

VERIFICATION OF FCC PART 15 COMPLIANCE

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

Product Description:

DVR

Model/Brand Name:

SRD-1684N

Variant Model:

SDR-C75300N

FCC Rule Part(s):

FCC 47CFR Part 15 Subpart B Class A
Part 15.107(b) & Part 15.109(b)

FCC Procedure:

Verification

Applicant Name:

Hanwha Techwin Company Limited

Applicant Address:

1204, Changwon-daero, Seongsan-gu, Chang
won-si, Gyeongsangnam-do

Manufacturer Name:

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

Test Report Reference No.:

KES-E1-16T0065

DVR, Model SRD-1684N has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class A and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class A. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-16T0065

Date of Issue: 02. 24. 2016

Dong Hun, Jang

Technical Manager

Signature:



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EMC TEST REPORT For FCC

Test Report No. : KES-E1-16T0065

Date of Issue : Feb. 02, 2016

Product name : DVR

Model/Type No. : SRD-1684N

Variant Model : SDR-C75300N

Applicant : Hanwha Techwin Company Limited

Applicant Address : 204, 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

Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification

Date of Receipt : Feb. 24, 2016

Test date : Feb. 18, 2016 – Feb. 23, 2016

Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Dae Hyun, Kim
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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Test report No.:
KES-E1-16T0065
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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 24, 2016	KES-E1-160065	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Display		Full HD 16CH DVR SDR-C75300
Video	Inputs	16CH BNC
	Resolution	1920 x 1080 (Full HD) / 1280 x 720 (HD) / 928x480 (wD1)
Live	Frame rate	480fps@ 1920 x 1080 / 480fps@1280 x 720 / 480fps@928 x 480
	Resolution	1920 x 1080 (Full HD) / 1280 x 720 (HD) / 928x480 (wD1)
	Multi Screen display	1 / 4 / 7 / 9 / 13 / 16 / 16A / Sequence / PIP
Performance		
Operating System	Embedded	Linux
	Compression	H.264
Recording	Record Rate	max 240fps@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	Off/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)
	Playback function	Fast forward / backward (2x, 4x, 8x, 16x, 32x, 64x) *Backward play with I-frame only Slow forward / backward (1/2x, 1/4x, 1/8x) Step forward / backward *Backward play with I-frame only
Network (IPv4)	Transmission speed	4CIF 120fps / 2CIF 240fps / CIF 480fps
	Bandwidth	Up to 32Mbps
	Bandwidth control	Selectable
	Live stream	H.264(4CIF/2CIF/CIF Selectable)
	Remote users Maximum	Search 3 / Live unicast 10 / Live multicast 20
	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 v.2.3.5, 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(2)
Storage	Internal HDD	1 SATA HDD (2TB)
	USB (Back-up)	2 USB Ports
	File Format (Back-up)	BU(DVR Player), EXE(Includes 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) 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, remote controller
	Protocol support	Samsung-T/E, Pelco-D/P, Panasonic, Phillips, AD, Vicon, GE
		Coax Protocol Pelco-C
General		
Electrical	Input Voltage/Current	12V DC Adaptor, 100~250V AC, 50/60Hz
	Power consumption	23W
Environmental	Operating Temperature/ Humidity	0°C ~ 40°C (32°F ~ 104°F) / 20% ~ 85%RH
Mechanical	Dimension (WxHxD/ØxH)	300X208.7X48
	Weight (With hard disks)	1.79kg
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	1CH 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	3DNR
OSD	N/A
Flickerless	Auto
Day & Night	TRUE D/N, Auto
IR Distance	25M
Environmental	
Operating Temperature / Humidity	-10°C ~ +50°C (+14°F ~ +122°F) / 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*61.95mm*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-C75300N	Model Management of seller

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
DVR	SRD-1684N	-	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		
		ZBPZ6V2G60001BX		
		ZC4V6V2GB00E0HB		
		ZC4V6V2GB00E04V		
		ZBPZ6V2G60001AE		
		ZC4V6V2GB00E02L		
		ZC4V6V2GB00E0GF		
HDD	WD20PURX-64P6ZY0	WCC40HRLNTZ	WD	

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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	CN60BA4400313AD0N843KO2OO	Chicony Power Technology (suzhou)Co., Ltd.	-
PTZ CONTROLLER	SPC-1010	-	Hanwha Techwin Co., Ltd.	-
ADAPTER	JPW115KA1200M03	-	-	-
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
	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
	BNC	DIGITAL COLOR CAMERA	BNC	10.0	S

* Unshielded=U, Shielded=S



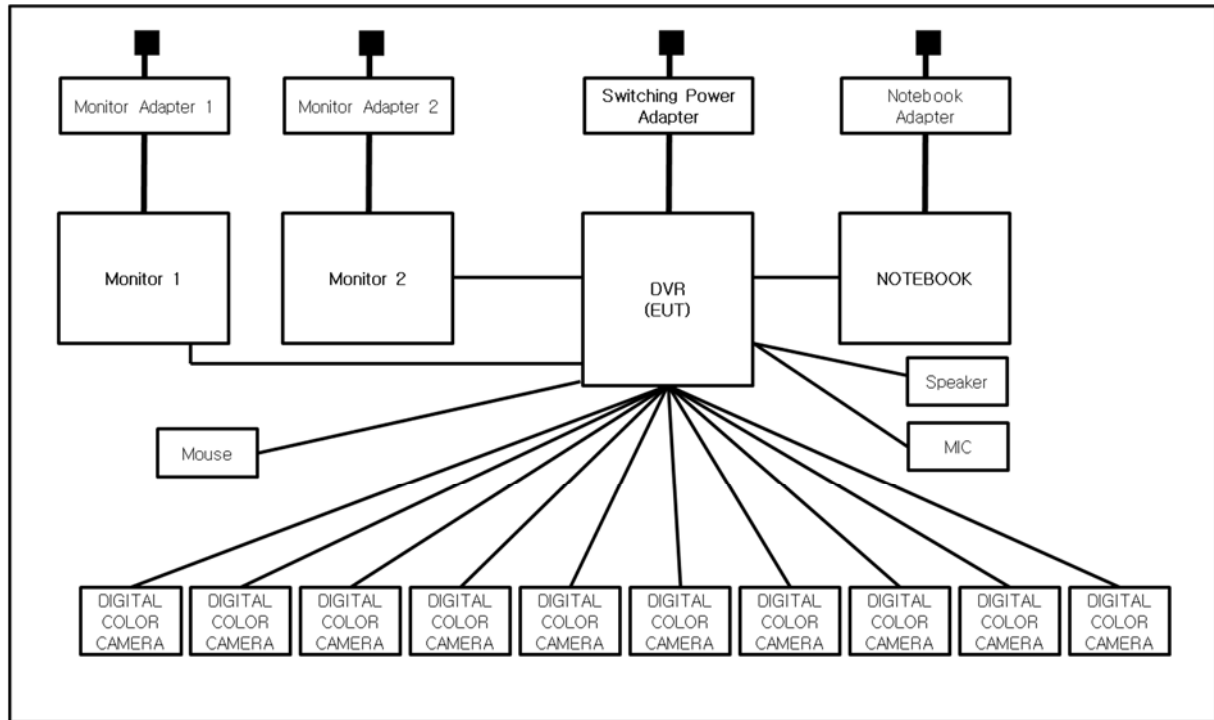
1.7 EUT Operating Mode(s)

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



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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

Feb. 23, 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
☐	LISN	ESH2-Z5	R & S	100450	05, 06, 2016
☒	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 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
☒	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: 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.



2.3 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
☒	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 Anchoic Chamber #2	-	SEMITEC	-	-
☒	Antenna Mast	-	AUDIX	-	-
☒	Turn Table	-	AUDIX	-	-

Test Conditions

Temperature: 25.7 °C
Relative Humidity: 38.2 %

Frequency Range of Measurement

1 GHz to 5 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.

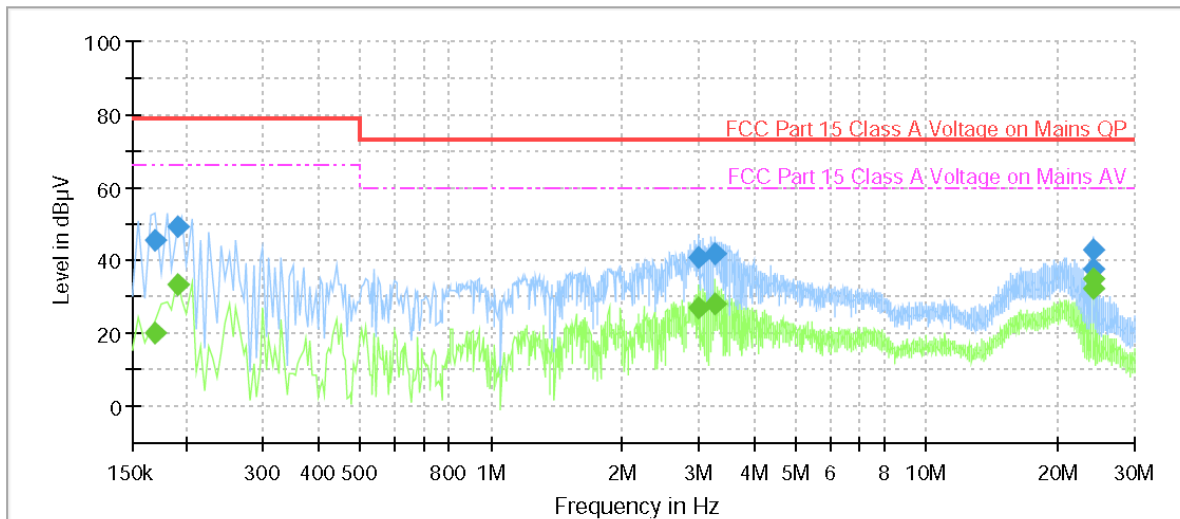
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: SRD-1684N
Mode
Operator Name: KES



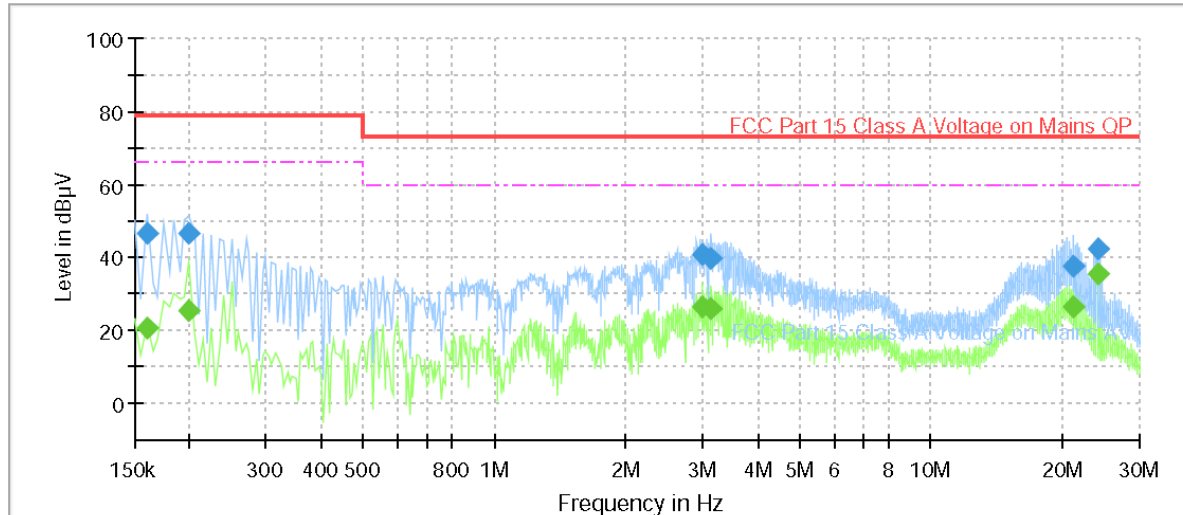
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	20.13	66.00	45.87	1000.0	9.000	L1	9.7
0.170000	45.42	---	79.00	33.58	1000.0	9.000	L1	9.7
0.190000	---	33.62	66.00	32.38	1000.0	9.000	L1	9.7
0.190000	49.23	---	79.00	29.77	1000.0	9.000	L1	9.7
3.000000	---	27.02	60.00	32.98	1000.0	9.000	L1	9.8
3.000000	40.90	---	73.00	32.10	1000.0	9.000	L1	9.8
3.260000	---	27.98	60.00	32.02	1000.0	9.000	L1	9.8
3.260000	41.66	---	73.00	31.34	1000.0	9.000	L1	9.8
24.015000	---	35.11	60.00	24.89	1000.0	9.000	L1	10.2
24.015000	43.09	---	73.00	29.91	1000.0	9.000	L1	10.2
24.115000	---	32.26	60.00	27.74	1000.0	9.000	L1	10.2
24.115000	37.36	---	73.00	35.64	1000.0	9.000	L1	10.2

[NEUTRAL]

Common Information

Test Description: Conducted Emission
Model No.: SRD-1684N
Mode
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	20.47	66.00	45.53	1000.0	9.000	N	9.6
0.160000	46.60	---	79.00	32.40	1000.0	9.000	N	9.6
0.200000	---	25.50	66.00	40.50	1000.0	9.000	N	9.6
0.200000	46.61	---	79.00	32.39	1000.0	9.000	N	9.6
3.000000	---	26.55	60.00	33.45	1000.0	9.000	N	9.7
3.000000	40.67	---	73.00	32.33	1000.0	9.000	N	9.7
3.140000	---	25.92	60.00	34.08	1000.0	9.000	N	9.7
3.140000	39.74	---	73.00	33.26	1000.0	9.000	N	9.7
21.050000	---	26.45	60.00	33.55	1000.0	9.000	N	10.2
21.050000	37.82	---	73.00	35.18	1000.0	9.000	N	10.2
24.050000	---	35.58	60.00	24.42	1000.0	9.000	N	10.2
24.050000	42.21	---	73.00	30.79	1000.0	9.000	N	10.2

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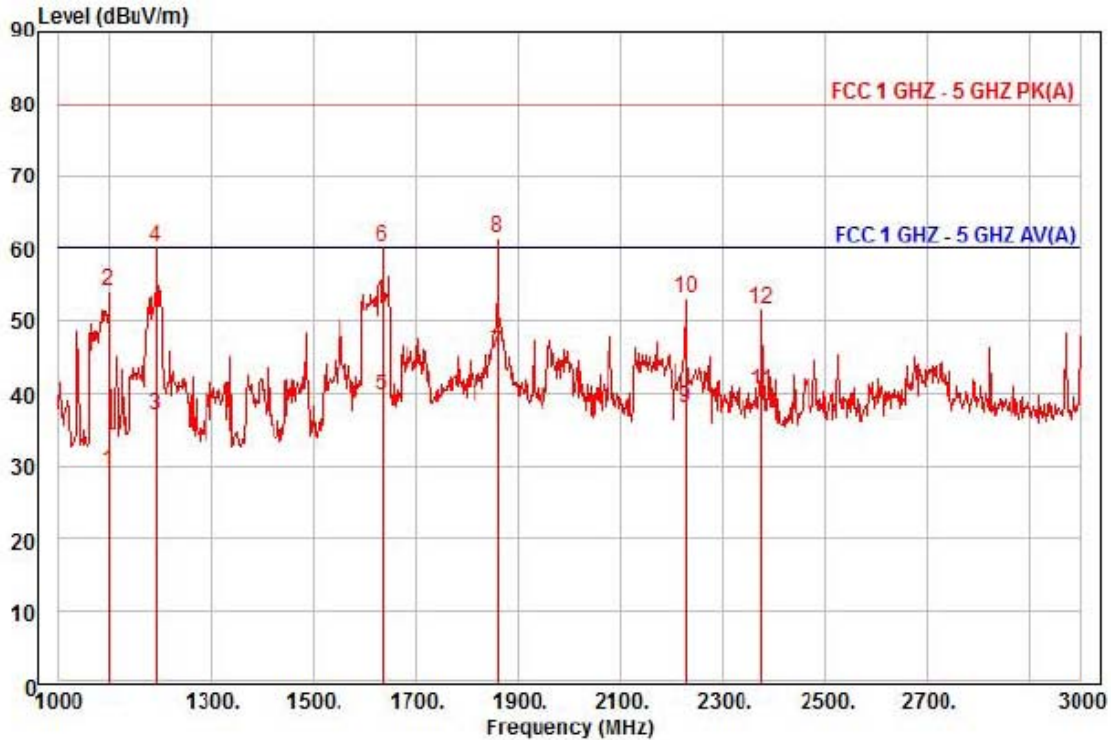
Radiated Electric Field Emissions(Below 1 GHz)

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]
135.73	22.92	H	4.00	8.23	2.67	33.82	43.50	9.68
329.54	20.86	H	4.00	14.07	4.48	39.41	46.40	6.99
371.19	20.96	H	3.90	15.03	4.82	40.81	46.40	5.59
446.03	19.81	H	3.80	16.34	5.37	41.52	46.40	4.88
519.73	18.03	V	1.20	17.53	5.86	41.42	46.40	4.98
594.55	16.49	H	3.00	19.18	6.29	41.96	46.40	4.44
742.83	13.68	V	2.00	20.17	7.43	41.28	46.40	5.12

* H : Horizontal, V : Vertical

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Radiated Electric Field Emissions(Above 1 GHz)



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-1684N
Mode : 120 v / 60 Hz
Memo : 1 ~ 3 GHz

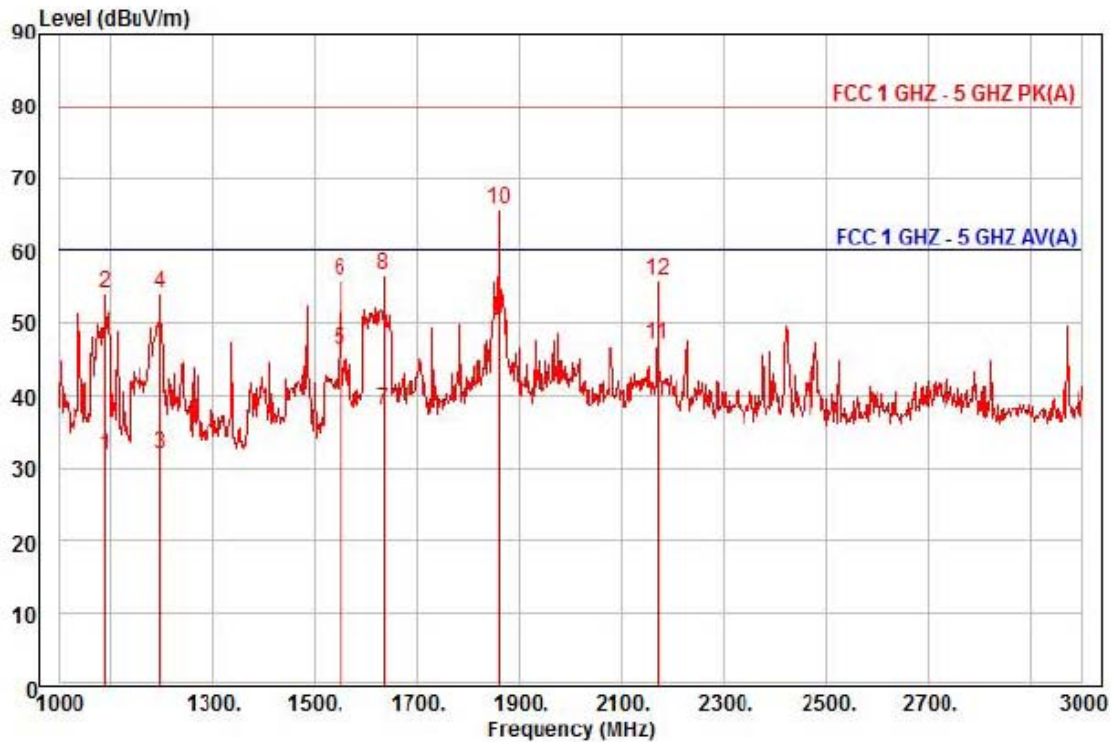
	Freq	Read Level	Ant Factor	Cable Loss	Preamplifier Factor	TPos	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	deg	dBuV/m	dB		
1	1098.00	38.28	24.30	6.79	40.07	322	60.00	-30.70	horizontal	Average
2	1098.00	63.10	24.30	6.79	40.07	322	80.00	-25.88	horizontal	Peak
3	1192.00	45.42	24.67	7.07	40.03	46	60.00	-22.87	horizontal	Average
4	1192.00	68.65	24.67	7.07	40.03	46	80.00	-19.64	horizontal	Peak
5	1634.00	44.69	26.43	8.34	39.81	34	60.00	-20.35	horizontal	Average
6	1634.00	65.32	26.43	8.34	39.81	34	80.00	-19.72	horizontal	Peak
7 pp	1860.00	48.99	27.32	8.97	39.70	89	60.00	-14.42	horizontal	Average
8 pk	1860.00	64.91	27.32	8.97	39.70	89	80.00	-18.50	horizontal	Peak
9	2228.00	39.65	28.44	9.70	39.76	29	60.00	-21.97	horizontal	Average
10	2228.00	54.79	28.44	9.70	39.76	29	80.00	-26.83	horizontal	Peak
11	2376.00	41.54	28.80	9.93	39.85	34	60.00	-19.58	horizontal	Average
12	2376.00	52.75	28.80	9.93	39.85	34	80.00	-28.37	horizontal	Peak



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Test report No.:
KES-EI-16T0065
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-1684N
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	1090.00	41.00	24.27	6.77	40.08	15	60.00	-28.04	vertical	Average
2	1090.00	63.26	24.27	6.77	40.08	15	80.00	-25.78	vertical	Peak
3	1198.00	40.31	24.70	7.08	40.02	108	60.00	-27.93	vertical	Average
4	1198.00	62.40	24.70	7.08	40.02	108	80.00	-25.84	vertical	Peak
5	1550.00	51.90	26.09	8.10	39.85	128	60.00	-13.76	vertical	Average
6	1550.00	61.52	26.09	8.10	39.85	128	80.00	-24.14	vertical	Peak
7	1634.00	43.02	26.43	8.34	39.81	352	60.00	-22.02	vertical	Average
8	1634.00	61.73	26.43	8.34	39.81	352	80.00	-23.31	vertical	Peak
9 pp	1860.00	53.76	27.32	8.97	39.70	196	60.00	-9.65	vertical	Average
10 pk	1860.00	69.11	27.32	8.97	39.70	196	80.00	-14.30	vertical	Peak
11	2170.00	48.84	28.30	9.61	39.73	156	60.00	-12.98	vertical	Average
12	2170.00	57.77	28.30	9.61	39.73	156	80.00	-24.05	vertical	Peak

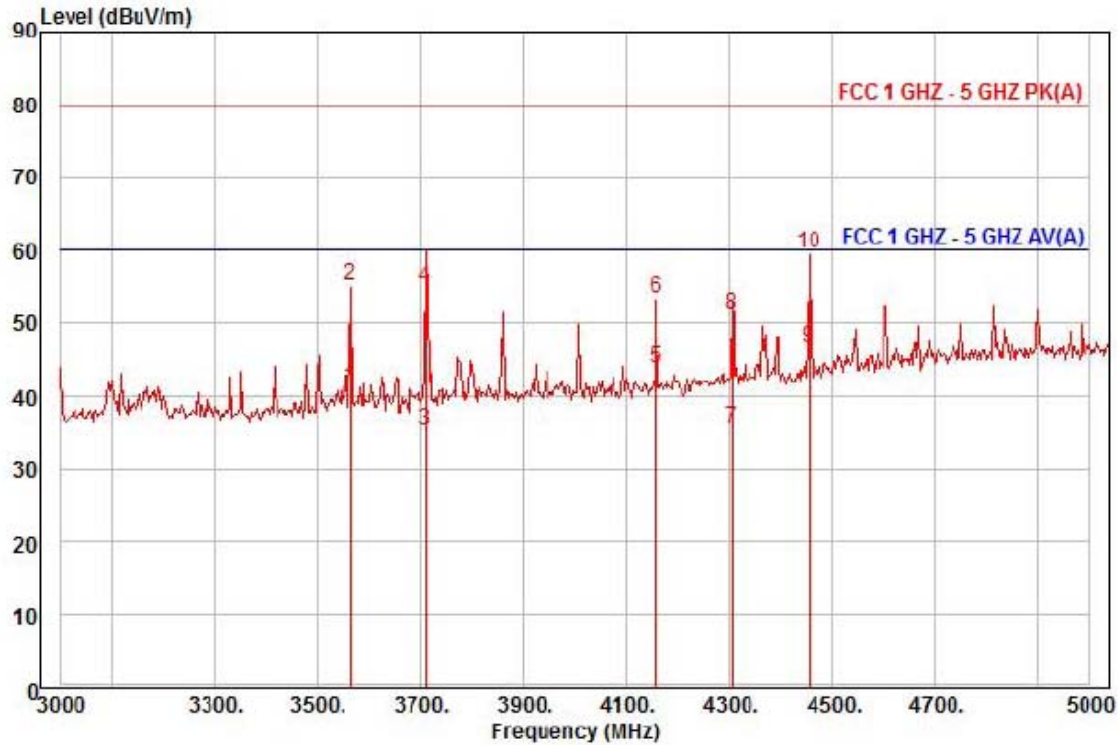
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Test report No.:
KES-E1-16T0065
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Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) horizontal
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-1684N
Mode : 120 v / 60 Hz
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	3564.00	37.50	31.28	12.64	40.32	46	60.00	-18.90	horizontal	Average
2	3564.00	51.58	31.28	12.64	40.32	46	80.00	-24.82	horizontal	Peak
3	3711.00	31.29	31.52	12.93	40.35	43	60.00	-24.61	horizontal	Average
4	3711.00	50.85	31.52	12.93	40.35	43	80.00	-25.05	horizontal	Peak
5	4158.00	37.64	32.91	13.80	40.41	353	60.00	-16.06	horizontal	Average
6	4158.00	47.23	32.91	13.80	40.41	353	80.00	-26.47	horizontal	Peak
7	4305.00	28.05	33.75	14.07	40.41	359	60.00	-24.54	horizontal	Average
8	4305.00	43.84	33.75	14.07	40.41	359	80.00	-28.75	horizontal	Peak
9 pp	4455.00	38.15	34.61	14.35	40.41	355	60.00	-13.30	horizontal	Average
10 pk	4455.00	51.03	34.61	14.35	40.41	355	80.00	-20.42	horizontal	Peak

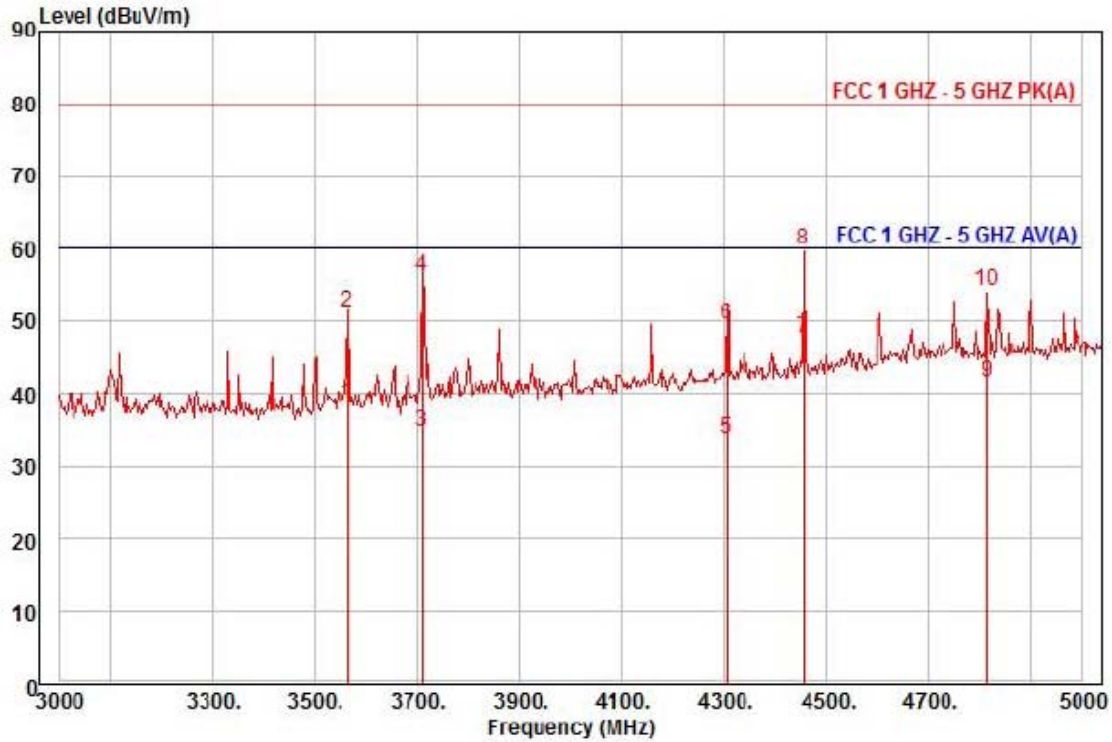
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Test report No.:
KES-EI-16T0065
Page (23) of (32)



Site : chamber
Condition: FCC 1 GHZ - 5 GHZ PK(A) 3m HORN781(2015.05.07) vertical
: RBW:1000.000kHz VBW:1000.000kHz SWT:Auto
Project :
Model : SRD-1684N
Mode : 120 v / 60 Hz
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	3564.00	34.96	31.28	12.64	40.32	43	60.00	-21.44	vertical	Average
2	3564.00	47.69	31.28	12.64	40.32	43	80.00	-28.71	vertical	Peak
3	3711.00	30.72	31.52	12.93	40.35	18	60.00	-25.18	vertical	Average
4	3711.00	52.04	31.52	12.93	40.35	18	80.00	-23.86	vertical	Peak
5	4305.00	26.34	33.75	14.07	40.41	63	60.00	-26.25	vertical	Average
6	4305.00	42.05	33.75	14.07	40.41	63	80.00	-30.54	vertical	Peak
7 pp	4455.00	39.00	34.61	14.35	40.41	68	60.00	-12.45	vertical	Average
8 pk	4455.00	51.19	34.61	14.35	40.41	68	80.00	-20.26	vertical	Peak
9	4815.00	30.32	36.66	15.00	40.41	60	60.00	-18.43	vertical	Average
10	4815.00	42.89	36.66	15.00	40.41	60	80.00	-25.86	vertical	Peak

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Test Setup Photos and Configuration

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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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

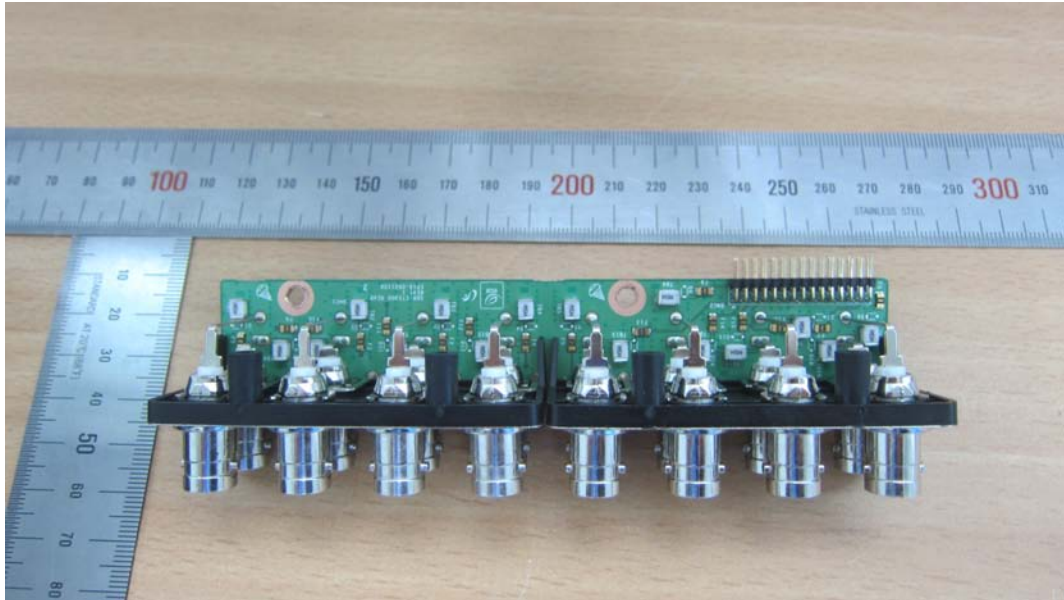
(Internal View)



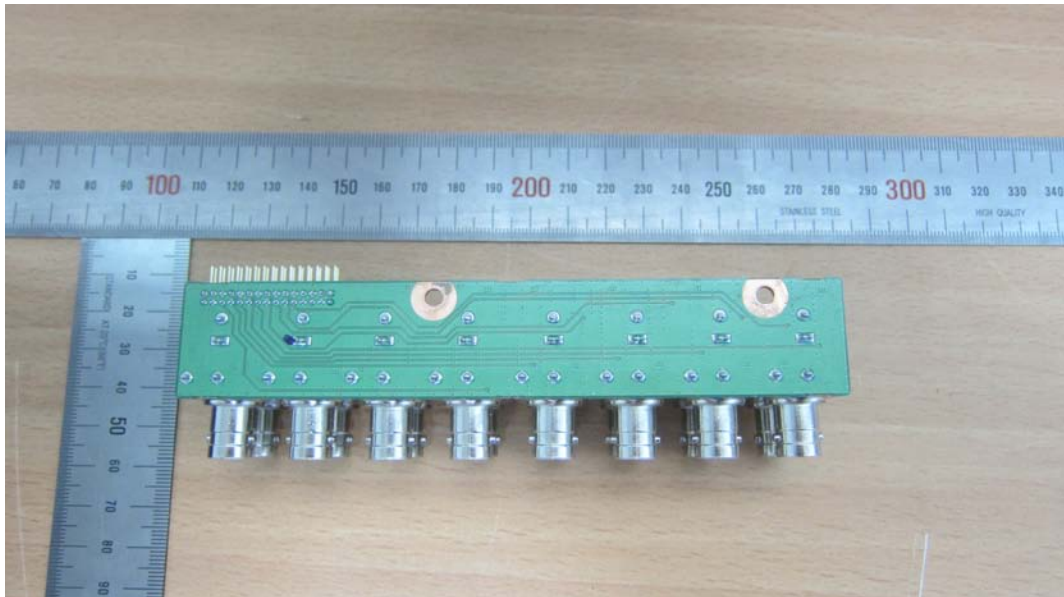
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Main Board EUT Internal View – Sub Board 1

(Top)



(Bottom)



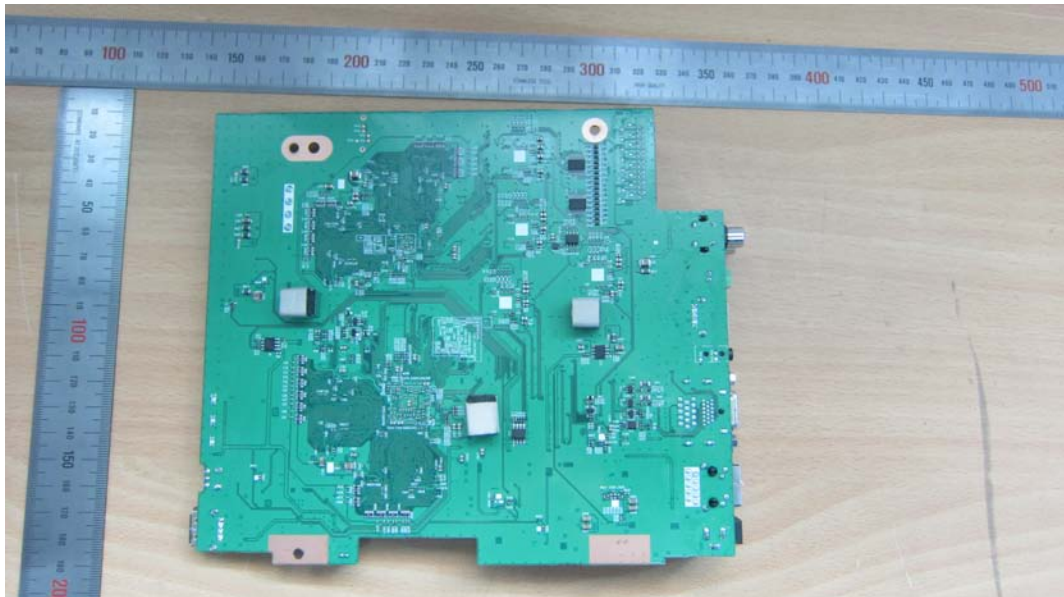
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Main Board EUT Internal View – Sub Board 2

(Top)



(Bottom)



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Main Board EUT Internal View – HDD

(Top)



(Bottom)



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Label Photographs



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