide)~26.5°(Tele), V: 59.7°(Wide)~19.9°(Tele)
Min. Object Distance	0.5m
Focus Control	Manual
Lens Type	DC Auto Iris
Mount Type	Board Type
Operational	
On Screen Display	Multi-language Support(17) English, Japanese, Spanish, French, Portuguese, Korean, German, Italian, Chinese, Russian, Polish, Czech, Romanian, Serbian, Swedish, Danish, Turkish
Camera Title	Off / On (Displayed 15 characters)
Day & Night	Auto (ICR) / External / Color / B/W
Backlight Compensation	Off / User BLC / HLC / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR4 (Off / On)
Defog	AUTO / MANUAL / OFF
Purple Fringe Reduction	Purple Fringe Reduction (Off / Low / Middle / High)
Digital Image Stabilization	Off / On
Tampering	Off / On
Motion Detection	Off / On
Intelligent Video	Fence, Apear_Disappear, Counting (Off / On)
Privacy Masking	Off / On (24 programmable zones with 4points polygonal masking)
Gain Control	Off / Low / Middle / High
White Balance	ATW / Outdoor / Indoor / Manual / AWC / Mercury (1,800K° ~ 10,500K°)
Electronic Shutter Speed	1 sec ~ 1/12,000 sec
Digital Zoom	Off / On (1x ~ 16x)
Reverse	Off / H-Rev / V-Rev / HV-Rev
Profile	Basic, Day & Night, Backlight, ITS, Indoor, User
Alarm	1 Out
Communication	Coaxial Control (SPC-300 Compatible), RS-485
Protocol	Coax : Pelco-C (Coaxitron) RS-485: Samsung-T, Samsung-E, Pelco-D, Pelco-P, Panasonic, Bosch, Honeywell, Vicon,
IR Distance	20m
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C (+14°F ~ +131°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage/Current	Dual (24VAC±10% & 12VDC±10%)
Power Consumption	max 5.6w
Mechanical	
Color / Material	Ivory / Aluminum
Dimension (WxHxD)	Ø 137.0 x 106.1mm
Weight	700g

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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 ☐ 230Vac ☐ 100 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
CCTV CAMERA	SCV-5083RP	-	Hanwha Techwin (Tianjin) Co.,Ltd	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Monitor	SMT-2232	C95V67VF900025B	Weihai Daewoo Electronics Co., Ltd.	-
Controller	SPC-1010	C50E67WG10100F	SamSung Techwin Co.,Ltd.	-
Controller Adaptor	RS-AB1000	-	Dongguan Jinhua Sheng Power Technology Co.,Ltd.	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-



1.6 External I/O Cabling

☐ AC 24 V Mode, DC 12 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
CCTV CAMERA (E.U.T)	BNC Out	Monitor	BNC In	3.0	<input checked="" type="checkbox"/> S <input type="checkbox"/> U
	RS-485 (2 Pin)	Controller	RS-485 (2 Pin)	3.5	<input type="checkbox"/> S <input checked="" type="checkbox"/> U
	3 Pin	Alarm	3 Pin	4.0	<input type="checkbox"/> S <input checked="" type="checkbox"/> U

* Unshielded=U, Shielded=S

1.7 E.U.T Operating Mode(s)

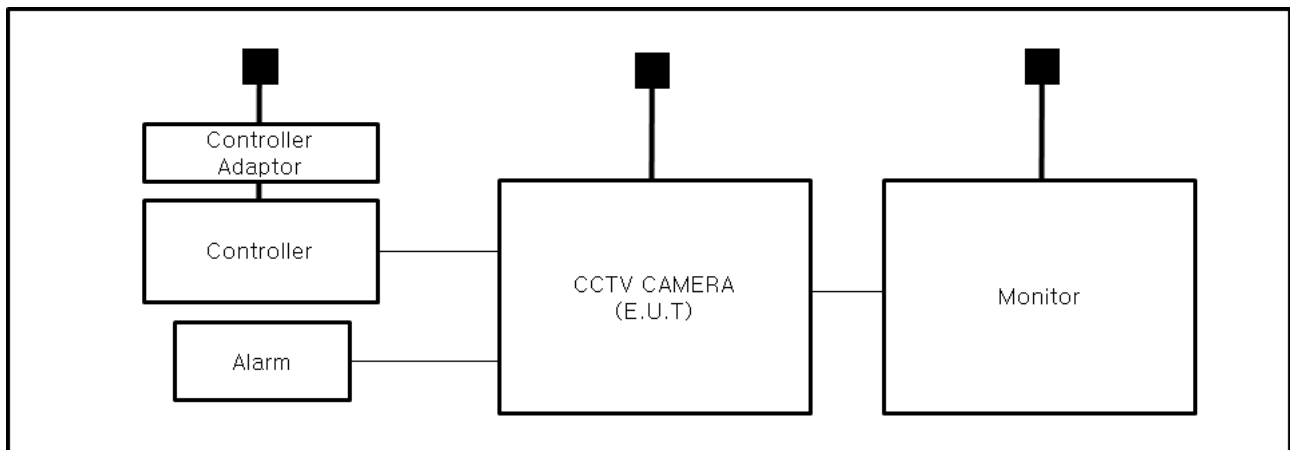
Test mode	operating
AC 24 V	E.U.T Monitoring
DC 12 V	E.U.T Monitoring

E.U.T Test operating S/W		
Name	Version	Manufacture Company
-	-	-

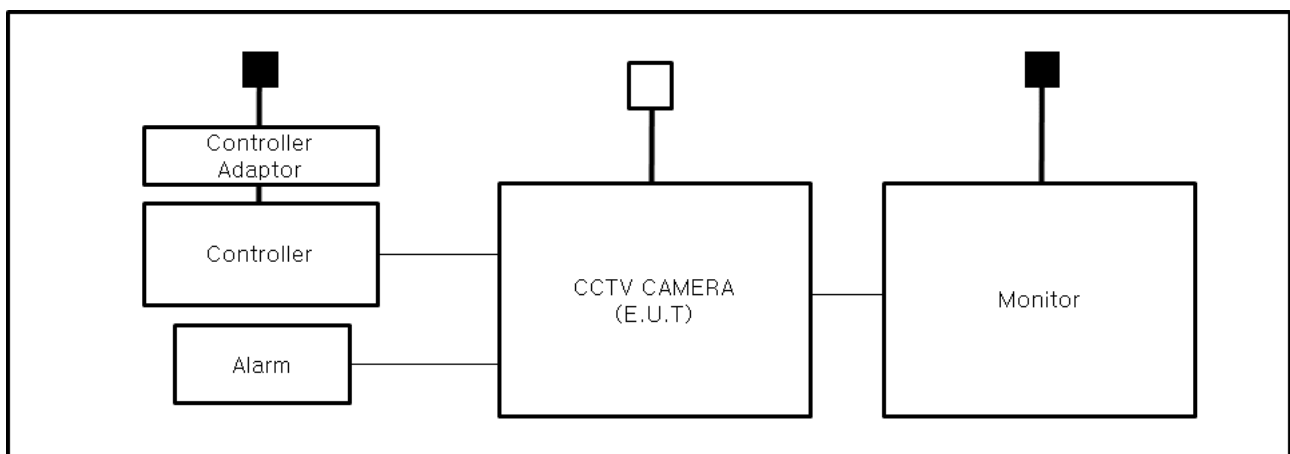
1.8 Configuration

■ AC Main
□ DC Main

☐ AC 24 V Mode



☐ DC 12 V Mode



1.9 Remarks when standards applied

- N/A





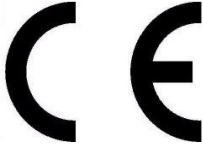

1.10 Calibration Details of Equipment Used for Measurement

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.

1.11 Test Facility

The measurement facility is located at 473-21 Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Korea. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 32.

1.12 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)	

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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 61547:2009

☒ EN 55032:2012/AC:2013

☒ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☒ EN 50130-4:2011

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



-
- | | | |
|---|----------------------------------|----------------------------------|
| <input type="checkbox"/> VCCI V-3 / 2015.04 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR22:2009 +A1:2010 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> 47 CFR Part 15, Subpart B | | |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009 | | |
| <input type="checkbox"/> IC Regulation ICES-003 : 2016 | | |
| <input type="checkbox"/> CAN/CSA CISPR 22-10 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014 | | |
|
<input type="checkbox"/> RE- Directive 2014/53/EU | | |
|
<input type="checkbox"/> EN 301 489-1 V1.9.2 | | |
| <input type="checkbox"/> Equipment for fixed use | | |
| <input type="checkbox"/> Equipment for vehicular use | | |
| <input type="checkbox"/> Equipment for portable use | | |
|
<input type="checkbox"/> EN 301 489-3 V1.6.1 | | |
|
<input type="checkbox"/> EN 301 489-17 V2.2.1 | | |
|
<input type="checkbox"/> EN 60945:2002 | | |



2.1 Conducted Emissions at Mains Power Ports

Test Date

Sep. 06, 2017

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	04, 27, 2018
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101137	02, 03, 2018
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	04, 27, 2018
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101914	12, 13, 2017

Test Conditions

Temperature: 23,0 °C

Relative Humidity: 52,4 %

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

N/A

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101781	04, 27, 2018
<input type="checkbox"/>	LISN	ENV216	R & S	101787	01, 11, 2018
<input type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	04, 27, 2018
<input type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 13, 2017
<input type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 11, 2018
<input type="checkbox"/>	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 11, 2018

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



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Sep. 06, 2017

Test Location

☒ OPEN AREA TEST SITE #2 ☐ SAC #4(10 m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	-	-	-	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESVS10	R & S	826008/014	04, 18, 2018
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	714	11, 28, 2017

Test Conditions

Temperature: 24,7 °C
Relative Humidity: 61,0 %

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

Sep. 06, 2017

Test Location

SEMI ANECHOIC CHAMBER #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	e3	AUDIX	8.083b	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100552	04, 19, 2018
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01729	05, 31, 2018
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 24, 2018
<input checked="" type="checkbox"/>	LOG-PERIODIC ANTENNA	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018

Test Conditions

Temperature: 23,0 °C

Relative Humidity: 52,4 %

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.

3.0 Criteria for compliance

Criteria for compliance was based on the following guidelines:

EN 50130-4:2011 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 $U = 130 \text{ dB}\mu\text{V}$.

For component of CCTV systems, where the status is monitored by observing the TV picture,
then deterioration of the picture is allowed at $U = 140 \text{ dB}\mu\text{V}$, 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 $U = 130 \text{ dB}\mu\text{V}$, 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 $U = 120 \text{ dB}\mu\text{V}$.

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

Sep. 07, 2017

Test Location

EMS-ESD: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	-	-	-	-
<input checked="" type="checkbox"/>	ESD SIMULATOR	ESS-2000	Noise Ken	ESS05X4620	02, 24, 2018
<input checked="" type="checkbox"/>	HCP	-	Noise Ken	-	-
<input checked="" type="checkbox"/>	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 52,3 %
Atmospheric Pressure: 99,5 kPa



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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
	<input type="checkbox"/> 2 kV	<input checked="" type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV	<input type="checkbox"/> 2 kV
	<input type="checkbox"/> 4 kV	<input checked="" type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV	<input type="checkbox"/> 4 kV
	<input checked="" type="checkbox"/> 6 kV	<input type="checkbox"/> 6 kV	<input checked="" type="checkbox"/> 6 kV	<input checked="" type="checkbox"/> 6 kV
	<input type="checkbox"/> 8 kV	<input checked="" type="checkbox"/> 8 kV	<input type="checkbox"/> 8 kV	<input type="checkbox"/> 8 kV
	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV	<input type="checkbox"/> 15 kV

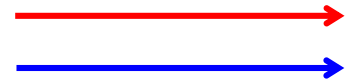
Notes: HCP: Horizontal coupling plane

VCP: Vertical coupling plane

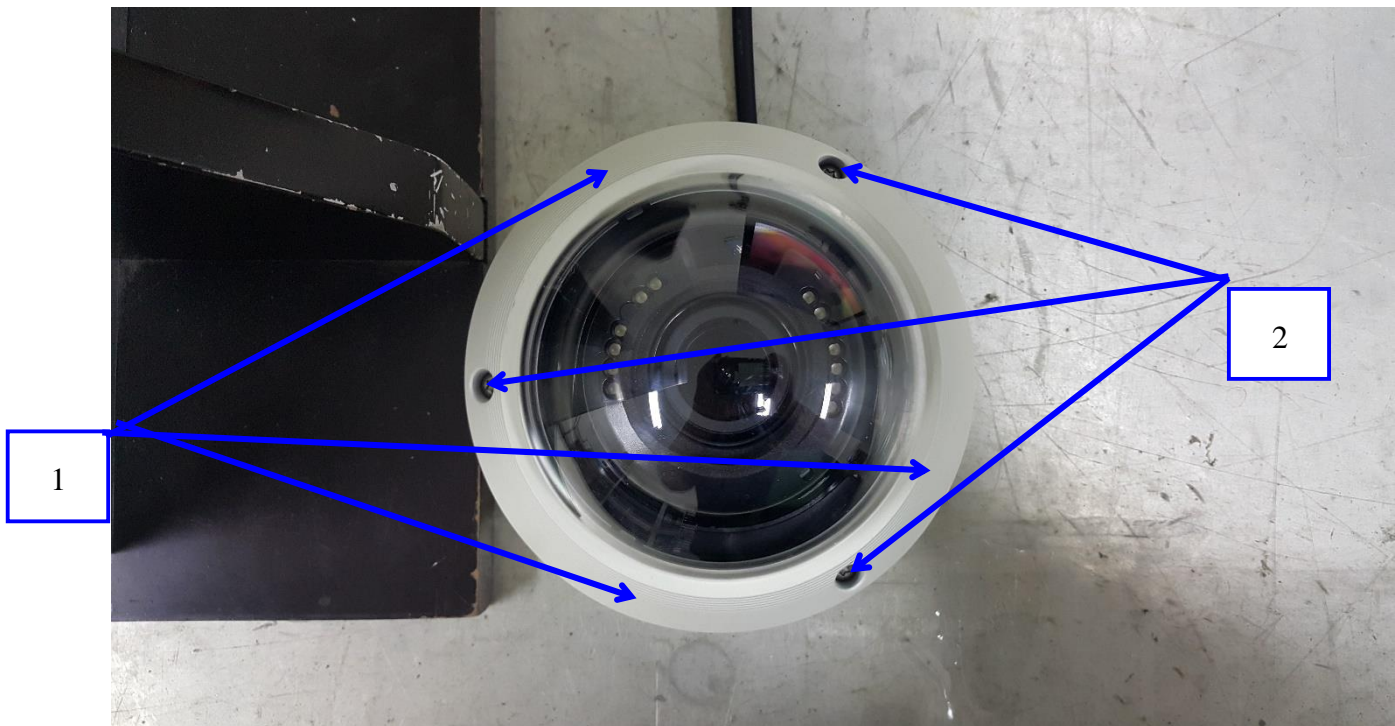
Required Performance Criteria: ☒ Complied

Location of Discharge:

Air
Contact



☐ AC 24 V Mode, DC 12 V Mode



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Test Data

☐ AC 24 V Mode, DC 12 V Mode

Indirect Discharge

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

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Surface	Contact Discharge	Complied	-
2	Screw	Contact 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

Sep. 06, 2017

Test Location

EMS-RS: ☒ SEMI ANECHOIC CHAMBER #2 ☐ SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	KTI_RS2012	KOREA TECHNOLOGY INSTITUTE CO., LTD	2.1.1	-
<input checked="" type="checkbox"/>	SIGNAL GENERATOR	ESG-3000A	HP	US37040210	11, 01, 2017
<input checked="" type="checkbox"/>	AMPLIFIER	ITA0300-200	Infinitech	-	11, 01, 2017
<input checked="" type="checkbox"/>	AMPLIFIER	ITA0750-200	Infinitech	-	11, 01, 2017
<input checked="" type="checkbox"/>	AMPLIFIER	ITA1500-100	Infinitech	-	11, 01, 2017
<input checked="" type="checkbox"/>	AMPLIFIER	ITA2500-100	Infinitech	-	11, 01, 2017
<input checked="" type="checkbox"/>	POWER METER	E4419B	Agilent	MY45101506	06, 26, 2018
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	-	06, 26, 2018
<input checked="" type="checkbox"/>	AVERAGE POWER SENSOR	E9301A	Agilent	MY41495698	06, 26, 2018
<input checked="" type="checkbox"/>	HYBRID LOG-PERIODIC ANTENNA	HLP-2603	TDK	100400	-
<input type="checkbox"/>	AMPLIFIER	TK-PA8/3W	TESTEK	150008	06, 26, 2018

Test Conditions

Temperature: 23,0 °C
Relative Humidity: 52,4 %
Atmospheric Pressure: 99,4 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

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Test Data

☐ AC 24 V Mode

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

☐ DC 12 V Mode

Side Exposed	Observations	
	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

Sep. 07, 2017

Test Location

EMS-EFT: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.3.9	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	P1317117973	02, 08, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018
<input checked="" type="checkbox"/>	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	070925	06, 26, 2018

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 52,3 %
Atmospheric Pressure: 99,5 kPa

Test Specifications

Pulse Amplitude & Polarity: (AC Power Lines)	<input type="checkbox"/> ± 1.0 kV <input type="checkbox"/> ± 4.0 kV	<input checked="" type="checkbox"/> ± 2.0 kV
Pulse Amplitude & Polarity: (Other supply / Signal Lines)	<input type="checkbox"/> ± 0.5 kV <input type="checkbox"/> ± 2.0 kV	<input checked="" type="checkbox"/> ± 1.0 kV
Burst Period:	<input checked="" type="checkbox"/> 300 ms	<input type="checkbox"/> 2 s
Repetition Rate:	<input type="checkbox"/> 5 kHz	<input checked="" type="checkbox"/> 100 kHz
Duration of Test Voltage:	<input checked="" type="checkbox"/> ≥ 1 min	
Required Performance Criteria:	<input checked="" type="checkbox"/> Complied	



Test Data

☐ AC 24 V Mode

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
BNC	Complied	Complied
RS-485 (2Pin)	Complied	Complied
Alarm (3Pin)	Complied	Complied

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☐ DC 12 V Mode

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
BNC	Complied	Complied
RS-485 (2Pin)	Complied	Complied
Alarm (3Pin)	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

Sep. 07, 2017

Test Location

EMS-Surge: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.3.9	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	V0936105120	02, 08, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018
<input checked="" type="checkbox"/>	CDN	CNV 508N1	EM TEST	P1551168979	04, 26, 2018
<input type="checkbox"/>	CDN	CNV 508T5	EM TEST	P1549168422	04, 26, 2018

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 52,3 %
Atmospheric Pressure: 99,5 kPa



Test Specifications

AC Power 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

Other supply / 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

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Test Data

☐ AC 24 V Mode

☒ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L - N	Complied	Complied

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L1 - PE	-	-
L2 - PE	-	-

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Observations	
		(+) Burst (kV)	(-) Burst (kV)
BNC	Complied	Complied	Complied
RS-485 (2Pin)	Complied	Complied	Complied
Alarm (3Pin)	Complied	Complied	Complied

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☐ DC 12 V Mode

☐ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L - N	-	-

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L1 - PE	-	-
L2 - PE	-	-

Signal Lines

☒ Line to Earth – Common Mode

Mode of Application	Performance Criteria	Observations	
		(+) Burst (kV)	(-) Burst (kV)
BNC	Complied	Complied	Complied
RS-485 (2Pin)	Complied	Complied	Complied
Alarm (3Pin)	Complied	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.

3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Sep. 07, 2017

Test Location

EMS-CS: Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	icd.control	EM TEST	5.3.7	-
<input checked="" type="checkbox"/>	CONTINUOUS WAVE SIMULATOR	CWS 500N1	EM TEST	V0936105119	08, 07, 2018
<input checked="" type="checkbox"/>	ATTENUATOR	ATT6	EM TEST	1208-34	08, 07, 2018
<input checked="" type="checkbox"/>	CDN	CDN-M2/M3N	EM TEST	0909-06	08, 07, 2018
<input type="checkbox"/>	CDN	CDN T8RJ45	EM TEST	0909-09	08, 07, 2018
<input checked="" type="checkbox"/>	EM INJECTION CLAMP	EM 101	Liithi	35943	02, 03, 2018

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 52,3 %
Atmospheric Pressure: 99,5 kPa

Test Specifications

Frequency range: ☒ 150 kHz to 100 MHz ☐ 150 kHz to 80 MHz

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

Required Performance Criteria: ☒ Complied

Test Data

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☐ AC 24 V Mode

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L - N	CDN (<input checked="" type="checkbox"/> M2, <input type="checkbox"/> M3)	Complied

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN (<input type="checkbox"/> M2, <input type="checkbox"/> M3)	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
BNC	Clamp	Complied
RS-485 (2Pin)	Clamp	Complied
aLARM (3Pin)	Clamp	Complied

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☐ DC 12 V Mode☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	CDN (<input type="checkbox"/> M2, <input type="checkbox"/> M3)	-

☒ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L - N	CDN (<input checked="" type="checkbox"/> M2, <input type="checkbox"/> M3)	Complied

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
BNC	Clamp	Complied
RS-485 (2Pin)	Clamp	Complied
aLARM (3Pin)	Clamp	Complied

Notes: CDN = Coupling Decoupling Network
"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.



3.6 Voltage Dips and Short Interruptions

Reference Standard

EN 61000-4-11:2004

Test Date

Sep. 07, 2017

Test Location

EMS-Voltage dip: Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMS Test S/W	iec.control	EM TEST	5.3.9	-
<input checked="" type="checkbox"/>	ULTRA COMPACT SIMULATOR	UCS 500N5T	EM TEST	P1317117973	02, 08, 2018
<input checked="" type="checkbox"/>	MOTOR VARIAC	MV2616	EM TEST	V0936105123	02, 08, 2018

Test Conditions

Temperature: 23,2 °C
Relative Humidity: 52,3 %
Atmospheric Pressure: 99,5 kPa



Test Specifications & Observations/Remarks

☐ AC 24 V Mode

(Test Voltage : 230V)

<u>Test Level</u>	<u>Duration [in period/ms (50 Hz)]</u>	<u>Results</u>
<input checked="" type="checkbox"/> 20 % dip	<input checked="" type="checkbox"/> 250 / 5 000	Complied
<input checked="" type="checkbox"/> 30 % dip	<input checked="" type="checkbox"/> 25 / 500	Complied
<input checked="" type="checkbox"/> 60 % dip	<input checked="" type="checkbox"/> 10 / 200	Complied
<input checked="" type="checkbox"/> 100 % dip	<input checked="" type="checkbox"/> 250 / 5 000	Complied

- Voltage variations

<input checked="" type="checkbox"/> Unom + 10 %	<input checked="" type="checkbox"/> 253.0 V (ac)	Complied
<input checked="" type="checkbox"/> Unom - 15 %	<input checked="" type="checkbox"/> 195.5 V (ac)	Complied

Observations:

Complied – No degradation of function

Test Results

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

Remarks

PASS Required Performance Criteria.

*the test has been tested using the AC / AC Adaptor

APPENDIX A – TEST DATA

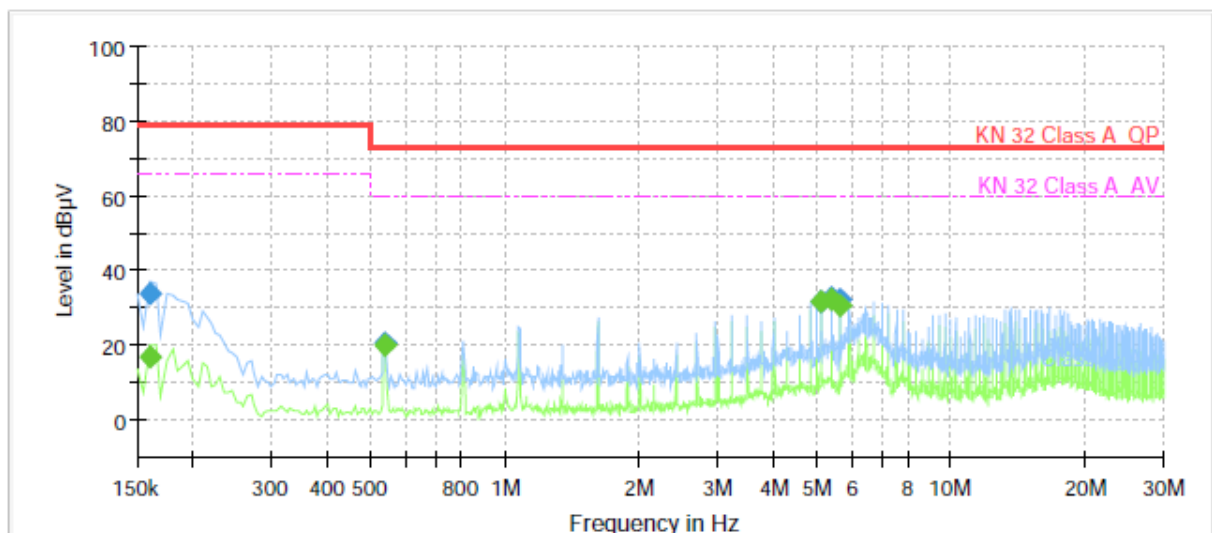
Conducted Emissions at Mains Power Ports

☐ AC 24 V Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SCV-5083RP
Mode	AC 24 V_H
Operator Name:	KES



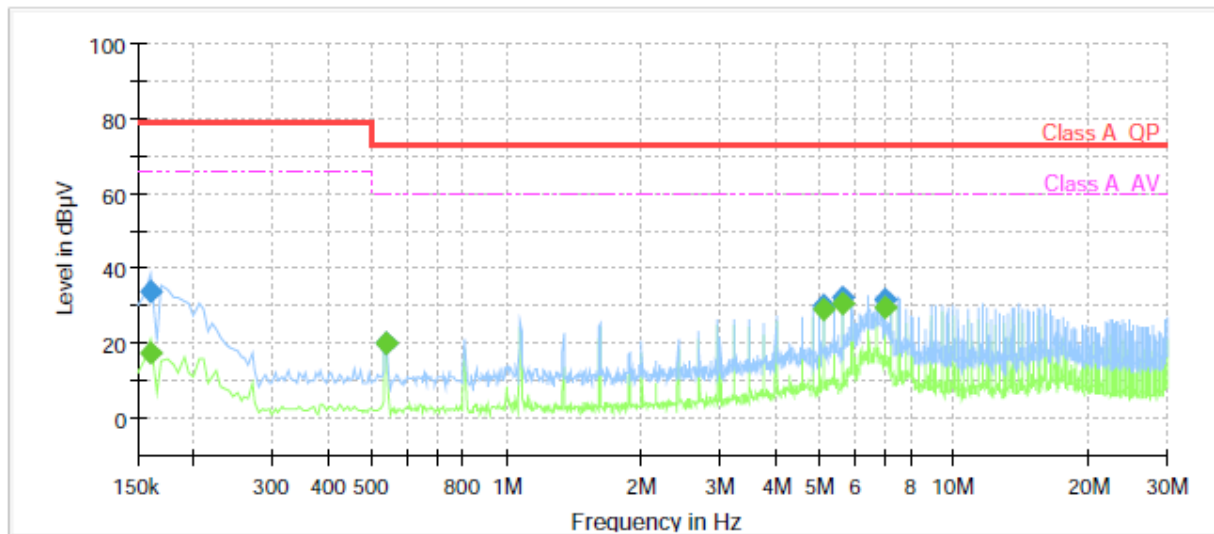
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	17.19	66.00	48.81	1000.0	9.000	L1	19.4
0.160000	33.80	---	79.00	45.20	1000.0	9.000	L1	19.4
0.540000	---	20.39	60.00	39.61	1000.0	9.000	L1	19.6
0.540000	20.52	---	73.00	52.48	1000.0	9.000	L1	19.6
5.115000	---	31.80	60.00	28.20	1000.0	9.000	L1	19.9
5.115000	32.03	---	73.00	40.97	1000.0	9.000	L1	19.9
5.385000	---	32.10	60.00	27.90	1000.0	9.000	L1	19.8
5.385000	32.62	---	73.00	40.38	1000.0	9.000	L1	19.8
5.655000	---	30.84	60.00	29.16	1000.0	9.000	L1	19.8
5.655000	32.23	---	73.00	40.77	1000.0	9.000	L1	19.8

[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SCV-5083RP
Mode: AC 24 V_N
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	---	17.54	66.00	48.46	1000.0	9.000	N	19.4
0.160000	34.10	---	79.00	44.90	1000.0	9.000	N	19.4
0.540000	---	20.04	60.00	39.96	1000.0	9.000	N	19.6
0.540000	20.18	---	73.00	52.82	1000.0	9.000	N	19.6
5.110000	---	29.24	60.00	30.76	1000.0	9.000	N	19.9
5.110000	30.15	---	73.00	42.85	1000.0	9.000	N	19.9
5.650000	---	30.56	60.00	29.44	1000.0	9.000	N	19.8
5.650000	32.18	---	73.00	40.82	1000.0	9.000	N	19.8
6.995000	---	29.90	60.00	30.10	1000.0	9.000	N	19.8
6.995000	31.56	---	73.00	41.44	1000.0	9.000	N	19.8

◆ 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 + Pulse Limiter FACTOR))



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Conducted Emissions at Telecommunication Ports

[10 Mbps]

N/A

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[100 Mbps]

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 (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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**Radiated Electric Field Emissions(Below 1 GHz)**☐ AC 24 V Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]			ANT. [dB /m]	Cable [dB]			
156.15	19.70	H	4.00	8.09	3.52	31.31	40.00	8.69
156.84	20.10	V	1.00	8.11	3.53	31.74	40.00	8.26
168.43	17.40	V	1.01	8.64	3.66	29.70	40.00	10.30
194.26	11.80	H	3.99	11.07	3.93	26.80	40.00	13.20
272.15	9.80	H	3.98	12.90	4.79	27.49	47.00	19.51
408.59	10.50	V	1.02	15.76	6.25	32.51	47.00	14.49

* H : Horizontal, V : Vertical

☐ DC 12 V Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]			ANT. [dB /m]	Cable [dB]			
151.98	17.40	H	4.00	7.95	3.46	28.81	40.00	11.19
157.25	18.50	V	1.00	8.13	3.54	30.17	40.00	9.83
280.02	9.40	H	3.98	13.05	4.85	27.30	47.00	19.70
314.57	10.20	V	1.01	13.74	5.17	29.11	47.00	17.89
405.36	15.10	V	1.02	15.70	6.22	37.02	47.00	9.98
414.45	10.10	H	3.99	15.86	6.30	32.26	47.00	14.74

* H : Horizontal, V : Vertical

◆ Calculation

Result(QP) [dB(μ V/m)] = (Reading(QP)[dB(μ V)] + c.f[dB(1/m)])Margin(QP)[dB] = Limit[dB(μ V/m)] - Result(QP) [dB(μ V/m)]

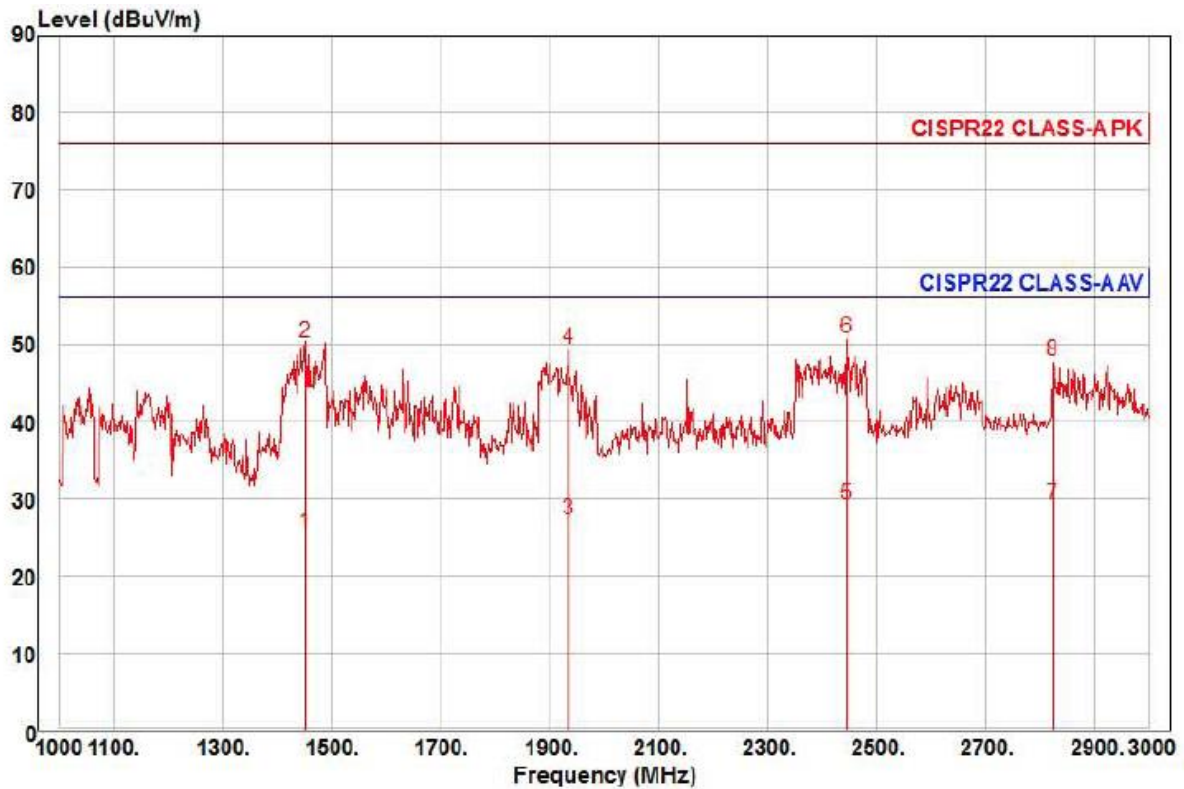
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value



Radiated Electric Field Emissions(Above 1 GHz)

☐ AC 24 V Mode



Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : AC 24 V
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	1452.00	29.04	23.87	8.08	35.45	8	56.00	-30.46	horizontal	Average
2	1452.00	53.61	23.87	8.08	35.45	8	76.00	-25.89	horizontal	Peak
3	1934.00	26.64	25.75	9.46	34.64	28	56.00	-28.79	horizontal	Average
4	1934.00	48.91	25.75	9.46	34.64	28	76.00	-26.52	horizontal	Peak
5	2446.00	25.31	27.37	10.70	34.22	56	56.00	-26.84	horizontal	Average
6 pp	2446.00	46.85	27.37	10.70	34.22	56	76.00	-25.30	horizontal	Peak
7 av	2822.00	22.65	28.95	11.66	33.96	295	56.00	-26.70	horizontal	Average
8	2822.00	41.30	28.95	11.66	33.96	295	76.00	-28.05	horizontal	Peak

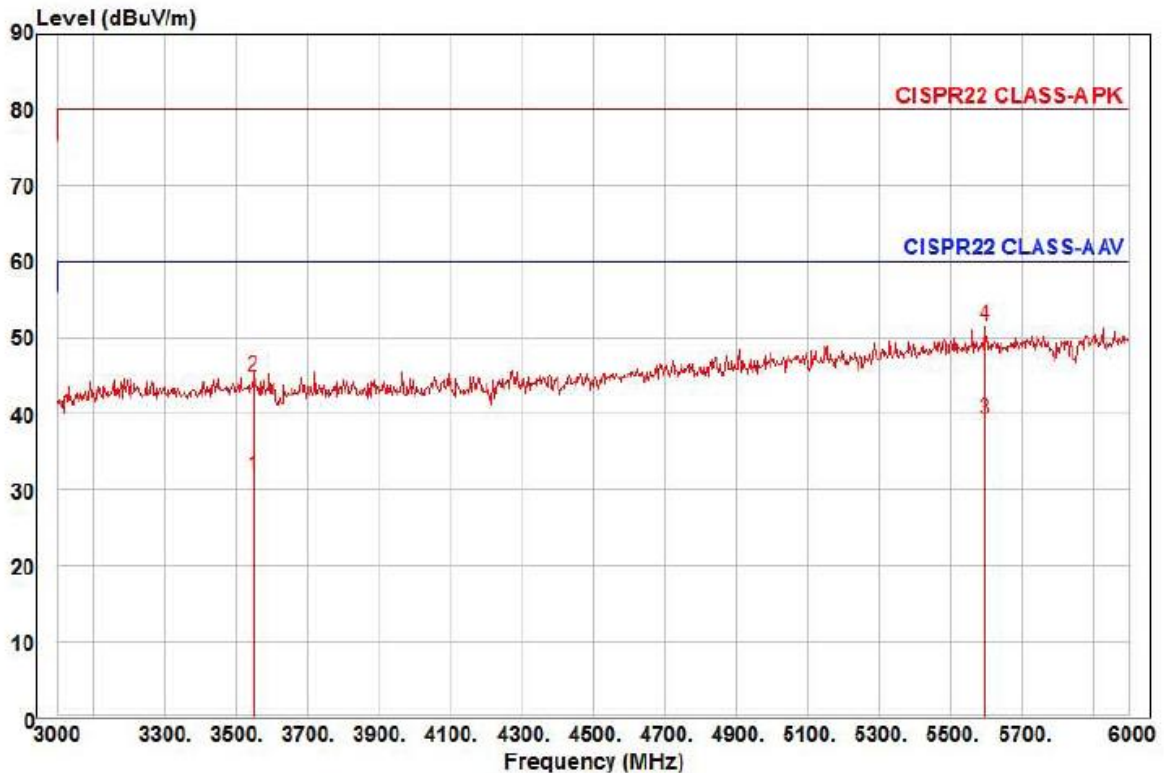
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Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : AC 24 V
Memo : 3 ~ 6 GHz

	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	3549.00	21.83	31.28	13.21	34.46	352	60.00	-28.14	horizontal	Average
2	3549.00	34.83	31.28	13.21	34.46	352	80.00	-35.14	horizontal	Peak
3 pp	5598.00	20.27	35.52	16.76	33.29	310	60.00	-20.74	horizontal	Average
4 pk	5598.00	32.50	35.52	16.76	33.29	310	80.00	-28.51	horizontal	Peak

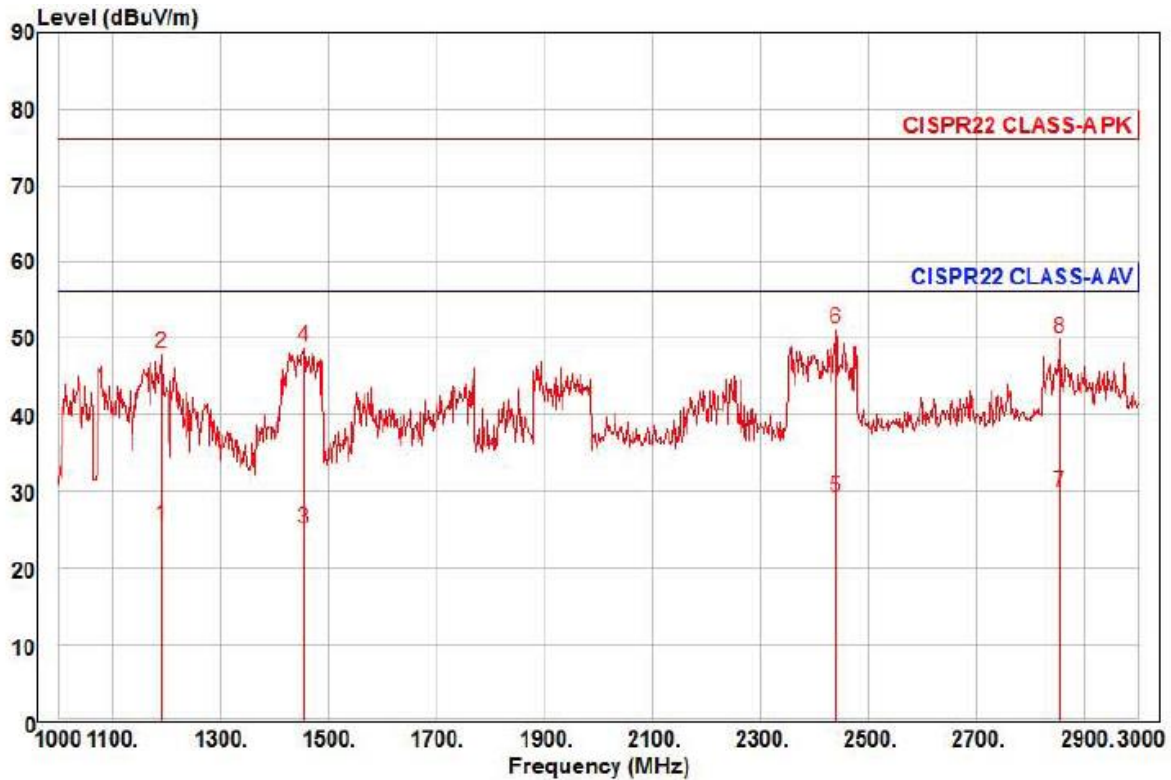
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Test report No.:
KES-E1-17T0692
Page (45) of (58)



Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : AC 24 V
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	1190.00	31.03	23.08	7.25	35.88	18	56.00	-30.52	vertical	Average
2	1190.00	53.59	23.08	7.25	35.88	18	76.00	-27.96	vertical	Peak
3	1454.00	28.67	23.88	8.08	35.44	326	56.00	-30.81	vertical	Average
4	1454.00	52.31	23.88	8.08	35.44	326	76.00	-27.17	vertical	Peak
5	2440.00	25.44	27.35	10.69	34.23	8	56.00	-26.75	vertical	Average
6 pp	2440.00	47.29	27.35	10.69	34.23	8	76.00	-24.90	vertical	Peak
7 av	2854.00	22.98	29.09	11.75	33.94	302	56.00	-26.12	vertical	Average
8	2854.00	43.16	29.09	11.75	33.94	302	76.00	-25.94	vertical	Peak

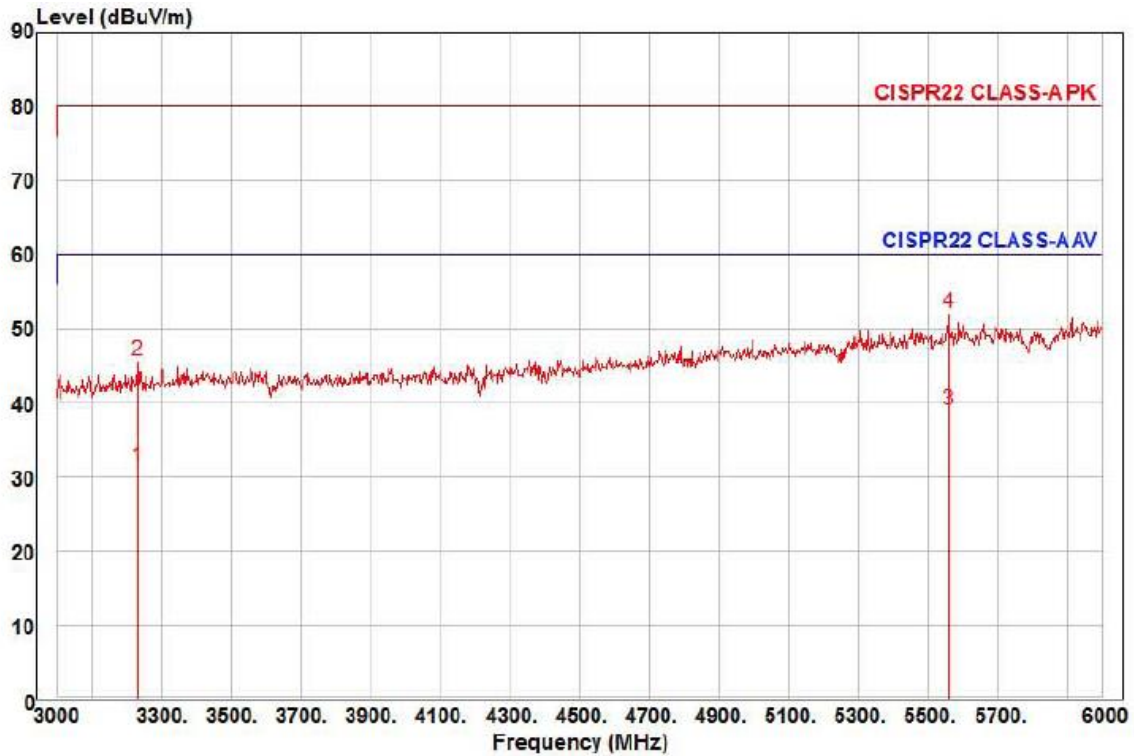
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Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : AC 24 V
Memo : 3 ~ 6 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3231.00	22.35	30.39	12.72	34.10	352	60.00	-28.64	vertical	Average
2	3231.00	36.66	30.39	12.72	34.10	352	80.00	-34.33	vertical	Peak
3 pp	5559.00	20.16	35.46	16.70	33.29	198	60.00	-20.97	vertical	Average
4 pk	5559.00	33.24	35.46	16.70	33.29	198	80.00	-27.89	vertical	Peak

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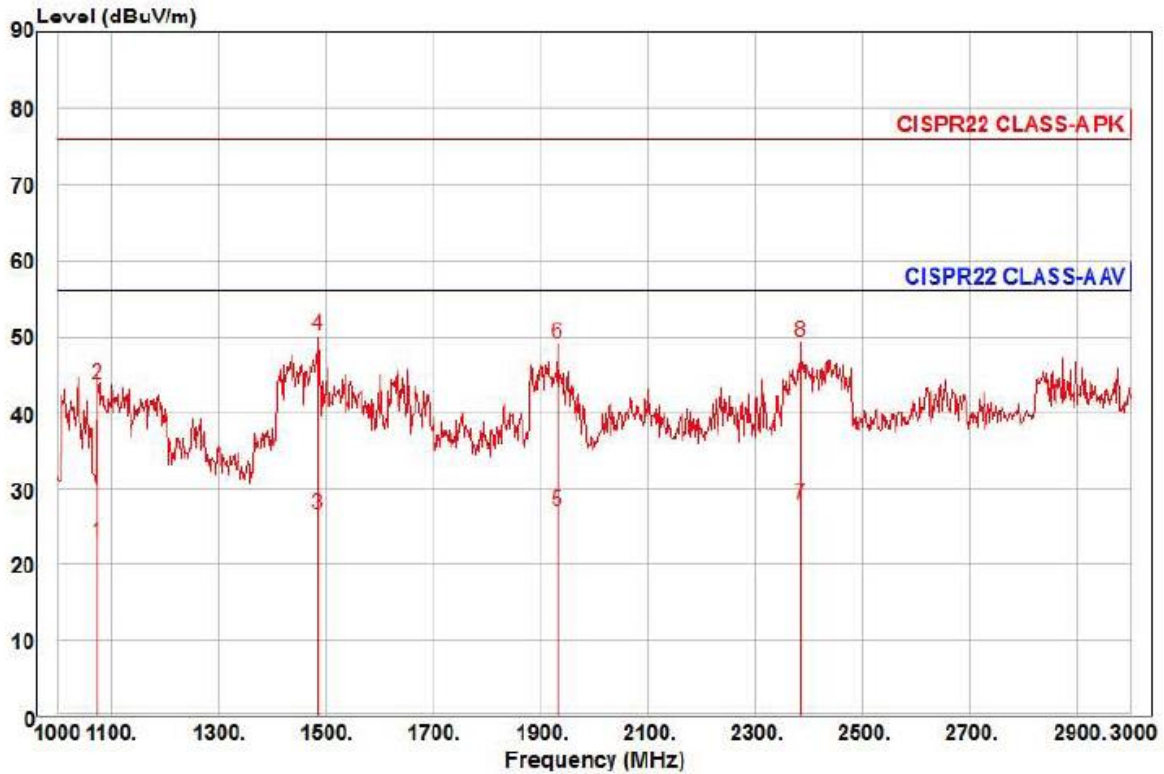


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☐ DC 12 V Mode



Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : DC 12 V
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	1074.00	29.41	22.72	6.88	36.08	324	56.00	-33.07	horizontal	Average
2	1074.00	50.27	22.72	6.88	36.08	324	76.00	-32.21	horizontal	Peak
3	1486.00	29.96	23.98	8.18	35.39	339	56.00	-29.27	horizontal	Average
4 pp	1486.00	53.51	23.98	8.18	35.39	339	76.00	-25.72	horizontal	Peak
5	1932.00	26.53	25.74	9.46	34.64	28	56.00	-28.91	horizontal	Average
6	1932.00	48.73	25.74	9.46	34.64	28	76.00	-26.71	horizontal	Peak
7 av	2384.00	24.67	27.18	10.56	34.27	26	56.00	-27.86	horizontal	Average
8	2384.00	45.96	27.18	10.56	34.27	26	76.00	-26.57	horizontal	Peak

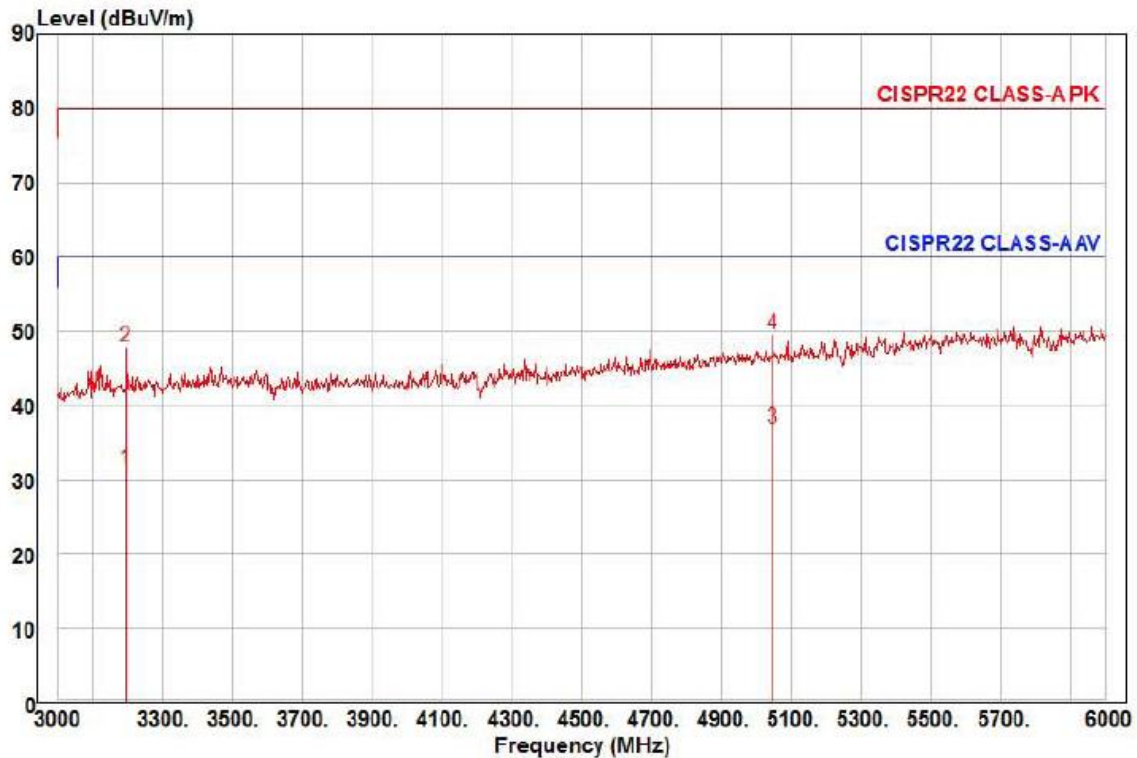
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Test report No.:
KES-E1-17T0692
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Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : DC 12 V
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	3195.00	22.41	30.29	12.65	34.06	51	60.00	-28.71	horizontal	Average
2	3195.00	38.99	30.29	12.65	34.06	51	80.00	-32.13	horizontal	Peak
3 pp	5049.00	20.60	33.60	15.84	33.22	275	60.00	-23.18	horizontal	Average
4 pk	5049.00	33.46	33.60	15.84	33.22	275	80.00	-30.32	horizontal	Peak

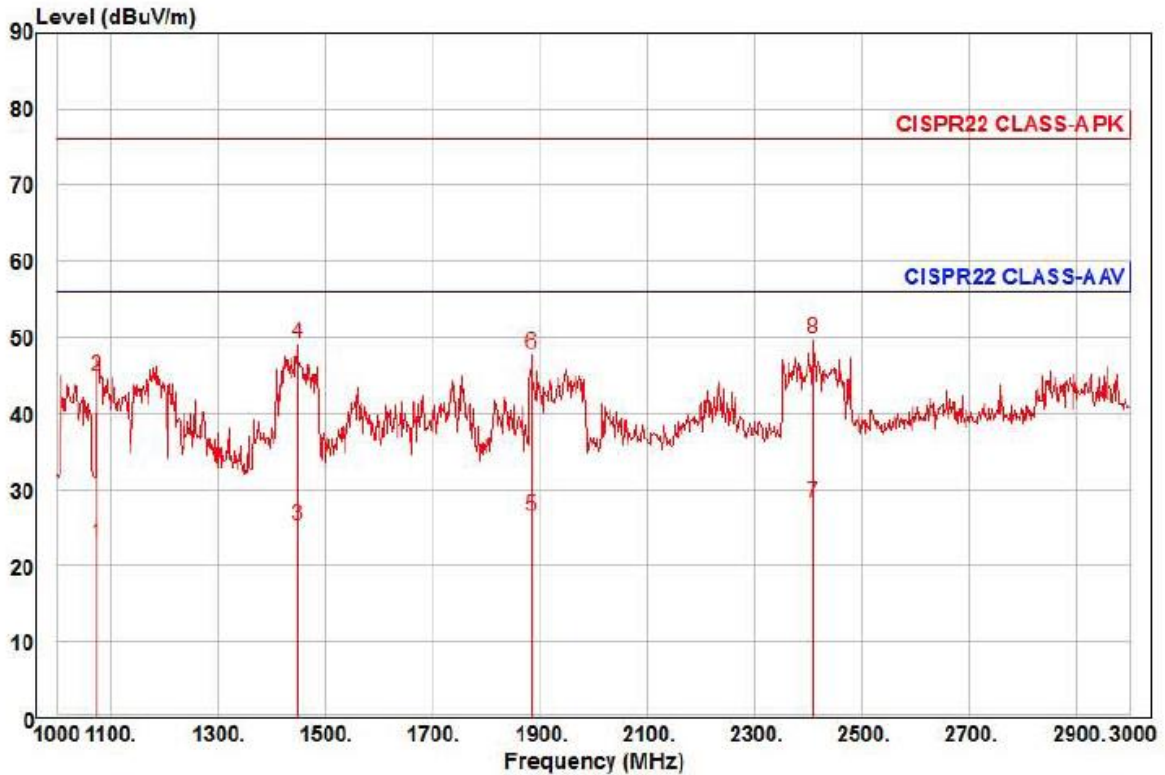
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Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : DC 12 V
Memo : 1 ~ 3 GHz

	Freq	Read Level	Ant Factor	Cable Loss	Preampl Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1074.00	29.49	22.72	6.88	36.08	2	56.00	-32.99	vertical	Average
2	1074.00	51.37	22.72	6.88	36.08	2	76.00	-31.11	vertical	Peak
3	1448.00	28.85	23.86	8.07	35.45	343	56.00	-30.67	vertical	Average
4	1448.00	52.78	23.86	8.07	35.45	343	76.00	-26.74	vertical	Peak
5	1884.00	26.29	25.55	9.33	34.72	10	56.00	-29.55	vertical	Average
6	1884.00	47.63	25.55	9.33	34.72	10	76.00	-28.21	vertical	Peak
7 av	2410.00	24.58	27.26	10.62	34.25	13	56.00	-27.79	vertical	Average
8 pp	2410.00	46.24	27.26	10.62	34.25	13	76.00	-26.13	vertical	Peak

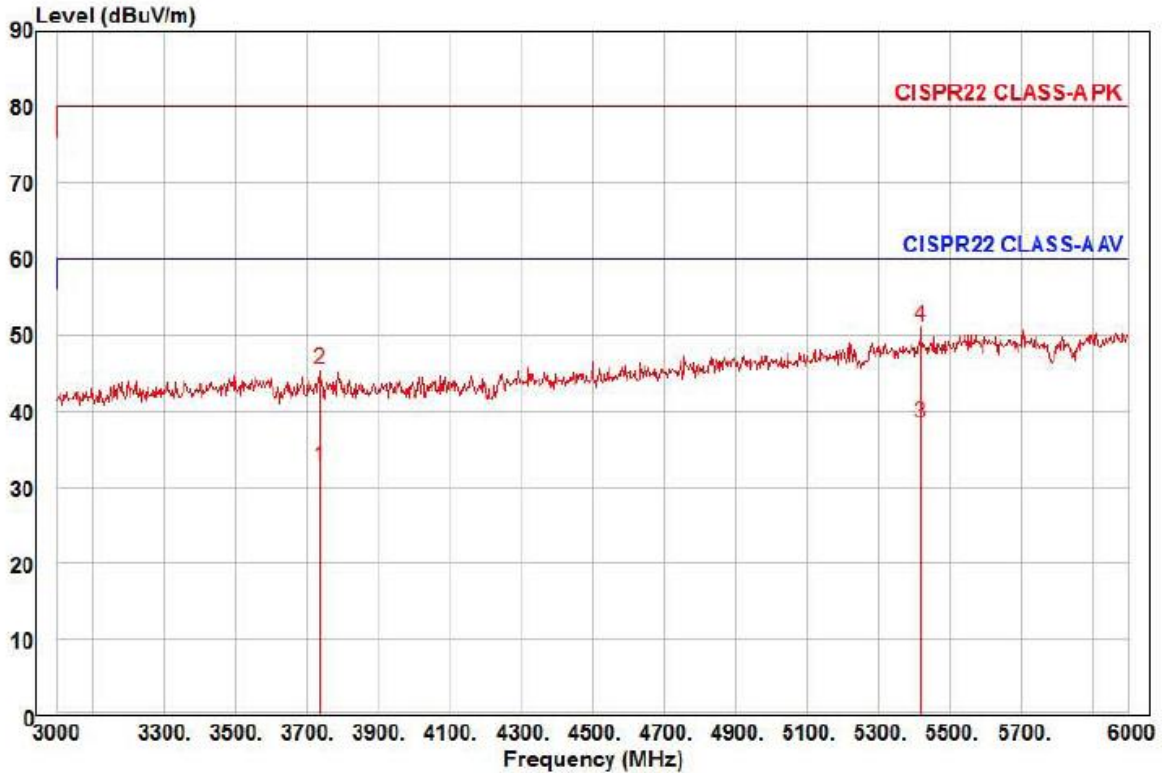
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Site : YEOJU_C 3 m SAC
Condition: CISPR22 CLASS-A PK 3m STLP9149(RRA CAL 2017-05-18) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SCV-5083RP
Mode : DC 12 V
Memo : 3 ~ 6 GHz

	Read	Ant	Cable	Preamp	TPos	Limit	Over		
Freq	Level	Factor	Loss	Factor		Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	3735.00	22.06	31.78	13.52	34.67	354	60.00	-27.31	vertical
2	3735.00	34.84	31.78	13.52	34.67	354	80.00	-34.53	vertical
3 pp	5418.00	20.15	35.05	16.48	33.27	346	60.00	-21.59	vertical
4 pk	5418.00	32.98	35.05	16.48	33.27	346	80.00	-28.76	vertical

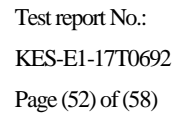
◆ Calculation - SAC #3

Result(PK/CAV) [dB(μ V/m)] = (Reading(PK/CAV)[dB(μ V)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μ V/m)] - Result(PK/CAV) [dB(μ V/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value





Test Data - Voltage Fluctuations

Maximum Flicker results

	EUT values	Limit	Result
Pst	N/A		
Plt			
dc [%]			
dmax [%]			
Tmax [s]			



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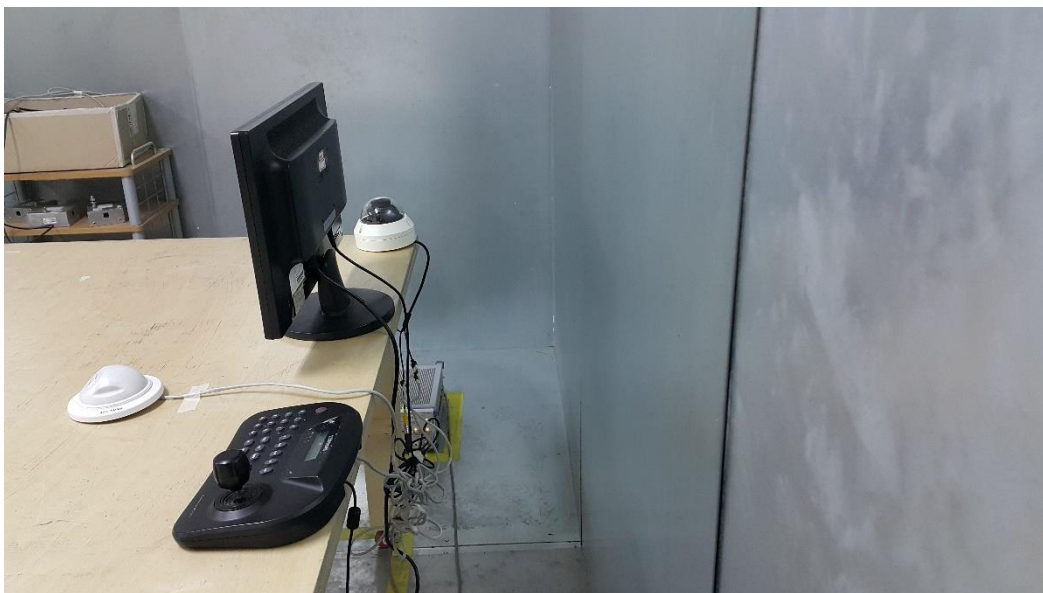
Test Setup Photos and Configuration

Conducted Voltage Emissions

N/A

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Conducted Voltage Emissions



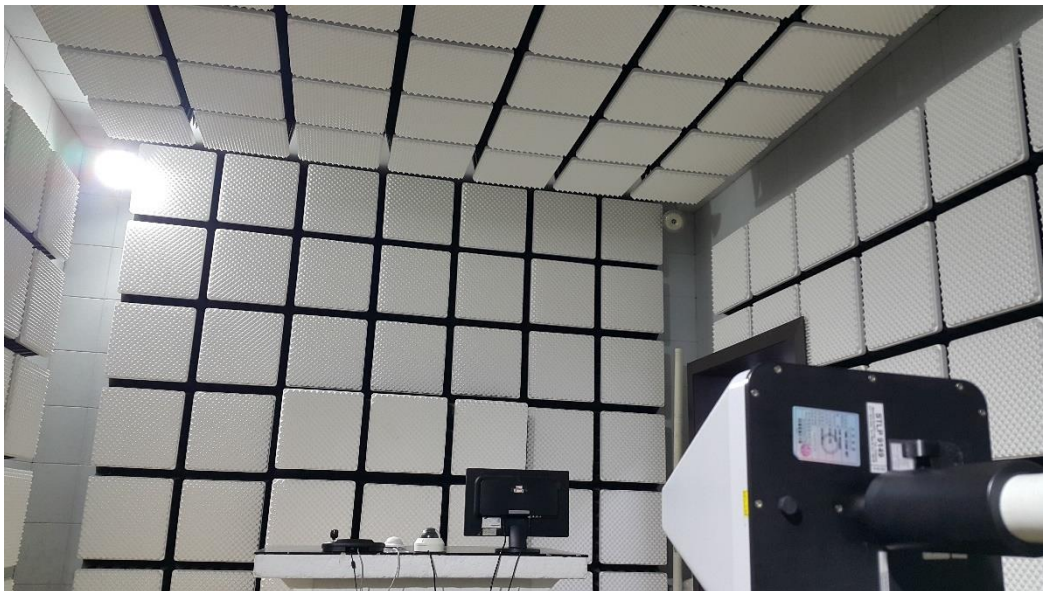
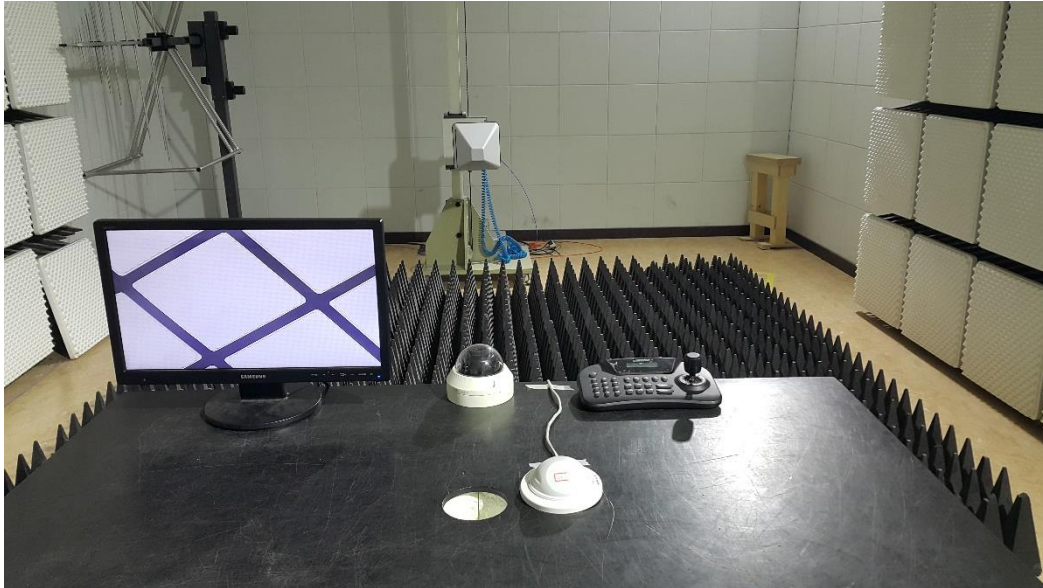
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Radiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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Harmonic Current Emissions and Voltage Fluctuations and Flicker

N/A

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Electrostatic Discharge

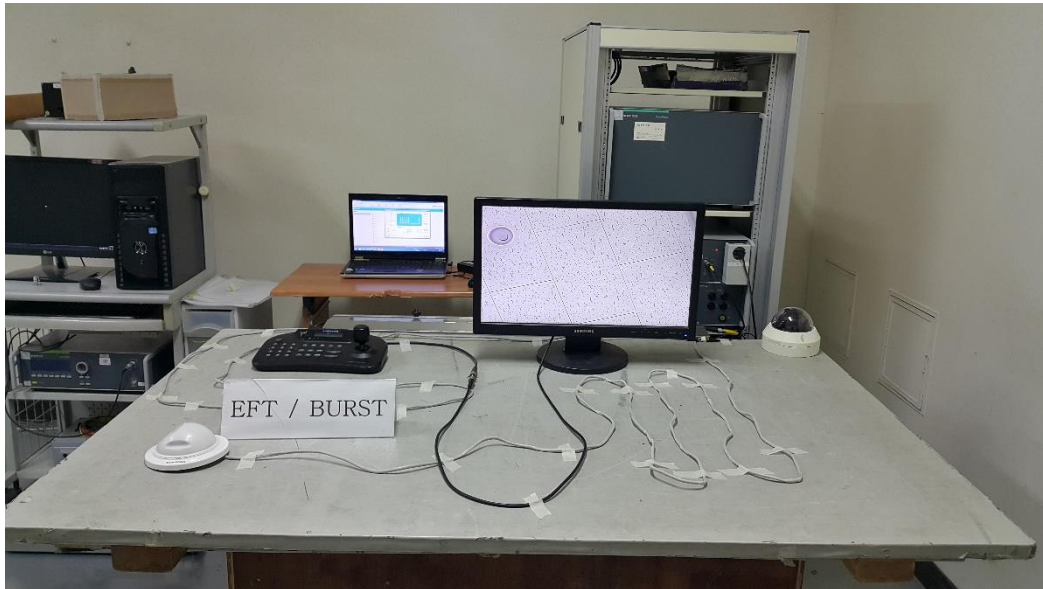


Radiated Electric Field Immunity

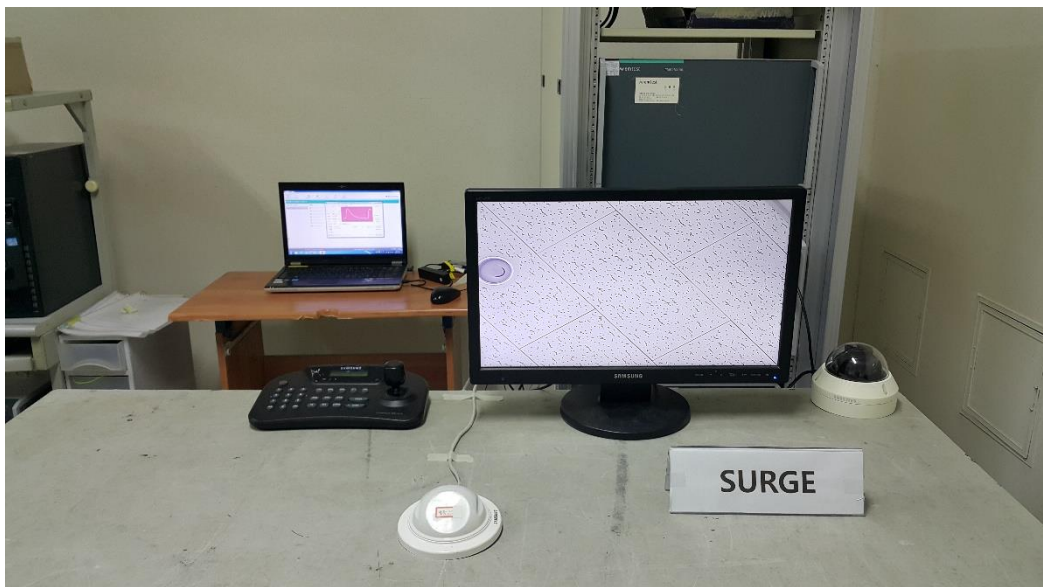


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Electrical Fast Transients/Bursts



Surge Transients

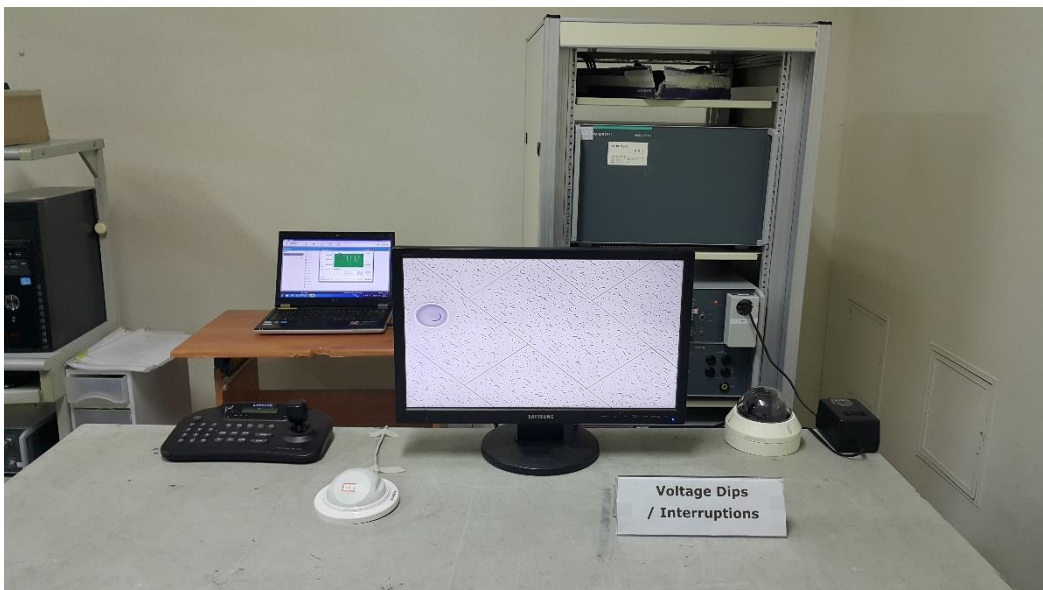


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Conducted Disturbance



Voltage Dips and Short Interruptions



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

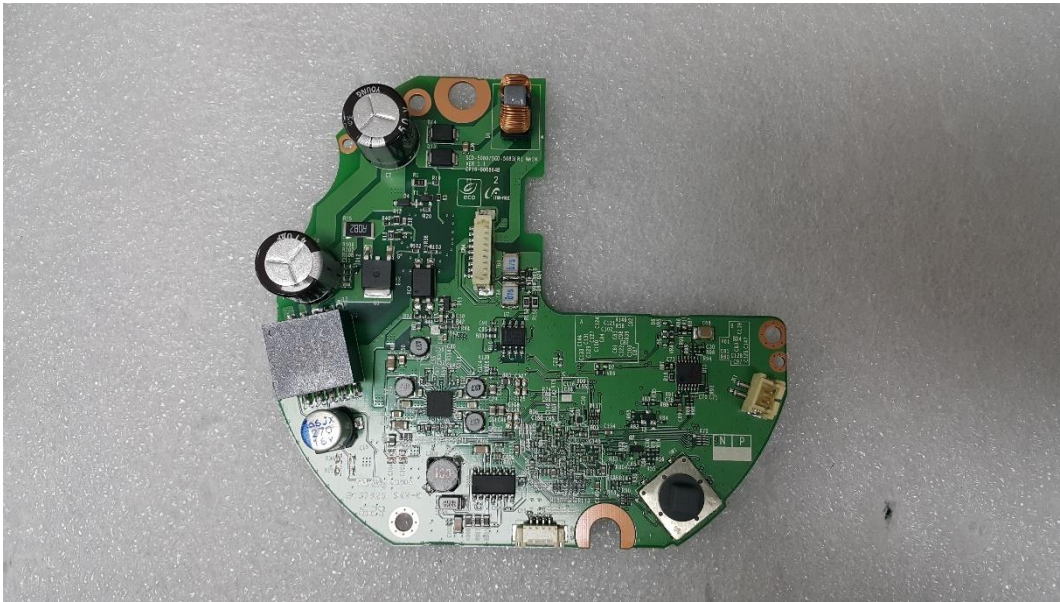
(Internal View)



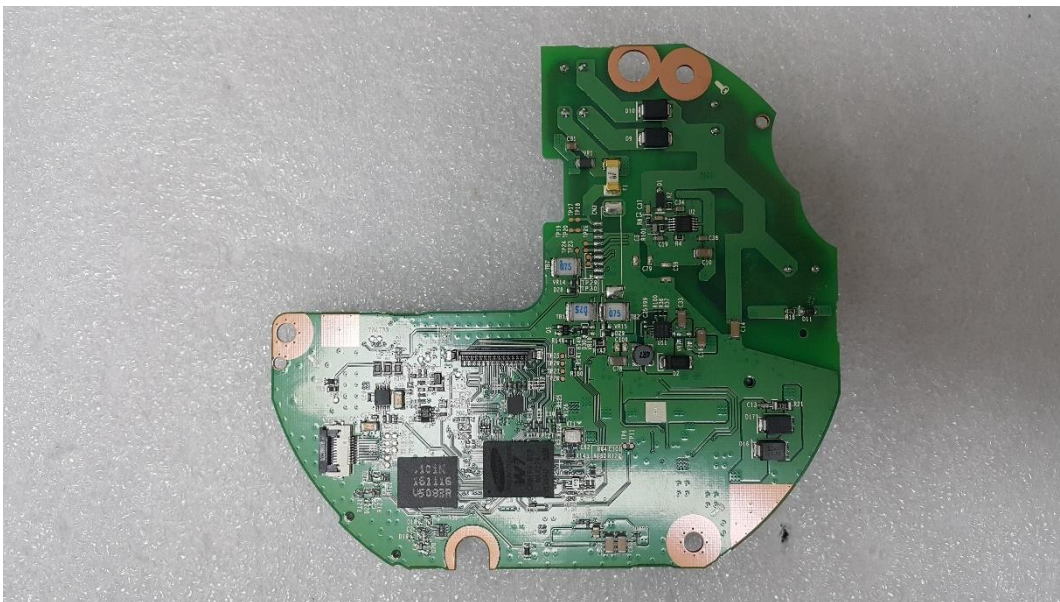
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EUT Internal View – Main board

(Top)



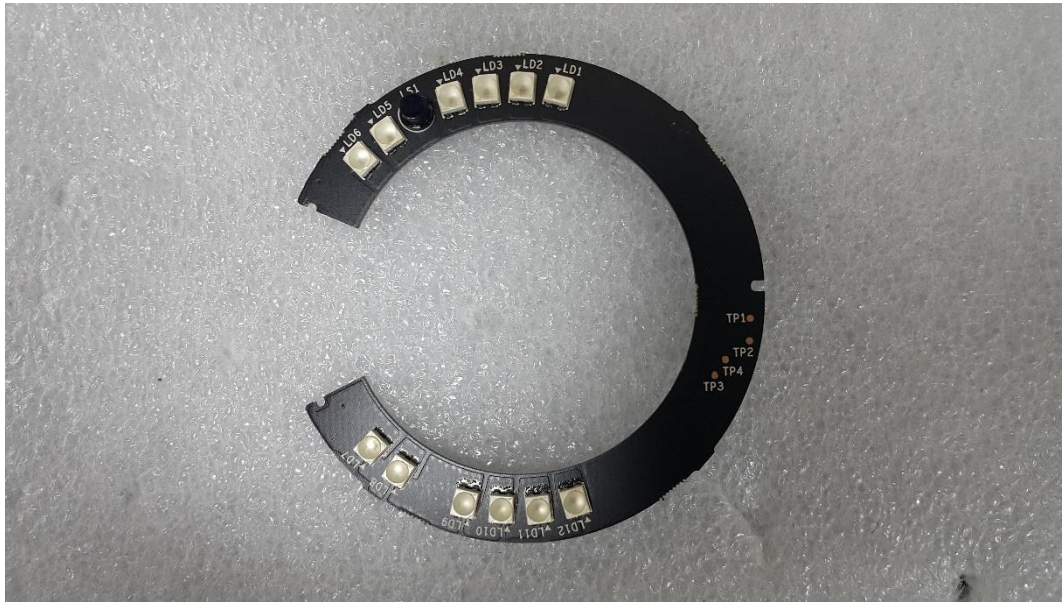
(Bottom)



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EUT Internal View – LED

(Top)



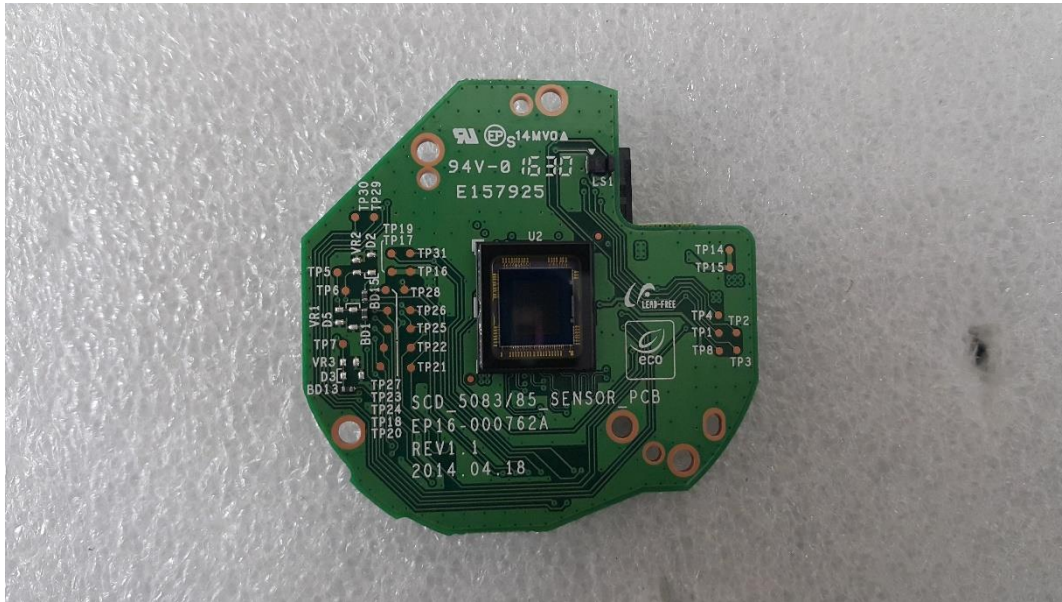
(Bottom)



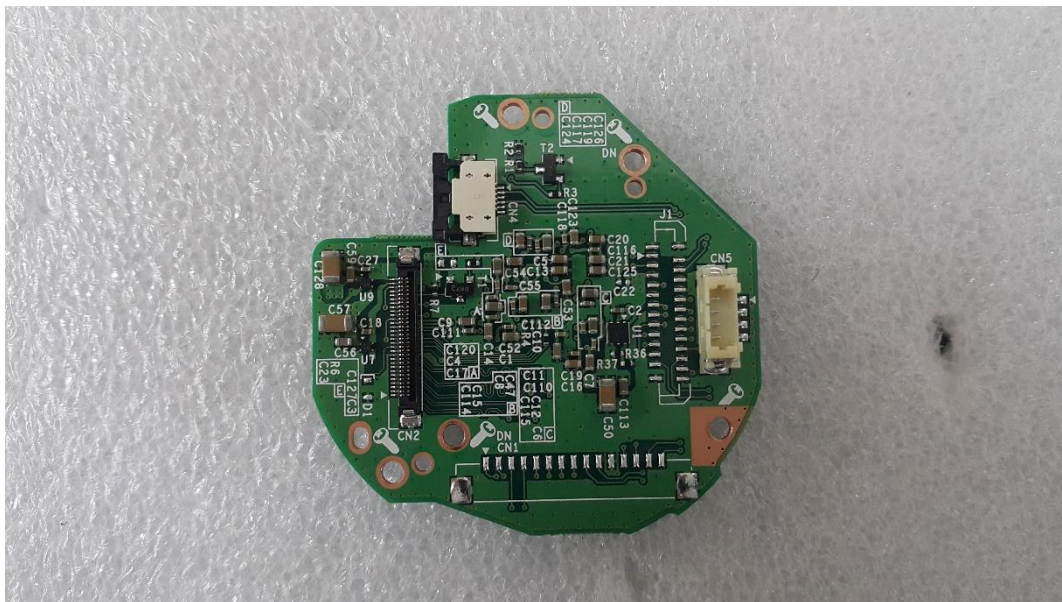
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EUT Internal View – LENS board

(Top)



(Bottom)



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EUT Internal View – LENS Module

(Top)



(Bottom)



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Label and Location



CCTV CAMERA

Model No : SCV-5083RP

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

Made in China

