



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-16T0075
Date of Issue : Feb. 02, 2016
Product name : DVR
Model/Type No. : SRD-493N
Variant Model : SDR-B73300N
Applicant : Hanwha Techwin Company Limited
Applicant Address : 1204, Changwon-daero, Seongsan-gu, Changwon-si,
Gyeongsangnam-do, korea
Manufacturer : Tianjin Samsung Techwin Opto-Electronic Co.,Ltd.
Manufacturer Address : No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA,
Tianjin, 300385, People's Republic of China
Date of Receipt : Feb. 24, 2016
Test date : Feb. 18, 2016 - Feb. 23, 2016
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

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EMC Test Engineer

Reviewed by

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KES-E1-16T0075
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REPORT REVISION HISTORY

Date	Revision	Page No
Feb. 24, 2016	KES-E1-160075	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Display		Full HD 4CH DVR SDR-B73300
Video	Inputs	4CH BNC
	Resolution	1920 x 1080 (Full HD) / 1280 x 720 (HD) / 960x480 (w D1)
Live	Frame rate	120fps@ 1920 x 1080 / 120fps@1280 x 720 / 120fps@960 x 480
	Resolution	1920 x 1080 (Full HD) / 1280 x 720 (HD) / 960x480 (w D1)
	Multi Screen display	1 / 4 / Sequence / PIP
Performance		
Operating System	Embedded	Linux
	Compression	H.264
Recording	Record Rate	120fps@1080p
	Mode	Manual, Schedule (Continuous/Event), Event (Pre/Post), Time lapse (1~30 fps)
	Event	Video Loss, Motion (Sensitivity Level 1~10), Tampering
	Overwrite modes	Continuous
	Pre-alarm	0~5sec
	Post-Alarm	Up to 6 hour (5,10,20,30 sec,1,3,5,10,20 min,1,2,3,4,5,6hour)
Search & Playback	Search mode	Date/time, Event, Back up, Motion (*All search included preview function) Fast forward / backward (2x, 4x, 8x, 16x, 32x, 64x) backward play with frame only
	Playback function	Slow forward / backward (1/2x, 1/4x, 1/8x) Case forward/backward 25 backward play with 1 frame only
Network (IPv4)	Transmission speed	4CIF 120fps / 2CIF 240fps / CIF 480fps (TBD)
	Bandwidth	Up to 32Mbps(TBD)
	Bandwidth control	Selectable
	Live stream	H.264(HD/4CIF/2CIF/CIF Selectable)(TBD)
	Remote users Maximum	Search 3 / Live unicast 10 / Live multicast 20(TBD)
	Protocol support	TCP/IP, UDP/IP, DHCP, PPPoE, SMTP, NTP, HTTP, DDNS, RTP, TSP, UPnP
Smart phone	Monitoring	Smart viewer, Webviewer, Mobile Viewer
	Web / App viewer	Supported OS - PC : Windows XP / Vista / 7 / 8, MAC OS X 10.7 / 10.9 - Mobile : Android OS v2.3.5, v4.0.3, v4.1.2, 4.2, v4.3 iOS OS v5.1.1, v6.0, v6.0.2, v6.1, v7.0
		Supported Browser - Microsoft Internet Explorer (Ver. 11,10,9,8,7), Mozilla Firefox (Ver.19,18,17,16,15,14,13,12,11,10,9), Google Chrome (Ver.25,24,23,22,21,20,19,18,17,16,15), Apple Safari (v5.1, v6.1, v7.0)(Mac OS X only - 10.9, 10.8, 10.7)
	Protocol support	RTP, RTSP, HTTP, CGI
	Transmission speed	CIF Max. 16fps (Single channel) / CIF Max. 4fps (Quad channel)
	Remote users Maximum	Live(1)
Storage	Internal HDD	1 SATA HDD (1TB)
	USB (Back-up)	2 USB Ports
	File Format (Back-up)	BU(Playback from DVR), SEC (includes Player), AVI
Security	Password Protection	1 Admin, 10 Group, 10 User per 1 Group(TBD)
	Data Authentication	Watermark
Interface		
Monitors	VGA	1 VGA(1280x720, 1280x1024, 1920x1080) 60Hz
	HDMI	1 HDMI (1280x720, 1280x1024, 1920x1080) 60Hz
	Simultaneous Output	VGA and HDMI
Audio	Inputs/Output	1CH line in / 1CH line out
	Compression	G.711
	Sampling Rate	8KHz
Alarm	Remote notification	Notification via e-mail
Connections	Ethernet	1 RJ45 10/100 Base-T
	Serial interface	RS-485
	USB	USB 2.0, 2 ports (Front/Rear)
	Application Support	Mouse, WiFi
	Protocol support	Samsung-T/E, Pelco-D/P, Panasonic, Phillips, AD, Vicon, GE
Coax Protocol		
General		
Electrical	Input Voltage/Current	12VDC Adaptor, 100~250VAC, 50/60Hz
	Power consumption	TBD
Environmental	Operating Temperature/ Humidity	0°C ~ 40°C (32°F ~ 104°F) / 20% ~ 85%RH
	Dimension (WxDxH)	TBD
Mechanical	Weight (With hard disks)	TBD
	Language	Korean, Japanese, Chinese (Simplified), English, French, German, Spanish (European), Italian, Russian, Polish, Czech, Turkish, Dutch, Portuguese (South American), Swedish, Danish, Thai, Romanian, Serbian, Croatian, Hungarian, Greek, Chinese (Traditional), Finnish, Norwegian (25 Language)

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Video	SDC-9441BC Camera
Imaging Device	2M CMOS (1/2.9")
Effective Pixels	1984(H) x 1105(V)
Scanning System	Progressive, 30fps/25fps
Synchronization	Internal
Min. Illumination	0 Lux (IR LED ON)
Camera Output	1 CH BNC Maximum Transmission Length: Over 300m (75Ω 3C2V)
Accessory Cable Length	60ft (18.3m) included
Lens Type	
Focal Length	4mm
Max. Aperture Ratio	F2.1
Angular Field of View(H/V/D)	H:72.2°, V:52.9°, D:94.3°
Operational	
Shutter Mode	Auto(Rolling Shutter)
Gain Control	Auto
White Balance	Auto (1800~10500°K)
Wide Dynamic Range	N/A
Contrast Enhancement	N/A
Digital Noise Reduction	3 DNR
OSD	N/A
Flickerless	Auto
Day & Night	TRUE D/N, Auto
IR Distance	25M
Environmental	
Operating Temperature / Humidity	-10℃ ~ +50℃ (+14℉ ~ +122℉) / Less than 90% RH
Ingress Protection	IP66
Electrical	
Input Voltage	DC 12V
Power Consumption	3.7W
Mechanical	
Color / Material	Front: Gray Silver/PC BODY: White/PC BRACKET: White/ADC12
Dimension (WxHxD/ØxH)	142.55mm ² 61.95mm ² 61.83mm
Weight	191g

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1.1 Test Voltage & Frequency

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

Voltage ☐ 100 Vac ☐ 110 Vac ☒ 120 Vac ☐ 24 Vac ☐ 12 Vdc
Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

1.2 Variant Model Differences

Model name	Differences
SDR-B73300N	Model Management of seller

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
DVR	SRD-493N	-	Hanwha Techwin Co., Ltd.	E.U.T
Switching Power Adapter	FSP040-RHAN2	-	FSP GROUP INC.	
DIGITAL COLOR CAMERA	SDC-9441BCN	ZC4V6V2GB00E03X	Hanwha Techwin Co., Ltd.	
		ZC4V6V2GB00E00T		
		ZC4V6V2GB00E0KT		
		ZC4V6V2GB00E0JE		
HDD	WD20EURX-64HYZY0	WCC4MNDR29S0	WD	



1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Monitor 1	M1950DM	108KCLH4W536	LG Electronics	-
Monitor Adapter 1	PA-1650-68	OCOGN612314034864	LITE-ON TECHNOLOGY CORPORATION	-
Monitor 2	M1950DM	206KCLH81256	LG Electronics	-
Monitor Adapter 2	PA-1650-64	OE9FA612314103637	LITE-ON TECHNOLOGY CORPORATION	-
Notebook	NT63025J	JK9091EF400142M	Samsung Electronics	-
Notebook Adapter	A13-040N2A	CN60BA4400313AD0N 843KO200	Chicony Power Technology (suzhou)Co., Ltd.	-
PTZ CONTROLLER	SPC-1010	-	Hanwha Techwin Co., Ltd.	-
ADAPTER	JPW115KA1200M 03	-	-	-
MIC	CMK-303	-	CAMAC	-
Spearker	-	-	-	-
Mouse	-	-	Samsung Electronics	-



1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
DVR (E.U.T)	RJ-45	NOTEBOOK	RJ-45	4.0	U
	RS-485	PTZ CONTROLLER	RS-485	3.0	U
	D-SUB	Montior 1	D-SUB	1.5	S
	HDMI	Montior 2	HDMI	1.7	S
	Audio In	Speaker	Audio Out	1.2	U
	Audio Out	MIC	Audio In	1.2	U
	USB	Mouse	USB	1.3	U
	BNC	DIGITAL COLOR CAMERA	BNC	10.0	S
	BNC	DIGITAL COLOR CAMERA	BNC	10.0	S
	BNC	DIGITAL COLOR CAMERA	BNC	10.0	S
	BNC	DIGITAL COLOR CAMERA	BNC	10.0	S

* Unshielded=U, Shielded=S

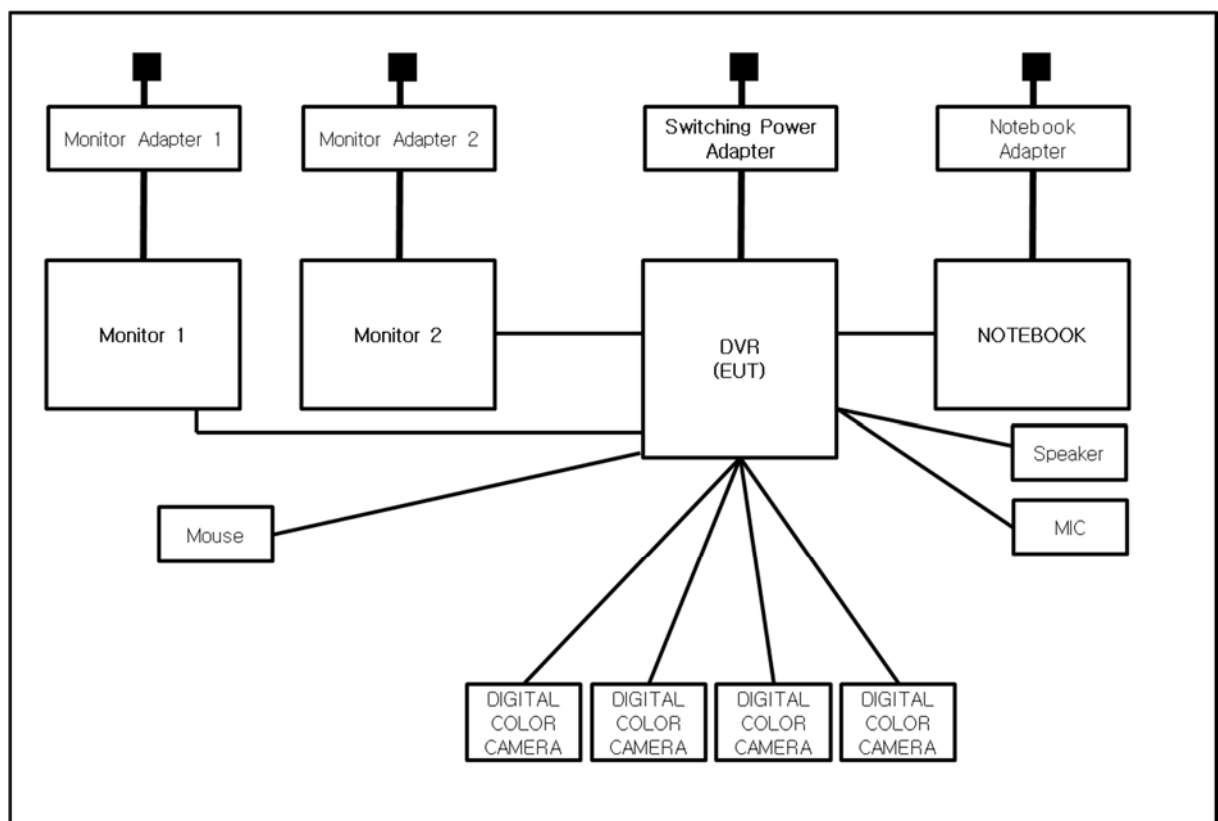
1.7 EUT Operating Mode(s)

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

Test mode	Normal operating
Normal	MONITORING , PING TEST

1.8 Configuration

■ AC Main(120 v / 60 Hz)
□ DC Main









1.9 Calibration Details of Equipment Used for Measurement

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

1.10 Test Facility

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

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-4308, C-4798, T-2311, G-914
KOREA	MSIP	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
Canada	IC	3 & 10 meter Open Area Test Sites and one conducted site	 4769B-1
Europe	CE	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	KOLAS	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2004/108/EC**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1
☐ Class A

☐ Group 2
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55022:2010

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☒ VCCI V-3/2013.04

☒ Class A

☐ Class B

☐ AS/NZS CISPR22:2009 +A1:2010

☐ Class A

☐ Class B

☐ 47 CFR Part 15, Subpart B / ANSI C63.4-2009

☐ Class A

☐ Class B

☐ IC Regulation ICES-003 : 2012
/ ANSI C63.4-2014

☐ Class A

☐ Class B

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B



☐ **R&TTE- Directive 1999/5/EC**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002



2.1 Conducted Emissions at Mains Power Ports

Test Date

Feb. 23, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	R&S	101783	05. 06. 2016
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101137	02. 10. 2016
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101786	05. 06. 2016
<input checked="" type="checkbox"/>	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: 21.8 °C

Relative Humidity: 37,6 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Feb. 23, 2016

Test Location

Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	R&S	101783	05. 06. 2016
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101137	02. 04. 2017
<input checked="" type="checkbox"/>	LISN	ENV216	R&S	101786	05. 06. 2016
<input checked="" type="checkbox"/>	8-Wire ISN CAT3	CAT3 8158	Schwarzbeck Mess	8158-0019	04. 02. 2016
<input checked="" type="checkbox"/>	8-Wire ISN CAT5	CAT5 8158	Schwarzbeck Mess	8158-0030	04. 02. 2016
<input type="checkbox"/>	8-Wire ISN CAT6	NTFM 8158	Schwarzbeck Mess	8158-0029	08. 14. 2016
<input checked="" type="checkbox"/>	Electro wave Shieldroom	-	SEMITEC	-	-

Test Conditions

Temperature: 21,8 °C

Relative Humidity: 37,6 %

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

TestResults

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Feb. 21, 2016

Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test Receiver	ESR3	R&S	101781	05. 06. 2016
<input checked="" type="checkbox"/>	Trilog-Broadband Antenna	VULB 9163	SCHWARZBECK	9168-713	05. 15. 2017
<input checked="" type="checkbox"/>	Open Area Test Site	-	KES	-	-
<input checked="" type="checkbox"/>	Antenna Mast	-	EMCO	-	-
<input checked="" type="checkbox"/>	Turn Table	-	DAEIL EMC	-	-

Test Conditions

Temperature: 7.3 °C
Relative Humidity: 58.0 %

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Feb. 18, 2016

Test Location

Semi Anchoic Chamber #2

Test Equipment

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

Test Conditions

Temperature: 25.7 °C
Relative Humidity: 38.2 %

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

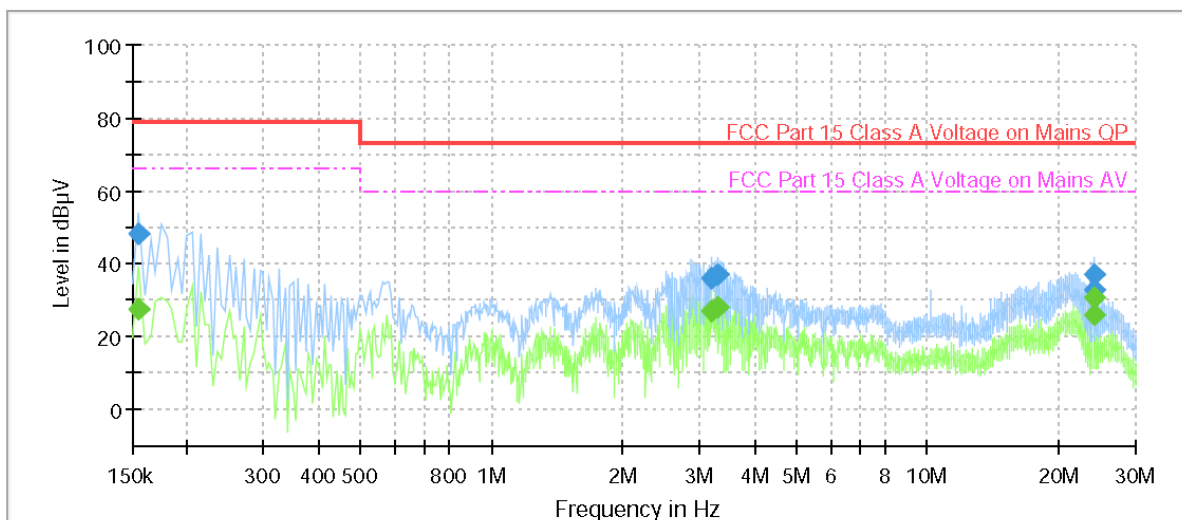
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: SRD-493N
Mode
Operator Name: KES



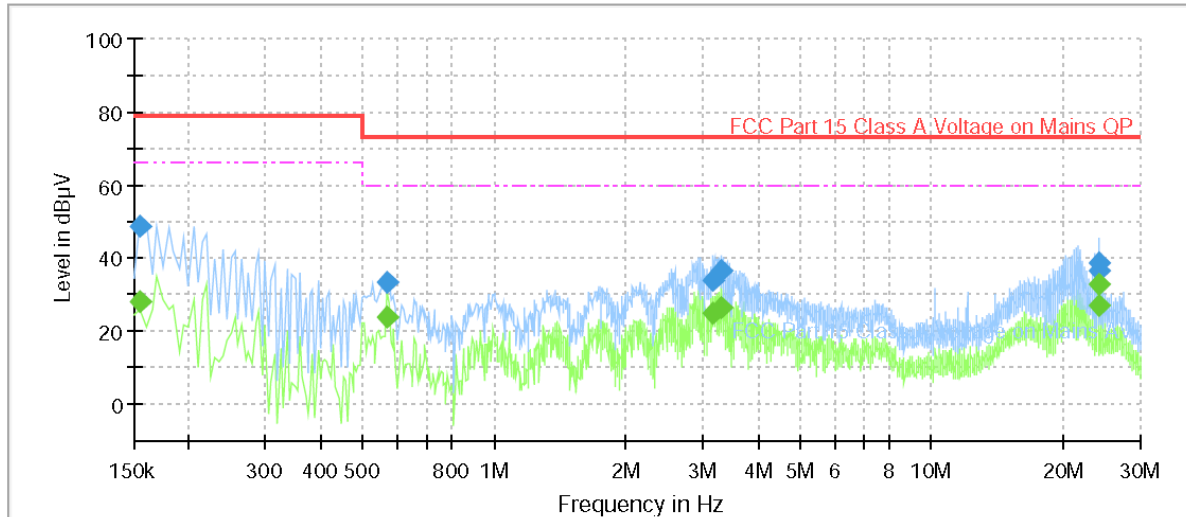
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	27.73	66.00	38.27	1000.0	9.000	L1	9.7
0.155000	48.39	---	79.00	30.61	1000.0	9.000	L1	9.7
3.200000	---	27.14	60.00	32.86	1000.0	9.000	L1	9.8
3.200000	36.11	---	73.00	36.89	1000.0	9.000	L1	9.8
3.305000	---	28.01	60.00	31.99	1000.0	9.000	L1	9.8
3.305000	37.14	---	73.00	35.86	1000.0	9.000	L1	9.8
24.015000	---	30.76	60.00	29.24	1000.0	9.000	L1	10.2
24.015000	36.91	---	73.00	36.09	1000.0	9.000	L1	10.2
24.120000	---	26.11	60.00	33.89	1000.0	9.000	L1	10.2
24.120000	33.08	---	73.00	39.92	1000.0	9.000	L1	10.2

[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SRD-493N
Mode
Operator Name: KES



Final Result

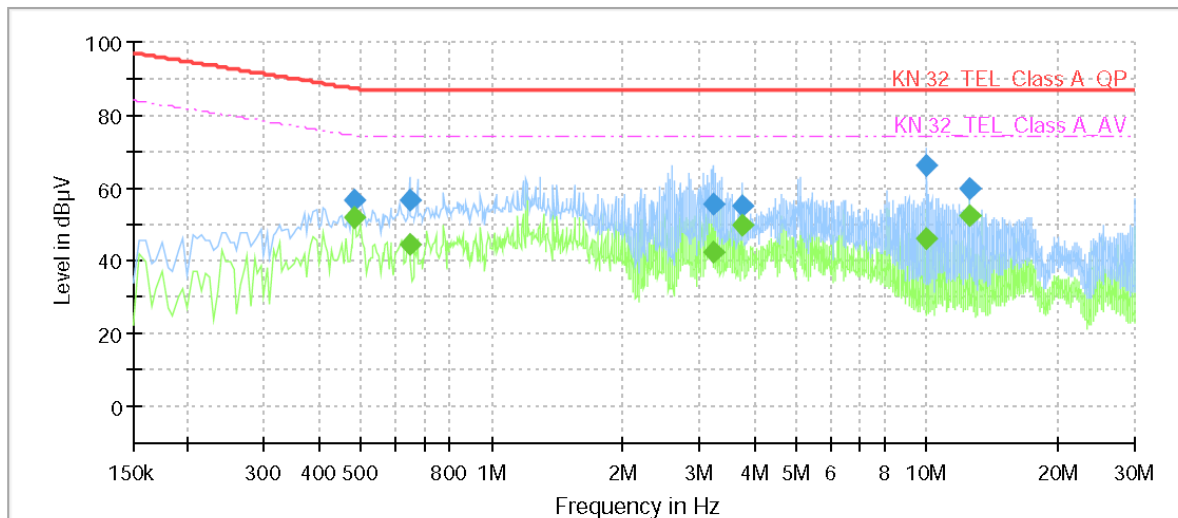
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	27.98	66.00	38.02	1000.0	9.000	N	9.6
0.155000	48.72	---	79.00	30.28	1000.0	9.000	N	9.6
0.570000	---	23.91	60.00	36.09	1000.0	9.000	N	9.7
0.570000	33.56	---	73.00	39.44	1000.0	9.000	N	9.7
3.160000	---	25.05	60.00	34.95	1000.0	9.000	N	9.7
3.160000	34.10	---	73.00	38.90	1000.0	9.000	N	9.7
3.285000	---	26.66	60.00	33.34	1000.0	9.000	N	9.7
3.285000	36.80	---	73.00	36.20	1000.0	9.000	N	9.7
23.985000	---	32.97	60.00	27.03	1000.0	9.000	N	10.2
23.985000	38.64	---	73.00	34.36	1000.0	9.000	N	10.2
24.220000	---	27.15	60.00	32.85	1000.0	9.000	N	10.2
24.220000	36.51	---	73.00	36.49	1000.0	9.000	N	10.2

Conducted Emissions at Telecommunication Ports

[10 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: SRD-493N
Mode: 10 Mbps
Operator Name: KES



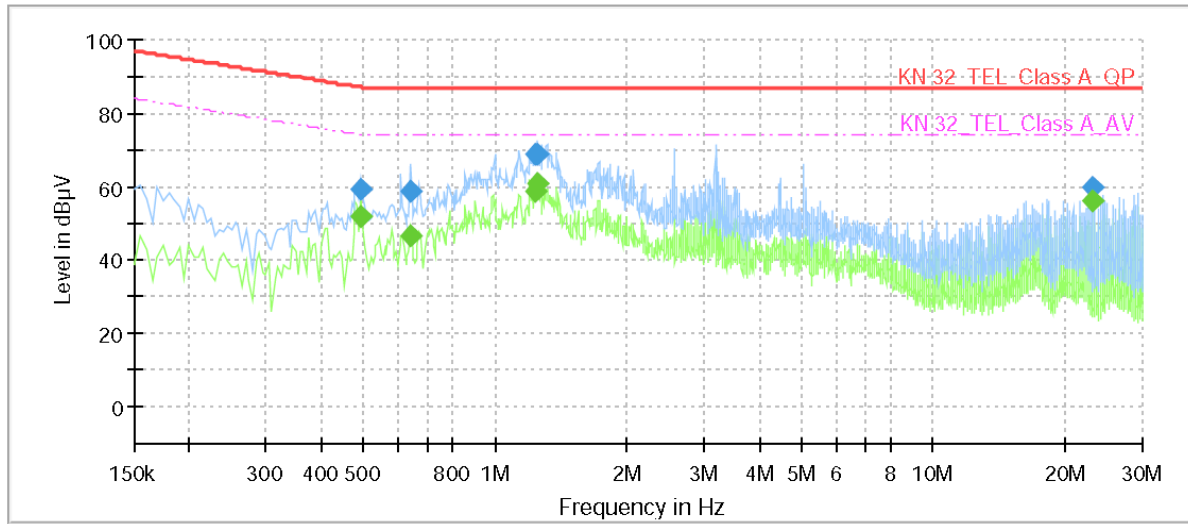
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.485000	---	51.94	74.25	22.31	1000.0	9.000	Single Line	10.1
0.485000	56.67	---	87.25	30.58	1000.0	9.000	Single Line	10.1
0.645000	---	44.38	74.00	29.62	1000.0	9.000	Single Line	10.0
0.645000	56.46	---	87.00	30.54	1000.0	9.000	Single Line	10.0
3.215000	---	42.49	74.00	31.51	1000.0	9.000	Single Line	9.9
3.215000	55.70	---	87.00	31.30	1000.0	9.000	Single Line	9.9
3.750000	---	49.51	74.00	24.49	1000.0	9.000	Single Line	9.9
3.750000	54.86	---	87.00	32.14	1000.0	9.000	Single Line	9.9
10.000000	---	46.30	74.00	27.70	1000.0	9.000	Single Line	10.0
10.000000	66.41	---	87.00	20.59	1000.0	9.000	Single Line	10.0
12.500000	---	52.31	74.00	21.69	1000.0	9.000	Single Line	10.1
12.500000	60.05	---	87.00	26.95	1000.0	9.000	Single Line	10.1

[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: SRD-493N
Mode: 100 Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.495000	---	52.00	74.08	22.08	1000.0	9.000	Single Line	9.6
0.495000	59.52	---	87.08	27.56	1000.0	9.000	Single Line	9.6
0.640000	---	46.59	74.00	27.41	1000.0	9.000	Single Line	9.6
0.640000	59.01	---	87.00	27.99	1000.0	9.000	Single Line	9.6
1.230000	---	58.87	74.00	15.13	1000.0	9.000	Single Line	9.5
1.230000	68.81	---	87.00	18.19	1000.0	9.000	Single Line	9.5
1.250000	---	60.73	74.00	13.27	1000.0	9.000	Single Line	9.5
1.250000	68.89	---	87.00	18.11	1000.0	9.000	Single Line	9.5
23.130000	---	56.25	74.00	17.75	1000.0	9.000	Single Line	9.6
23.130000	59.77	---	87.00	27.23	1000.0	9.000	Single Line	9.6



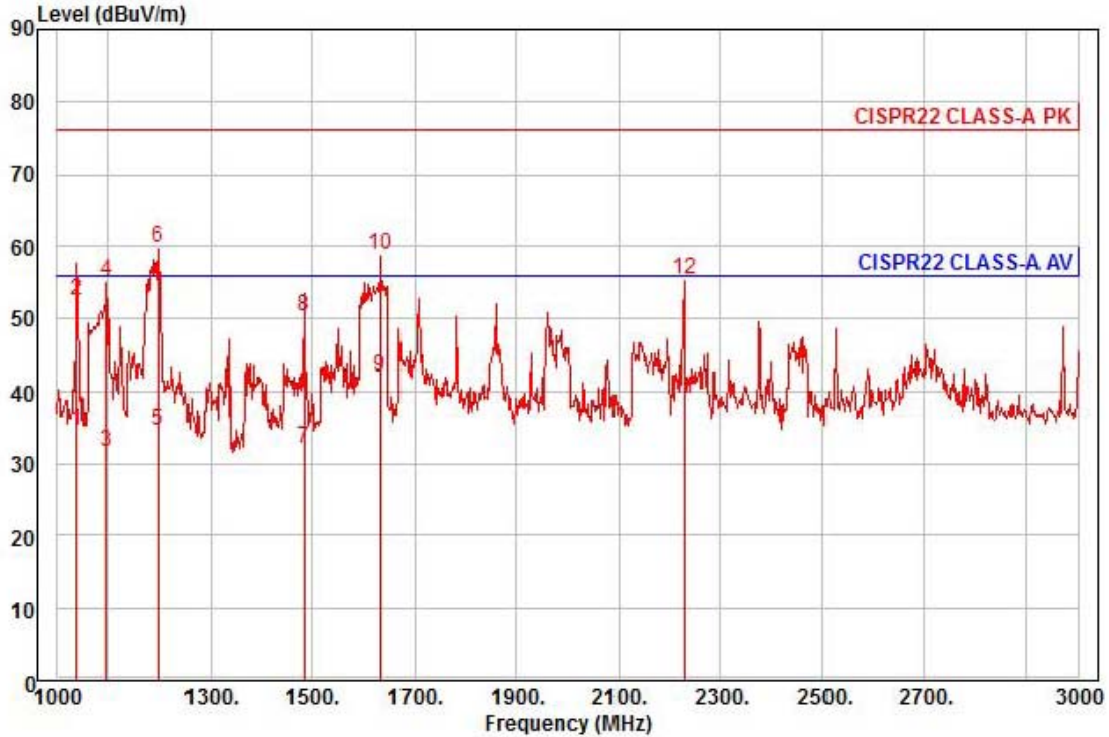
Radiated Electric Field Emissions(Below 1 GHz)

Frequency	Amplitude	ANT	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[MHz]	[dB μ V]	Polar. (H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB μ V/m]	[dB μ V/m]	[dB]
149.11	23.76	H	3.90	8.17	2.46	34.39	40.00	5.61
223.09	18.08	H	4.00	11.81	3.08	32.97	40.00	7.03
297.50	23.07	H	4.00	13.33	3.69	40.09	47.00	6.91
446.03	20.72	V	1.10	16.34	4.56	41.62	47.00	5.38
487.55	10.13	V	1.00	16.93	4.86	31.92	47.00	15.08
594.27	17.73	H	3.60	19.17	5.53	42.43	47.00	4.57
742.42	15.43	H	2.90	20.17	6.23	41.83	47.00	5.17

* H : Horizontal, V : Vertical



Radiated Electric Field Emissions(Above 1 GHz)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-493N
Mode : 120 v / 60 Hz
Memo : 1 ~ 3 GHz

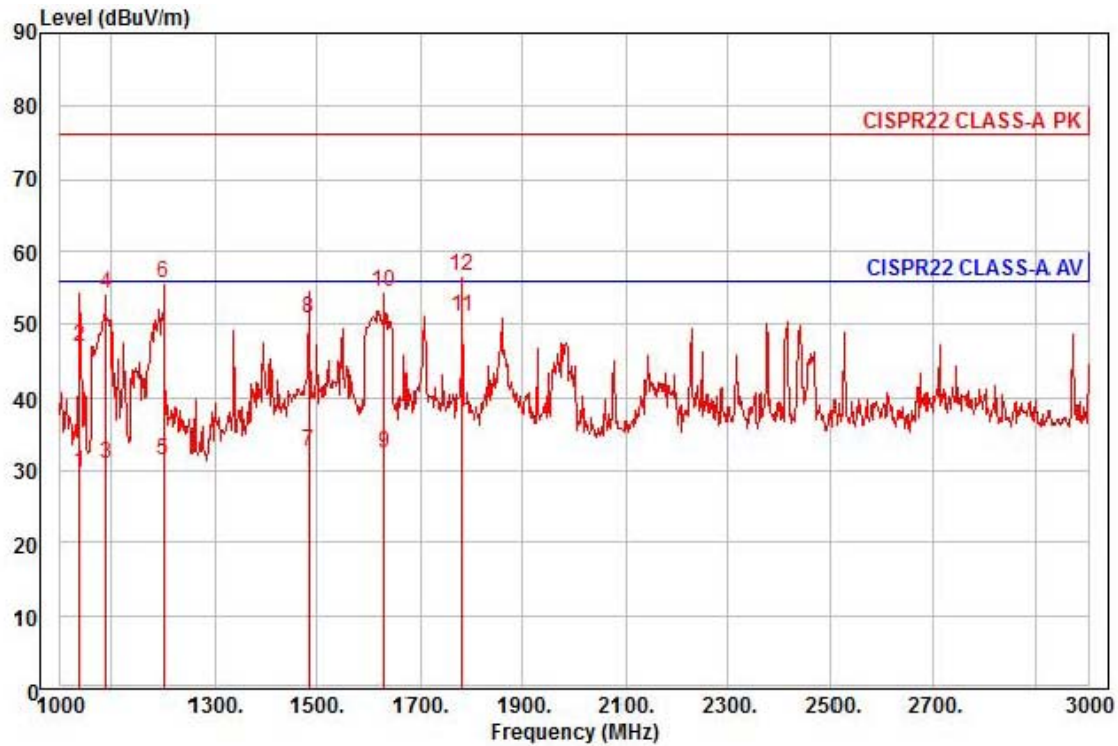
	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1038.00	44.07	24.06	6.62	40.10	54	56.00	-21.35	horizontal	Average
2	1038.00	61.89	24.06	6.62	40.10	54	76.00	-23.53	horizontal	Peak
3	1096.00	40.68	24.29	6.79	40.07	357	56.00	-24.31	horizontal	Average
4	1096.00	64.10	24.29	6.79	40.07	357	76.00	-20.89	horizontal	Peak
5	1200.00	42.76	24.70	7.09	40.02	72	56.00	-21.47	horizontal	Average
6 pk	1200.00	68.19	24.70	7.09	40.02	72	76.00	-16.04	horizontal	Peak
7	1484.00	38.31	25.83	7.91	39.88	45	56.00	-23.83	horizontal	Average
8	1484.00	56.44	25.83	7.91	39.88	45	76.00	-25.70	horizontal	Peak
9 pp	1634.00	46.91	26.43	8.34	39.81	36	56.00	-14.13	horizontal	Average
10	1634.00	63.86	26.43	8.34	39.81	36	76.00	-17.18	horizontal	Peak
11	2228.00	40.53	28.44	9.70	39.76	31	56.00	-17.09	horizontal	Average
12	2228.00	57.06	28.44	9.70	39.76	31	76.00	-20.56	horizontal	Peak



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Test report No.:
KES-E1-16T0075
Page (23) of (34)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-493N
Mode : 120 v / 60 Hz
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	1038.00	38.98	24.06	6.62	40.10	173	56.00	-26.44	vertical	Average
2	1038.00	56.36	24.06	6.62	40.10	173	76.00	-29.06	vertical	Peak
3	1090.00	39.95	24.27	6.77	40.08	18	56.00	-25.09	vertical	Average
4	1090.00	63.23	24.27	6.77	40.08	18	76.00	-21.81	vertical	Peak
5	1202.00	39.65	24.71	7.10	40.02	106	56.00	-24.56	vertical	Average
6	1202.00	63.81	24.71	7.10	40.02	106	76.00	-20.40	vertical	Peak
7	1484.00	38.75	25.83	7.91	39.88	37	56.00	-23.39	vertical	Average
8	1484.00	56.96	25.83	7.91	39.88	37	76.00	-25.18	vertical	Peak
9	1632.00	37.36	26.42	8.34	39.81	356	56.00	-23.69	vertical	Average
10	1632.00	59.49	26.42	8.34	39.81	356	76.00	-21.56	vertical	Peak
11 pp	1782.00	54.89	27.01	8.75	39.74	129	56.00	-5.09	vertical	Average
12 pk	1782.00	60.55	27.01	8.75	39.74	129	76.00	-19.43	vertical	Peak

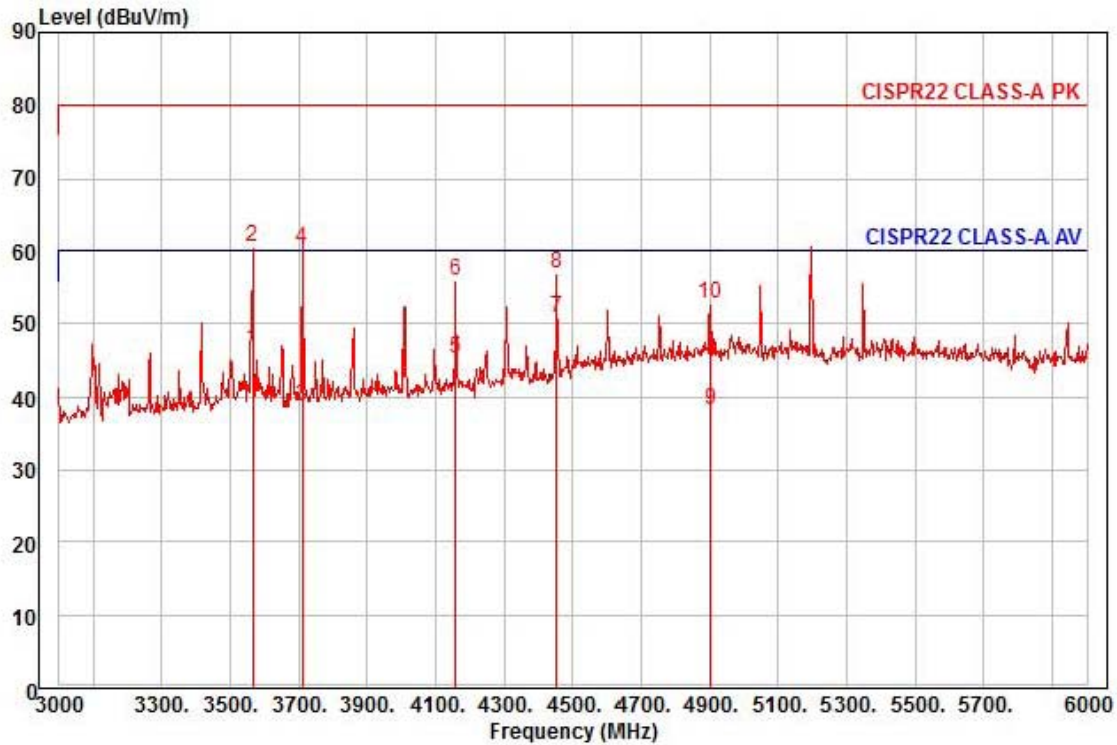
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Test report No.:
KES-E1-16T0075
Page (24) of (34)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-493N
Mode : 120 v / 60 Hz
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	3564.00	42.74	31.28	12.64	40.32	21	60.00	-13.66	horizontal	Average
2 pk	3564.00	56.90	31.28	12.64	40.32	21	80.00	-19.50	horizontal	Peak
3	3711.00	34.71	31.52	12.93	40.35	30	60.00	-21.19	horizontal	Average
4	3711.00	56.16	31.52	12.93	40.35	30	80.00	-19.74	horizontal	Peak
5	4158.00	38.80	32.91	13.80	40.41	21	60.00	-14.90	horizontal	Average
6	4158.00	49.71	32.91	13.80	40.41	21	80.00	-23.99	horizontal	Peak
7 pp	4455.00	42.33	34.61	14.35	40.41	330	60.00	-9.12	horizontal	Average
8	4455.00	48.28	34.61	14.35	40.41	330	80.00	-23.17	horizontal	Peak
9	4902.00	26.26	37.16	15.15	40.41	38	60.00	-21.84	horizontal	Average
10	4902.00	40.78	37.16	15.15	40.41	38	80.00	-27.32	horizontal	Peak

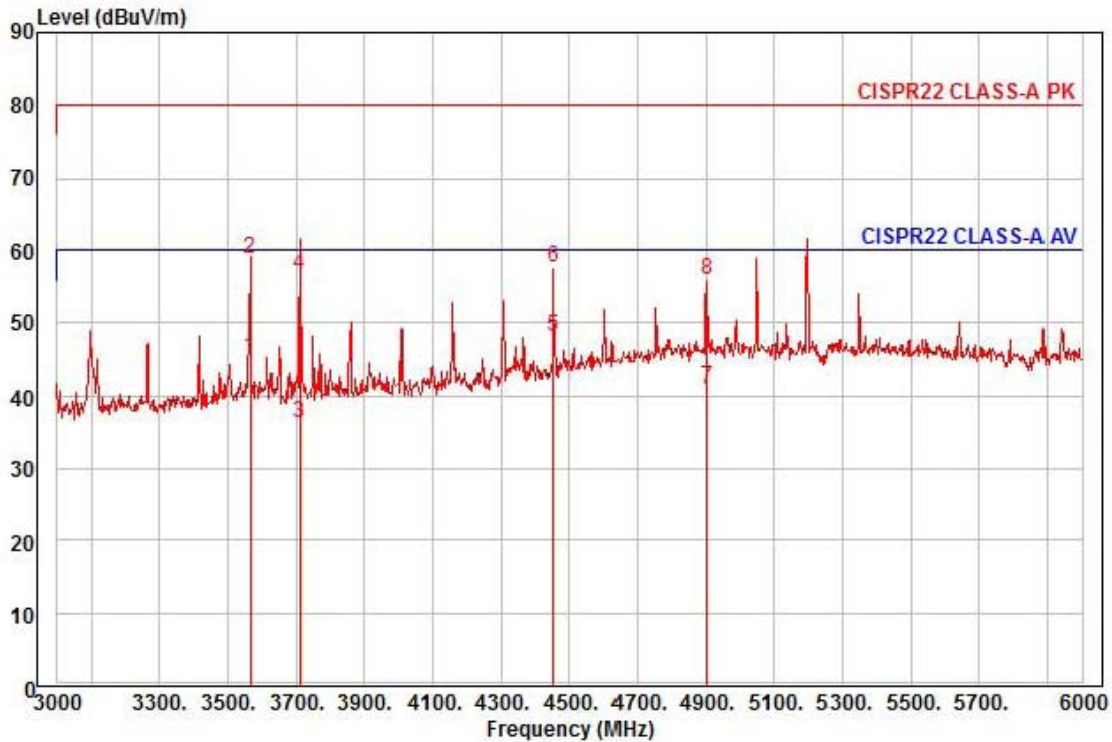
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Test report No.:
KES-E1-16T0075
Page (25) of (34)



Site : chamber
Condition: CISPR22 CLASS-A PK 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-493N
Mode : 120 v / 60 Hz
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	3564.00	41.58	31.28	12.64	40.32	38	60.00	-14.82	vertical	Average
2 pk	3564.00	55.15	31.28	12.64	40.32	38	80.00	-21.25	vertical	Peak
3	3711.00	32.08	31.52	12.93	40.35	27	60.00	-23.82	vertical	Average
4	3711.00	52.51	31.52	12.93	40.35	27	80.00	-23.39	vertical	Peak
5 pp	4455.00	39.59	34.61	14.35	40.41	225	60.00	-11.86	vertical	Average
6	4455.00	49.00	34.61	14.35	40.41	225	80.00	-22.45	vertical	Peak
7	4902.00	29.02	37.16	15.15	40.41	9	60.00	-19.08	vertical	Average
8	4902.00	44.01	37.16	15.15	40.41	9	80.00	-24.09	vertical	Peak

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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 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

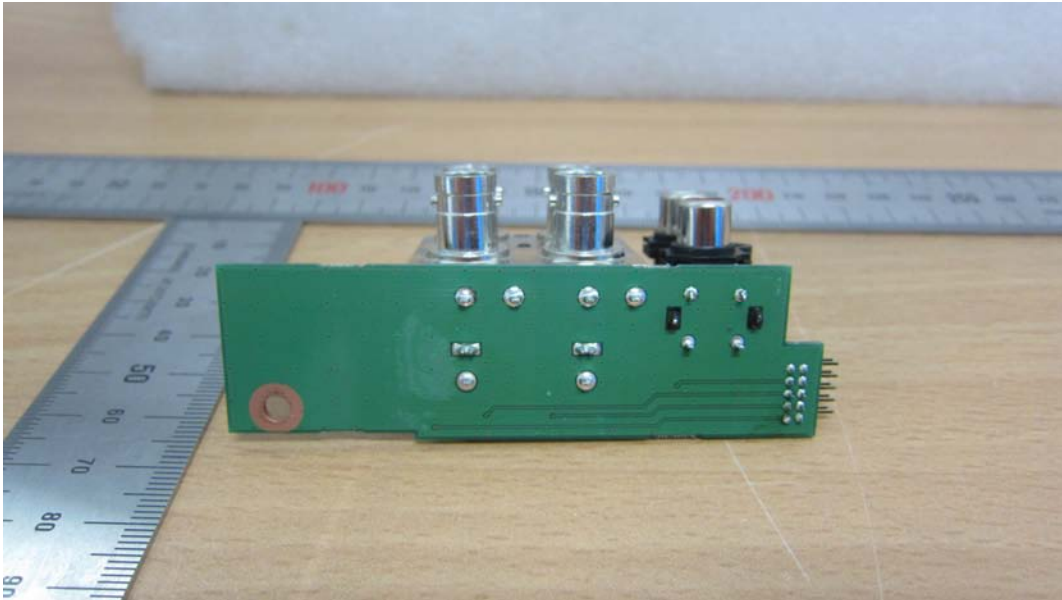
(Internal View)



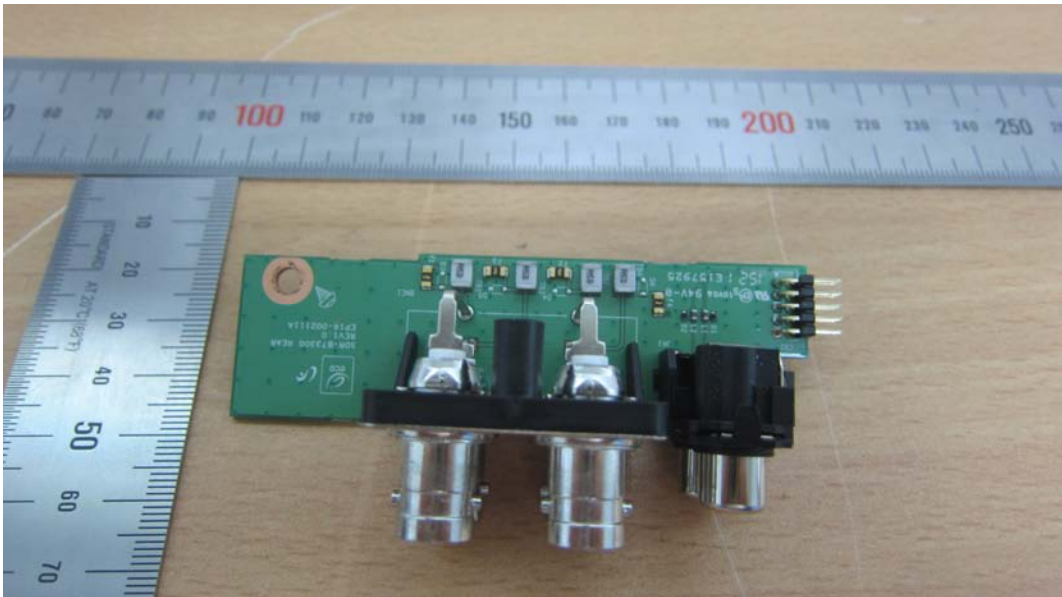
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Main Board EUT Internal View – Sub Board 1

(Top)



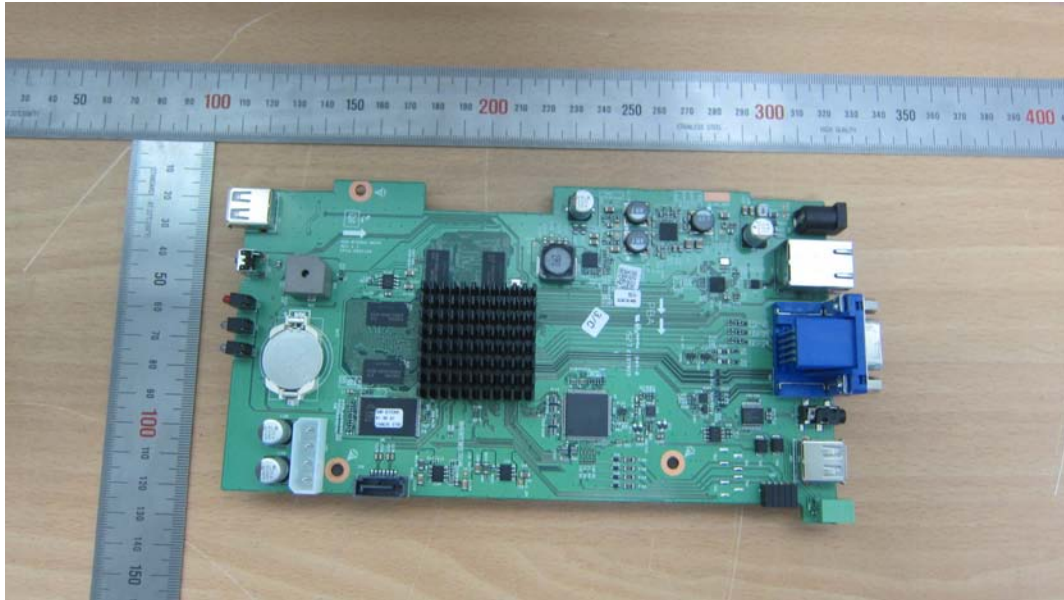
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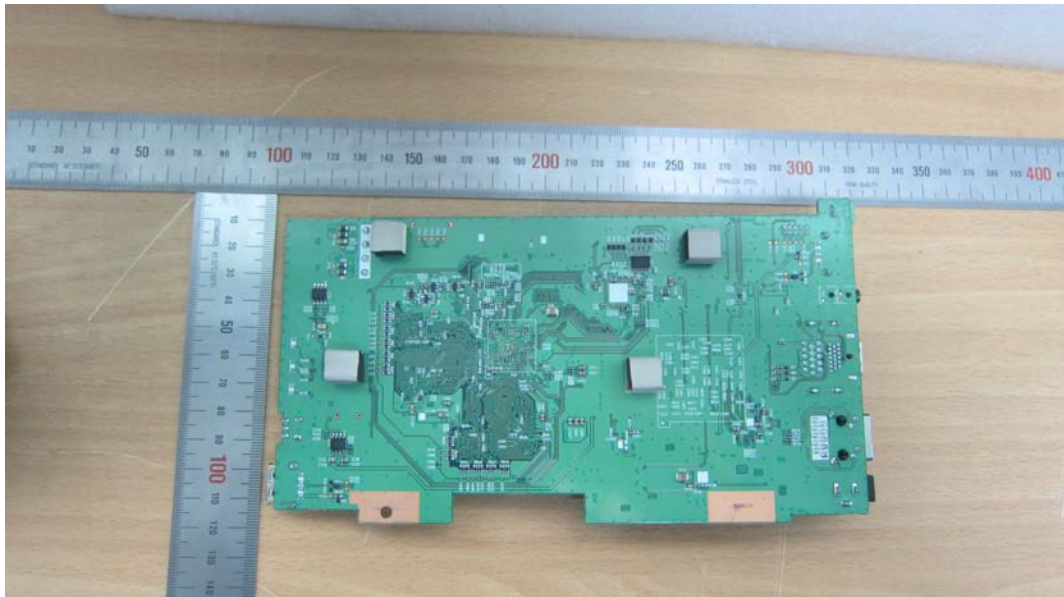
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Main Board EUT Internal View – Main Board

(Top)



(Bottom)



Main Board EUT Internal View – HDD

(Top)



(Bottom)



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