EMC TEST REPORT For CE

Test Report No.	:	KES-E1-16T0135-R1
Date of Issue	:	Oct. 23, 2017
Product name	:	Digital Video Recorder
7		
Model/Type No.	:	SRD-894P
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	:	Mar. 14, 2016
Test date	:	Mar. 18, 2016 – Mar. 22, 2016
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Yung Suk, Song
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Mar. 31, 2016	KES-E1-16T0135	Issued
Oct. 23, 2017	KES-E1-16T0135-R1	Standard Revision

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1.0 General Product Description

Main Specifications of E.U.T are:

SRD-894

Video	Inputs	8channel BNC 1080P/720P AHD Camera NTSC/PAL
	Resolution	1920 x 1080, 1280 x 720, 960 x 480, 704 x 480 / 960 x 576, 704 x 576
Live	Frame rate	240fps , 200fps
	Resolution	1920 x 1080, 1280 x 720, 960 x 480, 704 x 480 / 960 x 576, 704 x 576
	Multi Screen display	1/4/7/9/13/PIP/Sequence
Performance		
Operating System	Embedded	Linux
Recording	Compression	H.264
	Record Rate	Up to 240fps@1920 x 1080 / Up to 200fps@1920 x 1080
		Up to 240fps@1280 x 720 / Up to 200fps@1280 x 720
		NTSC: Up to 240fps @ 960x480 / PAL: Up to 200fps @ 960x576
		NTSC: Up to 240fps @ 704x480 / PAL: Up to 200fps @ 704x576
		NTSC: Up to 240fps @ 704x240 / PAL: Up to 200fps @ 704x288
		NTSC: Up to 240fps @ 352x240 / PAL: Up to 200fps @ 352x288
	Mode	NTSC: Manual, Schedule (Continuous/Event), Event(Pre/Post), Time lapse (1~30 fps)
		PAL: Manual, Schedule (Continuous/Event), Event(Pre/Post), Time lapse (1~25 fps)
	Event	Video Loss, Motion(Level 1~10), Alarm, Tampering(Level 1~3)
	Overwrite modes	Continuous
	Pre-alarm	Up to 30 sec (5,10,20,30 Sec)
	Post-Alarm	Up to 6 hour (5,10,20,30 sec,1,3,5,10,20 min,1,2,3,4,5,6 hour)
Search & Playback	Search mode	Date/time, Event, Back up, Pos, Motion (※ All Search Included Preview Function)
	Playback function	Fast Forward/Backward (x2,x4,x8,x16,x32,x64) ※Backward Play with I-frame Only, Slow Forward/Backward (x1/2,x1/4,x1/8) Step Forward/Backward (x2, x4,x8,x16,x32,x64) ※ Backward Play with I-frame Only
Network (IPv4)	Transmission speed	Option 1) 1M ~ 2M (240fps, 200fps), 4CIF (NTSC : 240fps, 200fps) Option 2) 4CIF / 2CIF / CIF (NTSC : 120 / 240 fps, PAL : 100 / 200fps)
	Bandwidth	Up to 64Mbps
	Bandwidth control	Selectable
	Stream	H.264(1080P/720p/4CIF/2CIF/CIF Selectable)
	Remote users Maximum	Search(3)/Live Unicast(10)/Live Multicast(20)
	Protocol support	TCP/IP,DHCP,PPPoE,SMTP,NTP,HTTP,DDNS,RTP,RTSP,SNMP
	Monitoring	Smart viewer,Web viewer, SSM(CMS)
Smart phone	Platform	Android , iOS
	Protocol support	RTP,RTSP,HTTP,CGI
	Remote users Maximum	Live 4, Play back 1CH
Storage	Internal HDD	Up to 4 SATA HDDs (MAX:6Tx4=24T)
	External (e-SATA Interface)	Up to 2 expansion bay (※Model: SVS-5R/5E)
	DVD Writer (Back-up)	N/A
	USB (Mouse/Back-up)	USB 2.0, 2 ports (Front 1, Back1)
	File Format (Back-up)	BU(DVR Player), EXE(Include Player), AVI
Security	Password Protection	1 Admin, 10 Group , 10 User per 1 Group
	Data Authentication	Watermark
Interface		
Monitors	VGA	1 VGA (1280x720, 1280x1024, 1920x1080)
	HDMI	1 HDMI (1280x720, 1280x1024, 1920x1080)
	Main Composite	N/A
	Spot(Composite)	Digital Spot (2CH) ※ Included OSD On Screen, Multi mode Support(1CH)
	Loop Outputs	N/A
Audio	Inputs/Output	8CH line in (Built in 4CH, Option : Audio Extension Cable)/ 1CH line out
	Compression	G.711
	Sampling rate	8KHz
Alarm	Inputs/Outputs	Terminal 8 Inputs (NO/NC) / Terminal 4 relay Outputs (NO/NC), Rating : 30V DC/2A, 250V AC/0.25A
	Remote notification	Notification via e-mail
Connections	Ethernet	1 RJ45 10/100/1000 Base-T
	Serial interface	RS-232/RS-485(Full Duplex) for PTZ, Samsung System Keyboard
	USB	USB 2.0, 2 ports
	e-SATA	2 External SATA ports
	Application Supoort	Mouse, Remote Controller
	Protocol support	Samsung-E/Samsung-T/Pelco-D/Pelco-p/Panasonic/ Phillips/ AD/ DIAMOND/ ERNA/ KALATEL/ VCL TP/VICON/ ELMO/GE
		PTZ Control via Coaxial Cable (ACP, Pelco-C (Coaxitron))

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General		
Electrical	Input Voltage/Current	100 to 240 VAC ±10%; 50/60 Hz, Autoranging
	Power consumption	SMPS SPEC : MAX. 150W SET : MAX. 29W (1x1T HDD)
Environmental	Operating Temperature/Humidity	+0°C to +40°C (+32°F to +104°F) / 20% to 85% RH
Mechanical	Dimension (W x H x D)	W440 x H88 x D384.8(17.32" x 3.46" x 15.14")
	Weight (With hard disks)	6.936 kg (15.2592 lb)
	Rack mount kit	2 EA
Lauguage		English, French, German, Spanish, Italian, Russian, Polish, Czech, Turkish, Netherlands Portuguese, Swedish, Danish, Rumania, Serbia, Croatia, Hungary, Greek, Finnish, Norwegian, Korean, Japanese, Chinese(Traditional), Thai , Chinese（Simplified）(25 Language)

기타	HDD 착탈 구조	
양방향 통신	AHD의 양방향 통신 기능을 이용 활용할 수 있는 항목 으청(카메라의 기능 제어 및 이벤트 수신등)	
양방향 통신	카메라 F/W Upgarde 기능 여부	

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1.1 Test Voltage & Frequency

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

Voltage ☐ 220 Vac ☒ 230 Vac ☐ 240 Vac ☐ 24 Vac ☐ PoE

Frequency ☒ 50 Hz ☐ 60 Hz ☐ Hz

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Digital Video Recorder	SRD-894	-	Hanwha Techwin(Tianjin) Co., Ltd.	E.U.T
HDD	WD10PURX	WCC4J7EHRFEE	WD	-
Switching Power Supply	FSP150-50FGNC	-	FSP GROUP INC.	-
Mouse 2	MOEIUOA,AA-SM2PCPB	20-1EI06S502	Dongguan Primax Electronic & Telecommunication Products Ltd.	-
Remote control	-	-	-	-

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Monitor 1	LS23C340	ZXPCHTMF B01032M	SAMSUNG	-
Monitor 1 Adaptor	A2514_DPN	CN07BN4400591BSK28F6NF841	11ssan Elecom(shen yang) Co., Ltd	-
Monitor 2	LS23C340	ZXPCHTMF B01032M	SAMSUNG	-
Monitor 2 Adaptor	A2514_DPN	CN07BN4400591BSK28F6NF841	11ssan Elecom(shen yang) Co., Ltd	-
Monitor 3	SMT-2232	C95V67VF900025B	Weihai Daewoo Electronics Co., Ltd.	-
Notebook	NT-R410Y	Z9YJ93CS300631H	SAMSUNG	-
Notebook Adaptor	AD-6019	-	LI SHIN INTERNATIONAL ENTERPRISE CORP.	-
Camera	5131/HBB89F	1503050001	-	-
Camera Adaptor	W&T-AD60120B500	-	JET	-
Mouse 1	CC-93-9F	LU139006416	Logitech	-
Mike 1	-	-	-	-
Mike 2	-	-	-	-
Speaker	-	-	MASS	-
Alarm 1	-	-	-	-
Alarm 2	-	-	-	-
External HDD	MDT-US2528	-	-	-

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1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
Digital Video Recorder (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	D-SUB	Monitor 1	D-SUB	1.5	S
	HDMI	Monitor 2	HDMI	1.7	S
	BNC	Monitor 3	BNC	4.0	S
	Audio In	Mike 1	Audio Out	1.2	U
	Audio In	Mike 2	Audio Out	1.2	U
	Audio Out	Speaker	Audio In	1.2	U
	USB	Mouse 1	USB	1.3	U
	RS-232	Mouse 2	RS-232	2.0	U
	BNC	Camera	BNC	4.0	S
	Alarm IN	Alarm 1	Alarm IN	3.0	U
	Alarm OUT	Alarm 2	Alarm OUT	3.0	U
	e-SATA	External HDD	e-SATA	0.5	U

* Unshielded=U, Shielded=S

1.7 E.U.T Operating Mode(s)

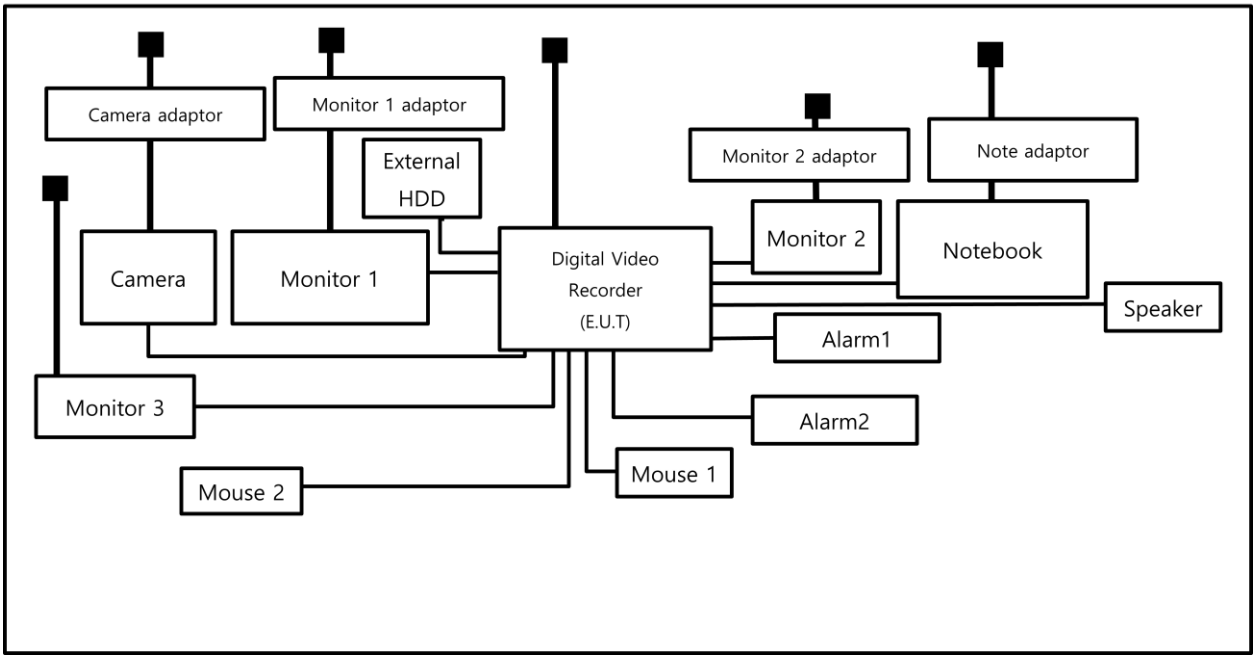
Equipment under test was operated during the measurement under the following conditions:

Test mode	Normal operating
	Tested by checking the movement whether it works well or not, with executing Ping test in a Notebook and outputting an image to a monitor after arrangement E.U.T with peripheral device as follows.

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1.8 Configuration

■ AC Main
□ DC Main



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1.9 Calibration Details of Equipment Used for Measurement

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

1.10 Test Facility

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

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	**FCC**	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	**VCCI**	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	R-4308, C-4798, T-2311, G-914
KOREA	**MSIP**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KR0100
Canada	**IC**	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1
Europe	**CE**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	**KOLAS**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KOREA LABORATORY ACCREDITATION SCHEME KOLAS TESTING NO. 489

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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 55032:2012	☒ Class A	☐ Class B
☐ EN 55024:2010		
☒ EN 50130-4:2011		
☒ EN 61000-3-2:2014		
☒ EN 61000-3-3:2013		
☐ EN 61326-1:2013		
☐ VCCI V-3 / 2013.04	☐ Class A	☐ Class B
☐ AS / NZS CISPR22:2009 +A1:2010	☐ Class A	☐ Class B
☐ 47 CFR Part 15, Subpart B / ANSI C63.4-2009	☐ Class A	☐ Class B
☐ IC Regulation ICES-003 : 2012 / ANSI C63.4-2014	☐ Class A	☐ Class B
☐ CISPR 22:2009 +A1:2010	☐ Class A	☐ Class B

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☐ **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

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2.1 Conducted Emissions at Mains Power Ports

Test Date
Mar. 18, 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
☒	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions
Temperature: 23.1 ℃
Relative Humidity: 40.9 %

.

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.2 Conducted Emissions at Telecommunication Ports

Test Date
Mar. 18, 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: 23.1 ℃
Relative Humidity: 40.9 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.3 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Mar. 18, 2016

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

Test Equipment

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

Test Conditions
Temperature: 16.3 ℃
Relative Humidity: 36.0 %

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.4 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Mar. 19, 2016

Test Location
Semi Anachoic Chamber #2

Test Equipment

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

Test Conditions
Temperature: 23.8 ℃
Relative Humidity: 40.5 %

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.5 Harmonic Current Emissions

Test Date
Mar. 21, 2016

Test Location
Electro wave Shieldroom

Test Equipment

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

Test Conditions
Temperature: 24.5 ℃
Relative Humidity: 39.2 %

Classification of Equipment for Harmonic Current Emissions
☒ Class A
☐ Class B
☐ Class C(Below 25 W)
☐ Class C(Above 25 W)
☐ Class D

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.6 Voltage Fluctuations and Flicker

Test Date
Mar. 17, 2016

Test Location
Electro wave Shieldroom

Test Equipment

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

Test Conditions
Temperature: 24.2 ℃
Relative Humidity: 39.2 %

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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3.0 Criteria for compliance

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

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

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

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

Electrostatic discharge

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

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

Radiated electromagnetic fields

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

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

which could be interpreted by associated equipment as a change, and no such

Flickering of indicators occurs at a field strength of 3 V/m.

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

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

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

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

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

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Fast transient burst / slow high energy voltage surge

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

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

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change.

Conducted RF immunity

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

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

That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change,

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

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

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

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

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

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

still be used; and

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

Voltage dip/interruption / Voltage variation

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

Flickering of an indicator during the conditioning is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as a change. The EUT shall meet the acceptance criteria for the functional test, after the conditioning.

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3.1 Electrostatic Discharge

Reference Standard
EN 61000-4-2:2009

Test Date
Mar. 22, 2016

Test Location
EMS-ESD: Electro wave Shieldroom

Test Equipment

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

Test Conditions
Temperature: 24.3 ℃
Relative Humidity: 41.1 %
Atmospheric Pressure: 100,1 kPa

Test Specifications
Discharge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

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

Polarity: Positive and Negative

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

Discharge Voltage:

Contact	Air	HCP	VCP
☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

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

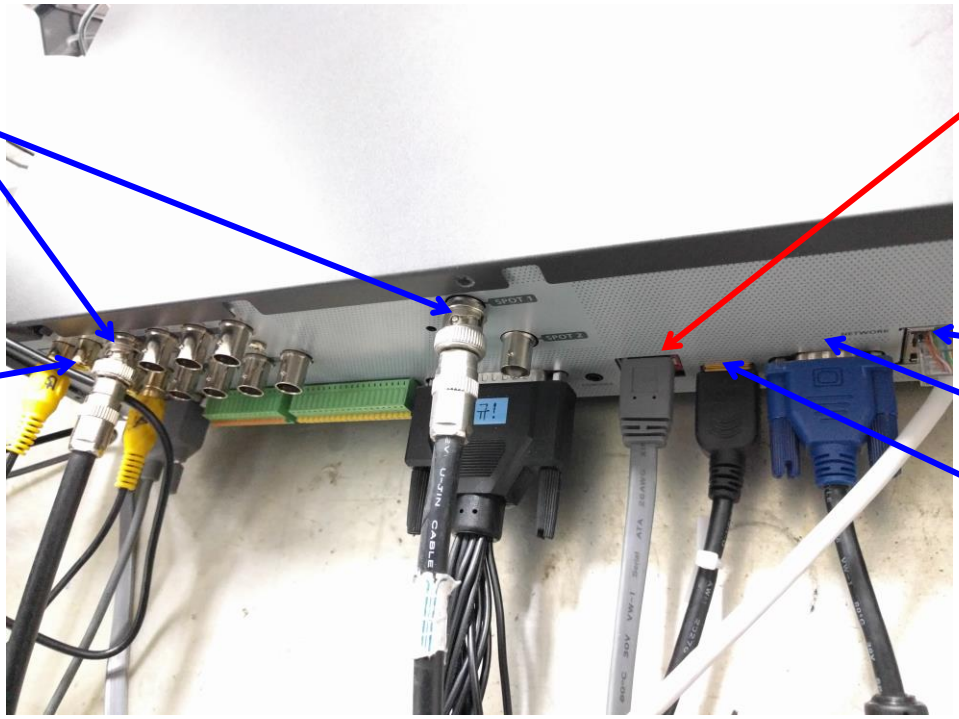
Required Performance Criteria: ☒ Complied

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Location of Discharge:

Air
Contact





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Test Data

Indirect Discharge

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

Direct Discharge

No.	Test Point	Discharge Method	Performance Observation	Remarks
1	Enclosure	Air Discharge	Complied	-
2	USB	Air Discharge	Complied	-
3	e-SATA	Air Discharge	Complied	-
4	BNC	Contact Discharge	Complied	-
5	HDMI	Contact Discharge	Complied	-
6	D-SUB	Contact Discharge	Complied	-
7	RJ-45	Contact Discharge	Complied	-
8	Audio OUT	Contact Discharge	Complied	-
9	RS-232	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.

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3.2 Radiated Electric Field Immunity

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

Test Date
Mar. 19, 2016

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

Test Equipment

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

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Test Conditions

Temperature: 23,8 ℃
Relative Humidity: 40,5 %
Atmospheric Pressure: 100,5 kPa

Test Specifications

Antenna Polarization: Horizontal & vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

# of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ Complied

Test Data

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

Note: "Blank" = Not performed

Observations:
Complied – No degradation of function

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

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3.3 Electrical Fast Transients/Bursts

Reference Standard
EN 61000-4-4:2012

Test Date
Mar. 21, 2016

Test Location
EMS-EFT: Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature:	24.5 ℃
Relative Humidity:	39.2 %
Atmospheric Pressure:	100.8 kPa

Test Specifications

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

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Test Data

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

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

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

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

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	OBSERVATIONS	
	(+) Burst (㎸)	(-) Burst (㎸)
RJ-45	Complied	Complied
BNC	Complied	Complied
Alarm IN, OUT	Complied	Complied

Note: "Blank" = Not performed

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

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

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3.4 Surge Transients

Reference Standard
EN 61000-4-5:2014

Test Date
Mar. 21, 2016

Test Location
EMS-Surge: Electro wave Shieldroom

Test Equipment

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

Test Conditions
Temperature: 24.5 ℃
Relative Humidity: 39.2 %
Atmospheric Pressure: 100,8 kPa

Test Specifications

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
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

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Signal Lines

Source Impedance: 42 ohm for common mode
Surge Amplitude: Common Mode
☒ (0,5 / 1,0) kV

Number of Surges: ☒ 5 Surges

Polarity: ☒ Positive & Negative

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

Required Performance Criteria: ☒ Complied

Test Data

☒ Line to Line – Differential Mode

Mode of Application	OBSERVATIONS	
	(+) Surge (kV)	(-) Surge (kV)
L – N	Complied	Complied
L – PE	Complied	Complied
N - PE	Complied	Complied

☐ Line to Earth – Common Mode

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

Signal Lines

☒ Line to Earth – Common Mode

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

Note: "Blank" = Not performed

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

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

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3.5 Conducted Disturbance

Reference Standard
EN 61000-4-6:2009

Test Date
Mar. 21, 2016

Test Location
EMS-CS: Electro wave Shieldroom

Test Equipment

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

Test Conditions
Temperature: 24.3 ℃
Relative Humidity: 41.1 %
Atmospheric Pressure: 100.1 kPa

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Test Specifications

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

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

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

Frequency step: ☒ 1 % step

Dwell Time: ☒ 1 s ☐ 3 s

Required Performance Criteria: ☒ Complied

Test Data

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
L – N – PE	CDN (☐M2, ☒M3)	Complied

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observation
-	CDN (☐M2, ☐M3)	-

☒ Signal ports and telecommunication ports

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

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

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

Test Results

☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria

Remarks

PASS Required Performance Criteria.

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3.6 Voltage Dips and Short Interruptions

Reference Standard
EN 61000-4-6:2009

Test Date
Mar. 21, 2016

Test Location
EMS-Voltage dip: Electro wave Shieldroom

Test Equipment

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

Test Conditions

Temperature:	24.5 ℃
Relative Humidity:	39.2 %
Atmospheric Pressure:	100.8 kPa

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Test Specifications & Observations/Remarks

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

- Voltage cariations

☒ Unom + 10 %	☒ 253 V (ac)	Complied
☒ Unom - 15 %	☒ 195.5 V (ac)	Complied

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

Test Results
☒ PASS Required Performance Criteria
☐ NOT PASS Required Performance Criteria
☐ NOT APPLICABLE

Remarks
PASS Required Performance Criteria.

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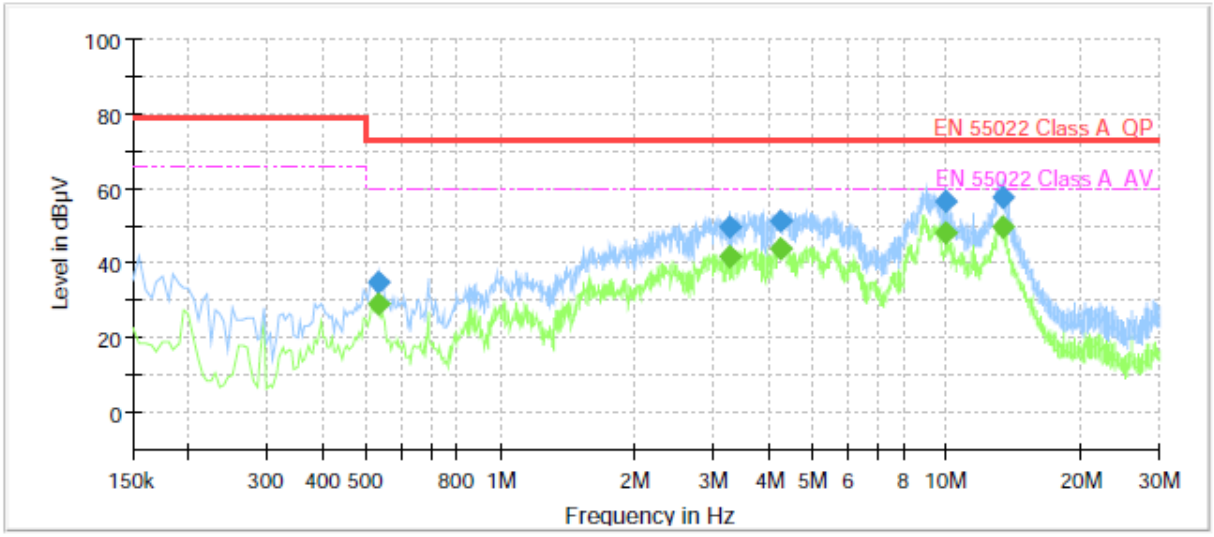
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	SRD-894P
Mode	
Operator Name:	KES



Final_Result

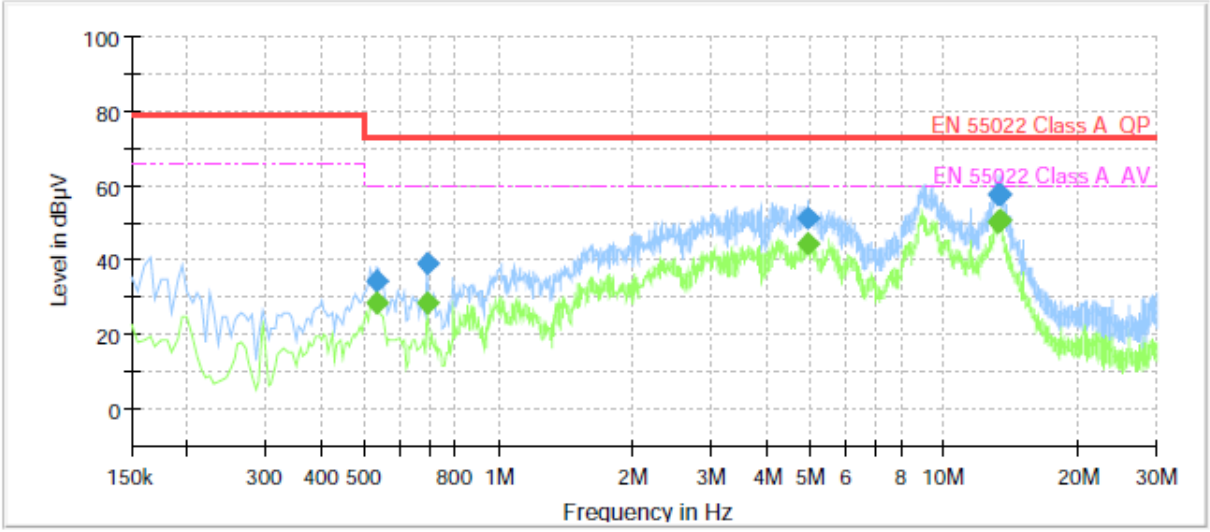
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.530000	---	29.02	60.00	30.98	1000.0	9.000	L1	9.7
0.530000	34.89	---	73.00	38.11	1000.0	9.000	L1	9.7
3.255000	---	41.92	60.00	18.08	1000.0	9.000	L1	9.8
3.255000	49.64	---	73.00	23.36	1000.0	9.000	L1	9.8
4.225000	---	44.15	60.00	15.85	1000.0	9.000	L1	9.8
4.225000	51.25	---	73.00	21.75	1000.0	9.000	L1	9.8
10.000000	---	48.34	60.00	11.66	1000.0	9.000	L1	10.0
10.000000	56.89	---	73.00	16.11	1000.0	9.000	L1	10.0
13.300000	---	49.96	60.00	10.04	1000.0	9.000	L1	10.0
13.300000	57.69	---	73.00	15.31	1000.0	9.000	L1	10.0

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	SRD-894P
Mode	
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.535000	---	28.54	60.00	31.46	1000.0	9.000	N	9.7
0.535000	34.67	---	73.00	38.33	1000.0	9.000	N	9.7
0.690000	---	28.53	60.00	31.47	1000.0	9.000	N	9.7
0.690000	39.41	---	73.00	33.59	1000.0	9.000	N	9.7
4.940000	---	44.70	60.00	15.30	1000.0	9.000	N	9.8
4.940000	51.25	---	73.00	21.75	1000.0	9.000	N	9.8
13.190000	---	50.17	60.00	9.83	1000.0	9.000	N	10.1
13.190000	57.61	---	73.00	15.39	1000.0	9.000	N	10.1
13.320000	---	50.68	60.00	9.32	1000.0	9.000	N	10.1
13.320000	57.72	---	73.00	15.28	1000.0	9.000	N	10.1

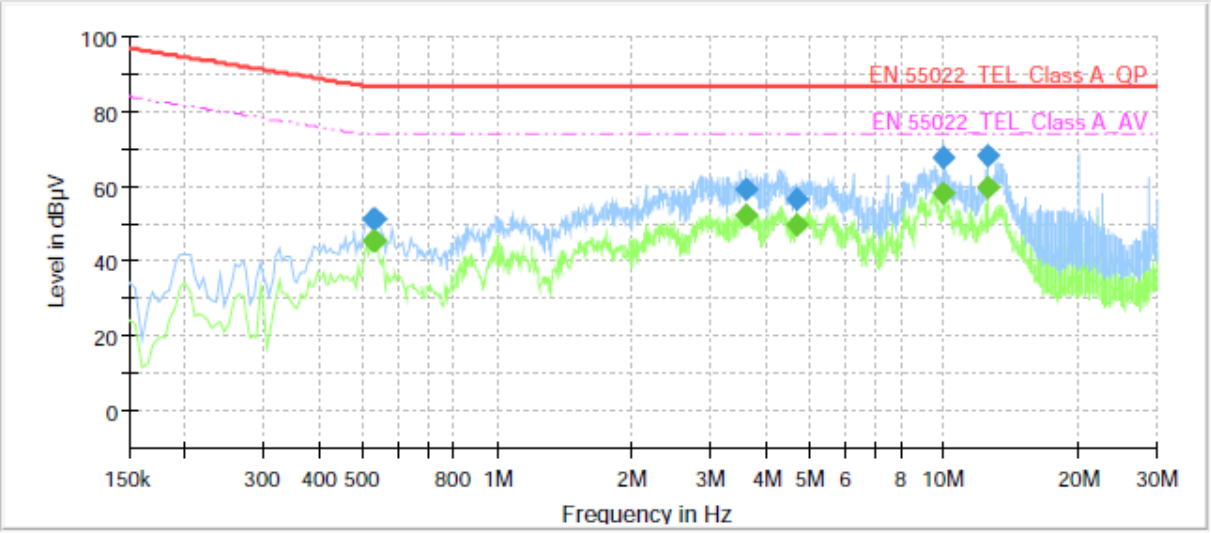
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Conducted Emissions at Telecommunication Ports

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SRD-894P
Mode	10 Mbps
Operator Name:	KES



Final_Result

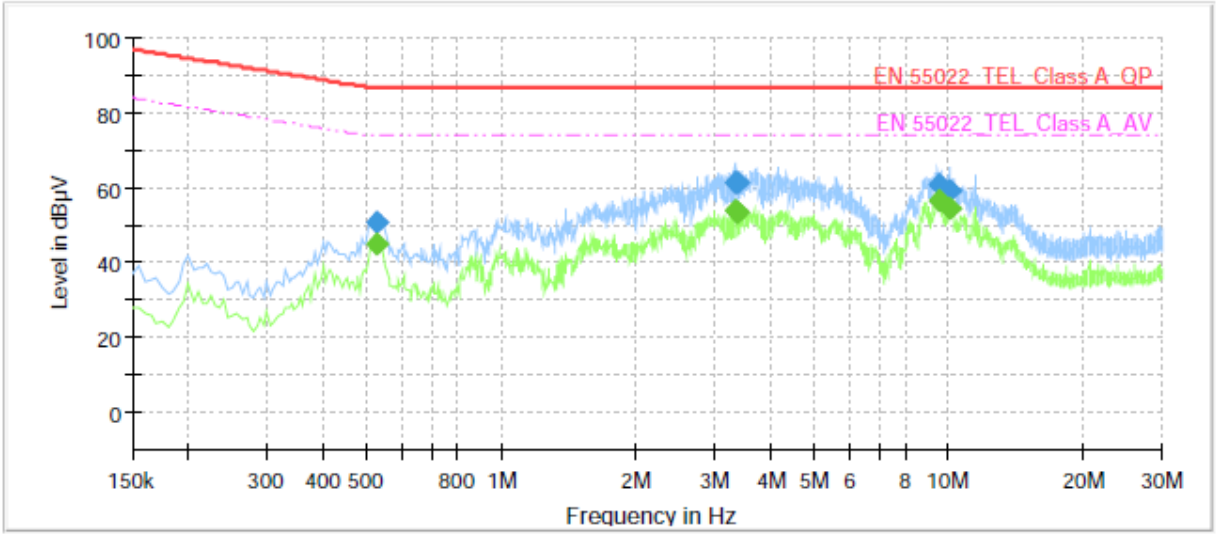
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.525000	---	45.30	74.00	28.70	1000.0	9.000	Single Line	10.1
0.525000	51.39	---	87.00	35.61	1000.0	9.000	Single Line	10.1
0.535000	---	45.42	74.00	28.58	1000.0	9.000	Single Line	10.1
0.535000	51.59	---	87.00	35.41	1000.0	9.000	Single Line	10.1
3.610000	---	52.36	74.00	21.64	1000.0	9.000	Single Line	9.9
3.610000	59.51	---	87.00	27.49	1000.0	9.000	Single Line	9.9
4.675000	---	49.64	74.00	24.36	1000.0	9.000	Single Line	9.9
4.675000	56.57	---	87.00	30.43	1000.0	9.000	Single Line	9.9
10.005000	---	58.40	74.00	15.60	1000.0	9.000	Single Line	10.0
10.005000	67.49	---	87.00	19.51	1000.0	9.000	Single Line	10.0
12.500000	---	59.60	74.00	14.40	1000.0	9.000	Single Line	10.1
12.500000	68.24	---	87.00	18.76	1000.0	9.000	Single Line	10.1

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[1 00 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	SRD-894P
Mode	1000 Mbps
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.525000	---	44.98	74.00	29.02	1000.0	9.000	Single Line	9.4
0.525000	50.94	---	87.00	36.06	1000.0	9.000	Single Line	9.4
3.320000	---	53.81	74.00	20.19	1000.0	9.000	Single Line	9.2
3.320000	61.54	---	87.00	25.46	1000.0	9.000	Single Line	9.2
3.385000	---	53.54	74.00	20.46	1000.0	9.000	Single Line	9.2
3.385000	61.25	---	87.00	25.75	1000.0	9.000	Single Line	9.2
9.520000	---	56.64	74.00	17.36	1000.0	9.000	Single Line	9.4
9.520000	61.11	---	87.00	25.89	1000.0	9.000	Single Line	9.4
10.075000	---	54.61	74.00	19.39	1000.0	9.000	Single Line	9.4
10.075000	59.24	---	87.00	27.76	1000.0	9.000	Single Line	9.4

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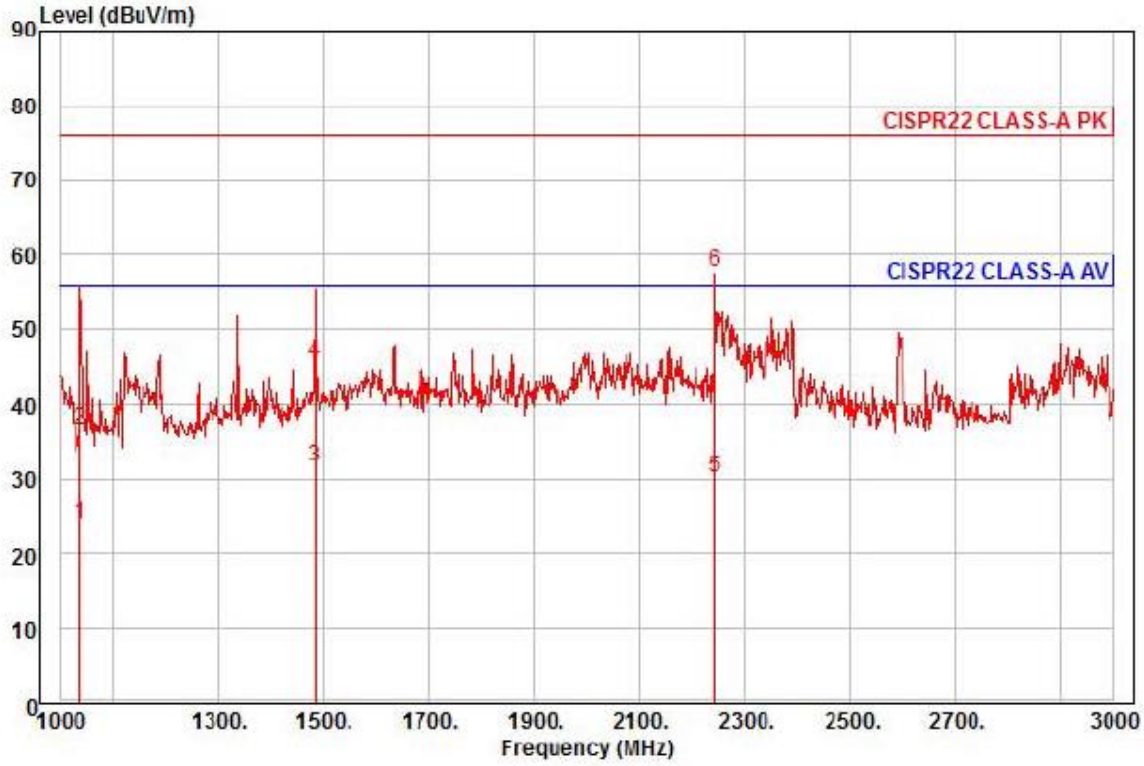
Radiated Electric Field Emissions(Below 1 ㎓)

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin [dB]
[㎒]	[dB㎶]		[m]	ANT. [dB/m]	Cable [dB]	[dB㎶/m]	[dB㎶/m]	
149.12	21.95	V	1.00	8.17	2.77	32.89	40.00	7.11
223.21	20.78	H	4.00	11.82	3.52	36.12	40.00	3.88
250.44	19.32	V	1.00	12.42	3.80	35.54	47.00	11.46
297.30	19.86	H	4.00	13.33	4.19	37.38	47.00	9.62
371.06	23.10	H	3.82	15.03	4.82	42.95	47.00	4.05
446.09	17.47	V	1.00	16.35	5.37	39.19	47.00	7.81

* H : Horizontal, V : Vertical

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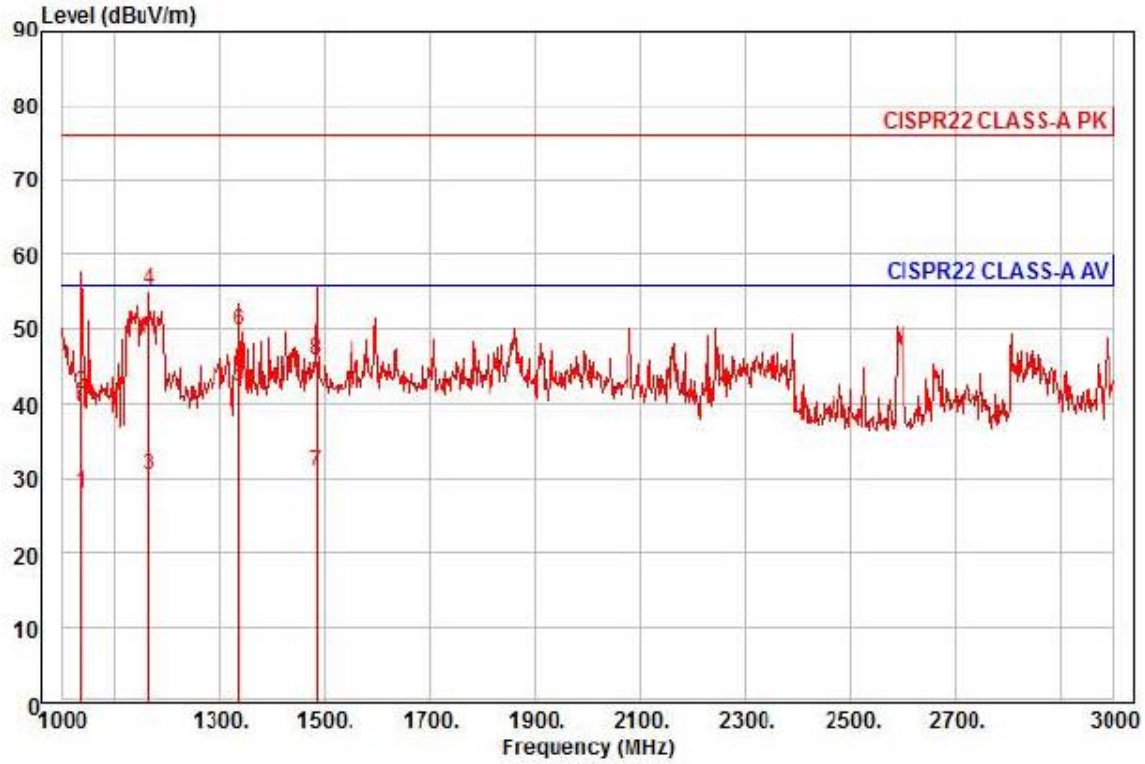
Radiated Electric Field Emissions(Above 1 ㎓)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-894P
Mode :
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	1038.00	33.36	24.06	6.62	40.10	336	56.00	-32.06	horizontal	Average
2	1038.00	45.94	24.06	6.62	40.10	336	76.00	-39.48	horizontal	Peak
3 av	1484.00	37.89	25.83	7.91	39.88	353	56.00	-24.25	horizontal	Average
4	1484.00	51.65	25.83	7.91	39.88	353	76.00	-30.49	horizontal	Peak
5	2244.00	31.70	28.48	9.72	39.77	55	56.00	-25.87	horizontal	Average
6 pp	2244.00	59.30	28.48	9.72	39.77	55	76.00	-18.27	horizontal	Peak

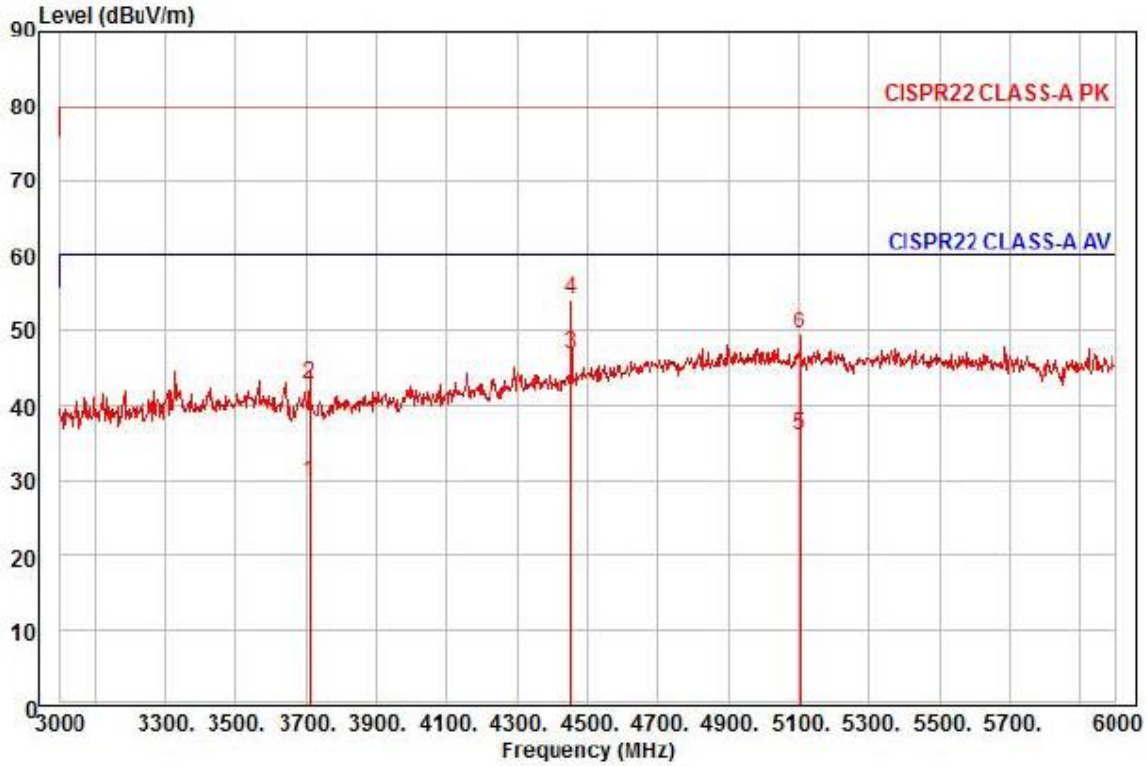
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-894P
Mode :
Memo :

	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	1038.00	37.37	24.06	6.62	40.10	202	56.00	-28.05	vertical	Average
2	1038.00	50.91	24.06	6.62	40.10	202	76.00	-34.51	vertical	Peak
3	1166.00	38.94	24.57	6.99	40.04	45	56.00	-25.54	vertical	Average
4 pk	1166.00	63.67	24.57	6.99	40.04	45	76.00	-20.81	vertical	Peak
5 pp	1336.00	49.70	25.24	7.48	39.96	347	56.00	-13.54	vertical	Average
6	1336.00	56.95	25.24	7.48	39.96	347	76.00	-26.29	vertical	Peak
7	1484.00	36.92	25.83	7.91	39.88	31	56.00	-25.22	vertical	Average
8	1484.00	51.88	25.83	7.91	39.88	31	76.00	-30.26	vertical	Peak

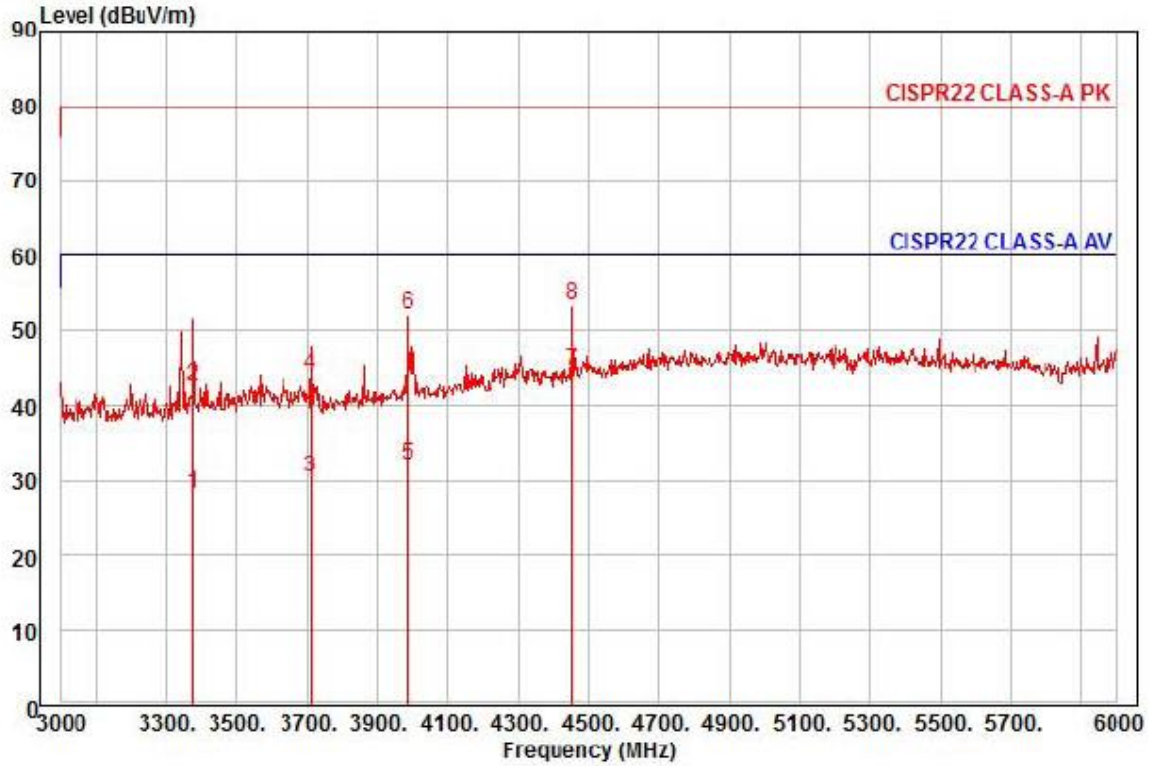
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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-894P
Mode :
Memo :

	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	3711.00	25.51	31.52	12.93	40.35	313	60.00	-30.39	horizontal	Average
2	3711.00	38.92	31.52	12.93	40.35	313	80.00	-36.98	horizontal	Peak
3 pp	4455.00	38.23	34.61	14.35	40.41	6	60.00	-13.22	horizontal	Average
4 pk	4455.00	45.60	34.61	14.35	40.41	6	80.00	-25.85	horizontal	Peak
5	5103.00	23.55	37.51	15.45	40.40	284	60.00	-23.89	horizontal	Average
6	5103.00	37.07	37.51	15.45	40.40	284	80.00	-30.37	horizontal	Peak

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Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-894P
Mode :
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	3375.00	25.24	30.96	12.19	40.28	112	60.00	-31.89	vertical	Average
2	3375.00	39.85	30.96	12.19	40.28	112	80.00	-37.28	vertical	Peak
3	3711.00	26.29	31.52	12.93	40.35	347	60.00	-29.61	vertical	Average
4	3711.00	40.02	31.52	12.93	40.35	347	80.00	-35.88	vertical	Peak
5	3984.00	27.01	31.98	13.48	40.41	109	60.00	-27.94	vertical	Average
6	3984.00	47.30	31.98	13.48	40.41	109	80.00	-27.65	vertical	Peak
7 pp	4455.00	36.06	34.61	14.35	40.41	210	60.00	-15.39	vertical	Average
8 pk	4455.00	44.83	34.61	14.35	40.41	210	80.00	-26.62	vertical	Peak

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Harmonic Current Emissions and Voltage Fluctuations and Flicker

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	147.377E-3			
2	71.269E-3	7.332	972.00E-3	PASS
3	46.981E-3	2.270	2.07	PASS
4	2.560E-3			PASS
5	11.643E-3	1.135	1.03	PASS
6	13.176E-3	4.880	270.00E-3	PASS
7	8.605E-3	1.242	693.00E-3	PASS
8	2.136E-3			PASS
9	3.860E-3			PASS
10	3.745E-3			PASS
11	2.966E-3			PASS
12	1.470E-3			PASS
13	2.943E-3			PASS
14	1.641E-3			PASS
15	1.379E-3			PASS
16	1.809E-3			PASS
17	1.078E-3			PASS
18	1.092E-3			PASS
19	810.907E-6			PASS
20	1.046E-3			PASS
21	1.378E-3			PASS
22	678.118E-6			PASS
23	1.096E-3			PASS
24	1.023E-3			PASS
25	652.913E-6			PASS
26	866.578E-6			PASS
27	730.796E-6			PASS
28	785.258E-6			PASS
29	733.027E-6			PASS
30	586.666E-6			PASS
31	641.165E-6			PASS
32	640.121E-6			PASS
33	482.674E-6			PASS
34	655.880E-6			PASS
35	356.656E-6			PASS
36	681.412E-6			PASS
37	509.094E-6			PASS
38	568.167E-6			PASS
39	598.162E-6			PASS
40	452.314E-6			PASS

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Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	148.032E-3			
2	73.267E-3	3.392	2.16	PASS
3	47.618E-3	1.035	4.60	PASS
4	3.468E-3			PASS
5	13.628E-3	0.598	2.28	PASS
6	15.712E-3	2.619	600.00E-3	PASS
7	9.513E-3	0.618	1.54	PASS
8	2.893E-3			PASS
9	4.387E-3			PASS
10	5.266E-3	1.431	368.00E-3	PASS
11	3.838E-3			PASS
12	2.112E-3			PASS
13	3.645E-3			PASS
14	2.333E-3			PASS
15	1.673E-3			PASS
16	2.609E-3			PASS
17	1.912E-3			PASS
18	1.685E-3			PASS
19	1.265E-3			PASS
20	1.504E-3			PASS
21	1.669E-3			PASS
22	960.687E-6			PASS
23	1.440E-3			PASS
24	1.367E-3			PASS
25	934.313E-6			PASS
26	1.131E-3			PASS
27	1.048E-3			PASS
28	1.126E-3			PASS
29	1.048E-3			PASS
30	848.505E-6			PASS
31	953.938E-6			PASS
32	839.973E-6			PASS
33	721.814E-6			PASS
34	890.339E-6			PASS
35	578.049E-6			PASS
36	962.298E-6			PASS
37	739.265E-6			PASS
38	891.051E-6			PASS
39	854.875E-6			PASS
40	688.490E-6			PASS

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Test Data - Voltage Fluctuations

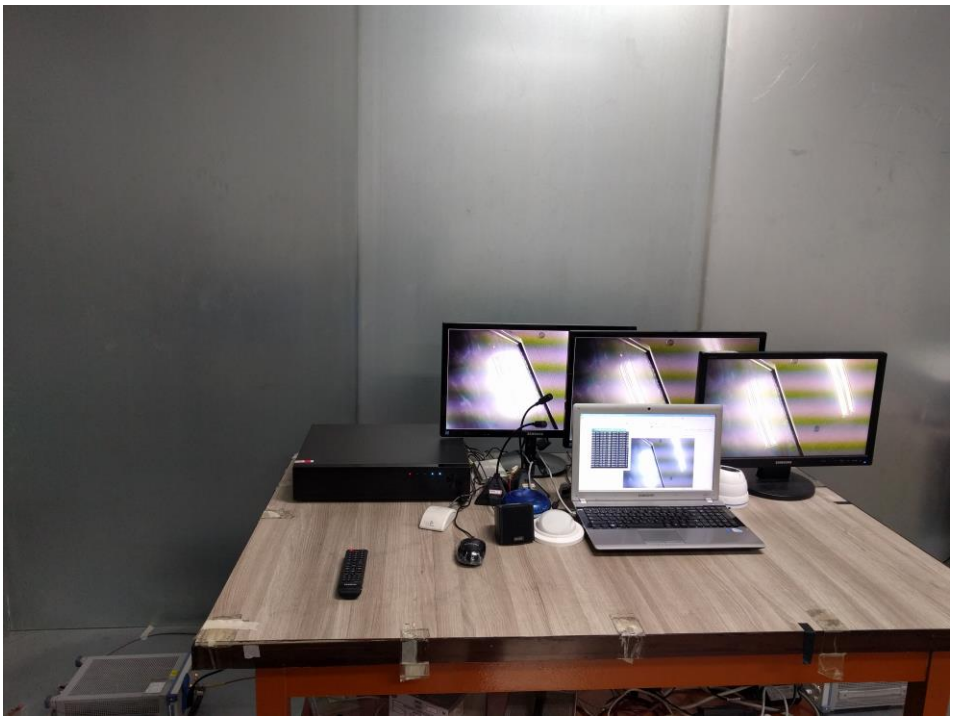
Maximum Flicker results

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.111	4.00	PASS
Tmax [s]	0.000	0.50	PASS

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Test Setup Photos and Configuration

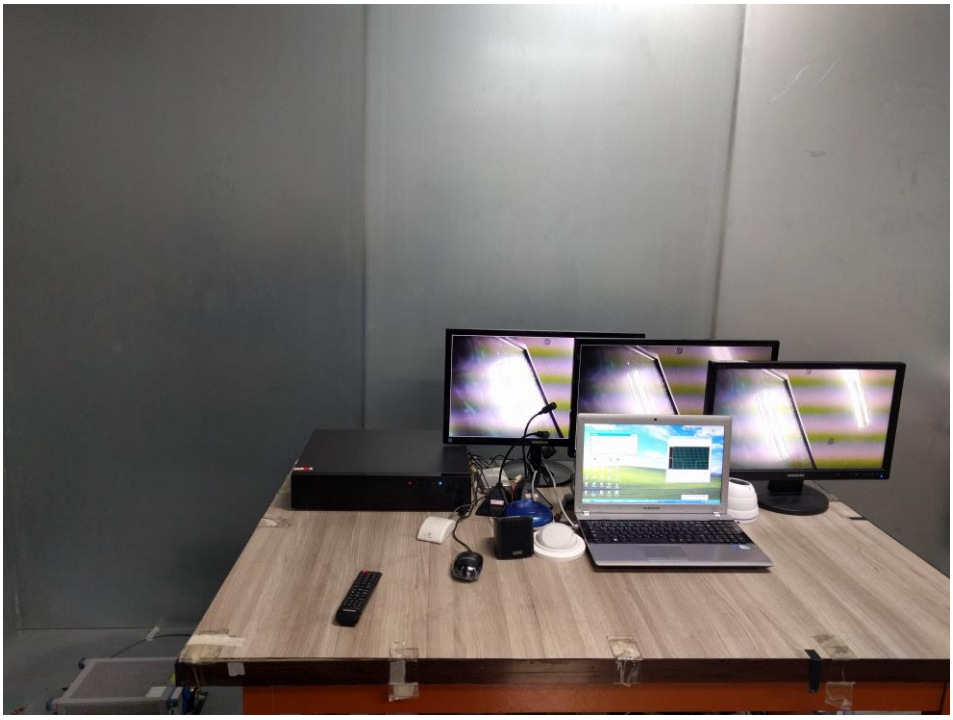
Conducted Voltage Emissions





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Conducted Telecommunication Emissions





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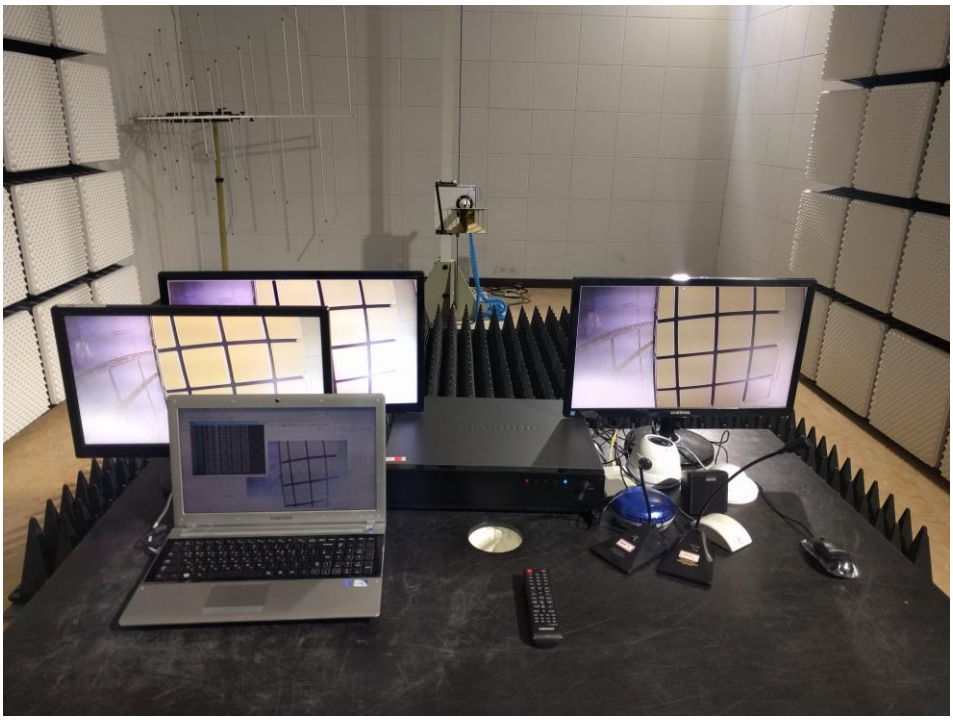
Radiated Electric Field Emissions(Below 1 ㎓)

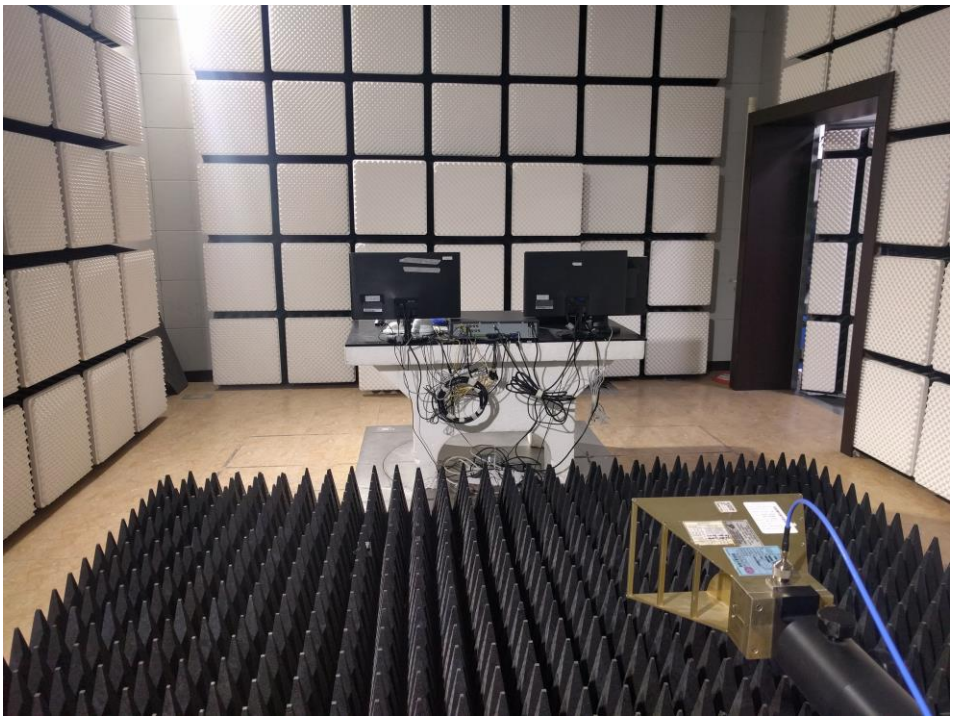




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Radiated Electric Field Emissions(Above 1 ㎓)





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Harmonic Current Emissions and Voltage Fluctuations and Flicker

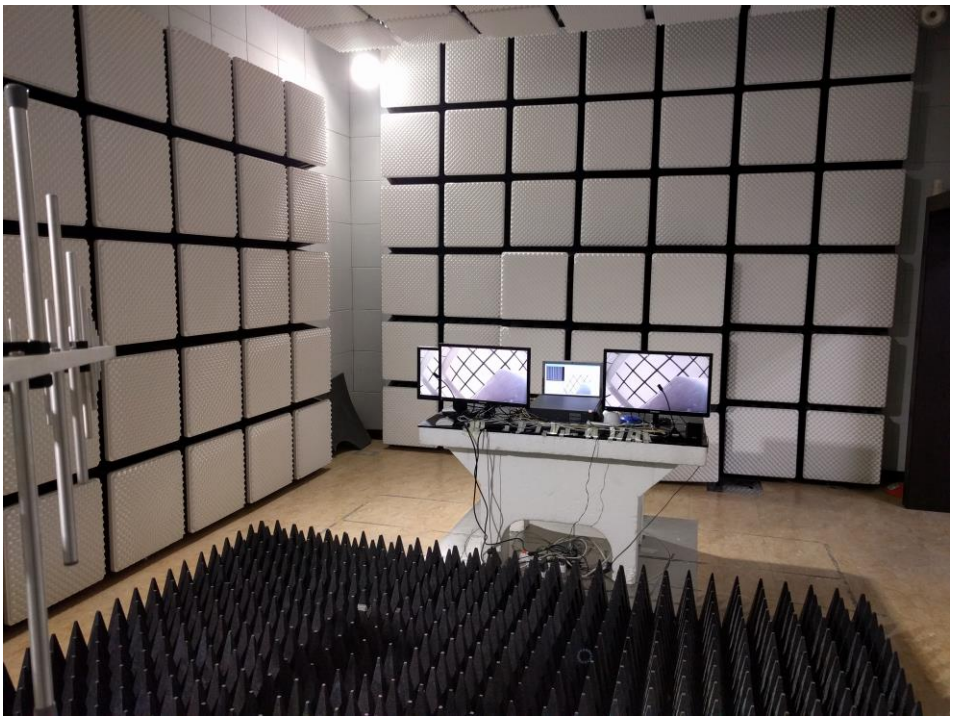


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Electrostatic Discharge

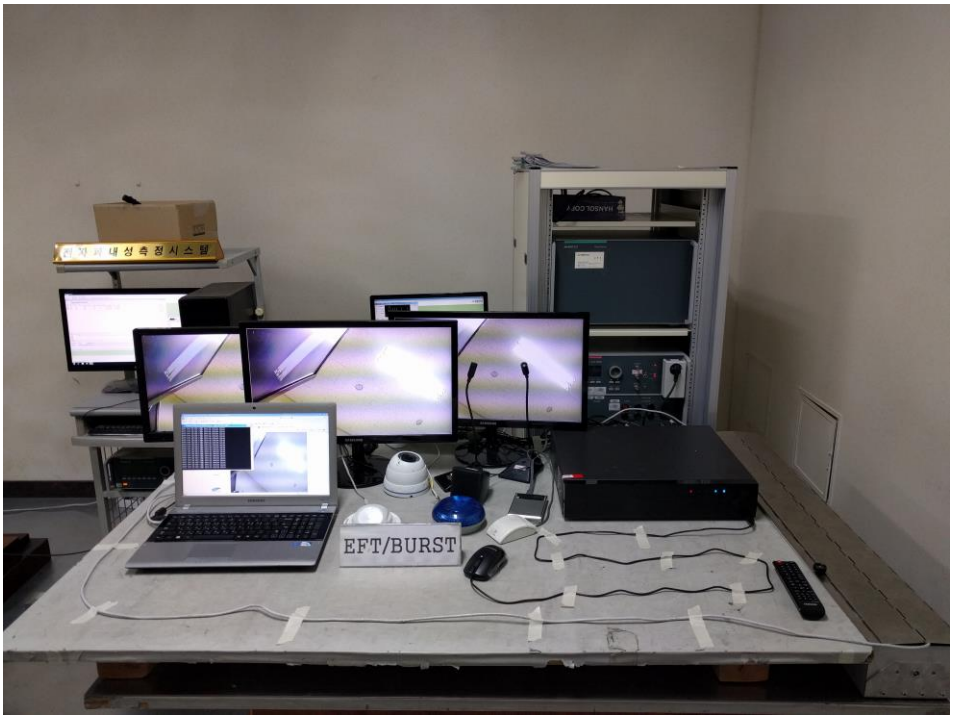


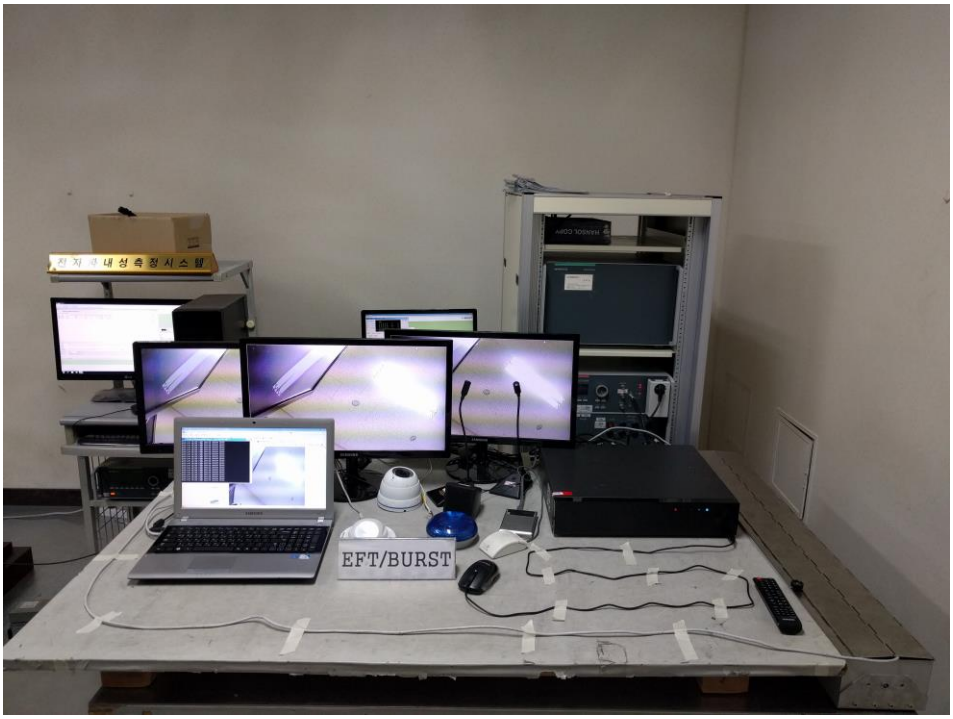
Radiated Electric Field Immunity



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Electrical Fast Transients/Bursts





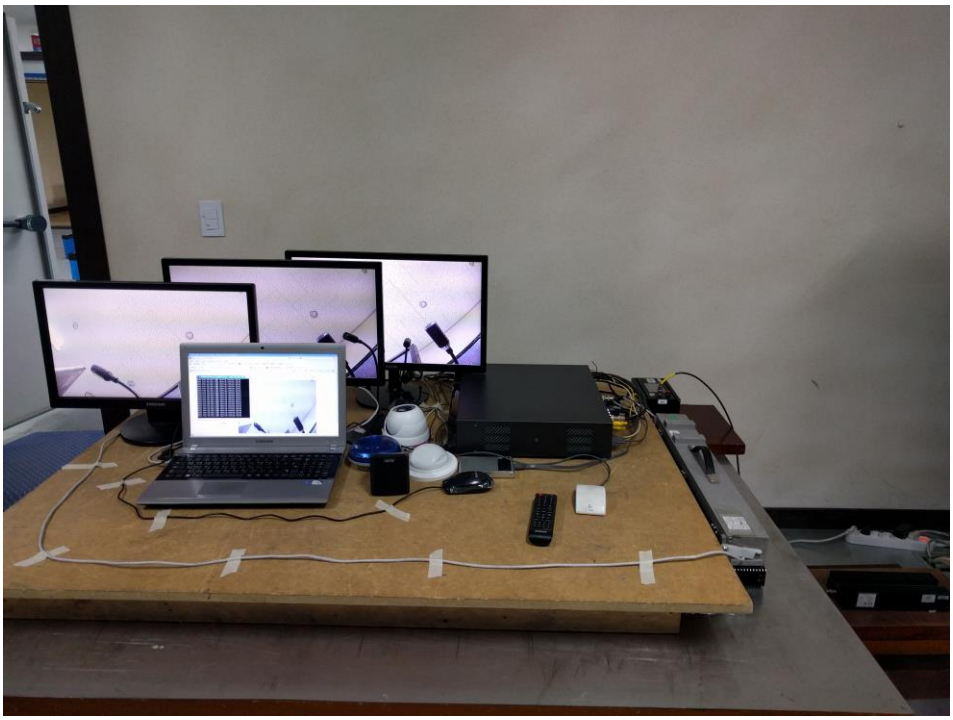
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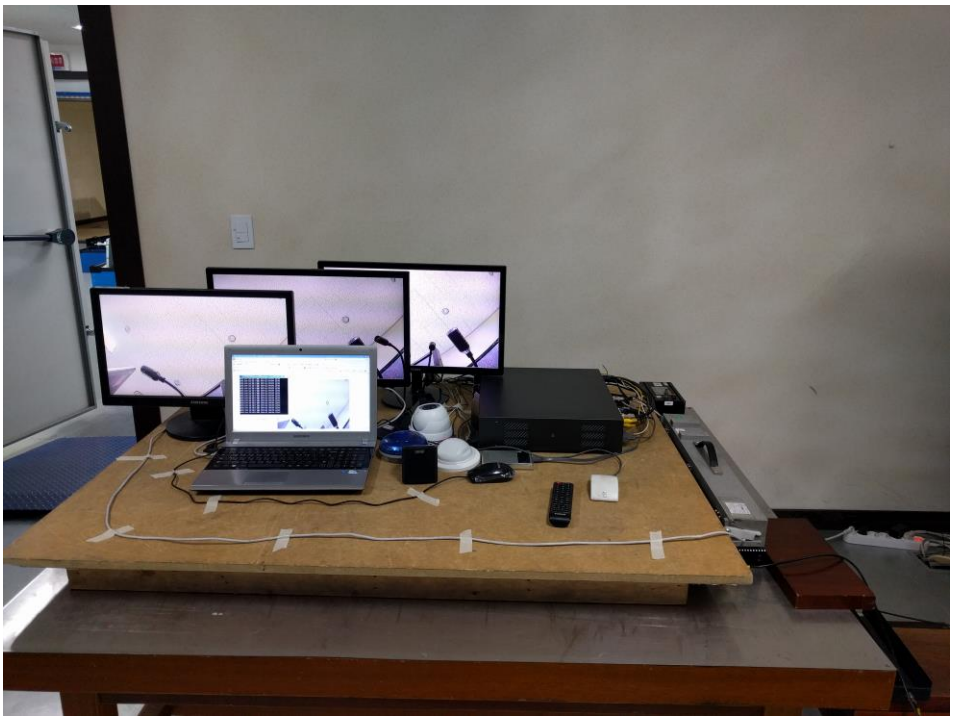
Surge Transients



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Conducted Disturbance





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Voltage Dips and Short Interruptions



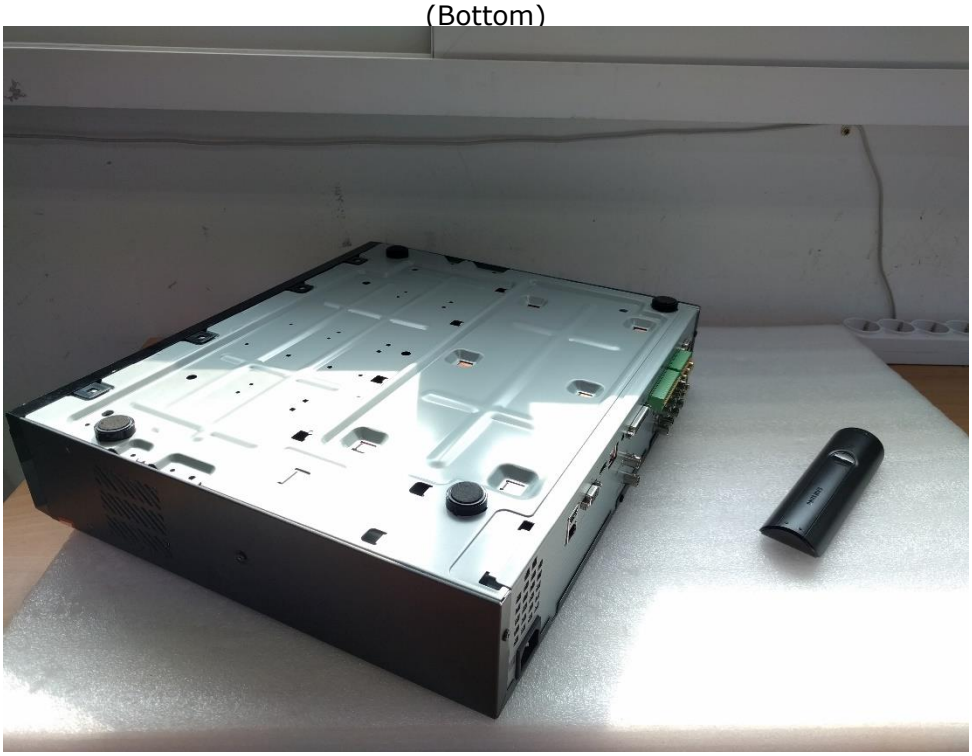
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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

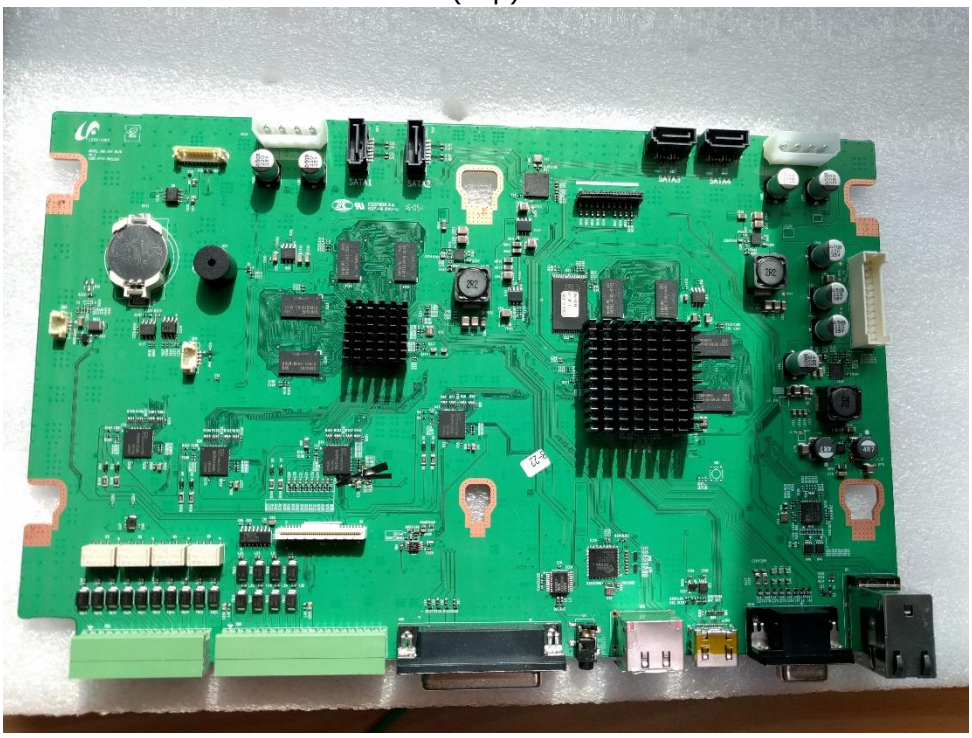
(Internal View)



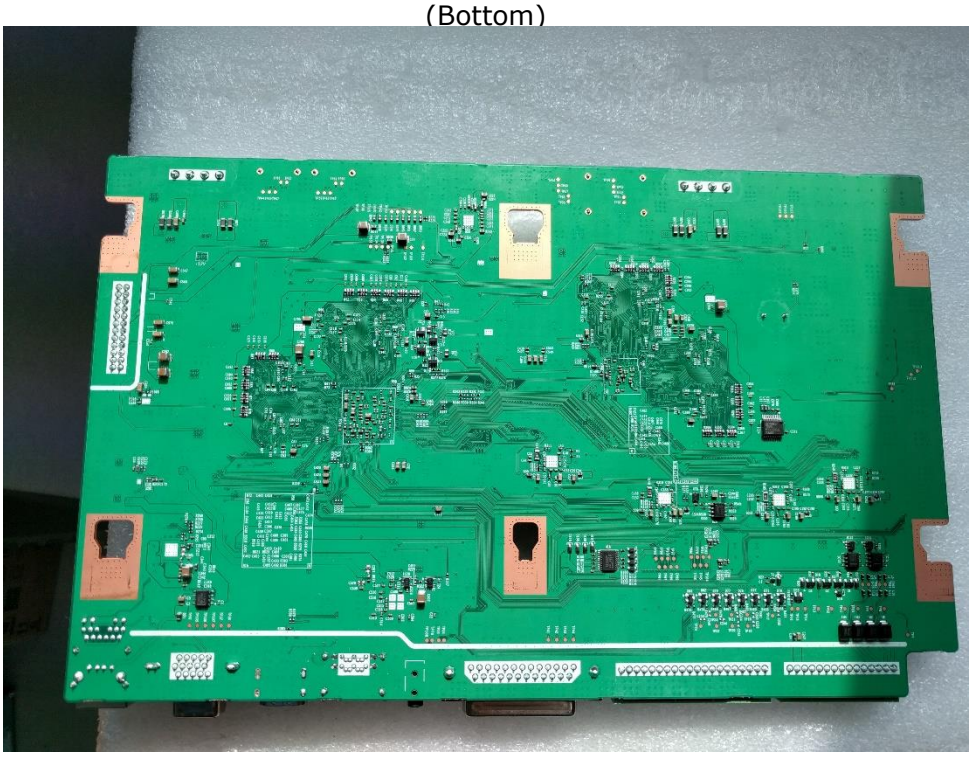
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Main Board EUT Internal View – Board 1

(Top)



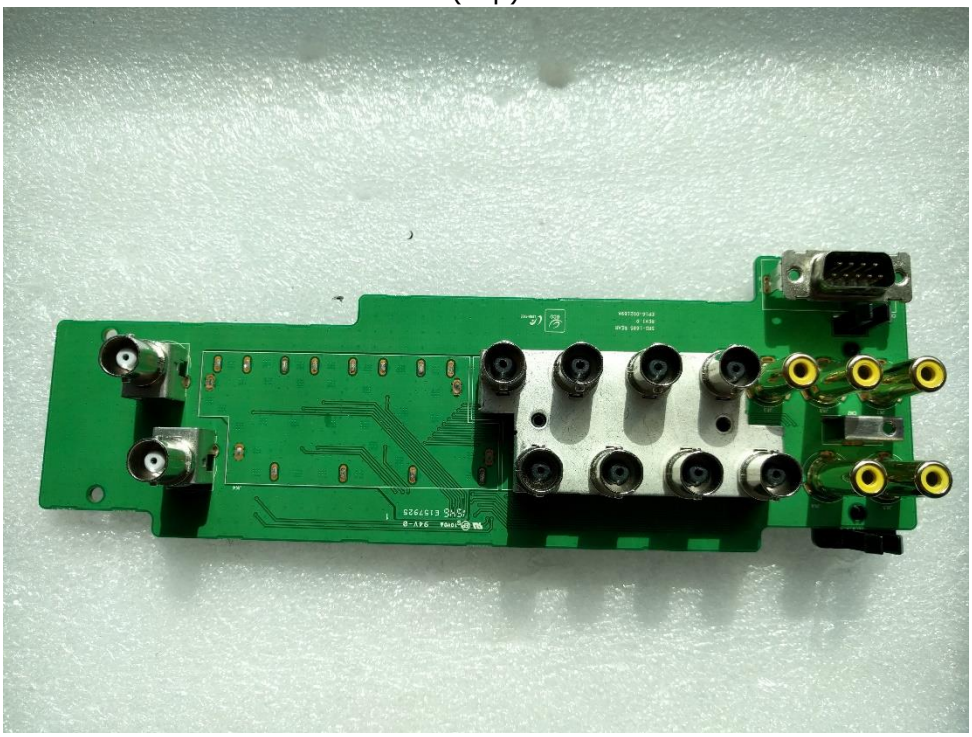
(Bottom)



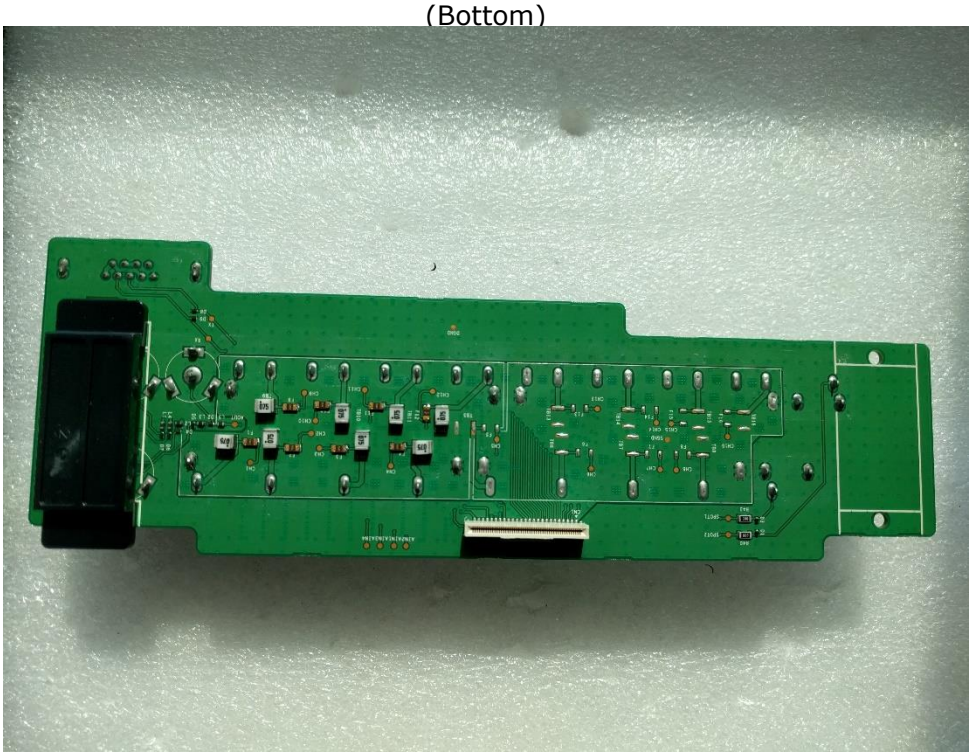
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Main Board EUT Internal View – Board 2

(Top)



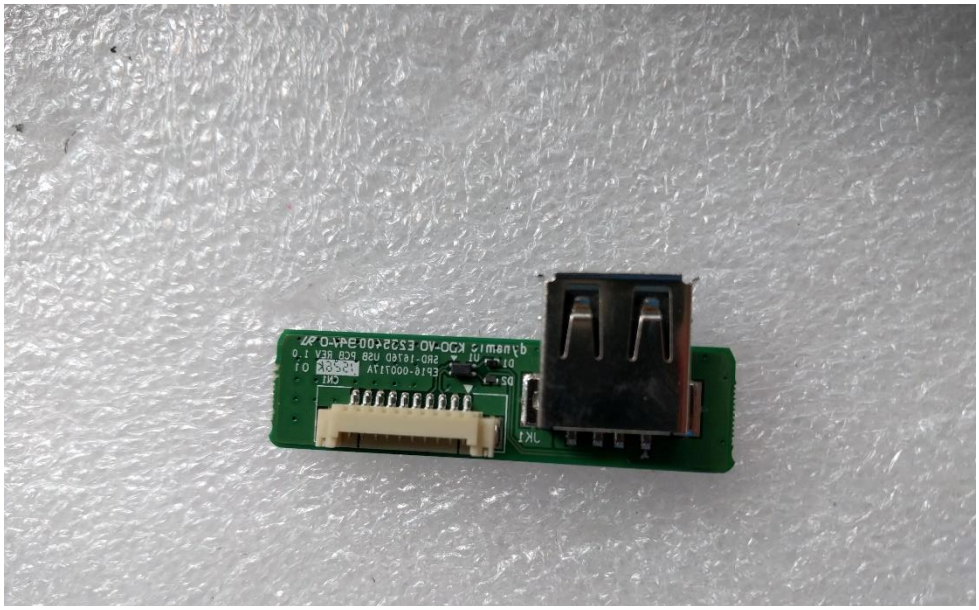
(Bottom)



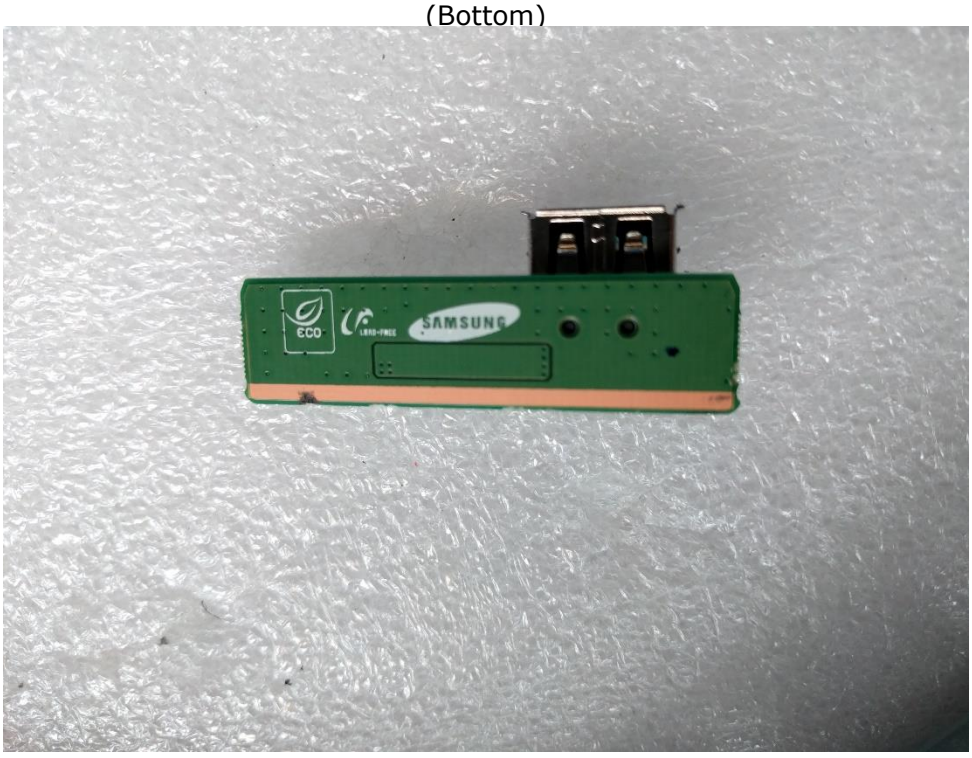
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Main Board EUT Internal View – Board 3

(Top)



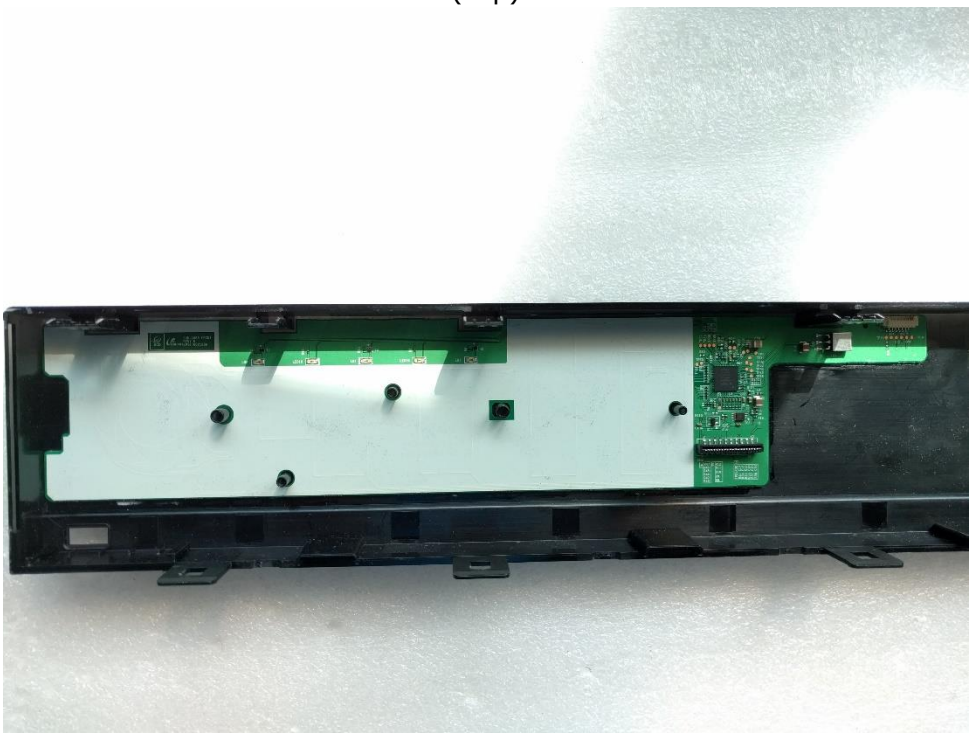
(Bottom)



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Main Board EUT Internal View – Board 4

(Top)



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Main Board EUT Internal View – HDD

(Top)



(Bottom)

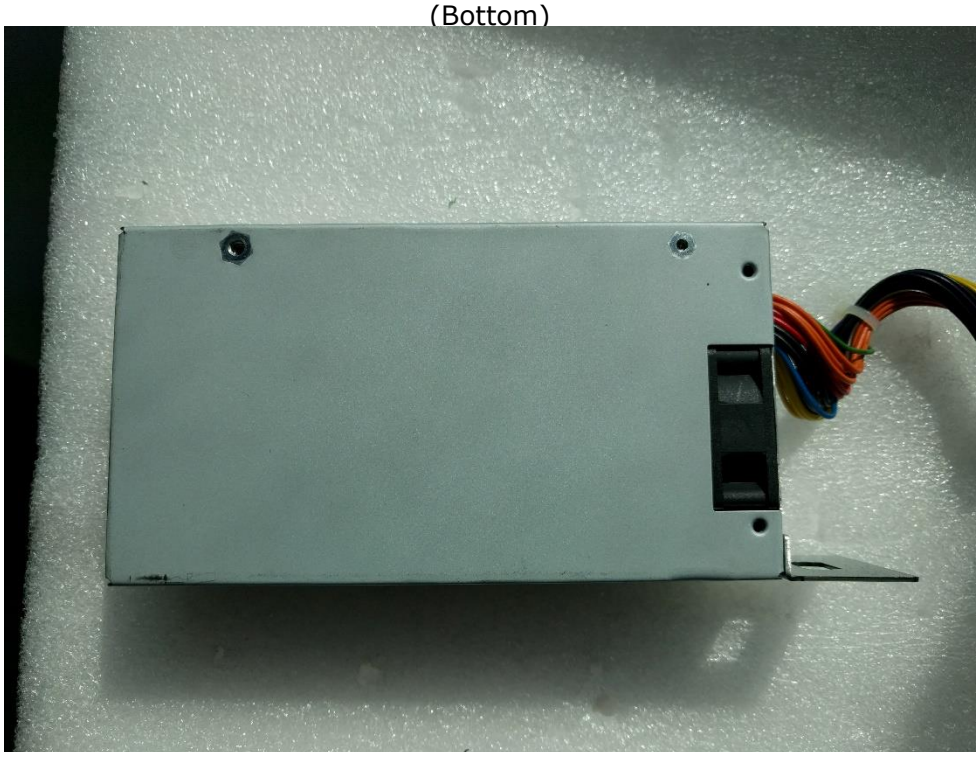


Main Board EUT Internal View – POWER

(Top)



(Bottom)



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Label and Location



Digital Video Recorder

Model No : SRD-894P

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

Made in of China

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