EU Declaration of Conformity

EU Declaration of Conformity

According to

EMC Directive 2014/30/EU

For the following

Product	**:**	**NETWORK VIDEO RECORDER**
Model Name	**:**	**DR-6332PS**
Variant Model Name	**:**	**DR-6316PS, DR-6308P, DR-6308P-S, DR-6316PS-S, DR-6332PS-S**

Manufactured at	**:**	**IDIS CO., LTD.**
Address	**:**	**8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA**

The submitted sample of the above equipment has been tested for CE marking according to following European Directive and standards:
- Electromagnetic Compatibility Directive 2014/30/EU

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the specified European Directive.
This verification does not imply assessment of the production of the product.
The CE marking may be affixed if all relevant and effective European Directives with CE are applicable.

The standards relevant for the evaluation of EMC requirements are as follows:

Test Standards	**:**	**EN 55032:2015, Class A** **EN 61000-3-2:2014** **EN 61000-3-3:2013**

Date of issue: 2018-04-24

IDIS CO., LTD.

8-10, TECHNO 3-RO, YUSEONG-GU,
DAEJEON, KOREA

(Name and signature of authorized person)

TEST REPORT

KCTL Inc.
65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

1. Client

- Name : IDIS CO., LTD.
- Address : 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA
- Date of Receipt : 2018-04-05

2. Use of Report : -

3. Name of Product and Model : NETWORK VIDEO RECORDER / DR-6332PS

4. Manufacturer and Country of Origin : IDIS CO., LTD. / Korea

5. Date of Test : 2018-04-16 to 2018-04-19

6. Test method used : EN 55032:2015, Class A
EN 61000-3-2:2014
EN 61000-3-3:2013

7. Test Results Refer to the test result in the test report

Affirmation	Tested by Name : Gueseok Lee (Signature)	Technical Manager Name : Gunsu Park (Signature)

2018-04-24

KCTL Inc.

REPORT REVISION HISTORY

Date	Revision	Page No
2015-11-11	Originally issued(KCTL15-CE0188)	-
2018-04-24	Standard update(EN55032)(KR18-SEC0122)	-

Contents

1. Applicant information

Applicant:	IDIS CO., LTD.
Address:	8-10, TECHNO 3-RO, YUSEONG-GU DAEJEON, KOREA
Telephone:	+82-31-723-5205
Fax	+82-31-723-5108
E-mail:	sw-yun@idis.co.kr
Contact name:	Seongwon Yun

Manufacturer:	IDIS CO., LTD.
Address:	8-10, TECHNO 3-RO, YUSEONG-GU DAEJEON, KOREA
Telephone:	+82-31-723-5205
Fax	+82-31-723-5108
E-mail:	sw-yun@idis.co.kr
Contact name:	Seongwon Yun

2. Laboratory information

Address

KCTL Inc. (Suwon Lab.)

65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

Telephone Number: 82 31 285 0894

Facsimile Number: 82 505 299 8311

FCC Site Designation No: KR0040

VCCI Registration No. : R-3327, G-198, C-3706, T-1849

Industry Canada Registration No. : 8035A

KOLAS NO.: KT231

SITE MAP

3. Test system configuration

3.1 Operation environment

	Temperature	Humidity	Pressure
Chamber 10 ㎡(RE)	23.5 °C / 23.6 °C	34.8 % R.H. / 34.1 % R.H.	-
Shielded room(CE)	23.4 °C	31.2 % R.H.	-

Test site

These testing items were performed following locations;

Test item	Test site
Conducted Emission	Shielded Room
Radiated Emission	10 ㎡ Chamber
Harmonics current	EMI Test area
Voltage fluctuations and flickers	EMI Test area

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.
The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95% confidence level was applied.

Conducted Emission measurement (Confidence level about 95 %, *k* = 2)		
Shielded Room (CE#1)	9 kHz ~ 150 kHz: 3.66 dB	
	150 kHz ~ 30 MHz: 3.24 dB	
Shielded Room (CE#2)	9 kHz ~ 150 kHz: 3.48 dB	
	150 kHz ~ 30 MHz: 3.06 dB	
Radiated Emission measurement (Confidence level about 95 %, *k* = 2)		
10 m Chamber (4F)	30 MHz ~ 300 MHz	3 m: 5.02 dB
		10 m: 5.00 dB
	300 MHz ~ 1 000 MHz	3 m: 5.16 dB
		10 m: 5.04 dB
	1 GHz ~ 6 GHz	3 m: 6.30 dB
10 m Chamber (2F)	30 MHz ~ 300 MHz	3 m: 5.54 dB
		10 m: 5.52 dB
	300 MHz ~ 1 000 MHz	3 m: 5.60 dB
		10 m: 5.48 dB
	1 GHz ~ 6 GHz	3 m: 6.32 dB
Radio Frequency Electromagnetic Fields (Confidence level about 95 %, *k* = 2)		
0.86 dB		
Disturbance Power Electromagnetic Fields (Confidence level about 95 %, *k* = 2)		
2.82 dB		

3.3 Measurement Program

These test items were performed by software programs;

Test item	Measurement Program		Used
Conducted Emission	EP5CE_V 5.4.0(TOYO)		☒
Radiated Emission	2F	EP5RE_V 4.6.0(TOYO)	☒
	4F	EP5RE_V 5.11.0(TOYO)	
Harmonics current, Voltage fluctuations and flickers	CTS 4_V 4.6.2 (AMETEK)		☒

4. Description of EUT

4.1 General information

		DR-6308P	DR-6316PS	DR-6332PS
SUMMARY		**-VIDEO In Port : 8+1EA -CAMERA Power : 8EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.**	**-VIDEO In Port : 16+1EA -CAMERA Power : 16EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.**	**-VIDEO In Port : 16+1EA -CAMERA Power : 16EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.**
MONITORING				
	Video Inputs	8ea IP Camera	16ea IP Camera	32ea IP Camera
	Video Outputs	1 HDMI, 1 VGA	1 HDMI, 1 VGA	1 HDMI, 1 VGA
	Display Resolution	Max. 4K x 2K (3840 x 2160)	Max. 4K x 2K (3840 x 2160)	Max. 4K x 2K (3840 x 2160)
	Display Rate	Max. 8CH Real Time	Max. 16CH Real Time	Max. 32CH Real Time
RECORDING SPEED				
	Max. Throughput	160Mbps	160Mbps	160Mbps
	CIF	480 ips	960 ips	960 ips
	4CIF	480 ips	960 ips	960 ips
	QHD	480 ips	960 ips	960 ips
	1MP	480 ips	480 ips	480 ips
	2MP	480 ips	480 ips	480 ips
	8MP	120 ips	240 ips	240 ips
	Recording Mode	Time-Lapse, Event, Pre-Event, Panic	Time-Lapse, Event, Pre-Event, Panic	Time-Lapse, Event, Pre-Event, Panic
	Search Mode	Date/Time, Calendar, Event, Motion, Text-In	Date/Time, Calendar, Event, Motion, Text-In	Date/Time, Calendar, Event, Motion, Text-In
PLAYBACK				
	Compression	H.264, H.265	H.264, H.265	H.264, H.265
	Performance	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback
	Max. Throughput	40Mbps	40Mbps	40Mbps
NETWORK				
	Remote. Throughput	20Mbps	20Mbps	20Mbps
	Input. Throughput(Record + Live Display)	200Mpbs	200Mbps	200Mbps
	WAN.Connection	1 x 10/100/1000BASE-T	1 x 10/100/1000BASE-T	1 x 10/100/1000BASE-T
	LAN(Video Input).Connection	8 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T
	Transmission Rate	30ips@FHD	30ips@FHD	30ips@FHD
	Protocols	Manual, DHCP, FEN	Manual, DHCP, FEN	Manual, DHCP, FEN
	Remote Software	IDIS Center, IDIS Web, IDIS Mobile	IDIS Center, IDIS Web, IDIS Mobile	IDIS Center, IDIS Web, IDIS Mobile
STORAGE				
	Total HDD Throughput(Recording+ Playback+Remote)	220Mbps	220Mbps	220Mbps
	Internal HDD	6	6	6
	eSATA	4	4	4
	Tatal Capacity	88TB=4TB x (6 + 4x4)	88TB=4TB x (6 + 4x4)	88TB=4TB x (6 + 4x4)
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
SYSTEM				
	Operating System	Embedded Linux	Embedded Linux	Embedded Linux
	Database File System	IBANK 3.0	IBANK 3.0	IBANK 3.0
	Data Export Medium	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)
	Data Backup	-	-	-
INTERFACE				
	Audio In	Local(NVR) : 1 RCA IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)
	Audio Out	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)
	Alarm In	Local(NVR) : 4 TTL IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Out	Local(NVR) : 1 Relay Out IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Reset In	1 TTL	1 TTL	1 TTL
	Serial Interface	RS232(Terminal Block), RS485(Terminal Block)	RS232(Terminal Block), RS485(Terminal Block)	RS232(Terminal Block), RS485(Terminal Block)
	External Interface	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA
	User Interface	Front Buttons, Mouse, IR Remote Control, Remote Keyboard	Front Buttons, Mouse, IR Remote Control, Remote Keyboard	Front Buttons, Mouse, IR Remote Control, Remote Keyboard
ETC				
	Dimensions (W x H x D)	430mm x 88mm x 410.8mm	430mm x 88mm x 410.8mm	430mm x 88mm x 410.8mm
	Unit Weight			
	Operating Temperature	5C ~ 40C	5C ~ 40C	5C ~ 40C
	Operating Humidity	0% ~ 90%	0% ~ 90%	0% ~ 90%
	Input Power	AC 100-240 V~, 50/60Hz, 1.5-3.0A	AC 100-240 V~, 50/60Hz, 1.5-3.0A	AC 100-240 V~, 50/60Hz, 1.5-3.0A
	Power Consumption	Max. 200W(w/t 6HDD)	Max. 200W(w/t 6HDD)	Max. 200W(w/t 6HDD)
	Approvals	FCC, UL, CE, CB, KC	FCC, UL, CE, CB, KC	FCC, UL, CE, CB, KC

HARDWARE				
VIDEO IN/OUT				
	Video Inputs	8CH IP Camera (Video in Port : 8 EA + 1 EA)	32CH IP Camera (Video in Port : 16 EA + 1 EA)	32CH IP Camera (Video in Port : 16 EA + 1 EA)
	Loop Outputs	no	no	no
	Main Outputs	1 HDMI, 1 VGA(FHD)	1 HDMI, 1 VGA(FHD)	1 HDMI, 1 VGA(FHD)
	SVHS Out	no	no	no
	SPOT	no	no	no
AUDIO IN/OUT				
	Audio Input	Local(NVR) : 1 RCA IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)
	Audio Output	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)
ALARM IN/OUT				
	Alarm Input	Local(NVR) : 4 TTL IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Output	Local(NVR) : 1 Relay Out IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Reset In	1 TTL	1 TTL	1 TTL
	Internal Buzzer	yes	yes	yes
AUXILIARY IN/OUT				
	RS485 Port	1 Half Duplex,Terminal Block(RTX+, RTX -)	1 Half Duplex,Terminal Block(RTX+, RTX -)	1 Half Duplex,Terminal Block(RTX+, RTX -)
	RS232C Port	Terminal Block(RX,TX,GND)	Terminal Block(RX,TX,GND)	Terminal Block(RX,TX,GND)
	Internal Modem Port	no	no	no
	Network_WAN Port	1x Gigabit Ethernet	1x Gigabit Ethernet	1x Gigabit Ethernet
	Network_Video in Port	8 Gigabit Ethernet (Separated 12/28 Port Giga Swith Connection Supported)	16 Giga Ethernet (Separated 12/28 Port Giga Swith Connection Supported)	16 Giga Ethernet (Separated 12/28 Port Giga Swith Connection Supported)
	USB Port	2 USB 2.0(Front)	2 USB 2.0(Front)	2 USB 2.0(Front)
	SCSI Port	no	no	no
	Power Output	no	no	no
	Remark	no	no	no
STORAGE				
	Program Memory	Built-In Falsh Memory	Built-In Falsh Memory	Built-In Falsh Memory
	Total HDD Throughput	220Mbps	220Mbps	220Mbps
	Primary Storage(Internal HDD)	Max. 6 HDD(no ODD)	Max. 6 HDD(no ODD)	Max. 6 HDD(no ODD)
	Secondary Storage (expansion)	4 x eSATA	4 x eSATA	4 x eSATA
	Removable Storage	no	no	no
	Maximum Storage Size	88TB(4TB x 6+(4x4))	88TB(4TB x 6+(4x4))	88TB(4TB x 6+(4x4))
	Data Export Medium	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)
	Archiving Medium	no	no	no
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
	HDD Interface type	SATA,eSATA	SATA,eSATA	SATA,eSATA
IP Video Power				
	PoE (PSE)	8CH	16CH	16CH
FUNCTION				
MONITORING				
	Display Rate	Max. 16CH Real Time	Max. 16CH Real Time	Max. 16CH Real Time
	Display Resolution	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200
	Display Mode	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7
	Sequence	yes	yes	yes
	Digital Zoom	x2 ~ x12	x2 ~ x12	x2 ~ x12
	Freeze	yes	yes	yes
	Covert Cameras	yes	yes	yes
	Privacy Mask	yes	yes	yes
	Spot Monitor	no	no	no
	Multiscreen on Spot Monitor	no	no	no
	Color Control	brightness, constrast, saturation, hue	brightness, constrast, saturation, hue	brightness, constrast, saturation, hue
RECORD				
	Video Compression	H.264, H.265	H.264, H.265	H.264, H.265
	Audio Compression	G.711, G.726	G.711, G.726	G.711, G.726
	Recording Resolution	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240
	Recording Rate	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 480 ips 1MP : 480 ips 2MP : 480 ips 8MP : 120 ips	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 960 ips 1MP : 480 ips 2MP : 480 ips 8MP : 240 ips	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 960 ips 1MP : 480 ips 2MP : 480 ips 8MP : 240 ips
	Video Data Size	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
	Audio Data Size	-	-	-
	Scheduling Method	time-table type (by naming), schedule a week by hour	time-table type (by naming), schedule a week by hour	time-table type (by naming), schedule a week by hour
	Recording Setup Programmable for each Camera	yes	yes	yes
	Time-Lapse Recording	yes	yes	yes
	Event Recording	yes	yes	yes
	Pre-Event Recording	yes	yes	yes
	Text-In Recording	yes	yes	yes
	Panic Recording	yes	yes	yes

SEARCH & PLAYBACK				
	Display Mode	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7
	Playback Rate	8 CH Full HD synchronous playback	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback
	Digital Zoom	x2	x2	x2
	Date/Time Search	yes	yes	yes
	Calendar Search	yes	yes	yes
	Event Search	yes	yes	yes
	Motion Search	yes	yes	yes
	Museum Search	no	no	no
	Text-In Search	yes	yes	yes
	Bookmark	yes	yes	yes
	Recording Table	yes	yes	yes
	Panorama Playback	no	no	no
	Color Control	no	no	no
	Image processing	no	no	no
ARCHIVE & DATA EXPORT				
	Data Export	IDIS Player	IDIS Player	IDIS Player
	Data Export with Audio	yes	yes	yes
	Multi-Channel Data Export	yes	yes	yes
	Archiving	no	no	no
NETWORK				
	Max. Connections	Remote connection : 10 (Search : 2)	Remote connection : 10 (Search : 2)	Remote connection : 10 (Search : 2)
	Static IP	yes	yes	yes
	ADSL	no	no	no
	DHCP	yes	yes	yes
	FEN	yes	yes	yes
	SNS	twitter	twitter	twitter
	PUSH	yes	yes	yes
	Bandwidth Control	yes	yes	yes
	Web Browser Access	Internal, External	Internal, External	Internal, External
	Remote Monitoring	yes	yes	yes
	Remote Playback	yes	yes	yes
	Remote Setup	yes	yes	yes
	Remote PTZ Control	yes	yes	yes
	Remote PTZ Setup	Yes	Yes	Yes
	Remote PTZ Advanced Setup	No	No	No
	Remote Data Export	IDIS Player, AVI, JPG, BMP	IDIS Player, AVI, JPG, BMP	IDIS Player, AVI, JPG, BMP
	Remote Upgrade	yes	yes	yes
	Remote Camera Upgrade	Yes	Yes	Yes
	Remote System Status Check	yes	yes	yes
	Two-way Audio(IP CAM & IDIS Center)	yes	yes	yes
	Two-way Audio(IP CAM & NVR)	No	No	No
	Two-way Audio(NVR & IDIS Center)	No	No	No
	Audio Playback	yes	yes	yes
EVENT Action				
	Scheduling Alarm Output	yes	yes	yes
	Video-Loss Event	yes	yes	yes
	Pre-Event Recording	yes	yes	yes
	Post-Event Recording	yes	yes	yes
	Spot Monitoring	no	no	no
	Event Notification	Email(attach MP4), Remote S/W, Push Server	Email(attach MP4), Remote S/W, Push Server	Email(attach MP4), Remote S/W, Push Server
	Event Monitoring	yes	yes	yes
	PTZ Preset on Event	no	no	no
EVENT				
	Alarm In	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)
	Motion Detection	Yes	Yes	Yes
	TRIP-ZONE	Yes	Yes	Yes
	AUDIO DETECTION	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)
	TAMPERING	Yes	Yes	Yes
	VIDEO LOSS	yes	yes	yes
USER INTERFACE				
	Languages	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian
	Front Menu button	Yes	Yes	Yes
	Graphical User Interface	yes	yes	yes
	Mouse	yes	yes	yes
	Remote Control Keyboard	yes	yes	yes
SYSTEM MANAGEMENT				
	Operating System	Embedded Linux	Embedded Linux	Embedded Linux
	Database File System	IBANK 3.0	IBANK 3.0	IBANK 3.0
	Holiday Setup	yes	yes	yes
	DST Setup	yes	yes	yes
	Software upgrade	Remote S/W, USB FlashDrive	Remote S/W, USB FlashDrive	Remote S/W, USB FlashDrive
	Setup Im/Export	YES	YES	YES
	APC UPS shutdown	no	no	no
	System Logs	yes, up to 5000 EA , system on/off, user login, device management, etc	yes, up to 5000 EA , system on/off, user login, device management, etc	yes, up to 5000 EA , system on/off, user login, device management, etc
	Event Logs	unlimited	unlimited	unlimited

4.2 Product description

Type of product	NETWORK VIDEO RECORDER
Model name (Basic)	DR-6332PS
Model name (Variant)	DR-6316PS, DR-6308P, DR-6308P-S, DR-6316PS-S, DR-6332PS-S
Difference	-
Serial no	-
Testing voltage	230 V, 50 Hz
Input rating	AC 100 - 240 V, 50 / 60 Hz
Internal clock frequency	6 GHz
Note	FRONT TYPE #1

4.3 Auxiliary equipments

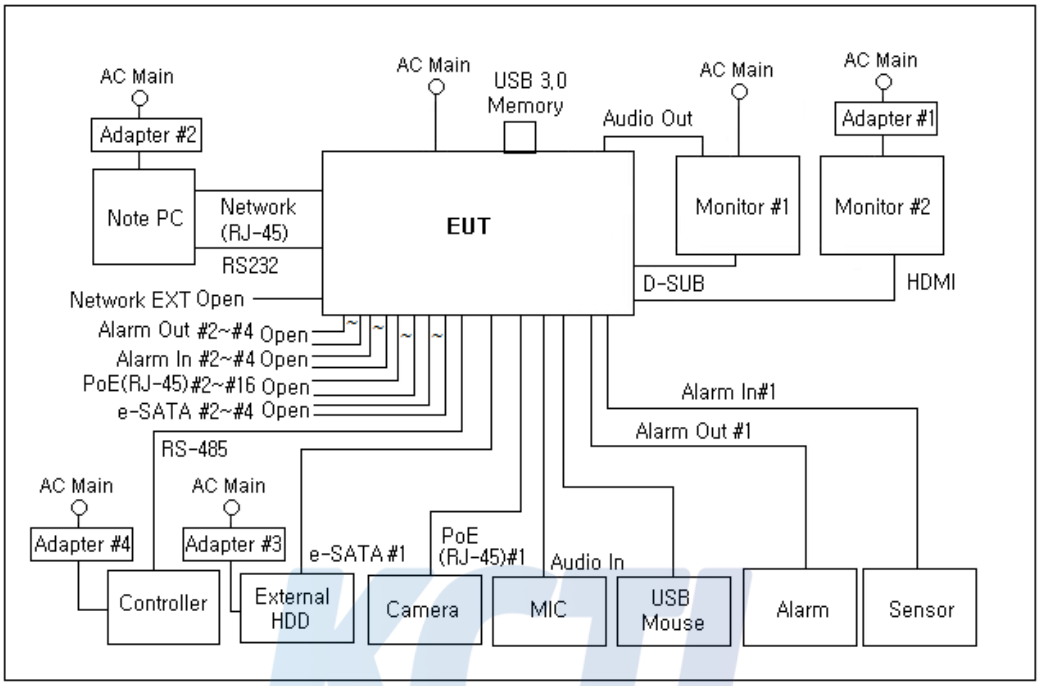
[EMI]

Type	Model / Part #	S/N	Manufacturer
Monitor#1	LT24B350	ZWP0HMCD101771M	SAMSUNG
Monitor#2	27UD88	705NTSU4H358	LG
Adapter #1	LCAP31	EH37N629490051248	LG
Note PC	NT271B5E-K3015	JGFE919DB00025Z	SAMSUNG
Adapter #2	0335C1960	-	SAMSUNG
USB Mouse	1088	-	Microsoft
Camera	NC-D620-3MXW	-	IDIS
MIC	CM-P25	-	COBI Electronics
External HDD	IT-735	6127677	IT-CEO
Adapter #3	ADS-651-S1-12-1	-	Hoioto
Controller	SCC-1000	C60E67WC801263M	SAMSUNG
Adapter #4	PA-1061-71	-	LITE ON
USB3.0 Memory(16 GB)	-	-	SanDisk
Alarm	DS-360	-	DAE MYUNG ELECTRONICS CO., LTD
Sensor	N/A	-	DAE MYUNG ELECTRONICS CO., LTD

[EMS]

Type	Model / Part #	S/N	Manufacturer
Monitor#1	SMT-2231P	YDQ03VDBB02500H	SAMSUNG
Monitor#2	LT24B350	ZWP0HMCD102039M	SAMSUNG
USB Mouse	1088	8165906051216	Microsoft
Camera	MNC322D	-	IDIS
MIC	-	-	-
External HDD	IT-734	-	IT-CEO
Controller	SCC-1000	EW089028913	SAMSUNG
JIG	-	-	-
USB 3.0 Memory(32GB)	-	-	SanDisk

4.4 Test configuration



	Start		End		Cable		
	Name	I/O port	Name	I/O port	Length (m)	Spec.	Cable
1	**EUT**	Power	AC Main	Power	1.6	Unshield	-
2		Audio Out	Monitor #1	Audio In	3.0	Shield	Out-door
3		D-SUB	Monitor #1	D-SUB	1.6	Shield	-
4		HDMI	Monitor #2	HDMI	1.8	Shield	-
5		PoE (RJ-45)#1	Camera	PoE(RJ-45)	3.0	Unshield	Out-door
6		PoE(RJ-45) #2~#16	Open	-	3.0	Unshield	-
7		Audio In	MIC	-	3.0	Shield	Out-door
8		e-SATA #1	External HDD	e-SATA	2.0	Shield	-
9		e-SATA #2~#4	Open	-	1.5	Shield	-
10		USB	USB Mouse	-	1.6	Shield	-
11		USB 3.0	USB 3.0 Memory	-	Direct	-	-
12		RS-485	Controller	RS-485	3.0	Unshield	Out-door

13		Alarm Out #1	Alarm	Alarm In	3.0	Unshield	Out-door
14		Alarm In#1	Sensor	Alarm Out	3.0	Unshield	Out-door
15		Network (RJ-45)	Note PC	Network (RJ-45)	3.0	Unshield	Out-door
16		RS232	Note PC	USB	3.0	Unshield	Out-door
17		Network EXT	Open	-	3.0	Unshield	-
18		Alarm Out #2~#4	Open	-	3.0	Unshield	-
19		Alarm In #2~#4	Open	-	3.0	Unshield	-
20	Monitor	Power	Adapter #1	-	1.5	Unshield	-
21	Note PC	Power	Adapter #2	-	1.9	Unshield	-
22	External HDD	Power	Adapter #3	-	1.5	Unshield	-
23	Control	Power	Adapter #4	-	1.8	Unshield	-

4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode	Normal operating
Test #1	Monitoring test using the camera.
	Audio Out test using monitor#1
	Audio In test using the mic.
	RS-485 test using the controller.
	Alarm In test using the Sensor.
	Alarm Out test using the Alarm.
	Web viewew test using Note PC.
	RS-232 Test using the ‘teraterm’ Program.
	Ping test.

5. Summary of test results

5.1 Summary of EMI emission test results

Applied	Test items	Test method	Result
☒	Conducted Emission	EN 55032:2015	Pass
☒	Radiated Emission	EN 55032:2015	Pass
☒	Harmonics current	EN 61000-3-2:2014	Pass
☒	Voltage fluctuations and flickers	EN 61000-3-3:2013	Pass

This product complies with the requirements of the EMC Directive 2014/30/EU.

6. Test results

6.1 Conducted Emission

Test specification	EN 55032:2015, Class A		
Testing voltage	230 V, 50 Hz		
Test facility	Shielded room (CE#1)		
Date	2018-04-19		
Temperature (°C)	23.4 °C	Humidity (% R.H.)	31.2 % R.H.
Remarks	Pass		

Both conducted lines are measured in Quasi-Peak and C/Average mode, including the worst-case data points for each tested configuration. The EUT measured in accordance with the methods described in standards.

6.1.1 Limits of conducted emission measurement

☒ AC main

Frequency [MHz]	Resolution Bandwidth [kHz]	Class A (dB(μV))		Class B (dB(μV))	
		Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	9	79	66	66 ~ 56	56 ~ 46
0.5 ~ 5	9	73	60	56	46
5 ~ 30	9	73	60	60	50

☒ Telecommunication

Frequency [MHz]	Resolution Bandwidth [kHz]	Class A Limits (dB(μV))		Current Limits (dB(μV))	
		Quasi-Peak	Average	Quasi-Peak	Average
0.15 ~ 0.5	9	97 to 87	84 to 74	53 to 43	40 to 30
0.5 ~ 30	9	87	74	43	30
Frequency [MHz]	Resolution Bandwidth [kHz]	Class B Limits (dB(μV))		Current Limits (dB(μV))	
		Quasi-Peak	Average	Quasi-Peak	Average
0.15 ~ 0.5	9	84 to 74	74 to 64	40 to 30	30 to 20
0.5 ~ 30	9	74	64	30	20

If the reading on the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 seconds at each measurement frequency, the highest reading shall be recorded, with the exception of any brief isolated high reading (which shall be ignored).

6.1.2 Used equipments

Equipment	Model	Serial No.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESCI	100001	R&S	2018.08.24	☒
TWO-LINE V-NETWORK	ENV216	101358	R&S	2019.04.05	☒
TWO-LINE V-NETWORK	ENV216	101584	R&S	2019.04.05	☒
8-WIRE ISN CAT5	8158 CAT5	CAT5-8158-0071	SCHWARZBECK	2018.08.30	☒

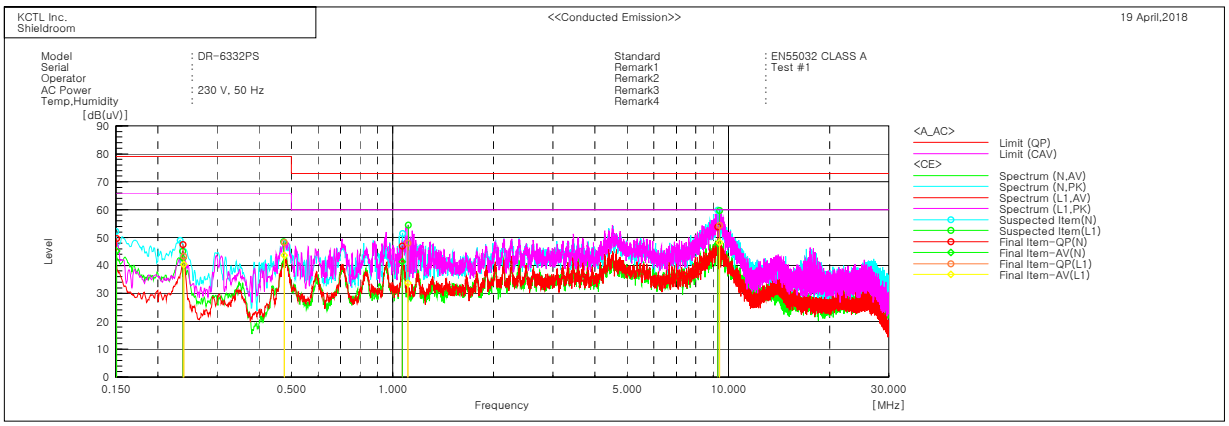
6.1.4 Photographs of test setup

AC Main

Telecommunication

6.1.5 Conducted emission measurement result

AC Main



Final Result

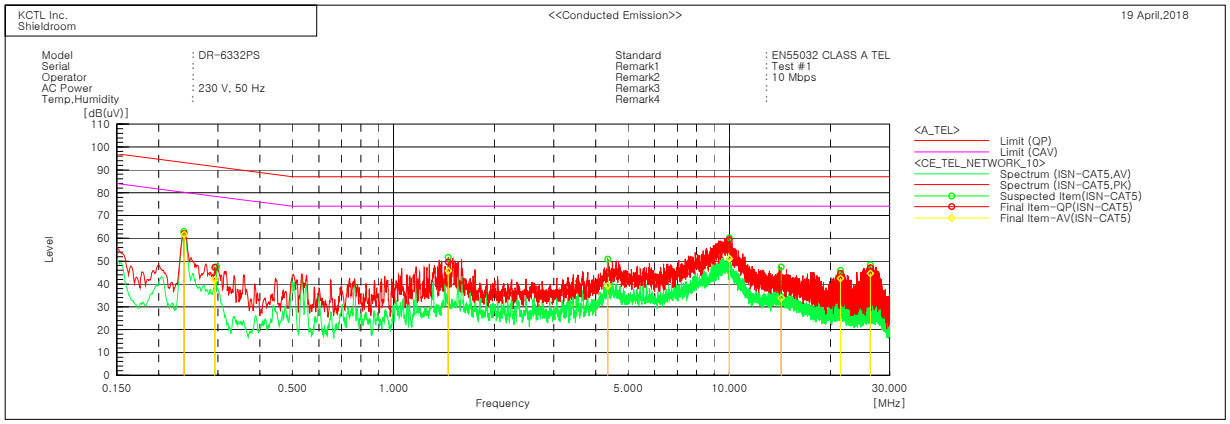
--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15079	40.0	35.6	9.6	49.6	45.2	79.0	66.0	29.4	20.8
2	0.23744	38.0	33.0	9.5	47.5	42.5	79.0	66.0	31.5	23.5
3	1.06774	37.2	31.7	9.7	46.9	41.4	73.0	60.0	26.1	18.6
4	9.29382	44.0	37.9	9.9	53.9	47.8	73.0	60.0	19.1	12.2

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.23896	33.7	30.8	9.5	43.2	40.3	79.0	66.0	35.8	25.7
2	0.47638	38.4	33.9	9.8	48.2	43.7	79.0	66.0	30.8	22.3
3	1.11072	38.3	24.0	9.7	48.0	33.7	73.0	60.0	25.0	26.3
4	9.4131	44.4	38.3	9.9	54.3	48.2	73.0	60.0	18.7	11.8

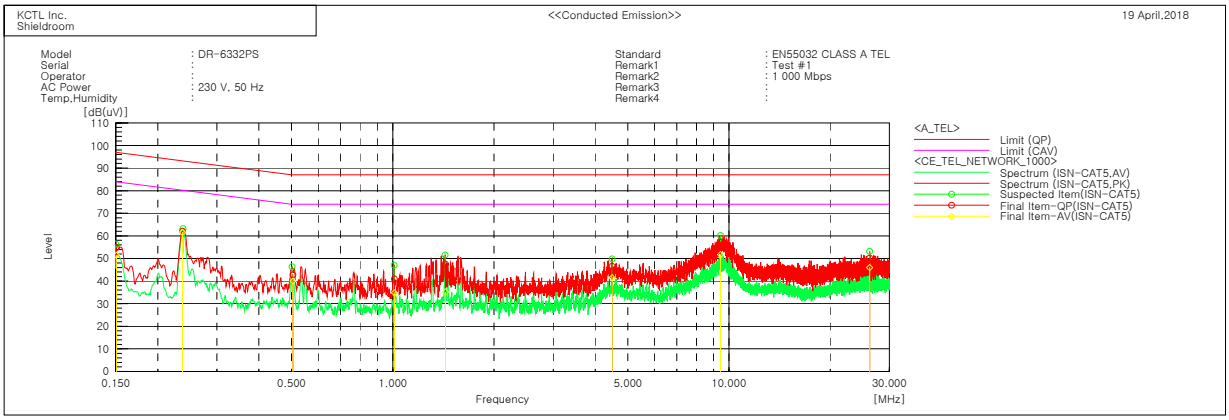
Telecommunication port



Final Result

--- ISN-CAT5 Phase ---

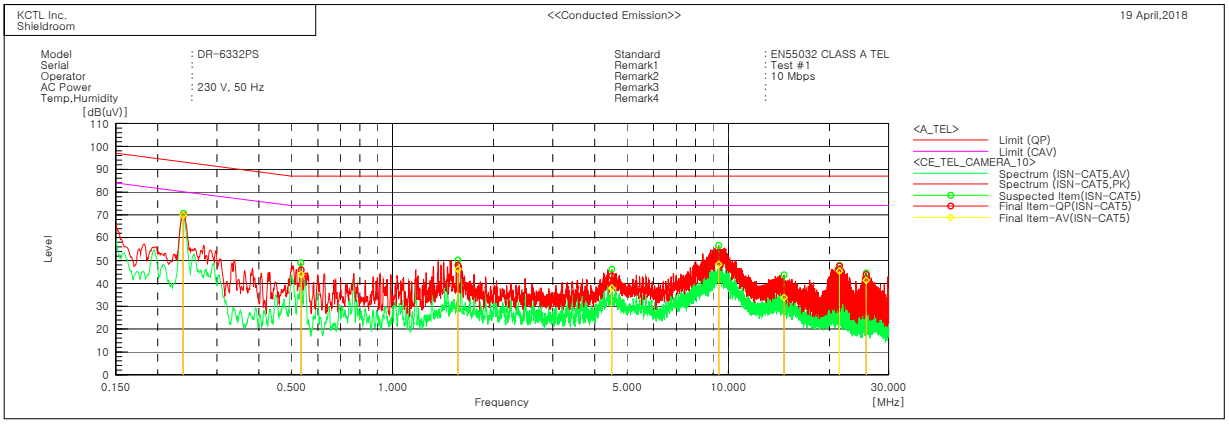
No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.23855	52.6	52.3	9.5	62.1	61.8	93.1	80.1	31.0	18.3
2	0.29378	37.8	32.3	9.5	47.3	41.8	91.4	78.4	44.1	36.6
3	1.45746	40.4	36.4	9.3	49.7	45.7	87.0	74.0	37.3	28.3
4	4.35055	35.4	29.9	9.3	44.7	39.2	87.0	74.0	42.3	34.8
5	10.00216	49.8	41.5	9.6	59.4	51.1	87.0	74.0	27.6	22.9
6	14.26358	30.0	24.2	9.7	39.7	33.9	87.0	74.0	47.3	40.1
7	21.43991	34.9	32.6	9.8	44.7	42.4	87.0	74.0	42.3	31.6
8	26.27958	37.3	34.8	9.8	47.1	44.6	87.0	74.0	39.9	29.4



Final Result

--- ISN-CAT5 Phase ---

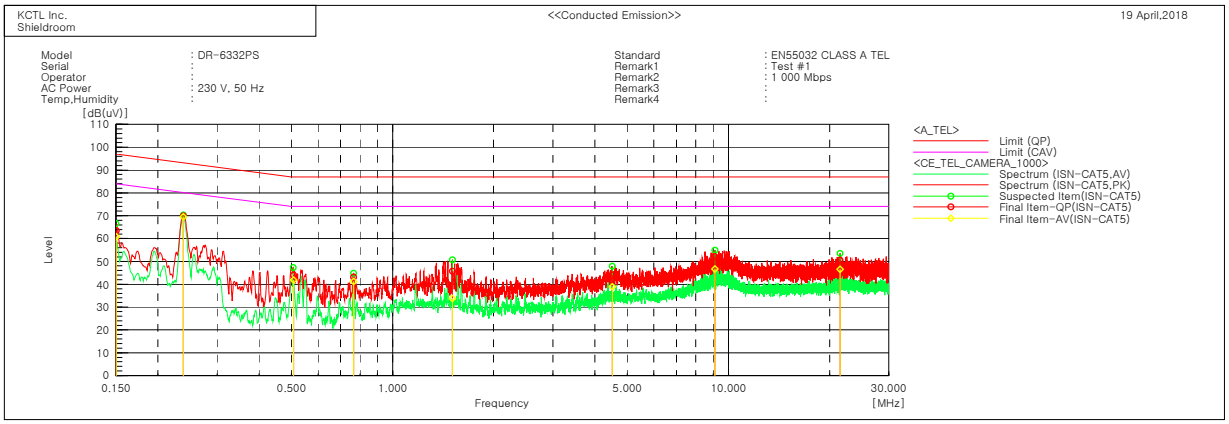
No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15069	45.2	41.9	9.6	54.8	51.5	97.0	84.0	42.2	32.5
2	0.23707	52.6	52.1	9.5	62.1	61.6	93.2	80.2	31.1	18.6
3	0.50472	33.4	30.6	9.4	42.8	40.0	87.0	74.0	44.2	34.0
4	1.01179	31.6	25.5	9.3	40.9	34.8	87.0	74.0	46.1	39.2
5	1.43581	38.2	25.9	9.3	47.5	35.2	87.0	74.0	39.5	38.8
6	4.49489	37.2	32.2	9.3	46.5	41.5	87.0	74.0	40.5	32.5
7	9.44218	47.6	42.1	9.6	57.2	51.7	87.0	74.0	29.8	22.3
8	26.2006	40.4	36.2	9.8	50.2	46.0	87.0	74.0	36.8	28.0



Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.23811	60.4	60.3	9.5	69.9	69.8	93.2	80.2	23.3	10.4
2	0.53451	36.5	34.4	9.4	45.9	43.8	87.0	74.0	41.1	30.2
3	1.56728	38.6	36.9	9.3	47.9	46.2	87.0	74.0	39.1	27.8
4	4.49384	33.9	28.7	9.3	43.2	38.0	87.0	74.0	43.8	36.0
5	9.36346	44.0	38.7	9.6	53.6	48.3	87.0	74.0	33.4	25.7
6	14.64315	29.2	24.1	9.7	38.9	33.8	87.0	74.0	48.1	40.2
7	21.44062	37.8	35.7	9.8	47.6	45.5	87.0	74.0	39.4	28.5
8	25.72165	34.1	31.6	9.8	43.9	41.4	87.0	74.0	43.1	32.6



Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15037	53.9	51.2	9.6	63.5	60.8	97.0	84.0	33.5	23.2
2	0.23816	60.3	60.1	9.5	69.8	69.6	93.2	80.2	23.4	10.6
3	0.50709	34.7	32.5	9.4	44.1	41.9	87.0	74.0	42.9	32.1
4	0.76489	33.9	32.0	9.3	43.2	41.3	87.0	74.0	43.8	32.7
5	1.50515	36.5	24.5	9.3	45.8	33.8	87.0	74.0	41.2	40.2
6	4.50771	34.8	29.6	9.3	44.1	38.9	87.0	74.0	42.9	35.1
7	9.11956	42.5	37.0	9.6	52.1	46.6	87.0	74.0	34.9	27.4
8	21.47963	40.8	36.7	9.8	50.6	46.5	87.0	74.0	36.4	27.5

6.2 Radiated Emission

Test specification		EN 55032:2015, Class A		
Testing voltage		230 V, 50 Hz		
Test facility		10 m Chamber (2F)		
Test distance		10 m, 3 m		
Date		2018-04-16		
10 m 3 m	Temperature (°C)	23.5 °C 23.6 °C	Humidity (% R.H.)	34.8 % R.H. 34.1 % R.H.
Remarks		Pass		

Of those emissions above (*L* – 20 dB), where *L* is the limit level in logarithmic units, record at least the emission levels and the frequencies of the six highest emissions.
The following data lists the significant emission frequencies, measured levels, correction factors (for antenna and cables), orientation of table, polarization and height of antenna, the corrected reading, the limit, and the amount of margin. All measurements were taken utilizing quasi-peak detection unless stated otherwise.
Measurements were performed at an antenna to EUT distance of 10 or 3 meters and elevated between 1 and 4 meters. Both vertical and horizontal antenna polarizations were measured.

Below 1 GHz, peak detector function mode for prescan was used with resolution bandwidth of 120 kHz and a video bandwidth of 300 kHz and sweep method.
The sweep time for prescan set below 200 ms up and final measurement with quasi-peak detector evaluated for suspected frequencies points, which are detected from prescan measurement.

Final measurements consisted of 3 steps.
First step, frequency fine tuning to find exact emission frequency.
Second step, rechecking to search for maximum height and azimuth for interference from EUT
In final step, there are conducted measuring with quasi-peak detector for points
which are detected from 1st step & 2nd step.

6.2.1 Limits of radiated emission measurement

☒ Limits below 1 GHz

Frequency [MHz]	Resolution Bandwidth [kHz]	Class A (dB(μN/m)) @ 10 m	Class B (dB(μN/m)) @ 10 m
30 ~ 230	120	40	30
230 ~ 1 000	120	47	37

☒ Limits above 1 GHz

Frequency [GHz]	Resolution Bandwidth [kHz]	Class A @ 3 m		Class B @ 3 m	
		Average limit (dB(μN/m))	Peak limit (dB(μN/m))	Average limit (dB(μN/m))	Peak limit (dB(μN/m))
1 ~ 3	1	56	76	50	70
3 ~ 6	1	60	80	54	74
Note - The lower limit applies at the transition frequency.					

Measurements within 20 dB of the limit were then maximized by adjusting turntable position.

Final measurements were made using an C/Average detector.

Results checked manually and points close to the limit line were re-measured.

6.2.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESCI7	100732	R&S	2018.08.24	☒
Bilog Antenna	VULB9168	440	SCHWARZBECK	2018.08.05	☒
AMPLIFIER	310N	344922	SONOMA	2018.08.25	☒
COAXIAL FIXED ATTENUATOR	8491A	MY52461848	Agilent	2018.08.24	☒
Antenna Mast	MA4000-EP	303	Innco Systems	-	☒
Turn Table	DT2000	79	Innco Systems	-	☒
PREAMPLIFIER	8449B	3008A02343	AGILENT	2018.08.25	☒
DOUBLE RIDGED HORN ANTENNA	3115	00155772	ETS-LINDGREN	2018.10.20	☒
Spectrum Analyzer	FSV40	100988	R&S	2019.01.05	☐

6.2.3 Sample calculation

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follow:

Result = M.R + C.F(A.F + C.L +3 dB Att – A.G)

M.R = Meter Reading

C.F = Correction Factor

A.F = Antenna Factor

C.L = Cable Loss

A.G = Amplifier Gain

3 dB Att = 3 dB Attenuator

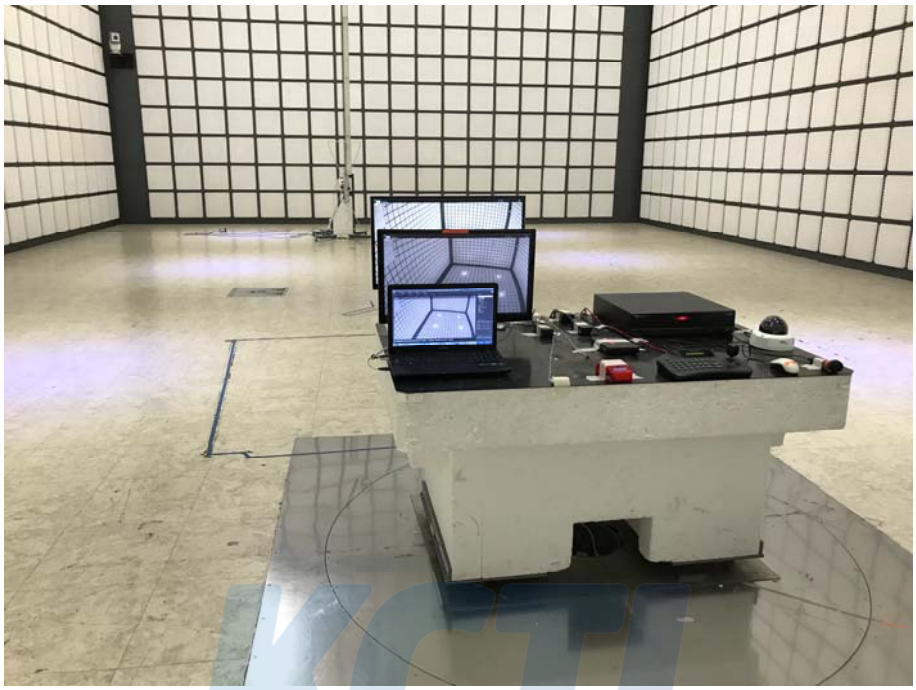
If M.R is 30 dB, A.F 12 dB, C.L 5 dB, 3 dB, A.G 35 dB

The result is 30 + 12 + 5 + 3 – 35 = 15 dB(μN/m)

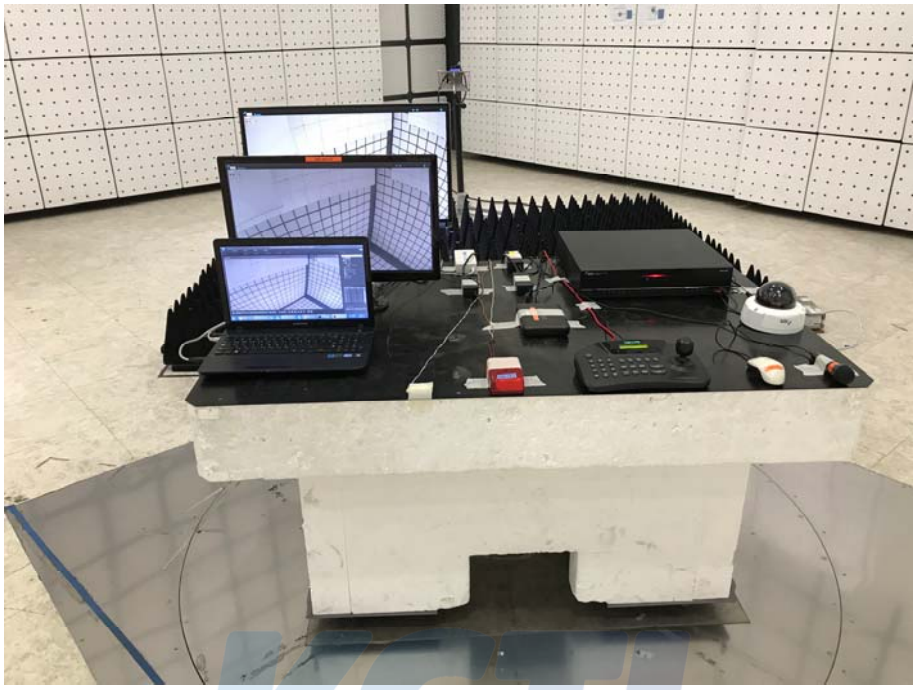
.

6.2.4 Photographs of test setup

30 MHz ~ 1 GHz

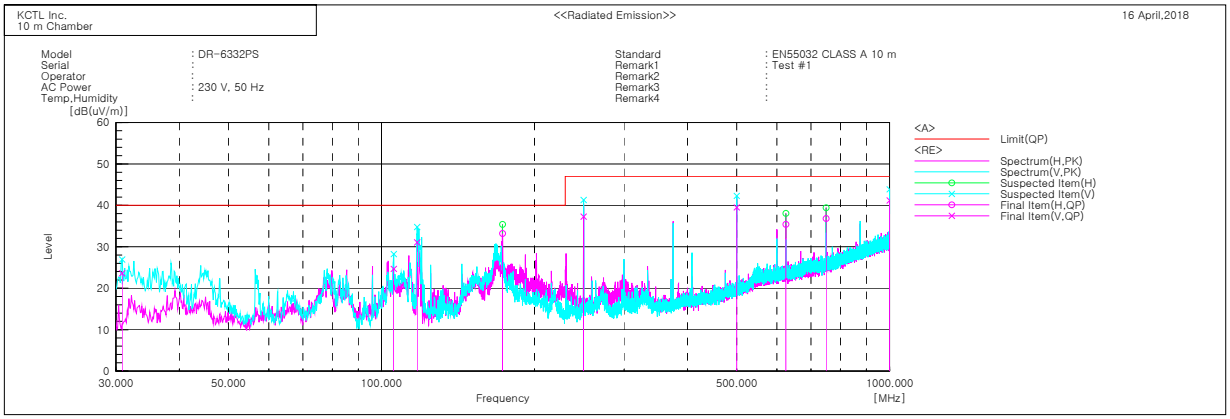


1 GHz ~ 6 GHz



6.2.5 Radiated emission measurement result

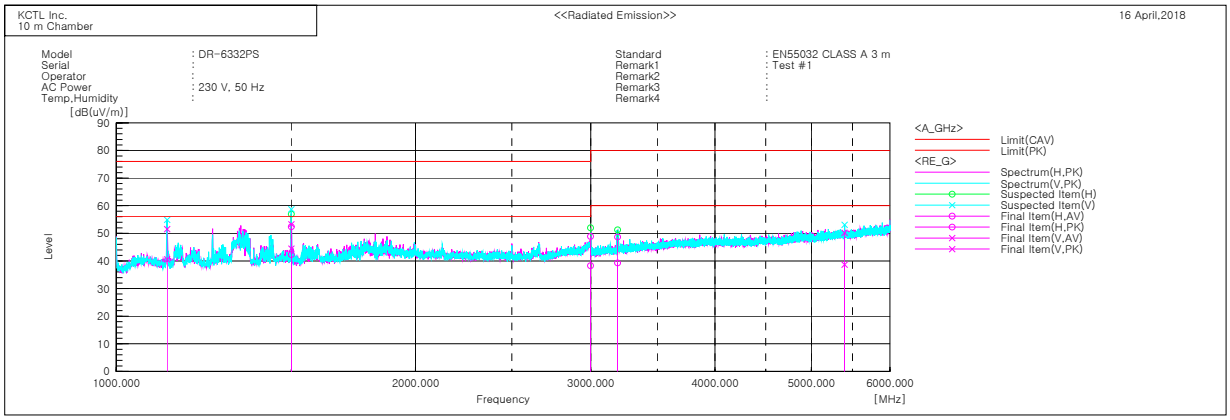
30 MHz ~ 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	30.849	V	39.2	-15.6	23.6	40.0	16.4	168.0	225.8
2	105.660	V	41.8	-17.1	24.7	40.0	15.3	157.0	175.2
3	117.543	V	46.6	-15.5	31.1	40.0	8.9	134.0	122.0
4	173.075	H	46.2	-13.0	33.2	40.0	6.8	253.0	147.5
5	249.947	V	49.9	-12.6	37.3	47.0	9.7	103.0	109.4
6	499.965	V	43.6	-4.1	39.5	47.0	7.5	101.0	104.3
7	624.974	H	36.0	-0.6	35.4	47.0	11.6	353.0	117.2
8	750.104	H	34.9	1.9	36.8	47.0	10.2	167.0	117.2
9	1000.000	V	33.7	7.5	41.2	47.0	5.8	187.0	40.8

1 GHz ~ 6 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	c.f [dB(1/m)]	Result AV [dB(uV/m)]	Result PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	1125.000	V	46.3	57.2	-5.7	40.6	51.5	56.0	76.0	15.4	24.5	100.0	307.2
2	1500.000	V	47.3	56.1	-2.8	44.5	53.3	56.0	76.0	11.5	22.7	100.0	322.2
3	1500.000	H	45.1	55.2	-2.8	42.3	52.4	56.0	76.0	13.7	23.6	100.0	111.6
4	2999.375	H	34.8	45.4	3.5	38.3	48.9	56.0	76.0	17.7	27.1	100.0	355.4
5	3193.125	H	34.6	44.0	4.7	39.3	48.7	60.0	80.0	20.7	31.3	100.0	313.9
6	5401.250	V	26.3	37.8	12.4	38.7	50.2	60.0	80.0	21.3	29.8	100.0	127.6

◈ Correction(Distance: 3.1 m)

Frequency [MHz]	(P)	Reading AV [dB(㎶)]	Reading PK [dB (㎶)]	c.f [dB(1/m)]	Result AV [dB(㎶/m)]	Result PK [dB(㎶/m)]	Limit AV [dB(㎶/m)]	Limit PK [dB(㎶/m)]	Margin AV [dB]	Margin PK [dB]
1125.000	V	46.3	57.2	-5.4	40.9	51.8	56.0	76.0	15.1	24.2
1500.000	V	47.3	56.1	-2.5	44.8	53.6	56.0	76.0	11.2	22.4
1500.000	H	45.1	55.2	-2.5	42.6	52.7	56.0	76.0	13.4	23.3
2999.375	H	34.8	45.4	3.8	38.6	49.2	56.0	76.0	17.4	26.8
3193.125	H	34.6	44.0	5.0	39.6	49.0	60.0	80.0	20.4	31.0
5401.250	V	26.3	37.8	12.7	39.0	50.5	60.0	80.0	21.0	29.5

6.3 Harmonics

Test specification	EN 61000-3-2:2014				
Testing voltage	230 V, 50 Hz				
Test facility	EMI Test area				
Date	2018-04-17				
Temperature(°C)	23.5 °C	Humidity (% R.H.)	28.9 % R.H.	Pressure (kPa)	101.7 kPa
Remarks	Pass				

6.3.1 Measurement procedure

The equipment is supplied in series with shunt(s) Rm or current transformer(s) from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the equipment. Measurements shall be made under normal load, or conditions for adequate heat discharge, and under normal operating conditions. User's operation controls or automatic programmers shall be set to produce the maximum harmonic component, for each successive harmonic component in turn. For the purpose of harmonic current limitation, equipment is classified as follows :

Class A : Equipment not specified in one of the three other Classes shall be considered as Class A equipment.

- Balanced three-phase equipment;
- Household appliances, excluding equipment identified as Class D;
- Tools, excluding portable tools;
- Dimmers for incandescent lamps;
- Audio equipment.

Class B : Portable tools; Arc welding equipment which is not professional equipment.

Class C : Lighting equipment.

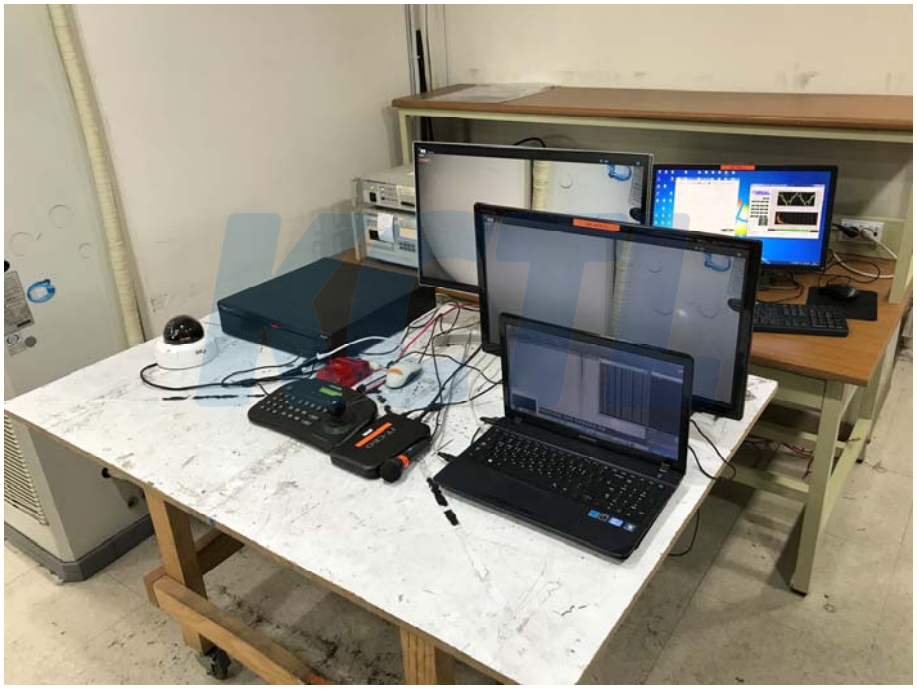
Class D : Equipment having a specified power according to 6.2.2 less than or equal to 600 w, of the following types:

- Personal computers and personal computer monitors;
- Television receivers.
- Refrigerators and freezers having one or more variable-speed drives to control compressor motor(s).

6.3.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Hamonic / Flicker Meter (AC POWER SOURCE)	5001IX	54894	C.I.	2019.03.17	☒
Hamonic / Flicker Meter (Analyzer)	PACS-1	72072	C.I.	2019.03.17	☒

6.3.3 Photographs of test setup



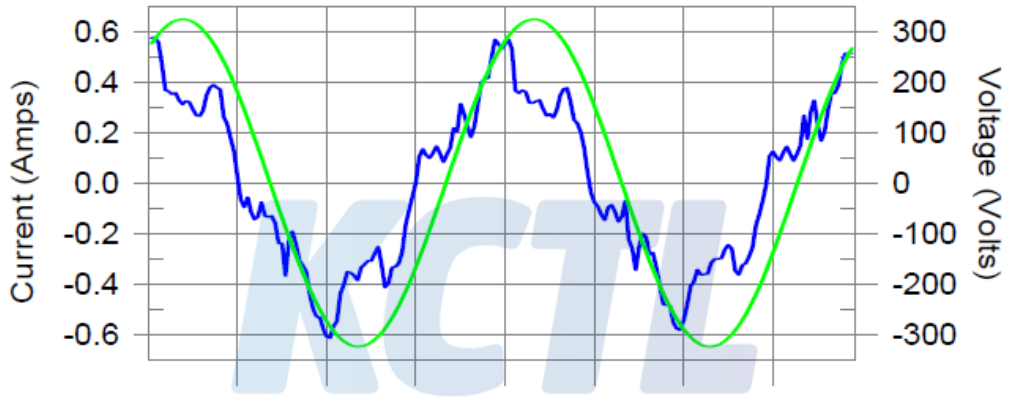
6.3.4 Measurement result

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

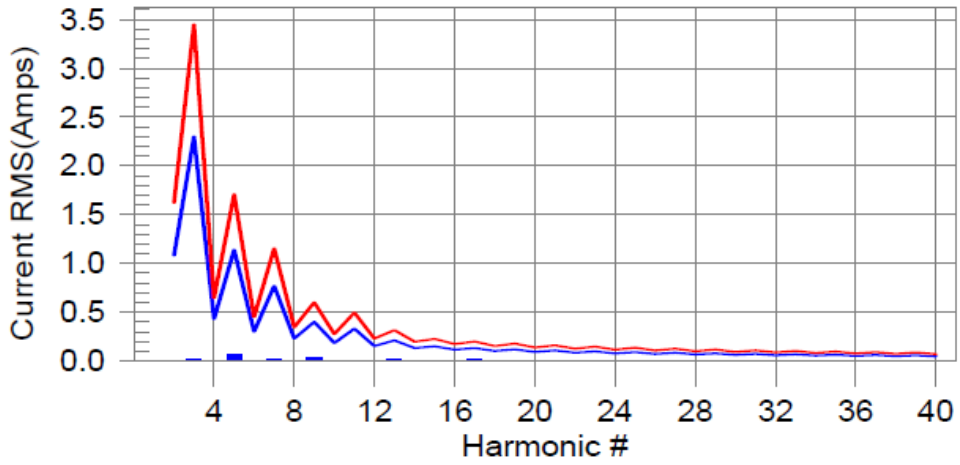
EUT: DR-6332PS **Tested by: KCTL Inc.**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 17/04/2018 **Start time: 14:24:31** **End time: 14:27:22**
Test duration (min): 2.5 **Data file name: H-000070.cts_data**
Comment: Comment
Customer: IDIS CO., LTD.

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #9 with 8.6% of the limit.**

Current Test Result Summary (Run time)

EUT: DR-6332PS **Tested by: KCTL Inc.**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 17/04/2018 **Start time: 14:24:31** **End time: 14:27:22**
Test duration (min): 2.5 **Data file name: H-000070.cts_data**
Comment: Comment
Customer: IDIS CO., LTD.

Test Result: Pass **Source qualification: Normal**
THC(A): 0.076 **I-THD(%): 25.8** **POHC(A): 0.009** **POHC Limit(A): 0.251**
Highest parameter values during test:

V_RMS (Volts):	229.42	Frequency(Hz):	50.00
I_Peak (Amps):	0.629	I_RMS (Amps):	0.321
I_Fund (Amps):	0.303	Crest Factor:	2.036
Power (Watts):	62.9	Power Factor:	0.881

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.010	2.300	0.4	0.011	3.450	0.3	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.062	1.140	5.4	0.064	1.710	3.7	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.015	0.770	2.0	0.016	1.155	1.4	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.034	0.400	8.6	0.036	0.600	5.9	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.002	0.330	N/A	0.003	0.495	N/A	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.013	0.210	6.1	0.014	0.315	4.5	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.006	0.150	3.8	0.006	0.225	2.7	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.009	0.132	6.9	0.009	0.198	4.7	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.005	0.118	N/A	0.005	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.002	0.107	N/A	0.004	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.002	0.098	N/A	0.002	0.147	N/A	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.007	0.090	7.6	0.007	0.135	5.5	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.001	0.083	N/A	0.002	0.125	N/A	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.004	0.078	N/A	0.004	0.116	N/A	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.006	0.073	7.6	0.006	0.109	5.7	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.004	0.068	N/A	0.004	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.005	0.064	N/A	0.005	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

EUT: DR-6332PS **Tested by: KCTL Inc.**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 17/04/2018 **Start time: 14:24:31** **End time: 14:27:22**
Test duration (min): 2.5 **Data file name: H-000070.cts_data**
Comment: Comment
Customer: IDIS CO., LTD.

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	229.42	Frequency(Hz):	50.00
I_Peak (Amps):	0.629	I_RMS (Amps):	0.321
I_Fund (Amps):	0.303	Crest Factor:	2.036
Power (Watts):	62.9	Power Factor:	0.881

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.106	0.459	23.17	OK
3	0.501	2.065	24.27	OK
4	0.022	0.459	4.90	OK
5	0.038	0.918	4.10	OK
6	0.021	0.459	4.52	OK
7	0.028	0.688	4.07	OK
8	0.015	0.459	3.34	OK
9	0.022	0.459	4.81	OK
10	0.014	0.459	3.15	OK
11	0.023	0.229	10.15	OK
12	0.019	0.229	8.47	OK
13	0.029	0.229	12.50	OK
14	0.013	0.229	5.78	OK
15	0.011	0.229	4.64	OK
16	0.011	0.229	4.76	OK
17	0.010	0.229	4.37	OK
18	0.013	0.229	5.72	OK
19	0.010	0.229	4.23	OK
20	0.004	0.229	1.58	OK
21	0.008	0.229	3.56	OK
22	0.007	0.229	3.01	OK
23	0.004	0.229	1.80	OK
24	0.006	0.229	2.64	OK
25	0.018	0.229	7.96	OK
26	0.009	0.229	4.02	OK
27	0.005	0.229	2.11	OK
28	0.008	0.229	3.51	OK
29	0.012	0.229	5.14	OK
30	0.010	0.229	4.19	OK
31	0.007	0.229	3.14	OK
32	0.005	0.229	2.30	OK
33	0.005	0.229	2.36	OK
34	0.003	0.229	1.42	OK
35	0.011	0.229	4.87	OK
36	0.004	0.229	1.74	OK
37	0.008	0.229	3.70	OK
38	0.008	0.229	3.51	OK
39	0.013	0.229	5.71	OK
40	0.010	0.229	4.30	OK

6.4 Flicker

Test specification	EN 61000-3-3:2013				
Testing voltage	230 V, 50 Hz				
Test facility	EMI Test area				
Date	2018-04-17				
Temperature(°C)	23.5 °C	Humidity (% R.H.)	28.9 % R.H.	Pressure (kPa)	101.7 kPa
Remarks	Pass				

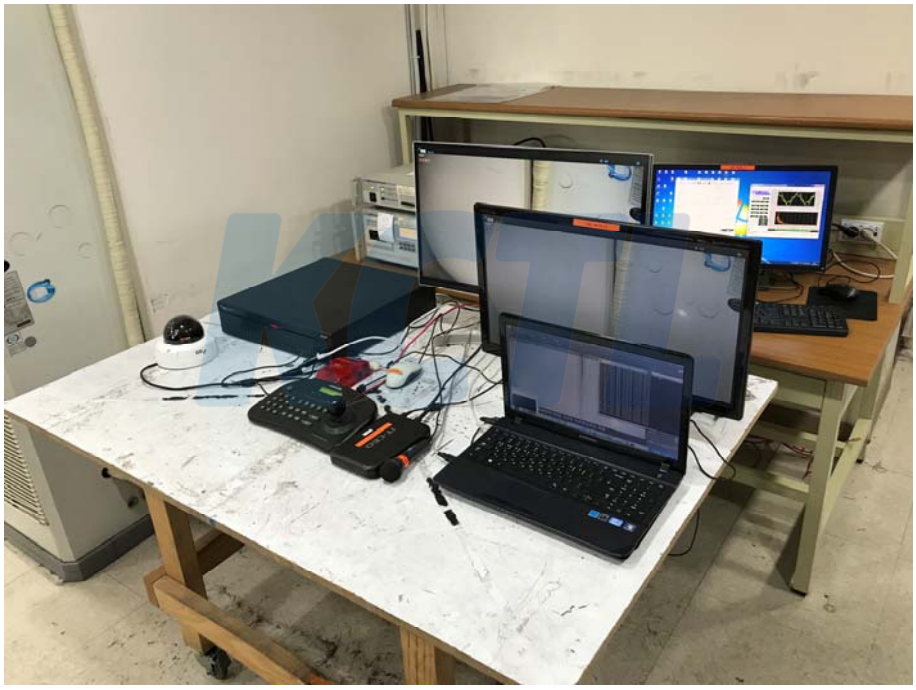
6.4.1 Measurement procedure

EUT was connected to the power analyzer system.
Measurement was performed to obtain the desired flicker parameters.
The measuring time depends on which parameters are to be measured.
P_{lt} = 2 h
P_{st} = 10 min
Controls and automatic programs shall be set to produce the most unfavorable sequence of voltage changes, using only those combinations of controls and programs are mentioned by the manufacturer in the instruction manual.

6.4.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Hamonic / Flicker Meter (AC POWER SOURCE)	5001IX	54894	C.I.	2019.03.17	☒
Hamonic / Flicker Meter (Analyzer)	PACS-1	72072	C.I.	2019.03.17	☒

6.4.3 Photographs of test setup



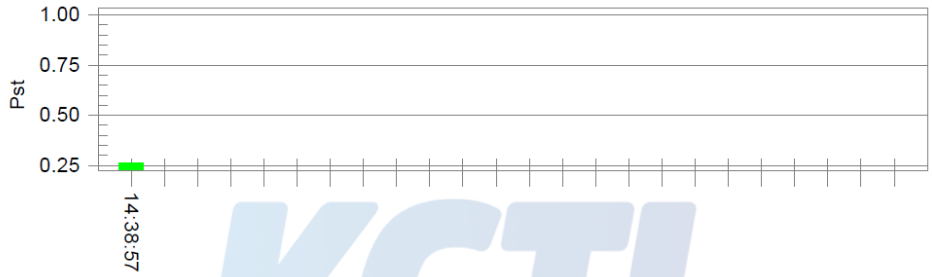
6.4.4 Measurement result

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

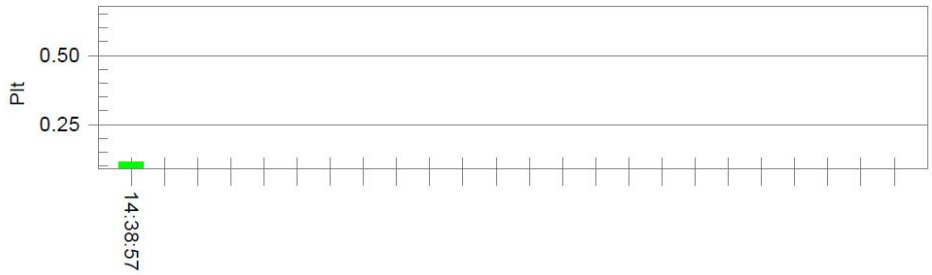
EUT: DR-6332PS **Tested by: KCTL Inc.**
Test category: All parameters (European limits) **Test Margin: 100**
Test date: 17/04/2018 **Start time: 14:28:26** **End time: 14:38:58**
Test duration (min): 10 **Data file name: F-000071.cts_data**
Comment: Comment
Customer: IDIS CO., LTD.

Test Result: Pass **Status: Test Completed**

Pst and limit line **European Limits**



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.30			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	-0.02	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.263	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.115	Test limit:	0.650	Pass

7. E.U.T. photographs

Front View

Rear View

Left View

Right View

Top View

Bottom View

Inside

EU Declaration of Conformity

EU Declaration of Conformity

According to

EMC Directive 2004/108/EC

For the following

Product	**:**	**NETWORK VIDEO RECORDER**
Model Name	**:**	**DR-6332PS**
Variant Model Name	**:**	**DR-6316PS, DR-6308P, DR-6308P-S, DR-6316PS-S, DR-6332PS-S**

Manufactured at	**:**	**IDIS CO., LTD.**
Address	**:**	**8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA**

We hereby declare, Electromagnetic Compatibility Directives (2004/108/EC) are fulfilled, as laid out in the guideline set down by the member states of the EEC Commission. This declaration is valid for all samples that are part of this declaration, which are manufactured according to the production charts appendix.

The standards relevant for the evaluation of EMC requirements are as follows:

Test Standards	**:**	**EN 55022:2010/AC:2011, Class A** **EN 50130-4:2011/A1:2014** **EN 61000-3-2:2014** **EN 61000-3-3:2013**

Date of issue: November 11, 2015

IDIS CO., LTD.

8-10, TECHNO 3-RO,
YUSEONG-GU, DAEJEON, KOREA

(Name and signature of authorized person)

TESTING CERTIFICATE

KCTL Inc.
65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 443-390, Korea
TEL: 82 70 5008 1021
FAX: 82 505 299 8311

http://www.kctl.co.kr

Applicant	:	IDIS CO., LTD. 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA
Manufacturer	:	IDIS CO., LTD. 8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA
Type of equipment	:	NETWORK VIDEO RECORDER
Model Name	:	DR-6332PS
Variant Model Name	:	DR-6316PS, DR-6308P ,DR-6308P-S, DR-6316PS-S, DR-6332PS-S
Date of Receipt	:	October 22, 2015
Date of Test	:	October 30 ~ November 08, 2015
Test method used	:	EN 55022:2010/AC:2011, Class A EN 50130-4:2011/A1:2014 EN 61000-3-2:2014 EN 61000-3-3:2013
Test Results	:	Complied

This product complies with the requirements of the EMC Directive 2004/108/ EC.
The results in this report apply only to the sample tested.
This Test Report cannot be reproduced, except in full, without the written approval of KCTL Laboratory.

Affirmation	Tested by  Name: LYU, JUNG-GIL	Technical Manager  Name: BAEK, JEONG-SOO

2015. 11. 11

Contents

1. Applicant information

Applicant:	IDIS CO., LTD.
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Fax:	+82-31-723-5108
E-mail:	jjungdoo@idis.co.kr
Contact name:	**Jang Jung Doo**

Manufacturer:	IDIS CO., LTD.
Address:	8-10, TECHNO 3-RO, YUSEONG-GU, DAEJEON, KOREA
Telephone:	+82-31-723-5205
Fax:	+82-31-723-5108
E-mail:	jjungdoo@idis.co.kr
Contact name:	**Jang Jung Doo**

2. Laboratory information

Address

KCTL Inc.

65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-390, Korea

Telephone Number: 82 70 5008 1021

Facsimile Number: 82 505 299 8311

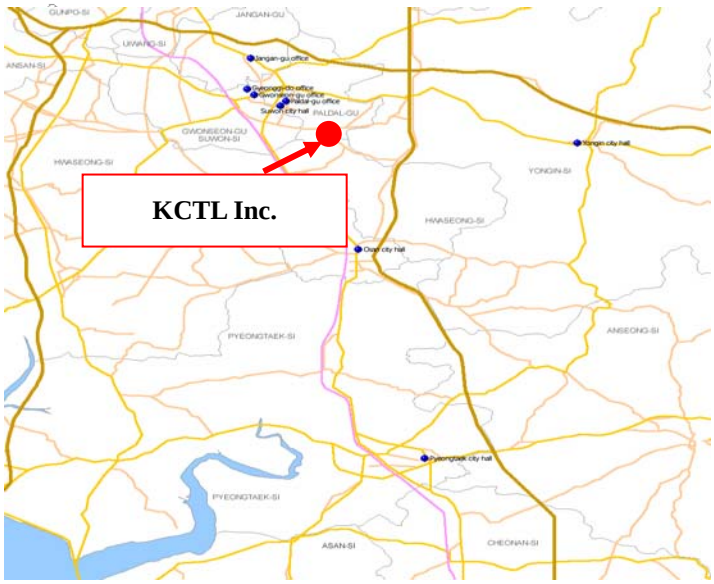
FCC Site Designation No: KR0040, FCC Site Registration No: 687132

VCCI Registration No. : R-3327, G-198, C-3706, T-1849

Industry Canada Registration No. : 8035A

KOLAS NO.: 231

SITE MAP



3. Test system configuration

3.1 Operation environment

		Temperature	Humidity	Pressure
Chamber(10 m)	:	24.3 °C	28.9 % R.H.	-
Shielded room(CE)	:	23.4 °C	29.8 % R.H.	-
Shielded room(ESD)	:	23.7 °C	48.4 % R.H.	101.4 kPa

Test site

These testing items were performed following locations;

Test item	Test site
Conducted Emission	Shielded Room
Radiated Emission	10 m Chamber
Harmonics current	EMI Test area(6F)
Voltage fluctuations and flickers	EMI Test area(6F)
Electrostatic discharge	Shielded Room
Radiated RF immunity	6F Fully anechoic chamber (3 m)
Electric Fast Transient/BURST	Shielded Room
Surge	Shielded Room
Conducted RF immunity	Shielded Room
Voltage dip/interruption	Shielded Room
Mains supply voltage variations	Shielded Room

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.
The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95 % confidence level was applied.

Conducted emission measurement (C.L: Approx 95 %, k = 2)		
Shielded Room (CE#1)	9 ㎑ ~ 150 ㎑: ± 3.75 dB	
	150 ㎑ ~ 30 ㎒: ± 3.36 dB	
Shielded Room (CE#2)	9 ㎑ ~ 150 ㎑: ± 3.79 dB	
	150 ㎑ ~ 30 ㎒: ± 3.42 dB	
Radiated Emission measurement (C.L: Approx 95 %, k = 2)		
10 m Chamber (4F)	30 ㎒ ~ 300 ㎒	3 m: + 5.20 dB, - 5.31 dB
		10 m: + 5.19 dB, - 5.30 dB
	300 ㎒ ~ 1000 ㎒	3 m: + 6.56 dB, - 6.65 dB
		10 m: + 6.45 dB, - 6.64 dB
	1 ㎓ ~ 6 ㎓	3 m: + 6.70 dB, - 6.81 dB
10 m Chamber (2F)	30 ㎒ ~ 300 ㎒	3 m: + 5.21 dB, - 5.32 dB
		10 m: + 5.20 dB, - 5.31 dB
	300 ㎒ ~ 1000 ㎒	3 m: + 5.82 dB, - 5.91 dB
		10 m: + 5.69 dB, - 5.91 dB
	1 ㎓ ~ 6 ㎓	3 m: + 6.28 dB, - 6.30 dB
Radio Frequency Electromagnetic Fields (C.L: Approx 95 %, k = 2)		
± 1.82 dB		
Disturbance power Electromagnetic Fields (C.L: Approx 95 %, k = 2)		
Disturbance power (6F)	30 ㎒ ~ 300 ㎒	± 3.30 dB

3.3 Measurement Program

These test items were performed by software programs;

Test item	Measurement Program	
Conducted Emission	EP5CE_V 5.4.0(TOYO)	
Radiated Emission	EP5RE_V 4.6.0(TOYO)	
Harmonics current, Voltage fluctuations and flickers	CTS 4_V 4.6.2 (AMETEK)	
Radiated RF immunity	3F	EMC32_V 9.01.0 (ROHDE & SCHWARZ)
	6F	EMC32_V 8.53.0 (ROHDE & SCHWARZ)
Electric Fast Transient/BURST, Surge, Voltage dip/interruption	6F(#1)	ISMIEC_V 4.08(EM TEST)
	6F(#2)	ISMIEC_V 4.07(EM TEST)
	3F(#3)	IEC_V 5.2.9(EM TEST)
Conducted RF immunity	6F(#1)	ICD_V 3.53.01(EM TEST)
	6F(#2)	WIN2070_V 3.00(SCHAFFNER)
	3F(#3)	ICD_V 5.3.4(EM TEST)

4. Description of E.U.T.

4.1 General information

		DR-6308P	DR-6316PS	DR-6332PS
SUMMARY		-VIDEO In Port : 8+1EA -CAMERA Power : 8EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.	-VIDEO In Port : 16+1EA -CAMERA Power : 16EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.	-VIDEO In Port : 16+1EA -CAMERA Power : 16EA -HDD : 6EA (RAID1 support), eSATA : 4EA -2U, Front #1, #4 -Recording,Live,Playback,Remote Access is simulataneously performed without degradation.
MONITORING				
	Video Inputs	8ea IP Camera	16ea IP Camera	32ea IP Camera
	Video Outputs	1 HDMI, 1 VGA	1 HDMI, 1 VGA	1 HDMI, 1 VGA
	Display Resolution	Max. 4K x 2K (3840 x 2160)	Max. 4K x 2K (3840 x 2160)	Max. 4K x 2K (3840 x 2160)
	Display Rate	Max. 8CH Real Time	Max. 16CH Real Time	Max. 32CH Real Time
RECORDING SPEED				
	Max. Throughput	160Mbps	160Mbps	160Mbps
	CIF	480 ips	960 ips	960 ips
	4CIF	480 ips	960 ips	960 ips
	QHD	480 ips	960 ips	960 ips
	1MP	480 ips	480 ips	480 ips
	2MP	480 ips	480 ips	480 ips
	8MP	120 ips	240 ips	240 ips
	Recording Mode	Time-Lapse, Event, Pre-Event, Panic	Time-Lapse, Event, Pre-Event, Panic	Time-Lapse, Event, Pre-Event, Panic
	Search Mode	Date/Time, Calendar, Event, Motion, Text-In	Date/Time, Calendar, Event, Motion, Text-In	Date/Time, Calendar, Event, Motion, Text-In
PLAYBACK				
	Compression	H.264, H.265	H.264, H.265	H.264, H.265
	Performance	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback
	Max. Throughput	40Mbps	40Mbps	40Mbps
NETWORK				
	Remote. Throughput	20Mbps	20Mbps	20Mbps
	Input. Throughput(Record + Live Display)	200Mpbs	200Mbps	200Mbps
	WAN.Connection	1 x 10/100/1000BASE-T	1 x 10/100/1000BASE-T	1 x 10/100/1000BASE-T
	LAN(Video Input).Connection	8 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T	16 x 10/100/1000BASE-T + 1 x 10/100/1000BASE-T
	Transmission Rate	30ips@FHD	30ips@FHD	30ips@FHD
	Protocols	Manual, DHCP, FEN	Manual, DHCP, FEN	Manual, DHCP, FEN
	Remote Software	IDIS Center, IDIS Web, IDIS Mobile	IDIS Center, IDIS Web, IDIS Mobile	IDIS Center, IDIS Web, IDIS Mobile
STORAGE				
	Total HDD Throughput(Recording+ Playback+Remote)	220Mbps	220Mbps	220Mbps
	Internal HDD	6	6	6
	eSATA	4	4	4
	Tatal Capacity	88TB=4TB x (6 + 4x4)	88TB=4TB x (6 + 4x4)	88TB=4TB x (6 + 4x4)
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
SYSTEM				
	Operating System	Embedded Linux	Embedded Linux	Embedded Linux
	Database File System	IBANK 3.0	IBANK 3.0	IBANK 3.0
	Data Export Medium	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)
	Data Backup	-	-	-
INTERFACE				
	Audio In	Local(NVR) : 1 RCA IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)
	Audio Out	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)
	Alarm In	Local(NVR) : 4 TTL IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Out	Local(NVR) : 1 Relay Out IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Reset In	1 TTL	1 TTL	1 TTL
	Serial Interface	RS232(Terminal Block), RS485(Terminal Block)	RS232(Terminal Block), RS485(Terminal Block)	RS232(Terminal Block), RS485(Terminal Block)
	External Interface	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA	1 x USB 3.0, 1 x USB 2.0, 4 x eSATA
	User Interface	Front Buttons, Mouse, IR Remote Control, Remote Keyboard	Front Buttons, Mouse, IR Remote Control, Remote Keyboard	Front Buttons, Mouse, IR Remote Control, Remote Keyboard
ETC				
	Dimensions (W x H x D)	430mm x 88mm x 410.8mm	430mm x 88mm x 410.8mm	430mm x 88mm x 410.8mm
	Unit Weight			
	Operating Temperature	5C ~ 40C	5C ~ 40C	5C ~ 40C
	Operating Humidity	0% ~ 90%	0% ~ 90%	0% ~ 90%
	Input Power	AC 100-240 V~, 50/60Hz, 1.5-3.0A	AC 100-240 V~, 50/60Hz, 1.5-3.0A	AC 100-240 V~, 50/60Hz, 1.5-3.0A
	Power Consumption	Max. 200W(w/t 6HDD)	Max. 200W(w/t 6HDD)	Max. 200W(w/t 6HDD)
	Approvals	FCC, UL, CE, CB, KC	FCC, UL, CE, CB, KC	FCC, UL, CE, CB, KC

HARDWARE				
VIDEO IN/OUT				
	Video Inputs	8CH IP Camera (Video in Port : 8 EA + 1 EA)	32CH IP Camera (Video in Port : 16 EA + 1 EA)	32CH IP Camera (Video in Port : 16 EA + 1 EA)
	Loop Outputs	no	no	no
	Main Outputs	1 HDMI, 1 VGA(FHD)	1 HDMI, 1 VGA(FHD)	1 HDMI, 1 VGA(FHD)
	SVHS Out	no	no	no
	SPOT	no	no	no
AUDIO IN/OUT				
	Audio Input	Local(NVR) : 1 RCA IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA IP Camera : 32(Depending on IP Camera Spec.)
	Audio Output	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 RCA + 1 HDMI IP Camera : 32(Depending on IP Camera Spec.)
ALARM IN/OUT				
	Alarm Input	Local(NVR) : 4 TTL IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 4 TTL IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Output	Local(NVR) : 1 Relay Out IP Camera : 16(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)	Local(NVR) : 1 Relay Out IP Camera : 32(Depending on IP Camera Spec.)
	Alarm Reset In	1 TTL	1 TTL	1 TTL
	Internal Buzzer	yes	yes	yes
AUXILIARY IN/OUT				
	RS485 Port	1 Half Duplex,Terminal Block(RTX+, RTX -)	1 Half Duplex,Terminal Block(RTX+, RTX -)	1 Half Duplex,Terminal Block(RTX+, RTX -)
	RS232C Port	Terminal Block(RX,TX,GND)	Terminal Block(RX,TX,GND)	Terminal Block(RX,TX,GND)
	Internal Modem Port	no	no	no
	Network_WAN Port	1x Gigabit Ethernet	1x Gigabit Ethernet	1x Gigabit Ethernet
	Network_Video in Port	8 Gigabit Ethernet (Separated 12/28 Port Giga Swith Connection Supported)	16 Giga Ethernet (Separated 12/28 Port Giga Swith Connection Supported)	16 Giga Ethernet (Separated 12/28 Port Giga Swith Connection Supported)
	USB Port	2 USB 2.0(Front)	2 USB 2.0(Front)	2 USB 2.0(Front)
	SCSI Port	no	no	no
	Power Output	no	no	no
	Remark	no	no	no
STORAGE				
	Program Memory	Built-In Falsh Memory	Built-In Falsh Memory	Built-In Falsh Memory
	Total HDD Throughput	220Mbps	220Mbps	220Mbps
	Primary Storage(Internal HDD)	Max. 6 HDD(no ODD)	Max. 6 HDD(no ODD)	Max. 6 HDD(no ODD)
	Secondary Storage (expansion)	4 x eSATA	4 x eSATA	4 x eSATA
	Removable Storage	no	no	no
	Maximum Storage Size	88TB(4TB x 6+(4x4))	88TB(4TB x 6+(4x4))	88TB(4TB x 6+(4x4))
	Data Export Medium	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)	USB (HDD, FlashDrive)
	Archiving Medium	no	no	no
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
	HDD Interface type	SATA,eSATA	SATA,eSATA	SATA,eSATA
IP Video Power				
	PoE (PSE)	8CH	16CH	16CH
FUNCTION				
MONITORING				
	Display Rate	Max. 16CH Real Time	Max. 16CH Real Time	Max. 16CH Real Time
	Display Resolution	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200	3840 x 2160, 2560 x 1440, 1920 x 1200, 1920 x 1080, 1680 x 1050, 1600 x 1200
	Display Mode	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7
	Sequence	yes	yes	yes
	Digital Zoom	x2 ~ x12	x2 ~ x12	x2 ~ x12
	Freeze	yes	yes	yes
	Covert Cameras	yes	yes	yes
	Privacy Mask	yes	yes	yes
	Spot Monitor	no	no	no
	Multiscreen on Spot Monitor	no	no	no
	Color Control	brightness, constrast, saturation, hue	brightness, constrast, saturation, hue	brightness, constrast, saturation, hue
RECORD				
	Video Compression	H.264, H.265	H.264, H.265	H.264, H.265
	Audio Compression	G.711, G.726	G.711, G.726	G.711, G.726
	Recording Resolution	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240	4K: 3840 x 2160 1080P: 1920 x 1080 720P: 1280 x 720 D1: 704 x 480 QHD: 640x360 CIF: 352 x 240
	Recording Rate	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 480 ips 1MP : 480 ips 2MP : 480 ips 8MP : 120 ips	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 960 ips 1MP : 480 ips 2MP : 480 ips 8MP : 240 ips	Max. Throughput : 200(192)Mbps 4CIF(/QHD/CIF) : 960 ips 1MP : 480 ips 2MP : 480 ips 8MP : 240 ips
	Video Data Size	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1	Qualilty: VeryHigh/High/Standard/basic 4K: 20Mbps/17Mbps/14Mbps/10Mbps 1080P: 10Mbps/8Mbps/6Mbps/4Mbps 720P: 8Mbps/6Mbps/4Mbps/2Mbps D1: 4Mbps/3Mbps/2Mbps/1Mbps CIF: 1/4 D1
	RAID	RAID1 (Mirror)	RAID1 (Mirror)	RAID1 (Mirror)
	Audio Data Size	-	-	-
	Scheduling Method	time-table type (by naming), schedule a week by hour	time-table type (by naming), schedule a week by hour	time-table type (by naming), schedule a week by hour
	Recording Setup Programmable for each Camera	yes	yes	yes
	Time-Lapse Recording	yes	yes	yes
	Event Recording	yes	yes	yes
	Pre-Event Recording	yes	yes	yes
	Text-In Recording	yes	yes	yes
	Panic Recording	yes	yes	yes

SEARCH & PLAYBACK				
	Display Mode	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7	1x1, 1x3, 2x2, 3x3, 4x4, 1p5, 1p7
	Playback Rate	8 CH Full HD synchronous playback	16 CH Full HD synchronous playback	16 CH Full HD synchronous playback
	Digital Zoom	x2	x2	x2
	Date/Time Search	yes	yes	yes
	Calendar Search	yes	yes	yes
	Event Search	yes	yes	yes
	Motion Search	yes	yes	yes
	Museum Search	no	no	no
	Text-In Search	yes	yes	yes
	Bookmark	yes	yes	yes
	Recording Table	yes	yes	yes
	Panorama Playback	no	no	no
	Color Control	no	no	no
	Image processing	no	no	no
ARCHIVE & DATA EXPORT				
	Data Export	IDIS Player	IDIS Player	IDIS Player
	Data Export with Audio	yes	yes	yes
	Multi-Channel Data Export	yes	yes	yes
	Archiving	no	no	no
NETWORK				
	Max. Connections	Remote connection : 10 (Search : 2)	Remote connection : 10 (Search : 2)	Remote connection : 10 (Search : 2)
	Static IP	yes	yes	yes
	ADSL	no	no	no
	DHCP	yes	yes	yes
	FEN	yes	yes	yes
	SNS	twitter	twitter	twitter
	PUSH	yes	yes	yes
	Bandwidth Control	yes	yes	yes
	Web Browser Access	Internal, External	Internal, External	Internal, External
	Remote Monitoring	yes	yes	yes
	Remote Playback	yes	yes	yes
	Remote Setup	yes	yes	yes
	Remote PTZ Control	yes	yes	yes
	Remote PTZ Setup	Yes	Yes	Yes
	Remote PTZ Advanced Setup	No	No	No
	Remote Data Export	IDIS Player, AVI, JPG, BMP	IDIS Player, AVI, JPG, BMP	IDIS Player, AVI, JPG, BMP
	Remote Upgrade	yes	yes	yes
	Remote Camera Upgrade	Yes	Yes	Yes
	Remote System Status Check	yes	yes	yes
	Two-way Audio(IP CAM & IDIS Center)	yes	yes	yes
	Two-way Audio(IP CAM & NVR)	No	No	No
	Two-way Audio(NVR & IDIS Center)	No	No	No
	Audio Playback	yes	yes	yes
EVENT Action				
	Scheduling Alarm Output	yes	yes	yes
	Video-Loss Event	yes	yes	yes
	Pre-Event Recording	yes	yes	yes
	Post-Event Recording	yes	yes	yes
	Spot Monitoring	no	no	no
	Event Notification	Email(attach MP4), Remote S/W, Push Server	Email(attach MP4), Remote S/W, Push Server	Email(attach MP4), Remote S/W, Push Server
	Event Monitoring	yes	yes	yes
	PTZ Preset on Event	no	no	no
EVENT				
	Alarm In	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)
	Motion Detection	Yes	Yes	Yes
	TRIP-ZONE	Yes	Yes	Yes
	AUDIO DETECTION	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)	Yes (Depending on IP Camera Spec)
	TAMPERING	Yes	Yes	Yes
	VIDEO LOSS	yes	yes	yes
USER INTERFACE				
	Languages	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian	English, French, German, Spanish, Italian,Korean, Dutch. Hungarian,Polish, Czech, Russian
	Front Menu button	Yes	Yes	Yes
	Graphical User Interface	yes	yes	yes
	Mouse	yes	yes	yes
	Remote Control Keyboard	yes	yes	yes
SYSTEM MANAGEMENT				
	Operating System	Embedded Linux	Embedded Linux	Embedded Linux
	Database File System	IBANK 3.0	IBANK 3.0	IBANK 3.0
	Holiday Setup	yes	yes	yes
	DST Setup	yes	yes	yes
	Software upgrade	Remote S/W, USB FlashDrive	Remote S/W, USB FlashDrive	Remote S/W, USB FlashDrive
	Setup Im/Export	YES	YES	YES
	APC UPS shutdown	no	no	no
	System Logs	yes, up to 5000 EA , system on/off, user login, device management, etc	yes, up to 5000 EA , system on/off, user login, device management, etc	yes, up to 5000 EA , system on/off, user login, device management, etc
	Event Logs	unlimited	unlimited	unlimited

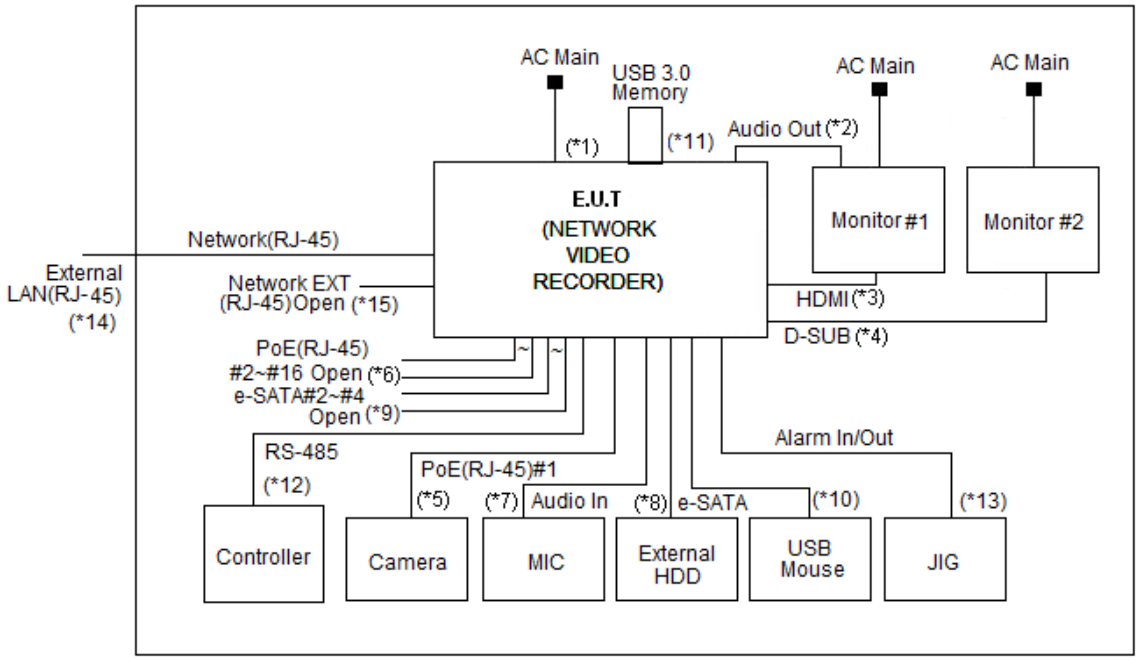
4.2 Product description

Type of product	NETWORK VIDEO RECORDER
Model name (Basic)	DR-6332PS
Model name (Variant)	DR-6316PS, DR-6308P, DR-6308P-S, DR-6316PS-S, DR-6332PS-S
Difference	-
Trade name	-
Serial no	-
Testing Voltage	230 Ⅴ, 50 ㎐
Input/Output range	AC 100 - 240 Ⅴ, 50 / 60 ㎐
Internal clock frequency	6 ㎓
Note	* FRONT TYPE #1

4.3 Auxiliary equipments

Type	Model / Part #	Serial number	Manufacturer
Monitor#1	SMT-2231P	YDQ03VDBB02500H	SAMSUNG
Monitor#2	LT24B350	ZWP0HMCD102039M	SAMSUNG
USB Mouse	1088	8165906051216	Microsoft
Camera	MNC322D	-	IDIS
MIC	-	-	-
External HDD	IT-734	-	IT-CEO
Controller	SCC-1000	EW089028913	SAMSUNG
JIG	-	-	-
USB 3.0 Memory(32GB)	-	-	SanDisk

4.4 Test configuration



Note *	Start		End		Cable		
	Name	I/O port	Name	I/O port	Length (m)	Spec.	Cable
1	**EUT** (NETWORK VIDEO RECORDER)	Power	AC Main	Power	1.6	Unshield	-
2		Audio Out	Monitor #1	Audio In	3.0	Shield	Out-door
3		HDMI	Monitor #1	HDMI	1.8	Shield	-
4		D-SUB	Monitor #2	D-SUB	1.6	Shield	-
5		PoE(RJ-45)#1	Camera	PoE(RJ-45)	3.0	Unshield	Out-door
6		PoE(RJ-45) #2~#16	Open	-	3.0	Unshield	Out-door
7		Audio In	MIC	Audio Out	3.0	Shield	Out-door
8		e-SATA	External HDD	e-SATA	2.0	Shield	-
9		e-SATA#2~#4	Open	-	1.5	Shield	-
10		USB	USB Mouse	USB	1.6	Shield	-
11		USB 3.0	USB 3.0 Memory	USB 3.0	Direct	-	-
12		RS-485	Controller	RS-485	3.0	Unshield	Out-door
13		Alarm In/Out	JIG	Alarm In/Out	3.0	Unshield	Out-door
14		Network(RJ-45)	External LAN(RJ-45)	Network(RJ-45)	3.0	Unshield	Out-door
15		Network EXT	Open	-	3.0	Unshield	Out-door

4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode	Normal operating
1	Monitoring test using the camera.
	Audio Out test using monitor#1
	Audio In test using the mic.
	RS-485 test using the controller.
	Alarm In/Out test using the JIG.
	Web viewew test using External LAN.
	Ping test (Check the communication status between EUT and the External LAN)

5. Summary of test results

5.1 Summary of EMI emission test results

Applied	Test items	Test method	Result
☒	Conducted Emission	EN 55022:2010/AC:2011	Pass
☒	Radiated Emission	EN 55022:2010/AC:2011	Pass
☒	Harmonics current	EN 61000-3-2:2014	Pass
☒	Voltage fluctuations and flickers	EN 61000-3-3:2013	Pass

5.2 Summary of immunity test results

Applied	Test items	Test method	Result
*** EN 50130-4:2011/A1:2014**			
☒	Electrostatic discharge	EN 61000-4-2:2009	Pass
☒	Radiated RF immunity	EN 61000-4-3:2006/A2:2010	Pass
☒	Electric Fast Transient/BURST	EN 61000-4-4:2012	Pass
☒	Surge	EN 61000-4-5:2014	Pass
☒	Conducted RF immunity	EN 61000-4-6:2014	Pass
☒	Voltage dip/interruption	EN 61000-4-11:2004	Pass
☒	Mains supply voltage variations	EN 50130-4:2011/A1:2014	Pass

5.3 Performance criteria

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 which could be interpreted by associated equipment as a change,

Radiated electromagnetic fields

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of discharge is permissible, providing which could be interpreted by associated equipment as a change, and no such Flickering of indicators occurs at a field strength of 3 Ⅴ/m. For components of CCTV systems, where the picture is allowed at 10 Ⅴ/m, providing.

(a) there is no permanent damage or change to EUT
(e.g. no corruption of memory or changes to programmable setting etc.)
(b) at 3 Ⅴ/m, any deterioration of the picture is so minor that the system could still be used; and
(c) there is no observable deterioration of the picture at 1 Ⅴ/m.

Fast transient burst / slow high energy voltage surge

There shall be no damage, malfunction or change of status due to the conditioning.
Flickering of an indicator during the application of discharge is permissible, providing That there is no residual is permissible, providing that there is no residual change in the EUT or any change in outputs, which could be interpreted by associated equipment as

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 dBμV.
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 dBμV, 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 dBμV, 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 dBμV.

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.

6. Test results

6.1 Conducted Emission

Test specification	EN 55022:2010/AC:2011, Class A		
Testing voltage	230 V, 50 Hz		
Test facility	Shielded room (CE#1)		
Date	2015. 10. 30		
Temperature (°C)	23.4 °C	Humidity (% R.H.)	29.8 % R.H.
Remarks	Pass		

6.1.1 Limits of conducted emission measurement

☒ AC main

Frequency [㎒]	Class A (dB(㎶))		Class B (dB(㎶))	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79	66	66 ~ 56 *	56 ~ 46*
0.5 ~ 5	73	60	56	46
5 ~ 30	73	60	60	50

*The limit decreases linearly with the logarithm of frequency.

☒ Telecommunication

Frequency [㎒]	Class A Voltage Limits (dB(㎶))		Current Limits (dB(㎂))	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 ~ 0.5	97 to 87	84 to 74	53 to 43	40 to 30
0.5 ~ 30	87	74	43	30
Frequency [㎒]	Class B Limits (dB(㎶))		Current Limits (dB(㎂))	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15 ~ 0.5	84 to 74	74 to 64	40 to 30	30 to 20
0.5 ~ 30	74	64	30	20

* The limits decrease linearly with the logarithm of the frequency in the range 0.15 ㎒ to 0.5 ㎒

* The current and voltage disturbance limits are derived for use with an impedance stabilization Network (ISN) which presents a common mode (asymmetric mode) impedance of 150 Ω to the telecommunication port under test (conversion factor is 20 $\log_{10}$ 150/I = 44 dB).

6.1.2 Measurement procedure

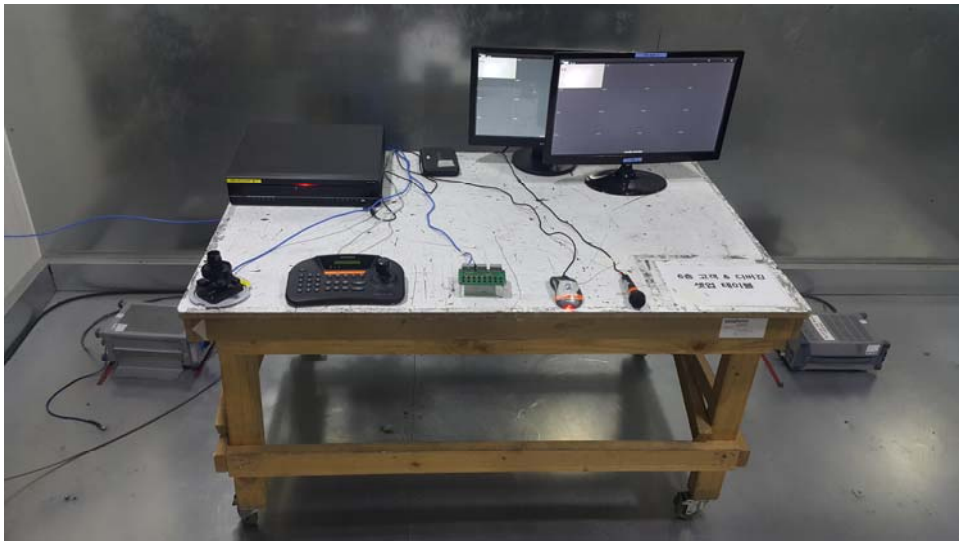
The measurements were performed in a shielded room. EUT was setup as shown in photograph and placed on a non-metallic table height of 0.8 m above the reference ground plane. The rear of table was located 0.4 m to the vertical conducted plane. EUT was power through the LISN, which was bonded to the ground plane. The LISN power was filtered. Each EUT power lead, except ground (safety) lead was individually connected through a LISN to input power source. EUT signal cables that hung closer than 0.4 m to the Horizontal metal ground 0.3 m ~ 0.4 m long. The power cord was bundles in the center. All peripheral equipment was powered from a sub LISN. The LISN and ISN were positioned 0.8 m from the EUT. Peak and Average detection were used in preliminary testing and Quasi-peak and Average detections were used at final measurement.
Both lines of power cord, hot and neutral, were measured.

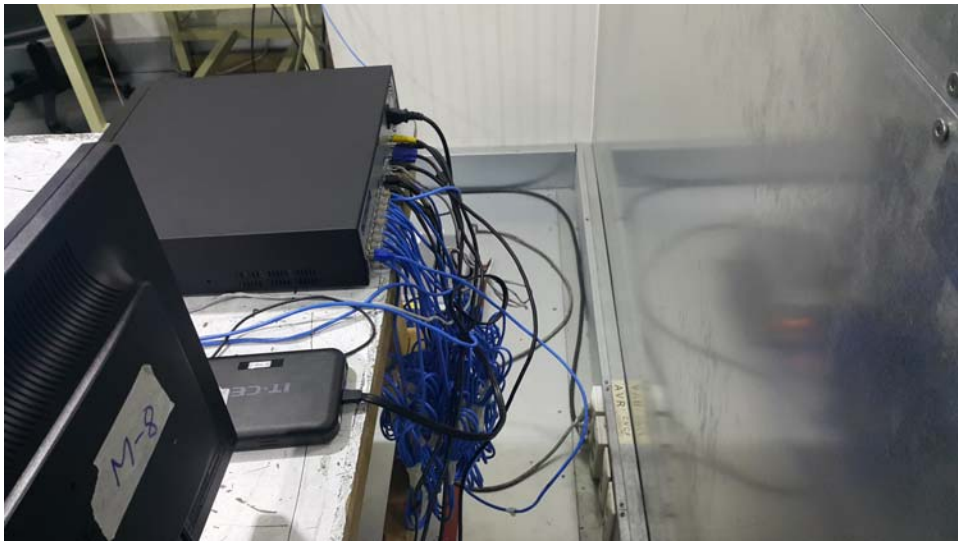
6.1.3 Used equipments

Equipment	Model	Serial No.	Makers	Next Cal. Date	Used
Test Receiver	ESCI	101408	R&S	2016.09.01	☐
Test Receiver	ESCI	100001	R&S	2016.08.04	☒
Test Receiver	ESCI	100710	R&S	2016.09.01	☐
TWO-LINE V-NETWORK	ENV216	101358	R&S	2016.09.03	☒
TWO-LINE V-NETWORK	ESH3-Z5	100267	R&S	2016.06.16	☒
8-WIRE ISN	NTFM 8158 CAT5	CAT5-8158-0071	SCHWARZBECK	2016.09.02	☒
8-WIRE ISN	NTFM 8158 CAT3	CAT3-8158-0020	SCHWARZBECK	2016.09.02	☐

6.1.4 Photographs of test setup

* AC Main

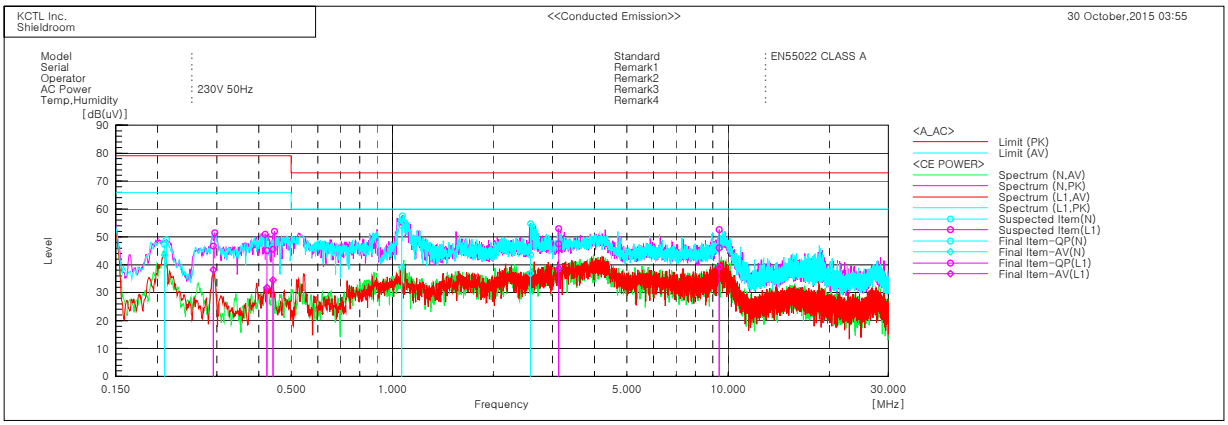




* Telecommunication

6.1.5 Conducted emission measurement result

*AC Main (DR-6332PS)



Final Result

--- N Phase ---

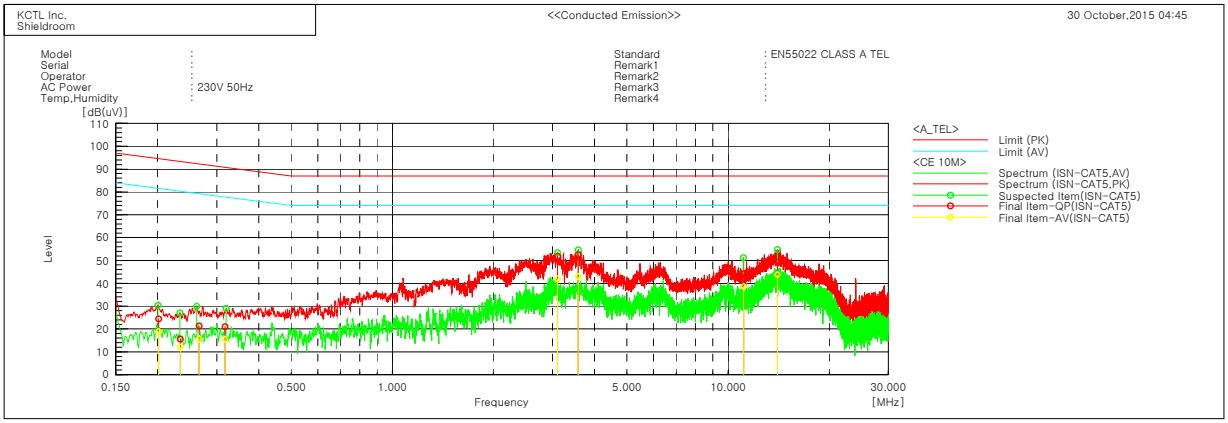
No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.20992	37.1	33.4	10.1	47.2	43.5	79.0	66.0	31.8	22.5
2	1.06625	44.1	29.1	9.9	54.0	39.0	73.0	60.0	19.0	21.0
3	2.5839	34.0	27.5	9.5	43.5	37.0	73.0	60.0	29.5	23.0

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.29285	36.9	28.2	9.9	46.8	38.1	79.0	66.0	32.2	27.9
2	0.42327	35.1	21.8	10.0	45.1	31.8	79.0	66.0	33.9	34.2
3	0.44168	35.6	24.5	10.0	45.6	34.5	79.0	66.0	33.4	31.5
4	3.12571	37.8	29.0	9.7	47.5	38.7	73.0	60.0	25.5	21.3
5	9.40988	36.4	29.6	9.6	46.0	39.2	73.0	60.0	27.0	20.8

* Telecommunication port

* LCL 65 dB (LAN(RJ-45) Port_10 Mbps) (DR-6332PS)

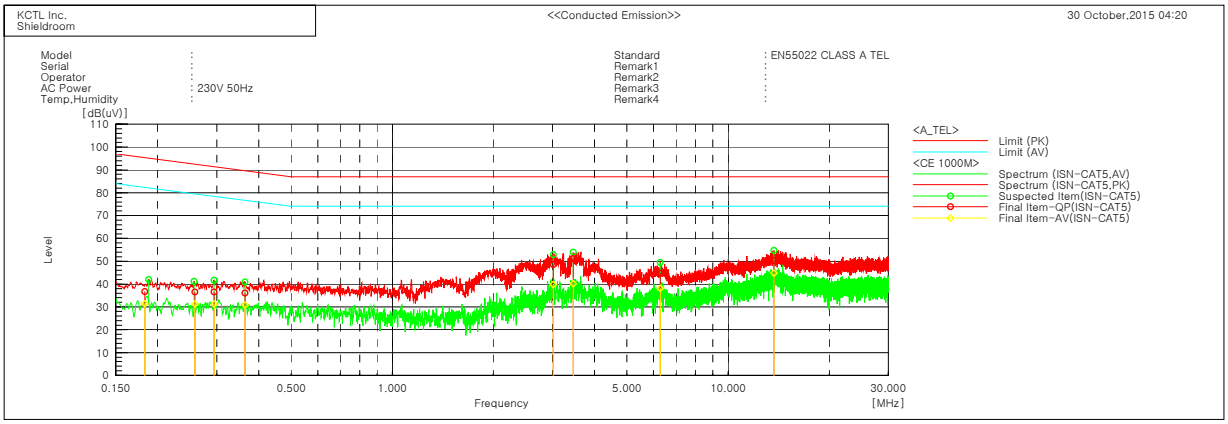


Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.20126	14.6	9.0	9.8	24.4	18.8	94.6	81.6	70.2	62.8
2	0.23387	5.8	2.4	9.7	15.5	12.1	93.3	80.3	77.8	68.2
3	0.26586	11.6	6.1	9.7	21.3	15.8	92.2	79.2	70.9	63.4
4	0.318	11.3	5.7	9.7	21.0	15.4	90.8	77.8	69.8	62.4
5	3.10435	42.5	32.5	9.4	51.9	41.9	87.0	74.0	35.1	32.1
6	3.57597	43.2	33.6	9.3	52.5	42.9	87.0	74.0	34.5	31.1
7	11.12156	34.9	29.3	9.3	44.2	38.6	87.0	74.0	42.8	35.4
8	14.0426	39.8	34.4	9.4	49.2	43.8	87.0	74.0	37.8	30.2

* LCL 65 dB (LAN(RJ-45) Port_1000 Mbps) (DR-6332PS)

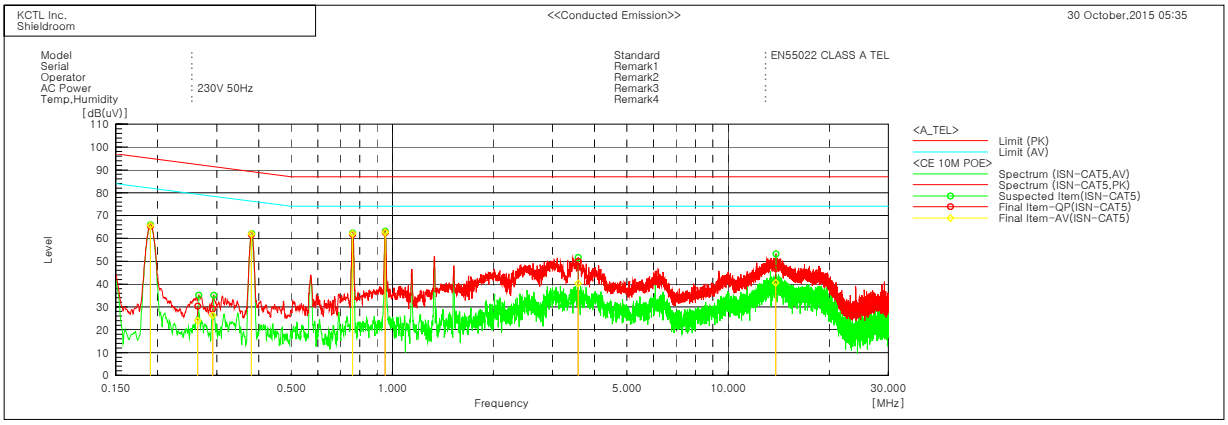


Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.18335	26.8	21.6	9.9	36.7	31.5	95.3	82.3	58.6	50.8
2	0.25805	26.8	21.5	9.7	36.5	31.2	92.5	79.5	56.0	48.3
3	0.29466	26.8	21.5	9.7	36.5	31.2	91.4	78.4	54.9	47.2
4	0.36449	26.4	21.0	9.7	36.1	30.7	89.6	76.6	53.5	45.9
5	3.01459	39.1	30.4	9.4	48.5	39.8	87.0	74.0	38.5	34.2
6	3.45785	41.9	30.8	9.3	51.2	40.1	87.0	74.0	35.8	33.9
7	6.27937	35.5	28.9	9.2	44.7	38.1	87.0	74.0	42.3	35.9
8	13.69193	40.9	35.4	9.4	50.3	44.8	87.0	74.0	36.7	29.2

* LCL 65 dB (PoE(RJ-45) Port_10 Mbps) (DR-6332PS)

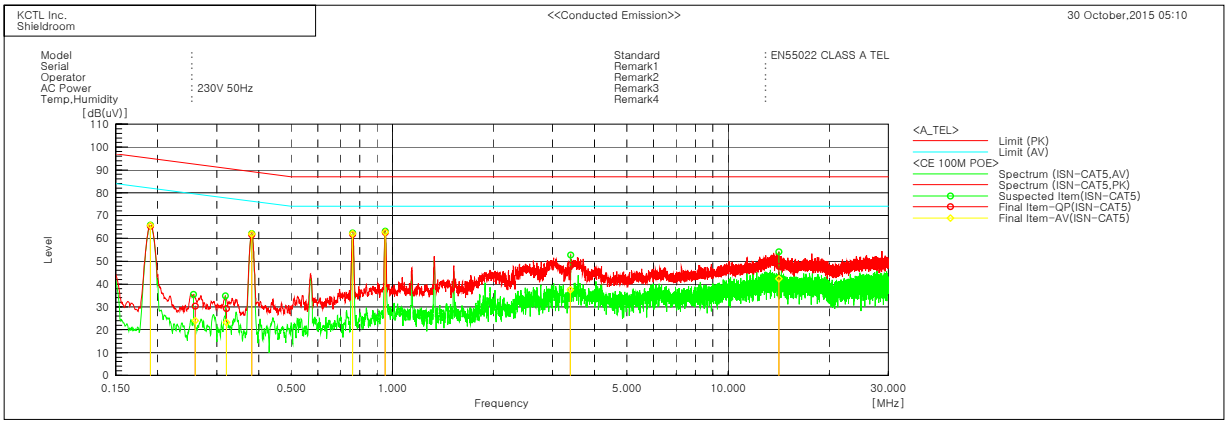


Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.1904	55.5	55.8	9.9	65.4	65.7	95.0	82.0	29.6	16.3
2	0.26339	20.7	14.2	9.7	30.4	23.9	92.3	79.3	61.9	55.4
3	0.29157	19.4	16.6	9.7	29.1	26.3	91.5	78.5	62.4	52.2
4	0.38077	51.9	52.2	9.7	61.6	61.9	89.3	76.3	27.7	14.4
5	0.76216	52.1	52.5	9.6	61.7	62.1	87.0	74.0	25.3	11.9
6	0.95244	52.9	53.1	9.6	62.5	62.7	87.0	74.0	24.5	11.3
7	3.57671	40.6	30.9	9.3	49.9	40.2	87.0	74.0	37.1	33.8
8	13.8753	37.4	31.3	9.4	46.8	40.7	87.0	74.0	40.2	33.3

* LCL 65 dB (PoE(RJ-45) Port_100 Mbps) (DR-6332PS)



Final Result

--- ISN-CAT5 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.19056	55.5	55.8	9.9	65.4	65.7	95.0	82.0	29.6	16.3
2	0.25876	20.7	14.2	9.7	30.4	23.9	92.5	79.5	62.1	55.6
3	0.32043	19.5	13.4	9.7	29.2	23.1	90.7	77.7	61.5	54.6
4	0.38086	51.9	52.2	9.7	61.6	61.9	89.3	76.3	27.7	14.4
5	0.7619	52.1	52.5	9.6	61.7	62.1	87.0	74.0	25.3	11.9
6	0.9522	52.9	53.1	9.6	62.5	62.7	87.0	74.0	24.5	11.3
7	3.39364	38.8	28.3	9.3	48.1	37.6	87.0	74.0	38.9	36.4
8	14.16554	38.3	32.9	9.4	47.7	42.3	87.0	74.0	39.3	31.7

6.2 Radiated Emission

Test specification	EN 55022:2010/AC:2011, Class A		
Testing voltage	230 V, 50 Hz		
Test facility	10 m Chamber (4F)		
Test distance	10 m, 3 m		
Date	2015. 10. 31		
Temperature (°C)	24.3 °C	Humidity (% R.H.)	28.9 % R.H.
Remarks	Pass		

6.2.1 Limits of radiated emission measurement

☒ Limits below 1 ㎓

Frequency [㎒]	Class A (dB(㎶/m)) @ 10 m	Class B (dB(㎶/m)) @ 10 m
30 ~ 230	40	30
230 ~ 1000	47	37

☒ Limits above 1 ㎓

Frequency [㎓]	Class A @ 3 m		Class B @ 3 m	
	Average limit (dB(㎶/m))	Peak limit (dB(㎶/m))	Average limit (dB(㎶/m))	Peak limit (dB(㎶/m))
1 ~ 3	56	76	50	70
3 ~ 6	60	80	54	74
Note - The lower limit applies at the transition frequency.				

6.2.2 Measurement procedure

The test was done at a 10 m chamber with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3 m to 0.4 m long and were hanged at a 0.4 m height to the ground plane.
Cables connected to EUT were fixed to cause maximum emission. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.2.3 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
Test Receiver	ESR	101078	R&S	2016.09.02	☒
Test Receiver	ESCI7	100732	R&S	2016.09.02	☐
Bi-Log Antenna	CBL 6112D	37876	TESEQ	2016.08.28	☒
Amplifier	310N	293004	SONOMA INSTRUMENT	2016.09.02	☒
Coaxial Fixed Attenuator	8491A	16861	HP	2016.06.29	☒
Antenna Mast	AM4.0	079/3440509	MATURO	-	☒
Turn Table	CO2000-SOFT	-	MATURO	-	☒
Preamplifier	8449B	3008A01802	AGILENT	2016.07.30	☒
Horn ANT	3115	00086706	ETS	2016.09.02	☒
Spectrum Analyzer	FSV40	100988	R&S	2016.01.26	☐

6.2.4 Sample calculation

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follow:

Result = M.R + C.F(A.F + C.L +3 dB Att – A.G)

M.R = Meter Reading

C.F = Correction Factor

A.F = Antenna Factor

C.L = Cable Loss

A.G= Amplifier Gain

3 dB Att = 3 dB Attenuator

If M.R is 30 dB, A.F 12 dB, C.L 5 dB, 3 dB, A.G 35 dB

The result is

30 + 12 + 5 + 3 – 35 = 15 dB(μV/m)

6.2.5 Photographs of test setup

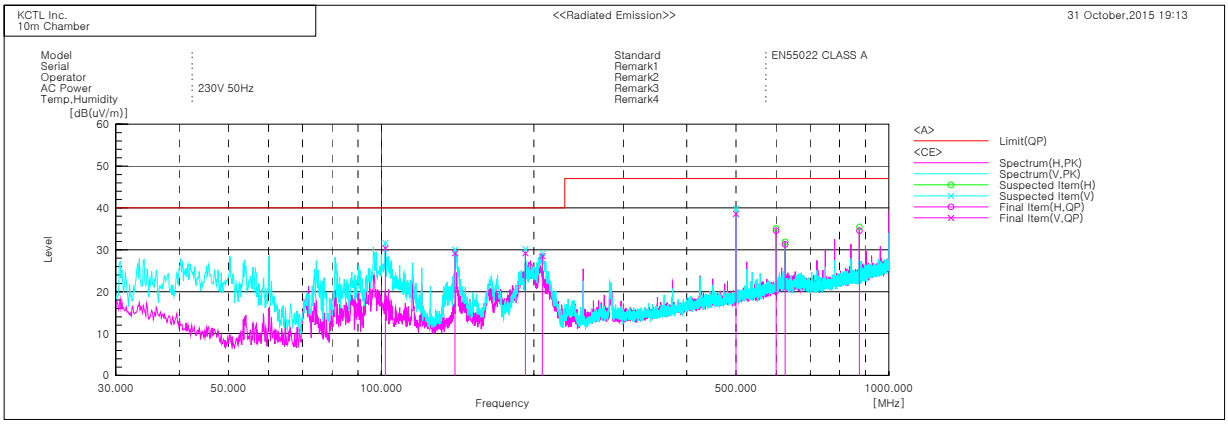
* 30 ㎒ ~ 1 ㎓

* 1 ㎓ ~ 6 ㎓

6.2.6 Radiated emission measurement result

*** Graph and Data**

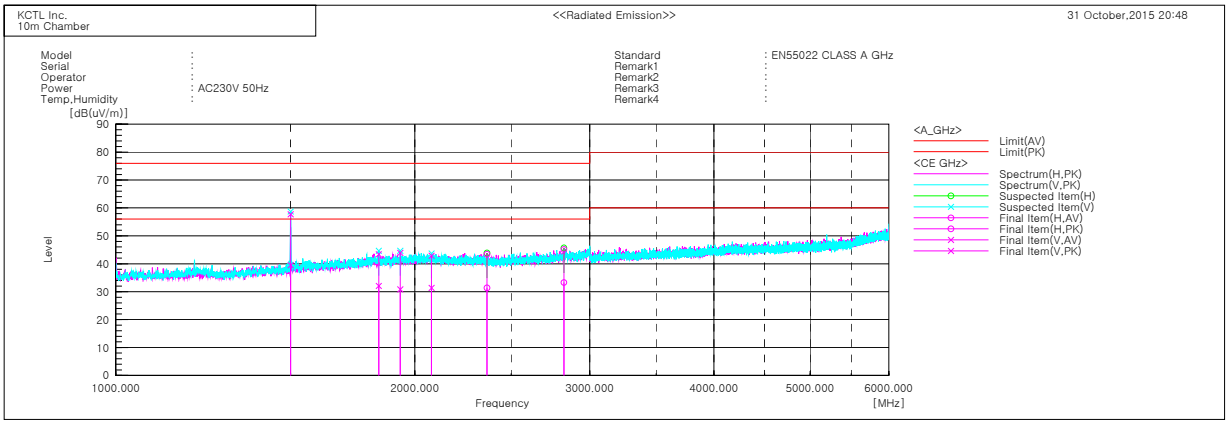
* 30 ㎒ ~ 1 ㎓ (DR-6332PS)



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	101.901	V	46.2	-15.8	30.4	40.0	9.6	100.0	96.9
2	139.731	V	44.3	-15.1	29.2	40.0	10.8	100.0	304.2
3	192.354	V	45.8	-16.6	29.2	40.0	10.8	100.0	349.7
4	207.874	V	44.8	-16.3	28.5	40.0	11.5	100.0	321.5
5	499.965	V	45.1	-6.5	38.6	47.0	8.4	100.0	193.6
6	599.996	H	39.1	-4.5	34.6	47.0	12.4	400.0	34.1
7	624.974	H	35.5	-4.2	31.3	47.0	15.7	100.0	302.3
8	875.112	H	35.6	-1.0	34.6	47.0	12.4	100.0	326.5

* 1 ㎓ ~ 6 ㎓ (DR-6332PS)



Final Result

No.	Frequency [MHz]	(P)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	c.f [dB(1/m)]	Result AV [dB(uV/m)]	Result PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	1500.000	V	47.0	65.2	-7.5	39.5	57.7	56.0	76.0	16.5	18.3	100.0	11.1
2	1840.000	V	35.9	47.2	-3.8	32.1	43.4	56.0	76.0	23.9	32.6	100.0	31.0
3	1933.750	V	34.0	47.0	-3.1	30.9	43.9	56.0	76.0	25.1	32.1	100.0	11.1
4	2078.750	V	34.1	45.6	-2.7	31.4	42.9	56.0	76.0	24.6	33.1	100.0	328.5
5	2364.375	H	34.2	46.2	-2.8	31.4	43.4	56.0	76.0	24.6	32.6	100.0	4.7
6	2825.625	H	35.1	46.9	-1.8	33.3	45.1	56.0	76.0	22.7	30.9	100.0	4.7

6.3 Harmonics

Test specification	EN 61000-3-2:2014				
Testing voltage	230 V, 50 Hz				
Test facility	EMI Test area(6F)				
Date	2015. 11. 07				
Temperature(°C)	24.1 °C	Humidity (% R.H.)	30.4 % R.H.	Pressure (kPa)	101.2 kPa
Remarks	Pass				

6.3.1 Measurement procedure

The equipment is supplied in series with shunt(s) Rm or current transformer(s) from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the equipment. Measurements shall be made under normal load, or conditions for adequate heat discharge, and under normal operating conditions. User's operation controls or automatic programmers shall be set to produce the maximum harmonic component, for each successive harmonic component in turn. For the purpose of harmonic current limitation, equipment is classified as follows :

Class A : Equipment not specified in one of the three other Classes shall be considered as Class A equipment.

- Balanced three-phase equipment;
- Household appliances excluding equipment identified as Class D;
- Tools excluding portable tools;
- Dimmers for incandescent lamps;
- Audio equipment.

Class B : Portable tools; Arc welding equipment which is not professional equipment.

Class C : Lighting equipment.

Class D : Equipment having a specified power according to 6.2.2 less than or equal to 600 w, of the following types:

- Personal computers and personal computer monitors;
- Television receivers.

6.3.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Harmonics/Flicker meter	5001x-CTS -400-413	54894	C.I.	2017.03.16	☒

6.3.3 Photographs of test setup

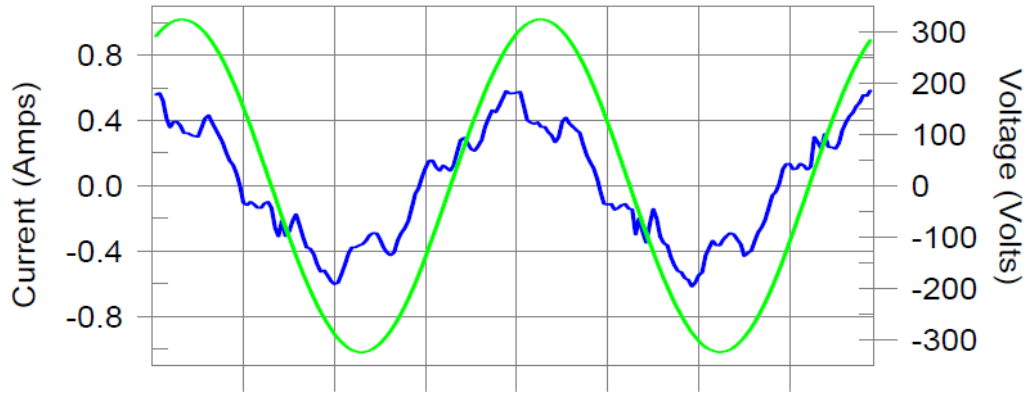
6.3.4 Measurement result

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

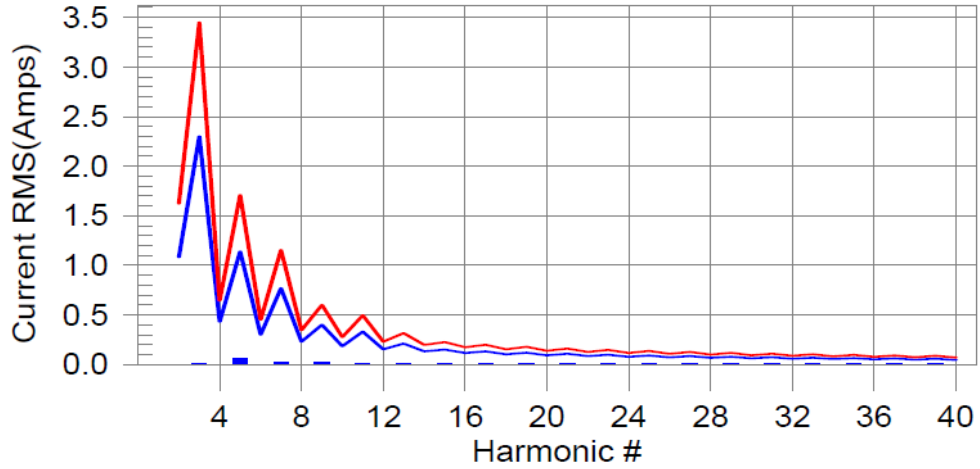
EUT: DR-6332PS **Tested by: Test Operator**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 07/11/2015 **Start time: 09:13:15** **End time: 09:16:07**
Test duration (min): 2.5 **Data file name: H-000114.cts_data**
Comment: Comments
Customer: IDIS CO., LTD.

Test Result: Pass **Source qualification: Normal**

Current & voltage waveforms



Harmonics and Class A limit line **European Limits**



Test result: Pass **Worst harmonic was #33 with 8.5% of the limit.**

Current Test Result Summary (Run time)

EUT: DR-6332PS
Tested by: Test Operator
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test Margin: 100
Test date: 07/11/2015
Start time: 09:13:15
End time: 09:16:07
Test duration (min): 2.5
Data file name: H-000114.cts_data
Comment: Comments
Customer: IDIS CO., LTD.

Test Result: Pass
Source qualification: Normal
THC(A): 0.076
I-THD(%): 23.3
POHC(A): 0.010
POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts):	229.42	Frequency(Hz):	50.00
I_Peak (Amps):	0.639	I_RMS (Amps):	0.347
I_Fund (Amps):	0.335	Crest Factor:	1.922
Power (Watts):	70.5	Power Factor:	0.895

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.007	2.300	0.3	0.009	3.450	0.3	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.064	1.140	5.6	0.065	1.710	3.8	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.027	0.770	3.6	0.028	1.155	2.4	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.019	0.400	4.6	0.021	0.600	3.4	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.008	0.330	2.5	0.010	0.495	2.0	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.015	0.210	7.1	0.015	0.315	4.8	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.008	0.150	5.5	0.009	0.225	3.8	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.005	0.132	3.9	0.006	0.198	3.1	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.003	0.118	N/A	0.004	0.178	N/A	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.002	0.107	N/A	0.003	0.161	N/A	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.006	0.098	5.8	0.007	0.147	4.6	Pass
24	0.000	0.077	N/A	0.002	0.115	N/A	Pass
25	0.004	0.090	N/A	0.004	0.135	N/A	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.005	0.083	6.3	0.005	0.125	4.4	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.004	0.078	N/A	0.005	0.116	N/A	Pass
30	0.000	0.061	N/A	0.002	0.092	N/A	Pass
31	0.004	0.073	N/A	0.004	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.006	0.068	8.5	0.006	0.102	6.0	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.001	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.001	0.073	N/A	Pass
39	0.003	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.001	0.069	N/A	Pass

Voltage Source Verification Data (Run time)

EUT: DR-6332PS
Tested by: Test Operator
Test category: Class-A per Ed. 4.0 (2014) (European limits)
Test Margin: 100
Test date: 07/11/2015
Start time: 09:13:15
End time: 09:16:07
Test duration (min): 2.5
Data file name: H-000114.cts_data
Comment: Comments
Customer: IDIS CO., LTD.

Test Result: Pass
Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.42	Frequency(Hz):	50.00
I_Peak (Amps):	0.639	I_RMS (Amps):	0.347
I_Fund (Amps):	0.335	Crest Factor:	1.922
Power (Watts):	70.5	Power Factor:	0.895

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.111	0.459	24.28	OK
3	0.522	2.065	25.26	OK
4	0.022	0.459	4.71	OK
5	0.035	0.918	3.81	OK
6	0.023	0.459	4.99	OK
7	0.027	0.688	3.90	OK
8	0.019	0.459	4.22	OK
9	0.023	0.459	4.98	OK
10	0.010	0.459	2.15	OK
11	0.021	0.229	9.33	OK
12	0.020	0.229	8.69	OK
13	0.033	0.229	14.37	OK
14	0.014	0.229	6.27	OK
15	0.006	0.229	2.43	OK
16	0.009	0.229	3.76	OK
17	0.013	0.229	5.83	OK
18	0.020	0.229	8.91	OK
19	0.009	0.229	4.03	OK
20	0.010	0.229	4.40	OK
21	0.003	0.229	1.42	OK
22	0.009	0.229	3.81	OK
23	0.015	0.229	6.42	OK
24	0.008	0.229	3.39	OK
25	0.006	0.229	2.69	OK
26	0.009	0.229	4.10	OK
27	0.016	0.229	6.84	OK
28	0.012	0.229	5.09	OK
29	0.005	0.229	2.02	OK
30	0.007	0.229	3.06	OK
31	0.010	0.229	4.24	OK
32	0.014	0.229	6.14	OK
33	0.009	0.229	3.88	OK
34	0.012	0.229	5.23	OK
35	0.010	0.229	4.31	OK
36	0.014	0.229	5.89	OK
37	0.012	0.229	5.15	OK
38	0.016	0.229	7.14	OK
39	0.012	0.229	5.10	OK
40	0.008	0.229	3.63	OK

6.4 Flicker

Test specification	EN 61000-3-3:2013				
Testing voltage	230 V, 50 Hz				
Test facility	EMI Test area(6F)				
Date	2015. 11. 07				
Temperature(°C)	24.1 °C	Humidity (% R.H.)	30.4 % R.H.	Pressure (kPa)	101.2 kPa
Remarks	Pass				

6.4.1 Measurement procedure

EUT was connected to the power analyzer system.

Measurement was performed to obtain the desired flicker parameters.

The measuring time depends on which parameters are to be measured.

P_{lt} = 2 h

P_{st} = 10 min

Controls and automatic programs shall be set to produce the most unfavorable sequence of voltage changes, using only those combinations of controls and programs are mentioned by the manufacturer in the instruction manual.

6.4.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Harmonics/Flicker meter	5001x-CTS -400-413	54894	C.I.	2017.03.16	☒

6.4.3 Photographs of test setup

6.4.4 Measurement result

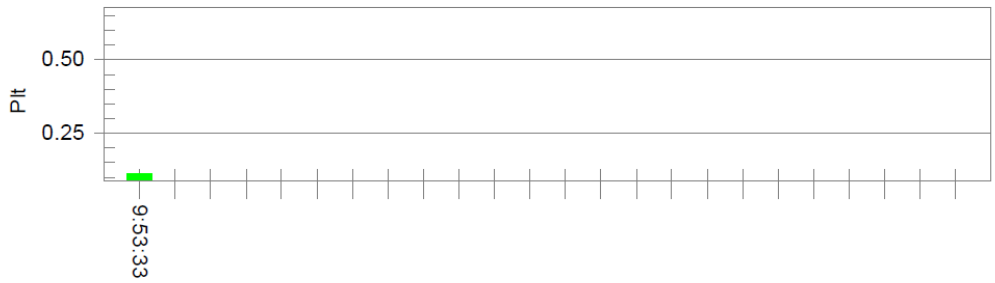
Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: DR-6332PS
Tested by: Test Operator
Test category: All parameters (European limits)
Test Margin: 100
Test date: 07/11/2015
Start time: 09:43:03
End time: 09:53:34
Test duration (min): 10
Data file name: F-000120.cts_data
Comment: Comments
Customer: IDIS CO., LTD.

Test Result: Pass
Status: Test Completed

Pst_i and limit line
European Limits

Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.41			
Highest dt (%):	0.00	Test limit (%):	N/A	N/A
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	-0.02	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.261	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.114	Test limit:	0.650	Pass

6.5 Electrostatic Discharge

Test specification	EN 61000-4-2:2009				
Test level	☒ Contact: ± 6 kV ☒ Air: ± 2 kV, ± 4 kV, ± 8 kV ☒ HCP: ± 2 kV, ± 4 kV, ± 6 kV ☒ VCP: ± 2 kV, ± 4 kV, ± 6 kV				
Discharge impedance	330 Ω / 150 pF				
Number of discharge (Each polarity)	☒ Contact: 10 ☒ Air: 10 ☒ HCP / VCP: 10				
Interval between discharges	1 s				
Testing voltage	230 V, 50 Hz				
Test facility	Shielded room(3F)				
Date	2015. 11. 08				
Temperature (°C)	23.7 °C	Humidity (% R.H.)	48.4 % R.H.	Pressure (kPa)	101.4 kPa
Remarks	Pass - There was no change of operation status during above testing.				

6.5.1 Measurement procedure

A ground reference plane was located on the floor, and connected to earth via a low Impedance connection. The return cable of the ESD generator was connected to the reference plane.
In case of floor standing equipment, EUT was placed on the reference plane on 0.1 m of insulating Support. In case of table top equipment, EUT was placed on a wooden table 0.8 m above the reference grounded floor. A horizontal coupling plane (HCP) was placed on the table, and Connected to the reference plane via a 470 kΩ resistor located in each end (0.5 mm insulating support between EUT and HCP). In both cases a vertical coupling plane(VCP) OF 0.5 X 0.5 m was located 0.1 m from the EUT's sides. The VCP was connected to the reference plane in the same matter as the HCP. For wall and ceiling mounted equipment follow the procedure for floor standing equipment, but with the equipment arranged with its normal mounting surface 0.1 m from the earth reference plane.

6.5.2 Used equipments

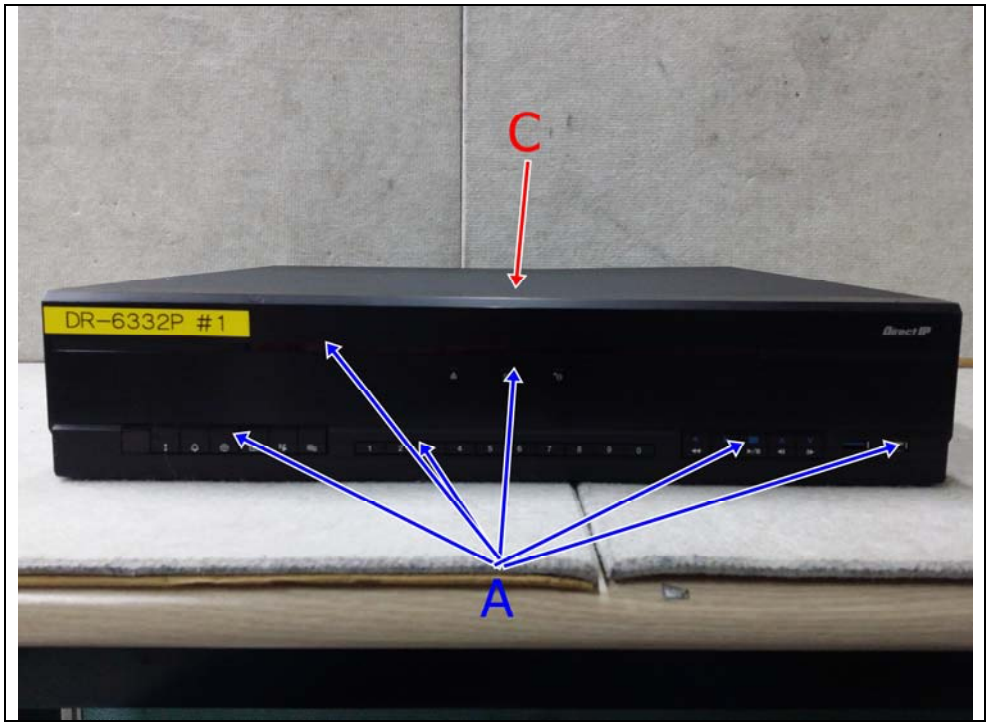
Equipment	Model No.	Serial No.	Makers	Next Cal. Date	Used
ESD Tester	PESD-1600	H011 309	HAEFELY	2016.06.16	☒
ESD Tester	NSG 437	182	TESEQ	2016.04.23	☐
HCP	-	-	-	-	☒
VCP	-	-	-	-	☒

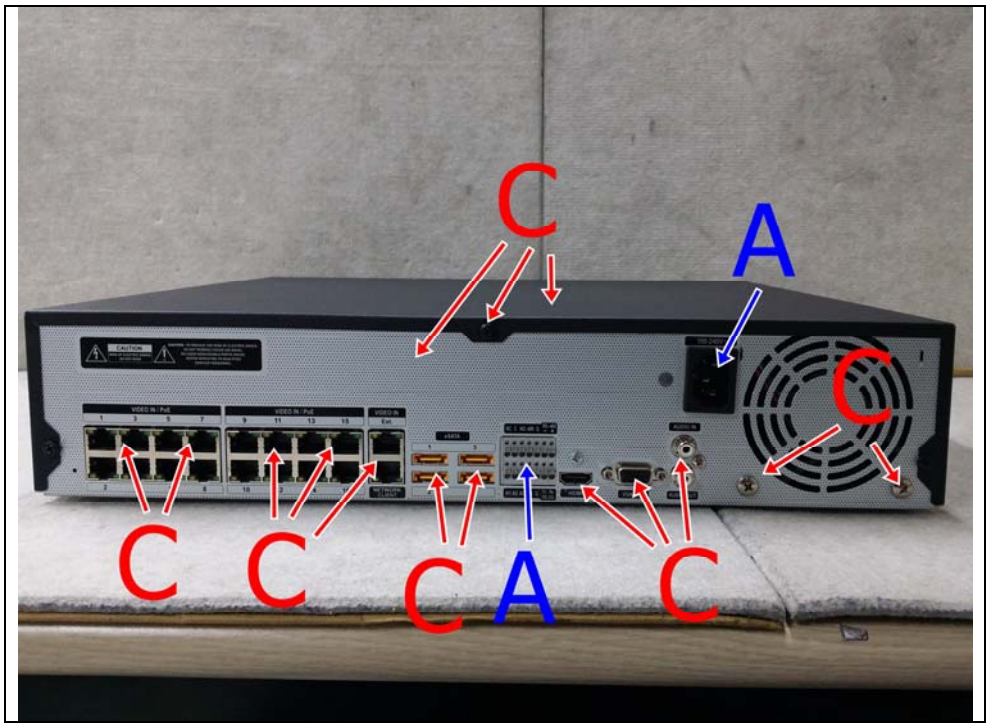
6.5.3 Photographs of test setup

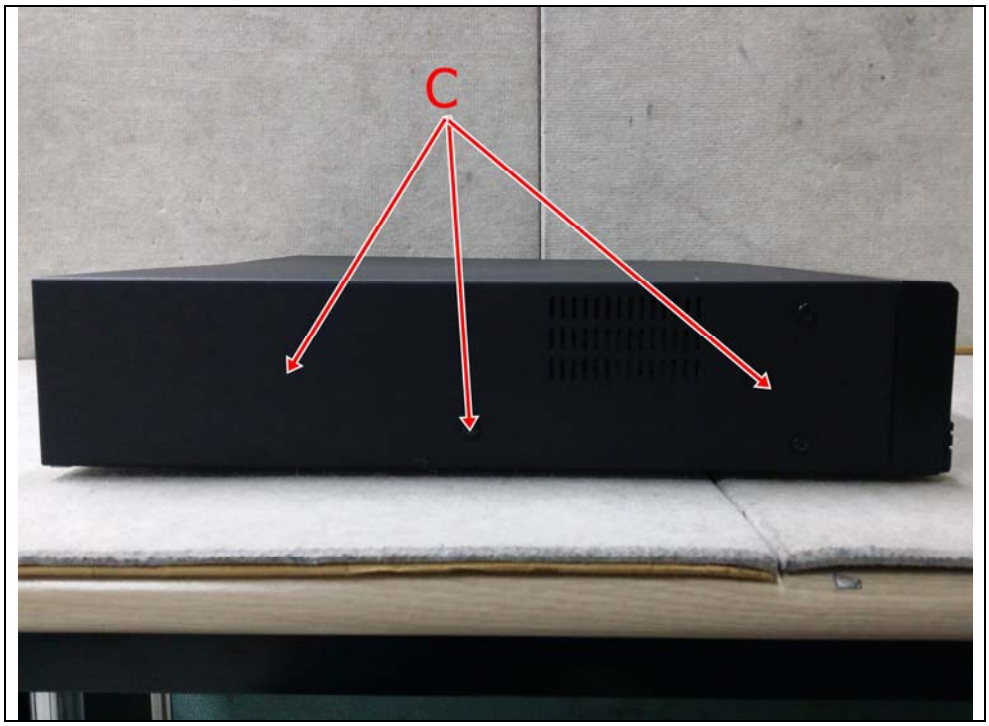
6.5.4 Measurement result

Electrostatic Discharge (Test Point)

Air discharge	→
Contact discharge	→







HCP/VCP discharge

Location(EUT)	Applied level (±)	Result
HCP (All 4 sides)	± 2 kV, ± 4 kV, ± 6 kV	Pass
VCP (All 4 sides)	± 2 kV, ± 4 kV, ± 6 kV	Pass

Contact discharge

Location(EUT)	Applied level (±)	Result
Front	± 6 kV	Pass
Rear	± 6 kV	Pass
Left	± 6 kV	Pass
Right	± 6 kV	Pass

Air discharge

Location(EUT)	Applied level (±)	Result
Front	± 2 kV, ± 4 kV, ± 8 kV	Pass
Rear	± 2 kV, ± 4 kV, ± 8 kV	Pass
Left	± 2 kV, ± 4 kV, ± 8 kV	-
Right	± 2 kV, ± 4 kV, ± 8 kV	-

6.6 Radio Frequency Electromagnetic Fields

Test specification	EN 61000-4-3:2006/A2:2010				
Tested frequency	80 ㎒ ~ 2.7 ㎓				
Test level & Modulation	1 V/m, 3 V/m, 10 V/m, 80 % Amplitude Modulation (1 ㎑) 1 V/m, 3 V/m, 10 V/m, Pulse Modulation (1 Hz (0.5 s ON: 0.5 s OFF))				
Frequency Step	log 1 % step				
Dwell time	3 s				
Distance	3 m from EUT to tip of antenna				
Testing Voltage	230 V, 50 Hz				
Test facility	6F Fully anechoic chamber (3 m)				
Date	2015. 11. 07				
Temperature (°C)	23.6 °C	Humidity (% R.H.)	23.7 % R.H.	Pressure (㎪)	101.2 ㎪
Remarks	Pass - There was no change of operation status during above testing.				

6.6.1 Measurement procedure

The test was performed at 3 m full anechoic chamber.

For floor standing equipment, the EUT was standing on the floor.

For tabletop equipment, the EUT was located on a wooden table 0.8 m above the floor.

The EUT was tested all sides, horizontal and vertical polarization.

6.6.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Power meter	PM2002	302852	AR	2016.09.03	☒
Power sensor	PH2000	303224	AR	2016.09.03	☒
Power sensor	PH2000	311217	AR	2016.09.03	☒
Directional coupler	DC6180	303976	AR	2016.09.03	☒
Directional coupler	DC7144M1	320279	AR	2016.09.03	☒
Signal generator	E4421B	GB40052295	AGILENT	2016.09.03	☒
Broadband Amplifier	BBA100	100996-1	R&S	-	☒
Amplifier	60S1G3M2	320444	AR	-	☒
Log Periodic Dipole Antenna	LPDA-0803	-	ETS	-	☒
Antenna master	-	-	ETS	-	☒

6.6.3 Photographs of test setup

6.6.4 Measurement result

Location(EUT)	Antenna polarization	Result
Front side	Horizontal	Pass
	Vertical	Pass
Rear side	Horizontal	Pass
	Vertical	Pass
Left side	Horizontal	Pass
	Vertical	Pass
Right side	Horizontal	Pass
	Vertical	Pass

6.7 Electric Fast Transient/BURST

Test specification	EN 61000-4-4:2012				
Coupling	☒ AC main ☒ Signal/Control: Clamp ☒ Telecommunication: Clamp				
Test level	☒ AC main: ± 2 kV Peak ☒ Signal/Control: ± 1 kV Peak ☒ Telecommunication: ± 1 kV Peak				
Repetition frequency	100 ㎑, Tr/Th = 5 / 50 ㎱				
Coupling time (Minimum)	60 s				
Testing Voltage	230 Ⅴ, 50 ㎐				
Test facility	Shielded room (3F)				
Date	2015. 11. 05				
Temperature (°C)	23.5 °C	Humidity (% R.H.)	28.3 % R.H.	Pressure (㎪)	101.3 ㎪
Remarks	Pass - There was no change of operation status during above testing.				

6.7.1 Measurement procedure

A ground reference plane was located on the floor.
EFT generator was connected to reference ground plane via low impedance connection.
For floor standing equipment, EUT was placed on a 0.1 ㎜ wooden table.
For tabletop equipment, EUT was placed on a 0.1 ㎜ above the ground reference plane.
Test generator and coupling/decoupling network was placed on, and bounded to, the ground reference plane. When using the coupling clamp, the minimum distance between the coupling plates and all other conductive surfaces, except the ground reference plane beneath the coupling clamp, Shall be 0.5 ㎜.

6.7.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Ultra compact simulator	UCS500N	V1238113636	EM TEST	2016.09.02	☒
Capacitive coupling clamp	HFK	P1411132494	EM TEST	2016.04.21	☒

6.7.3 Photographs of test setup

6.7.4 Measurement result

* AC main

Coupling point	(+)	(-)	Result
Power	+ 2 kV	- 2 kV	Pass

* Signal/Control

Coupling point	(+)	(-)	Result
Alarm In/Out	+ 1 kV	- 1 kV	Pass
RS-485	+ 1 kV	- 1 kV	Pass
Audio In/Out	+ 1 kV	- 1 kV	Pass

* Telecommunication

Coupling point	(+)	(-)	Result
LAN(RJ-45)	+ 1 kV	- 1 kV	Pass
PoE(RJ-45)	+ 1 kV	- 1 kV	Pass

6.8 Surge

Test specification	EN 61000-4-5:2014				
Coupling	☒ AC main: Direct ☒ Signal/Control: CDN ☒ Telecommunication: CDN				
Test level	☒ AC main: ☒Differential mode: ± 0.5 kV, ± 1 kV ☒Common mode: ± 0.5 kV, ± 1 kV, ± 2 kV ☒ Signal/Control: ± 0.5 kV, ± 1 kV ☒ Telecommunication: ± 0.5 kV, ± 1 kV				
Coupling Impedance	☒ Differential mode: 18 μF ☒ Common mode: 10 Ω + 9 μF ☒ 40 Ω + 0.5 μF ☐ Direct				
Surge pulse shape	Tr/Th = 1.2 / 50 μs				
Angles	0 °, 90 °, 180 °, 270 °				
Number of surge	5				
Coupling time	1 min				
Testing Voltage	230 V, 50 Hz				
Test facility	Shielded room (3F)				
Date	2015. 11. 05				
Temperature (°C)	23.5 °C	Humidity (% R.H.)	28.3 % R.H.	Pressure (kPa)	101.5 kPa
Remarks	Pass - There was no change of operation status during above testing.				

6.8.1 Measurement procedure

A ground reference plane was located on the floor. SURGE generator was connected to reference ground plane via low impedance connection. For floor standing equipment & table top equipment, EUT was placed on a wooden table.

6.8.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Ultra compact simulator	UCS500N	V1238113636	EM TEST	2016.09.02	☒
CDN	CNV 508 N1	V1108108861	EM TEST	2016.09.02	☒

6.8.3 Photographs of test setup

6.8.4 Measurement result

* AC main

Coupling point	(+)	(-)	Result
L-N	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass
L-PE	+ 0.5 kV, + 1 kV, + 2 kV	- 0.5 kV, - 1 kV, - 2 kV	Pass
N-PE	+ 0.5 kV, + 1 kV, + 2 kV	- 0.5 kV, - 1 kV, - 2 kV	Pass

* Signal/Control

Coupling point	(+)	(-)	Result
Alarm In/Out	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass
RS-485	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass
Audio In/Out	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass

* Telecommunication

Coupling point	(+)	(-)	Result
LAN(RJ-45)	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass
PoE(RJ-45)	+ 0.5 kV, + 1 kV	- 0.5 kV, - 1 kV	Pass

6.9 Conducted Immunity

Test specification	EN 61000-4-6:2014				
Tested frequency	0.15 ㎒ ~ 100 ㎒				
Test level & Modulation	1 Ⅴ, 3 Ⅴ, 10 Ⅴ, 80 % Amplitude Modulation (1 ㎑) 1 Ⅴ, 3 Ⅴ, 10 Ⅴ, Pulse Modulation (1 ㎐ (0.5 s ON: 0.5 s OFF))				
Frequency Step	log 1 % step				
Dwell time	3 s				
Coupling method	☒ AC main: CDN(M3) ☒ Signal/Control: Clamp ☒ Telecommunication: CDN(T8-RJ45)				
Testing Voltage	230 Ⅴ, 50 ㎐				
Test facility	Shielded room (3F)				
Date	2015. 11. 08				
Temperature(°C)	23.7 °C	Humidity (% R.H.)	48.4 % R.H.	Pressure (㎪)	101.4 ㎪
Remarks	Pass - There was no change of operation status during above testing.				

6.9.1 Measurement procedure

A ground reference plane was located on the floor.
The test was performed on a ground reference plane on a 0.1 m wooden table. This test were Performed using CDN for mains, clamp for signal and injection probe. The frequency range was swept from 0.15 ㎒ to 100 ㎒. This frequency range was Modulated with 1 ㎑ sine wave at 80 %.
The signal generators provided the modulated frequency at a 1 % step size.
The power and all network cable, I/O cables longer than 3 m length were tested.

6.9.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Continuous Wave Simulator	CWS500N1.4	P1409132195	EM TEST	2016.05.12	☒
CDN	CDN M2/M3	P1402128648	EM TEST	2016.05.14	☒
CDN	CDN M2/M3	P1402128649	EM TEST	2016.05.14	☒
Attenuator	ATT6/80	P1402129094	EM TEST	2016.05.12	☒
Electromagnetic Injection Clamp	EM101	36197	EM TEST	2016.05.13	☒
CDN	CDN S1-75	P1404129801	EM TEST	2016.05.14	☐
CDN	CDN-T8-RJ45	P1404129872	EM TEST	2016.05.14	☒

6.9.3 Photographs of test setup

6.9.4 Measurement result

* AC main

Coupling point	Coupling method	Result
Power	CDN(M3)	Pass

* Signal/Control

Coupling point	Coupling method	Result
Alarm In/Out	Clamp	Pass
RS-485	Clamp	Pass
Audio In/Out	Clamp	Pass

* Telecommunication

Coupling point	Coupling method	Result
LAN(RJ-45)	CDN(T8-RJ45)	Pass
PoE(RJ-45)	CDN(T8-RJ45)	Pass

6.10 Dips and Interruptions

Test specification	EN 61000-4-11:2004				
Number of dips	3 T				
Duration	10 s				
Phase	Zero crossing (0 °)				
Testing Voltage	100 V, 50/60 Hz / 240 V, 50/60 Hz				
Test facility	Shielded room (3F)				
Test Date	2015. 11. 05				
Temperature (°C)	23.5 °C	Humidity (% R.H)	28.3 % R.H	Pressure (kPa)	101.3 kPa
Remarks	Pass				

6.10.1 Measurement procedure

The dips/interruption test is only applicable to AC mains.

The dips/interruptions were applied at zero crossing.

6.10.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Ultra compact simulator	UCS500N	V1238113636	EM TEST	2016.09.02	☒

6.10.3 Photographs of test setup

6.10.4 Measurement result

* 100 V, 50/60 Hz / 240 V, 50/60 Hz

Test Level (%UT)	Dip/Int. (%UT)	Duration /Period	Phase (°)	Count number	Result
80 %	20%	250/300 Period (1)	0	3T	Pass
70 %	30 %	25/30 Period	0	3T	Pass
40 %	60 %	10/12 Period	0	3T	Pass
0%	100 %	250/300 Period (2)	0	3T	Note*

Comment:

- There was no change of operation status during above testing.
(250/300 Period(1), 25/30 Period, 10/12 Period)
- Note* (250/300 Period(2))
The power of EUT is off during the test. After the test, EUT is getting back to normal operation.
It fully recorded using ancillary Power source equipment to content with Manufacturer`s set up manual.
During the 250 period power loss, in accordance with the standard, a UPS was used to maintain full operation of the unit.

6.11 Mains supply voltage variations

Test specification	EN 50130-4:2011/A1:2014				
Supply voltage	*U nom* + 10 %, *U nom* - 15 %				
Testing Voltage	100 V, 50/60 Hz / 240 V, 50/60 Hz				
Test Date	2015. 11. 05				
Temperature (°C)	23.5 °C	Humidity (% R.H)	28.3 % R.H	Pressure (kPa)	101.3 kPa
Remarks	Pass				

6.11.1 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Ultra compact simulator	UCS500N	V1238113636	EM TEST	2016.09.02	☒

6.11.2 Measurement result

* 100 V, 50/60 Hz

Supply voltage		Result
+ 10 %	110 V	Pass
- 15 %	85 V	Pass

* 240 V, 50/60 Hz

Supply voltage		Result
+ 10 %	264 V	Pass
- 15 %	204 V	Pass

Comment:

- There was no change of operation status during above testing.

7. E.U.T. photographs

Front View

Rear View

Left View

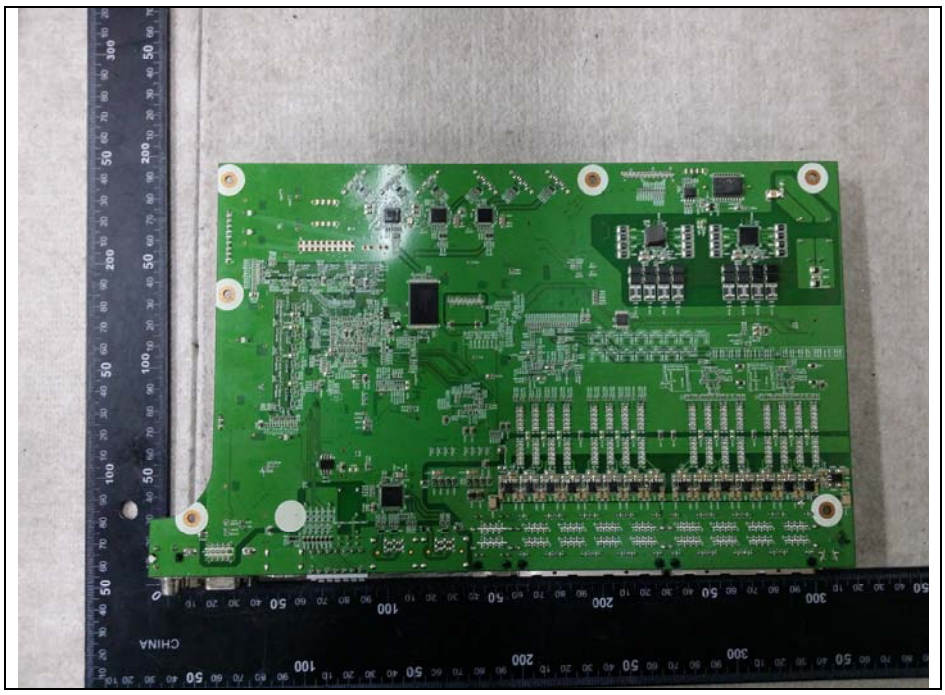
Right View

Top View

Bottom View

Inside

Main Board



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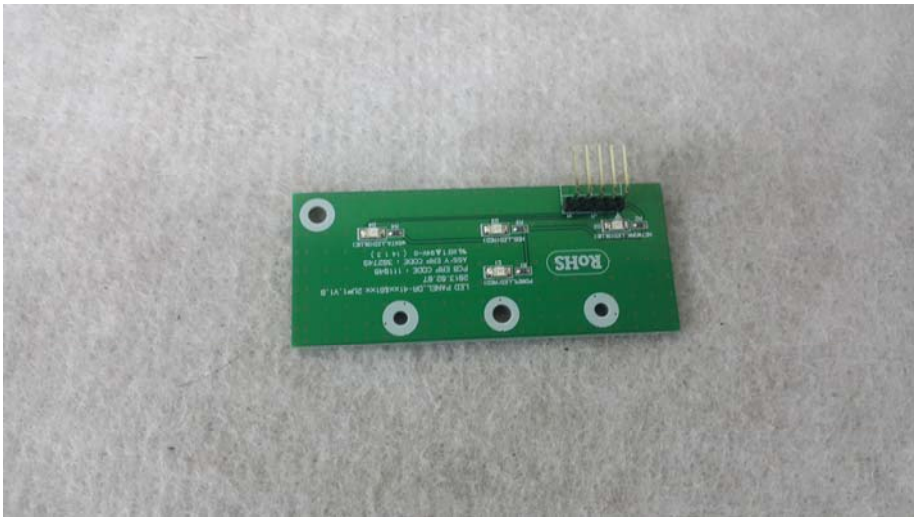

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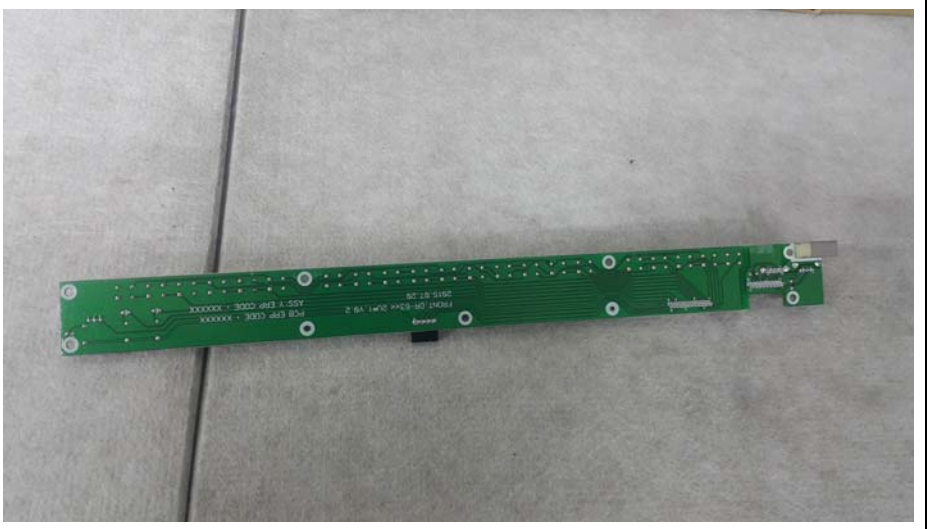
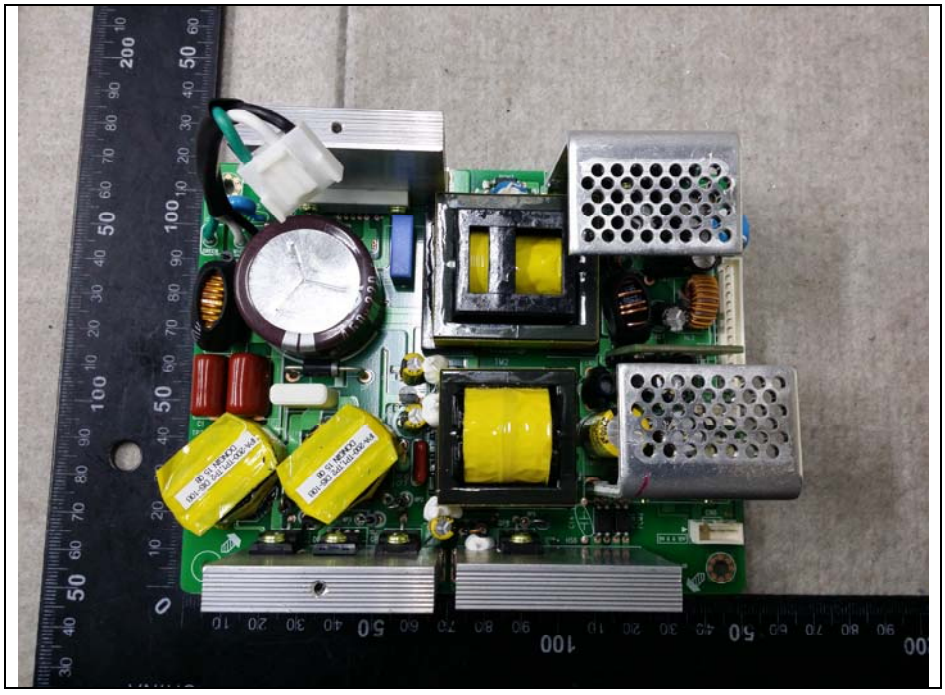
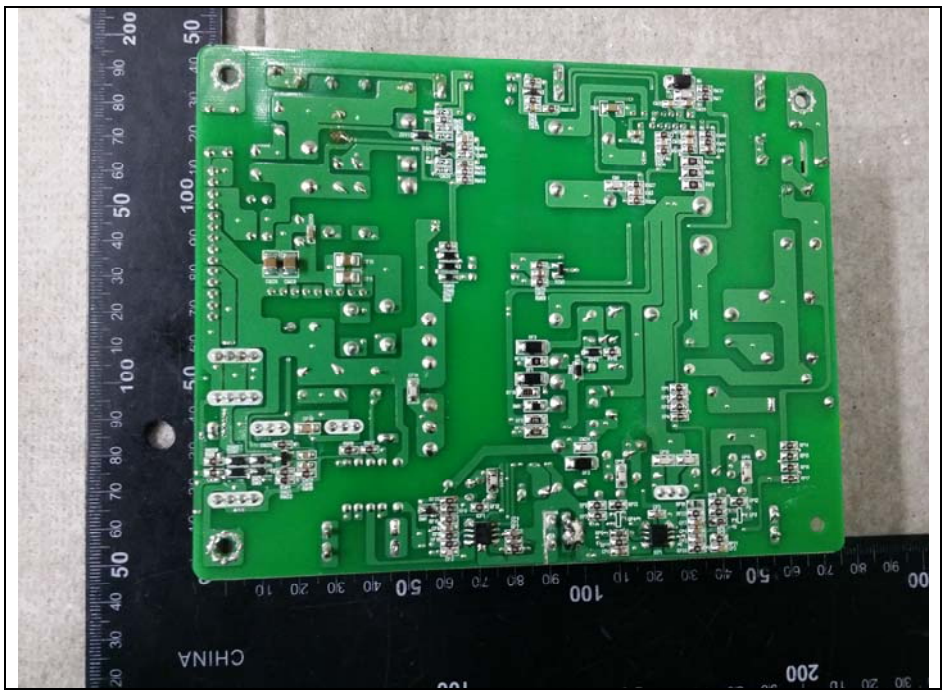


Power Board #1





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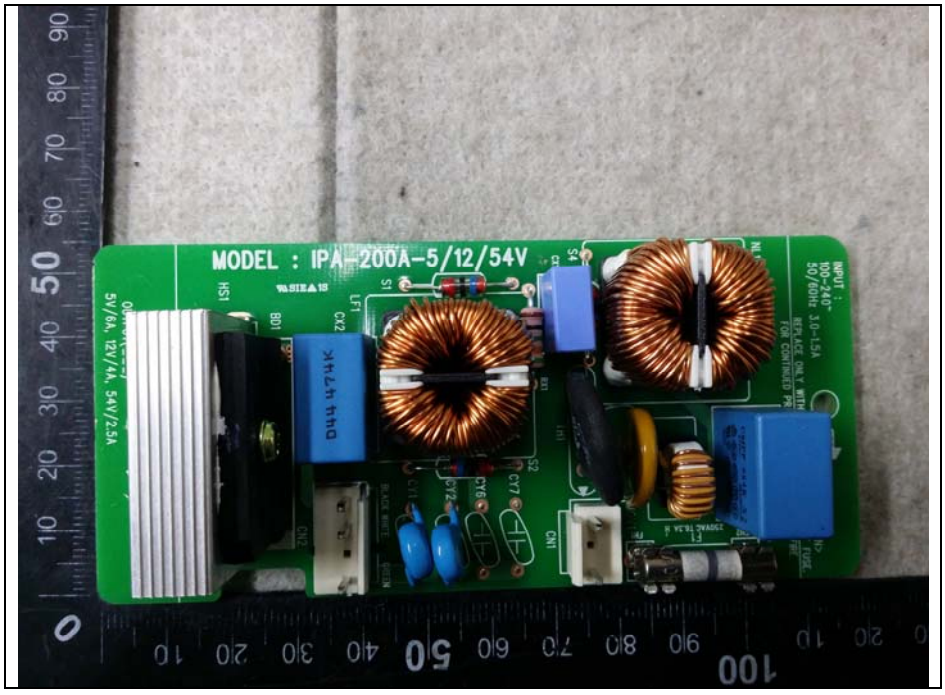

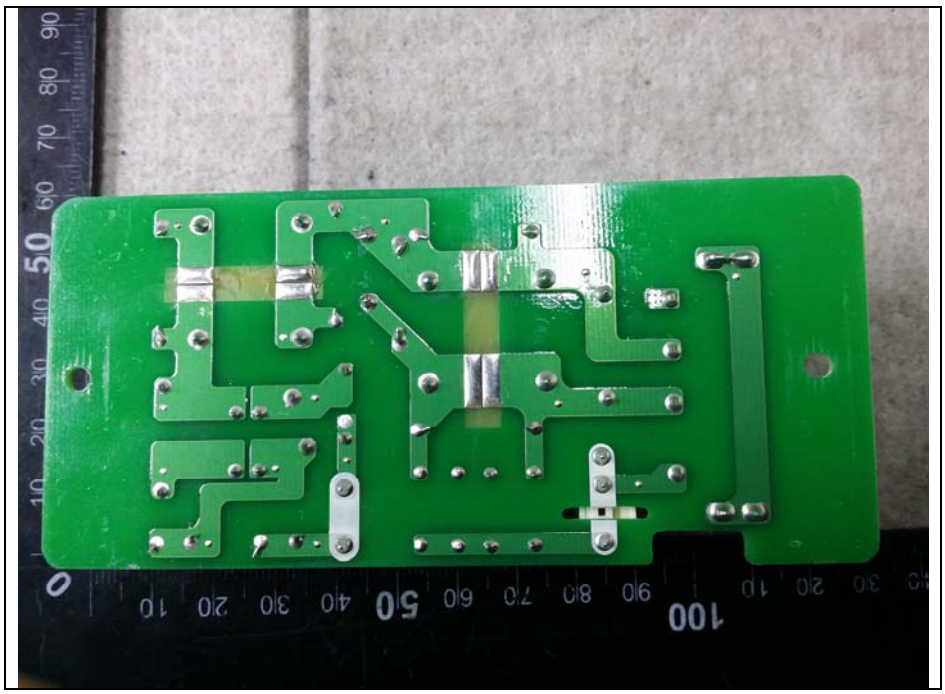

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