



4, Songju-ro 236beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do,
17159, Korea

Tel: +82-31-323-6008 Fax: +82-31-323-6010

<http://www.ltalab.com>

EMC TEST REPORT

Dates of Tests: July 21 – 22, 2020

Test Report S/N: LR500122008I

Test Site : LTA Co., Ltd.

Model No.

XRP-4310DB4

APPLICANT

Hanwha Techwin Co., Ltd.

Equipment Name : NVR
Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
Model name : XRP-4310DB4
Test Device Serial No. : Identification
Rule Part(s) : AS/NZS CISPR 32:2015
CISPR 32 Ed2.0

Date of issue : August 05, 2020

This test report is issued under the authority of:

Gi Won Lee, Technical Manager

The test was supervised by:

Jun Hwan Park, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

NVLAP[®]
TESTING NVLAP LAB CODE 200723-0

Revision history

Revision	Date of issue	Test report No.	Description
0	05.08.2020	LR500122008I	Initial

TABLE OF CONTENTS

1. General information's	4
2. Information's about test item	5
3. Test Report	8
4. Test Items	9
4-1 Conducted Emissions	9
4-2 Radiated Emissions	18
APPENDIX A TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS.....	23
APPENDIX B PHOTOGRAPHS	25

1. General information's

1-1 Test Performed

Company name : **LTA Co., Ltd**
 Address : 4, Songju-ro 236beon-gil, Yangji-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, 17159, Korea
 Web site : <http://www.ltalab.com>
 E-mail : chahn@ltalab.com
 Telephone : +82-31-323-6008
 Facsimile : +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2020-09-30	ECT accredited Lab.
	KOREA		-	
RRA	U.S.A	KR0049	2021-04-11	RRA accredited Lab.
	CANADA		2021-06-16	
	VIETNAM		2021-04-12	
VCCI	JAPAN	C-14948	2023-09-10	VCCI registration
		T-12416	2023-09-10	
		R-14483	2023-10-15	
		G-10847	2021-12-13	
KOLAS	KOREA	KT551	2021-08-20	KOLAS accredited Lab.

2. Information's about test item

2-1 Client / Manufacturer

Company name : Hanwha Techwin Co., Ltd.
 Address : 6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488, KOREA
 Telephone /Facsimile : +82-70-7147-8753(<http://hanhwa-security.com>)

Factory #1

Company name : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
 Address : Lot O-2, Que Vo Industrial Zone extended area ,Nam Son commune,
 Bac Ninh city,Bac Ninh province, Vietnam

Factory #2

Company name : D-TECH CO.,LTD.
 Address : 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea
 (Suwon Industrial Complex)

2-2 Equipment Under Test (EUT)

Class : A
 Category : NVR
 Model name : XRP-4310DB4
 Serial number : Identification
 Date of receipt : July 15, 2020
 EUT condition : Pre-production, not damaged
 Interface Ports : AC IN, LAN, HDMI, USB 3.0, USB 2.0, HDD, AUDIO OUT, HDD
 Power rating : AC 240 V, 50 Hz

2-3 Modification

-NONE

2-4 Test conditions

Temp. / Humid. / Pressure : (21 - 23) °C / (51 - 55) % R.H.
 Tested Model : XRP-4310DB4
 Test mode : REC mode
 Test Voltage : AC 240 V, 50 Hz

2-5 List of EUT and ACCESSORY

EUT				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
NVR	XRP-4310DB4	N/A	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD. D-TECH CO.,LTD.	-
Keyboard	PKB-650U	N/A	SHENZHEN TYCHO TECHNOLOGY CO., LIMITED	-
Mouse	MOKJUO	N/A	PRIMAX ELECTRONICS LTD	-
ACCESSORY				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
Monitor #1	P2018H	N/A	DELL	-
Monitor #2	24MA53D	N/A	LG	-
Monitor #2 Adapter	A11-120P1A	N/A	Chicony	-
Speaker	MINI-X3	N/A	Shenzhen Music Technology Co., Ltd	-
Notebook	TFG13	N/A	HANSUNG	-
Switch Hub	H608	N/A	ipTIME	-
Switch Hub Adapter	DCP015A050600K	N/A	Zioncom Electronics	-
Network Camera	QNV-6082R	N/A	HANWHA TECHWIN CO.,LTD.	-
PoE Injector	SFC501G	N/A	SOLTECH INFONET INC.	-
USB Memory Stick #1	Ultra Flair CZ73 32GB	N/A	SanDisk	64 GB
USB Memory Stick #2	Ultra Z48USB 3.0 32GB	N/A	SanDisk	64 GB
HDD	WD40PURX- 64N96Y0	N/A	Western Digital	4 TB

2-6 Cable List

Cable List						
From		To		Length	Shielding	
Type	I/O Port	Type	I/O Port	(m)	Cable	backshell
EUT	AC IN #1	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
	AC IN #2	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
	LAN #1	Poe Injector	LAN	3.0	NO	Plastic
	LAN #2	Switch Hub	LAN	3.0	NO	Plastic
	LAN #3	Switch Hub	LAN	3.0	NO	Plastic
	USB 2.0 #1	Keyboard	-	1.5	NO	Plastic
	USB 2.0 #2	Mouse	-	1.5	NO	Plastic
	USB 3.0 #1	USB Memory Stick #1	-	-	-	Metal
	USB 3.0 #2	USB Memory Stick #2	-	-	-	Plastic
	AUDIO OUT	Speaker	AUDIO IN	1.0	NO	Plastic
	HDMI #1	Monitor #1	HDMI	1.5	YES	Plastic
	HDMI #2	Monitor #2	HDMI	1.5	YES	Plastic
	HDD	HDD	-	-	-	-
Switch Hub	LAN	Notebook	LAN	2.0	NO	Plastic
	DC IN	Switch Hub Adapter	DC OUT	1.5	NO	Plastic
Switch Hub Adapter	AC IN	AC Power Source	2 Pin AC Line	-	-	-
Monitor #2	DC IN	Monitor #2 Adapter	DC OUT	1.3	NO	Plastic
Monitor #2 Adapter	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
PoE Injector	PoE	Network Camera	PoE	2.0	NO	Plastic
	AC IN	AC Power Source	3 Pin AC Line	1.5	NO	Plastic
Notebook	-	-	-	-	-	-

3. Test Report

3.1 Summary of tests

Parameter	Applied Standard	Status
I. Emission		
Conducted Emissions	AS/NZS CISPR32:2015	C
Radiated Emissions	AS/NZS CISPR32:2015	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

4. Test Items

4-1 Conducted Emissions

Definition:

The test assesses the ability of the EUT to limit its internal noise from being present on the AC mains Power In/Output/Telecommunication ports.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	: AS/NZS CISPR32:2015
Measurement Frequency range	: 150 kHz - 30 MHz
Measurement RBW	: 9 kHz
Test mode	: REC mode
Result	: Complies

Measurement Data:

- Refer to the Next page (Maximum emission configuration)

A sample calculation:

COR. F (correction factor)= LISN Insertion loss + Cable loss + Pulse Limiter Factor

Emission Level= meter reading + COR.F

Limits for conducted disturbance at the mains ports of class A ITE

Frequency Range	Quasi-peak	Average
(0.15 - 0.5) MHz	79 dB μ V	66 dB μ V
(0.5 – 30) MHz	73 dB μ V	60 dB μ V

Note: The limits will decrease with the frequency logarithmically within 0.15 MHz to 0.5 MHz

Limits for conducted disturbance at the mains ports of class B ITE

Frequency Range	Quasi-peak	Average
(0.15 – 0.5) MHz	(66 – 56) dB μ V	(56 - 46) dB μ V
(0.5 – 5) MHz	56 dB μ V	46 dB μ V
(5 – 30) MHz	60 dB μ V	50 dB μ V

Note: The limits will decrease with the frequency logarithmically within 0.15 MHz to 0.5 MHz

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class A equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 - 0.5) MHz	(97 – 87) dB μ V	(84 – 74) dB μ V	(53 – 43) dB μ V	(40 – 30) dB μ V
(0.5 – 30) MHz	87 dB μ V	74 dB μ V	43 dB μ V	30 dB μ V

Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: 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)

Limits of conducted common mode (asymmetric mode) disturbance at telecommunication ports in the frequency range 0.15 MHz to 30 MHz for class B equipment

Frequency Range	Voltage limits		Current limits	
	Quasi-peak	Average	Quasi-peak	Average
(0.15 - 0.5) MHz	(84 – 74) dB μ V	(74 – 64) dB μ V	(40 – 30) dB μ V	(30 – 20) dB μ V
(0.5 – 30) MHz	74 dB μ V	64 dB μ V	30 dB μ V	20 dB μ V

Note 1: The limits decrease linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note 2: 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)

Conducted Emissions (LINE) / AC #1



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel: +82-31-3236008,9
Fax: +82-31-3236010

EUT /Model No. : XRP-4310DB4

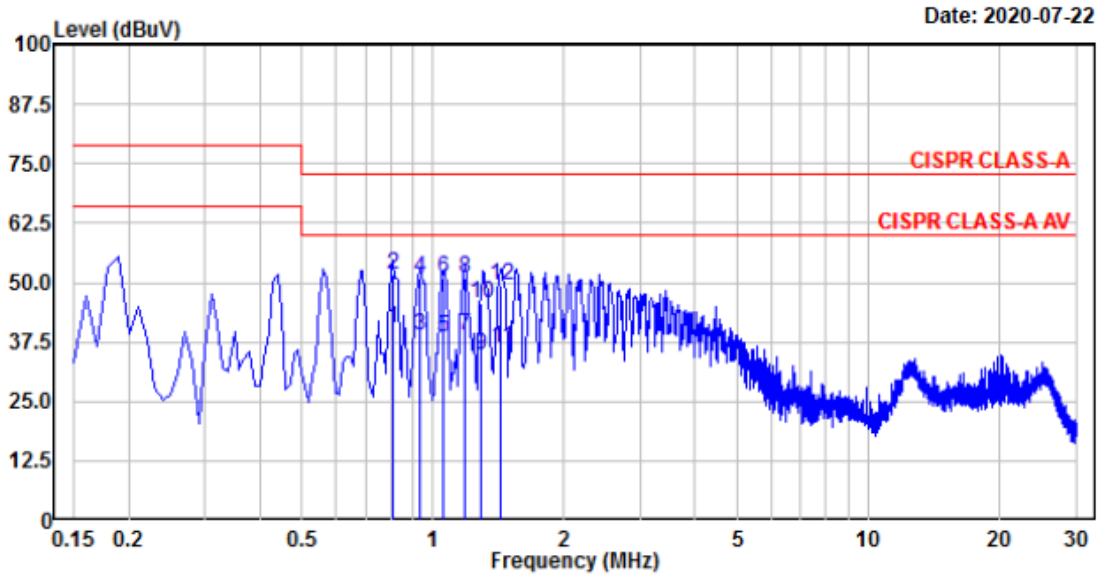
Phase : Line(AC #1)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	0.808	32.08	20.83	19.52	51.60	40.35	73.00	60.00	21.40	19.65	Line
4.	0.938	31.28	19.39	19.54	50.82	38.93	73.00	60.00	22.18	21.07	Line
6.	1.056	31.52	18.81	19.54	51.06	38.35	73.00	60.00	21.94	21.65	Line
8.	1.182	31.47	19.14	19.55	51.02	38.69	73.00	60.00	21.98	21.31	Line
10.	1.291	26.28	15.12	19.55	45.83	34.67	73.00	60.00	27.17	25.33	Line
12.	1.437	29.99	16.80	19.56	49.55	36.36	73.00	60.00	23.45	23.64	Line

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (NEUTRAL) / AC #1



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No. : XRP-4310DB4

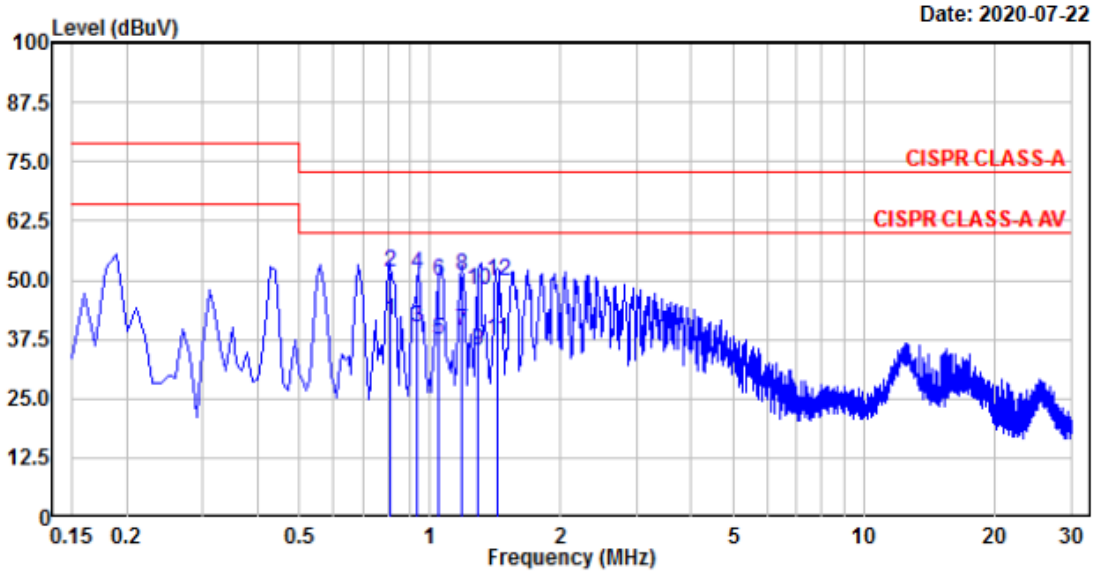
Phase : Neutral(AC #1)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	0.807	32.24	21.81	19.56	51.80	41.37	73.00	60.00	21.20	18.63	neutral
4.	0.936	31.73	20.37	19.58	51.31	39.95	73.00	60.00	21.69	20.05	neutral
6.	1.049	30.25	17.74	19.58	49.83	37.32	73.00	60.00	23.17	22.68	neutral
8.	1.182	31.32	19.63	19.60	50.92	39.23	73.00	60.00	22.08	20.77	neutral
10.	1.294	28.36	15.63	19.60	47.96	35.23	73.00	60.00	25.04	24.77	neutral
12.	1.429	30.38	17.68	19.60	49.98	37.28	73.00	60.00	23.02	22.72	neutral

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (LINE) / AC #2



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No. : XRP-4310DB4

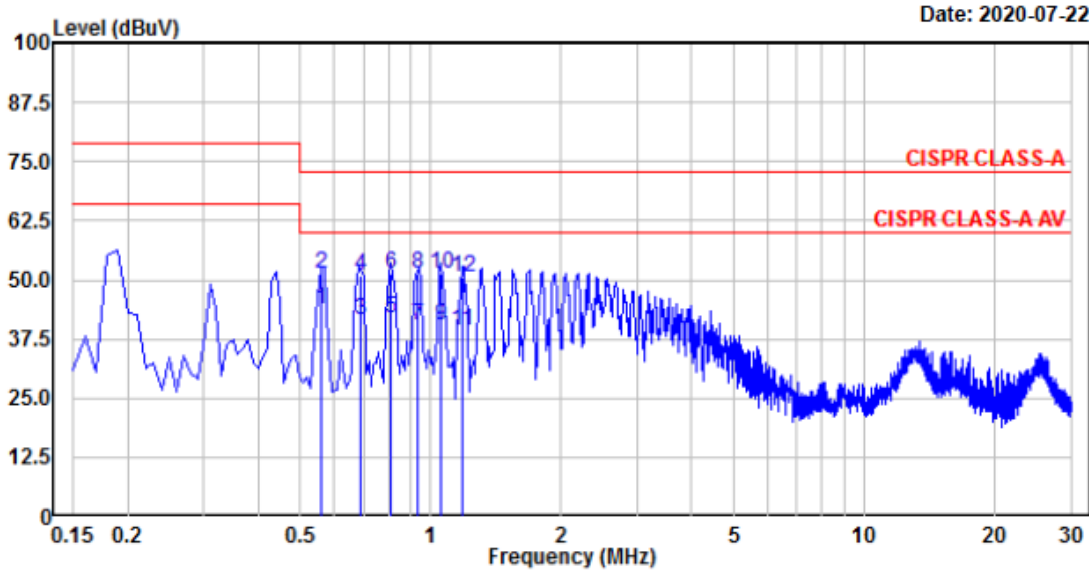
Phase : Line (AC #2)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	0.562	31.97	24.39	19.51	51.48	43.90	73.00	60.00	21.52	16.10	Line
4.	0.688	31.59	22.02	19.51	51.10	41.53	73.00	60.00	21.90	18.47	Line
6.	0.812	31.91	22.18	19.52	51.43	41.70	73.00	60.00	21.57	18.30	Line
8.	0.931	31.62	20.93	19.54	51.16	40.47	73.00	60.00	21.84	19.53	Line
10.	1.057	31.63	20.66	19.54	51.17	40.20	73.00	60.00	21.83	19.80	Line
12.	1.183	31.20	19.78	19.55	50.75	39.33	73.00	60.00	22.25	20.67	Line

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (NEUTRAL) / AC #2



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel: +82-31-3236008,9
Fax: +82-31-3236010

EUT /Model No. : XRP-4310DB4

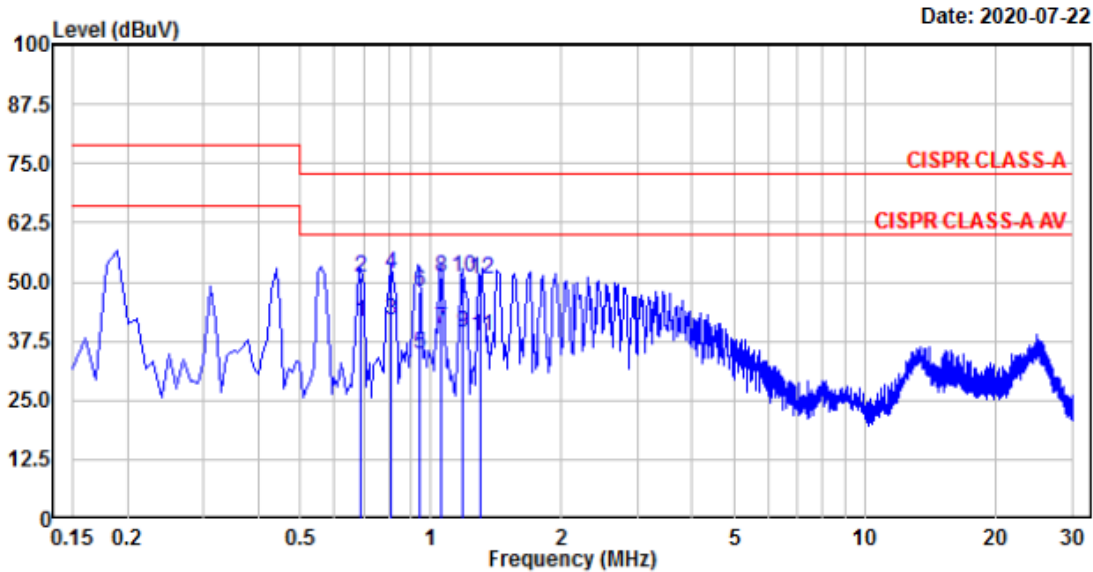
Phase : Neutral (AC #2)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 °C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	0.689	31.37	21.78	19.55	50.92	41.33	73.00	60.00	22.08	18.67	neutral
4.	0.811	32.10	22.46	19.56	51.66	42.02	73.00	60.00	21.34	17.98	neutral
6.	0.946	28.33	15.17	19.58	47.91	34.75	73.00	60.00	25.09	25.25	neutral
8.	1.055	31.51	20.35	19.58	51.09	39.93	73.00	60.00	21.91	20.07	neutral
10.	1.183	31.19	19.76	19.60	50.79	39.36	73.00	60.00	22.21	20.64	neutral
12.	1.306	30.78	18.85	19.61	50.39	38.46	73.00	60.00	22.61	21.54	neutral

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_1000 M) / LAN #1



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No. : XRP-4310DB4

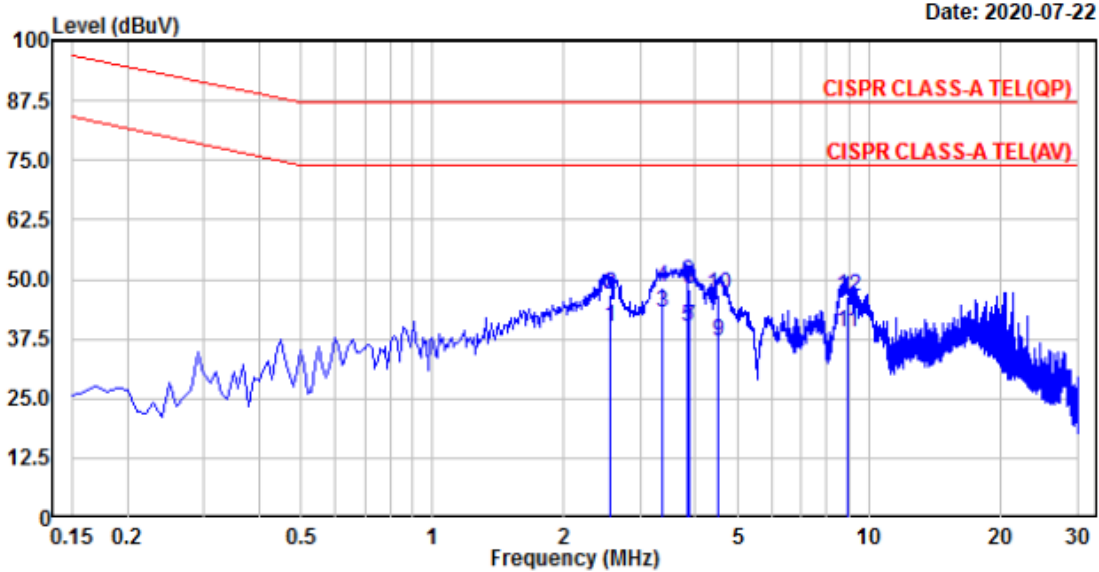
Phase : TEL_1000M(LAN #1)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	2.547	27.37	20.67	19.39	46.76	40.06	87.00	74.00	40.24	33.94	Line
4.	3.350	28.92	23.47	19.40	48.32	42.87	87.00	74.00	38.68	31.13	Line
6.	3.843	30.18	20.74	19.41	49.59	40.15	87.00	74.00	37.41	33.85	Line
8.	3.862	28.53	20.69	19.41	47.94	40.10	87.00	74.00	39.06	33.90	Line
10.	4.517	27.22	17.56	19.42	46.64	36.98	87.00	74.00	40.36	37.02	Line
12.	8.901	26.86	19.47	19.52	46.38	38.99	87.00	74.00	40.62	35.01	Line

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_1000 M) / LAN #2



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No. : XRP-4310DB4

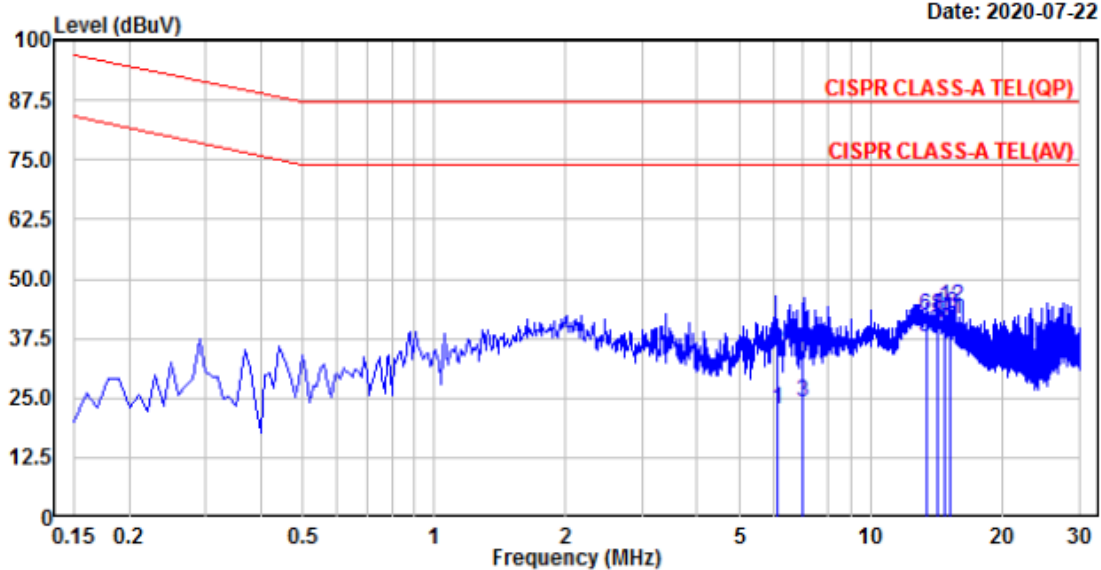
Phase : TEL_1000M(LAN #2)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	6.082	15.41	3.19	19.43	34.84	22.62	87.00	74.00	52.16	51.38	Line
4.	6.952	15.59	4.77	19.45	35.04	24.22	87.00	74.00	51.96	49.78	Line
6.	13.357	22.57	18.19	19.62	42.19	37.81	87.00	74.00	44.81	36.19	Line
8.	14.272	22.74	19.16	19.65	42.39	38.81	87.00	74.00	44.61	35.19	Line
10.	14.701	23.08	19.74	19.66	42.74	39.40	87.00	74.00	44.26	34.60	Line
12.	15.250	24.40	21.95	19.66	44.06	41.61	87.00	74.00	42.94	32.39	Line

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_1000 M) / LAN #3



4, Songjuro 236 Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel:+82-31-3236008,9
Fax:+82-31-3236010

EUT /Model No. : XRP-4310DB4

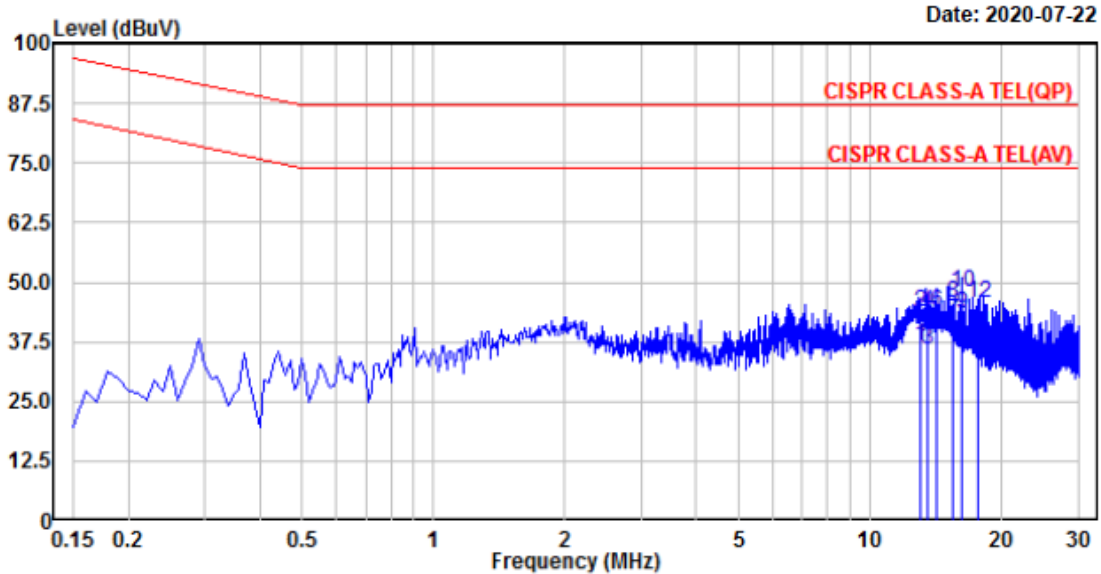
Phase : TEL_1000M(LAN #3)

Test Mode : REC mode

Test Power : 240 V / 50 Hz

Temp./ Humi. : 23 'C / 51 % R.H.

Test Engineer : PARK J H



No.	Freq MHz	RD QP dBuV	RD AV dBuV	C.F dB	Result QP dBuV	Result AV dBuV	Limit QP dBuV	Limit AV dBuV	Margin QP dB	Margin AV dB	Phase
2.	13.006	24.18	16.89	19.62	43.80	36.51	87.00	74.00	43.20	37.49	Line
4.	13.555	24.04	16.14	19.63	43.67	35.77	87.00	74.00	43.33	38.23	Line
6.	14.150	24.30	19.20	19.64	43.94	38.84	87.00	74.00	43.06	35.16	Line
8.	15.435	25.80	22.28	19.67	45.47	41.95	87.00	74.00	41.53	32.05	Line
10.	16.229	28.37	23.64	19.69	48.06	43.33	87.00	74.00	38.94	30.67	Line
12.	17.693	25.79	19.64	19.71	45.50	39.35	87.00	74.00	41.50	34.65	Line

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

4-2 Radiated Emissions

Definition:

The test assesses the ability of ancillary equipment to limit their internal noise from being radiated from the enclosure.

We were performed the test according to LTA procedure LTA-QI-04.

Test method	: AS/NZS CISPR32:2013
Measuring Distance	: 10 m below 1 GHz / 3 m above 1 GHz
Measurement Frequency range	: 30 MHz – 6 000 MHz
Measurement RBW	: 120 kHz @ 10 m / 1 MHz @ 3 m
Test mode	: REC mode
Result	: Complies

Measurement Data:

- Refer to the Next page (Maximum emission configuration)
- The highest internal source of an EUT is higher than 108 MHz, the measurement shall only be made up to 6 GHz.
(The highest internal source of an EUT : 4 GHz)

A sample calculation:

COR. F (correction factor)= Antenna factor + Cable loss- Amp.gain- Distance correction

Emission Level= meter reading + COR.F

Limit of 10 m below 1 GHz

CLASS A

Frequency Range	Quasi-peak
(30 – 230) MHz	40 dB μ V/m
(230 – 1 000) MHz	47 dB μ V/m

CLASS B

Frequency Range	Quasi-peak
(30 – 230) MHz	30 dB μ V/m
(230 – 1 000) MHz	37 dB μ V/m

Limit of 3m above 1 GHz

CLASS A

Frequency Range	Average Limit @ 3m (dB μ V/m)	Peak limit @ 3m (dB μ V/m)
(1 000 – 3 000) MHz	56	76
(3 000 – 6 000) MHz	60	80

NOTE: The lower limit applies at the transition frequency.

CLASS B

Frequency Range	Average Limit @ 3m (dB μ V/m)	Peak limit @ 3m (dB μ V/m)
(1 000 – 3 000) MHz	50	70
(3 000 – 6 000) MHz	54	74

NOTE: The lower limit applies at the transition frequency.

Radiated Emissions (Below 1 GHz) / V



4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

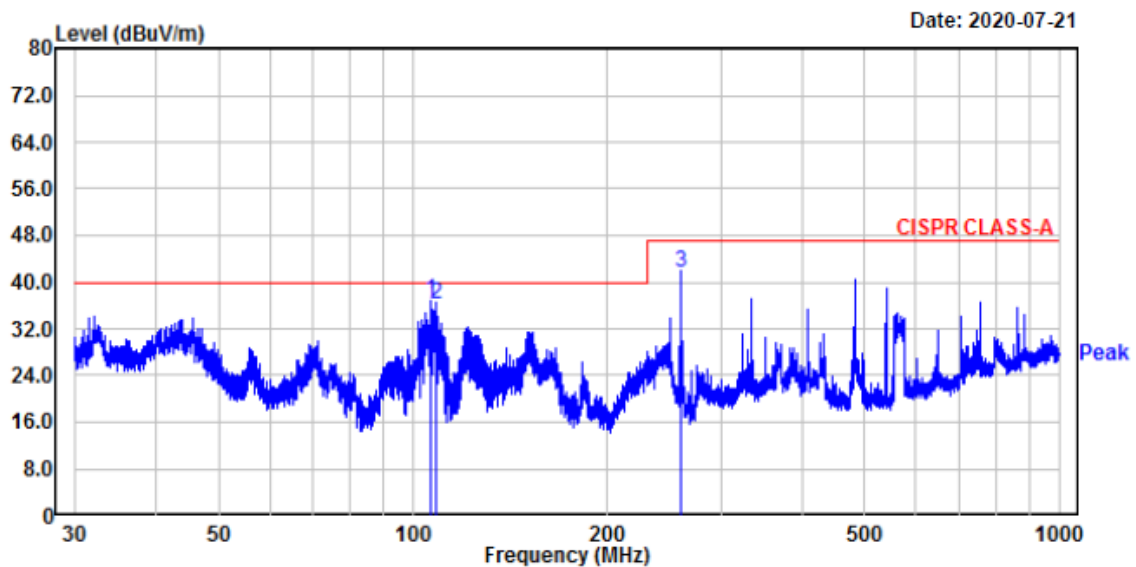
EUT/Model No.: XRP-4310DB4

Temp/Humi: 23 'C / 55 % R.H.

Test Mode : REC mode

Tested by: PARK J H

Power : 240 V / 50 Hz



No.	Freq MHz	Reading dBμV	C.F dB	Result QP dBμV/m	Limit dBμV/m	Margin dB	Height cm	Angle deg	Polarity
1.	106.76	52.94	-16.20	36.74	40.00	3.26	104	287	vertical
2.	108.79	52.31	-15.94	36.37	40.00	3.63	100	290	vertical
3.	259.92	53.92	-12.34	41.58	47.00	5.42	101	24	vertical

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emissions (Below 1 GHz) / H



4, Songjuro 236Beon-gil, yanggi-myeon,
Yongin-si, Gyeonggi-do, Korea
Tel : +82-31-3236008,9
Fax : +82-31-3236010
www.ltalab.com

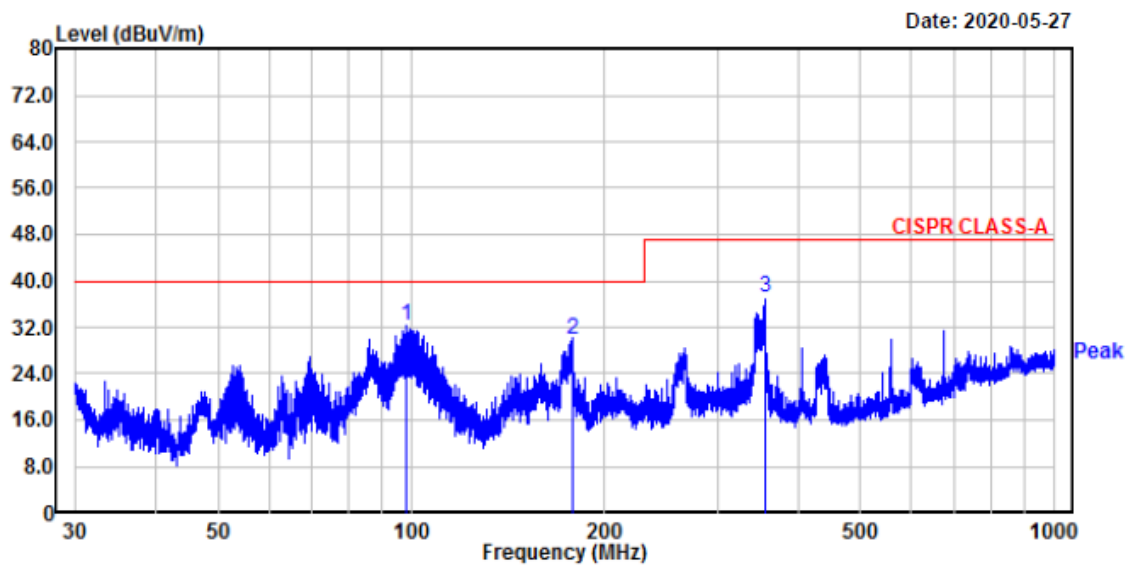
EUT/Model No.: XRN-6410B4

Temp/Humi: 21 'C / 34 % R.H.

Test Mode : Operating mode

Tested by: KIM J H

Power : 240 V / 50 Hz



No.	Freq MHz	Reading dBμV	C.F dB	Result QP dBμV/m	Limit dBμV/m	Margin dB	Height cm	Angle deg	Polarity
1.	98.40	49.80	-17.63	32.17	40.00	7.83	400	102	horizontal
2.	177.90	43.11	-13.17	29.94	40.00	10.06	398	23	horizontal
3.	355.43	46.80	-9.57	37.23	47.00	9.77	385	139	horizontal

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

Radiated Emissions

(Above 1 GHz) / V

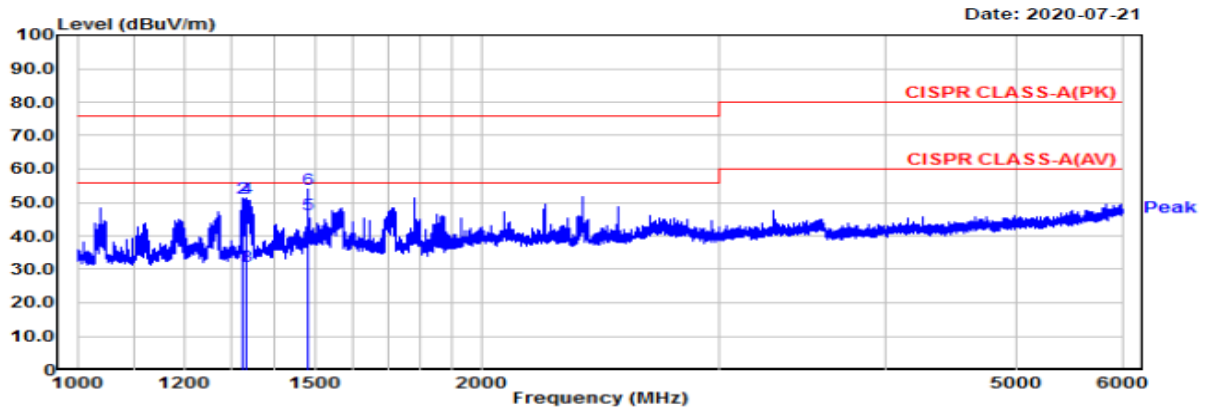
EUT/Model No.: XRP-4310DB4

Temp/Humi: 21 °C / 54 % R.H.

Test Mode : REC mode

Tested by: PARK J H

Power : 240 V / 50 Hz



(Above 1 GHz) / H

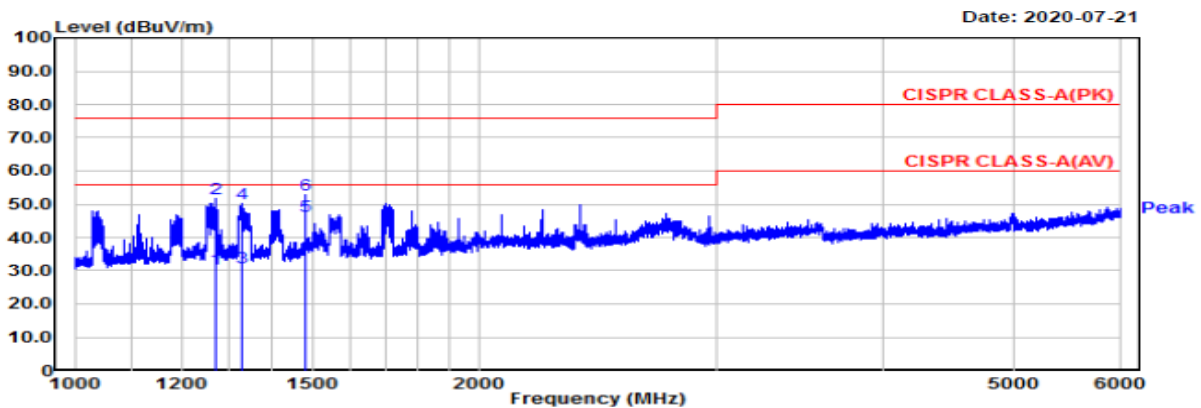
EUT/Model No.: XRP-4310DB4

Temp/Humi: 21 °C / 54 % R.H.

Test Mode : REC mode

Tested by: PARK J H

Power : 240 V / 50 Hz



Manufacture : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Test Date	Temp.: [°C]	Humidity: [%]	Distance (m)
2020-07-21	21.00	54.00	3.85

Model : XRP-4310DB4

TEST mode : REC mode

Frequency MHz	Reading(PK) dBuV	Reading(AV) dBuV	C.F dB	Result(PK) dBuV/m	Result(AV) dBuV/m	Limit(PK) dBuV/m	Limit(AV) dBuV/m	Margin(PK) dB	Margin(AV) dB	Height cm	Angle deg	Polarity H/V
1270.23	59.25	38.47	-5.57	53.68	32.90	76.00	56.00	22.32	23.10	100	129	H
1328.43	57.44	37.99	-5.04	52.40	32.95	76.00	56.00	23.60	23.05	100	105	H
1483.18	59.03	52.56	-4.05	54.98	48.51	76.00	56.00	21.02	7.49	100	92	H
1326.94	58.45	38.31	-5.06	53.39	33.25	76.00	56.00	22.61	22.75	100	94	V
1333.49	58.54	38.02	-4.98	53.56	33.04	76.00	56.00	22.44	22.96	100	57	V
1483.51	60.16	52.53	-4.04	56.12	48.49	76.00	56.00	19.88	7.51	100	239	V

APPENDIX A

TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment are identified by the Test Laboratory.

Conducted Emissions

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2021.07.02	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2021.03.16	1 year
☐	ISN	ISN T800	TESEQ	27109	2020.09.09	1 year
☒	ISN	ENY81-CA6	Rohde & Schwarz	101565	2020.09.09	1 year
☐	ISN	ISN S8	Schwarzbeck	79	2020.09.06	1 year
☐	CURRENT PROBE	EZ-17	Rohde & Schwarz	100508	2020.09.09	1 year
☐	CDN	TSCDN-C1-BNC-75	F.C.C	07004	2021.05.08	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2020.09.05	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2020.09.05	1 year
☒	LISN(main)	ENV216	Rohde & Schwarz	101222	2020.09.06	1 year
☒	LISN(sub)	LT32C/10	AFJ	32031518210	2020.09.05	1 year
☒	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-

Radiated Emissions – Below 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2020.09.05	1 year
☒	Amplifier (25 dB)	8447D	HP	2944A07684	2021.03.16	1 year
☒	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2021.03.26 (KOLAS)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

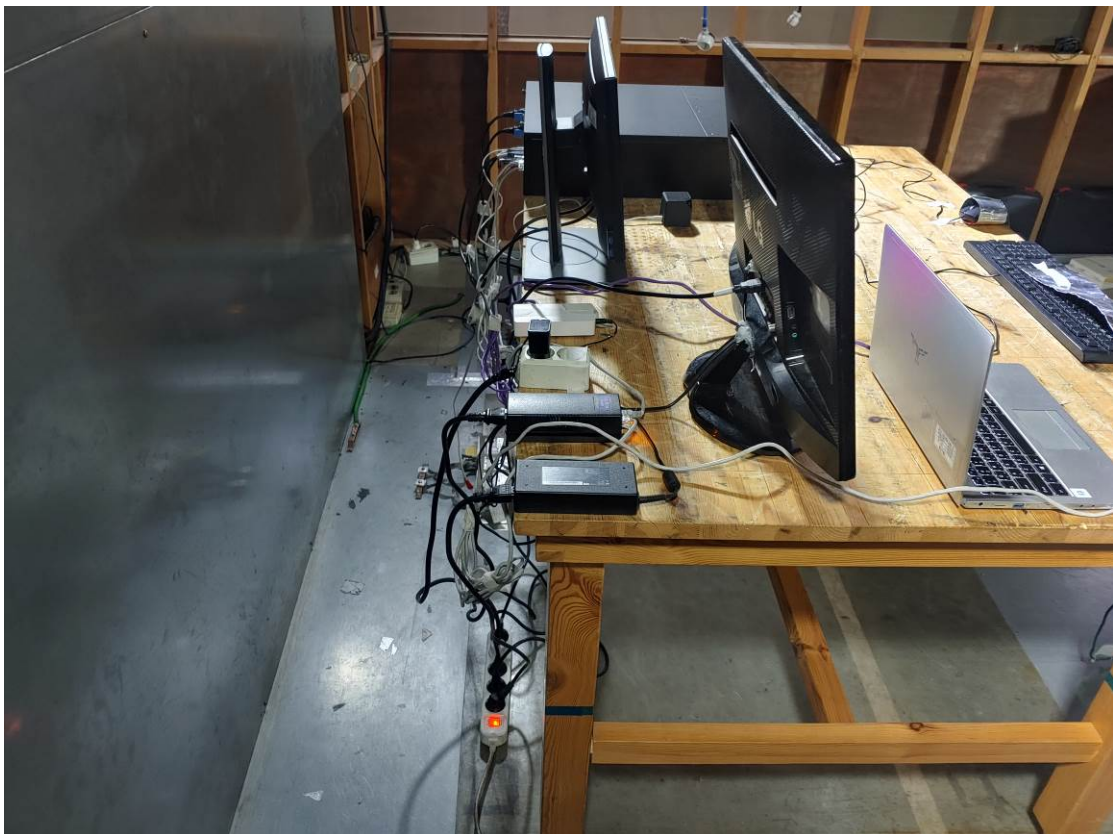
Radiated Emissions – Above 1 GHz

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
☒	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2020.09.05	1 year
☒	Amplifier	8449B	Agilent	3008A02126	2021.03.17	1 year
☐	Amplifier	PAM-840A	COM-POWER	461314	2021.03.16	1 year
☐	HORN ANTENNA	3116B	ETS	133350	2022.05.12	2 year
☐	HORN ANTENNA	3116B	ETS	81109	2022.05.12	2 year
☒	HORN ANTENNA	3115	ETS	114105	2021.09.17 (KOLAS)	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

APPENDIX B

PHOTOGRAPHS

Conducted Emissions



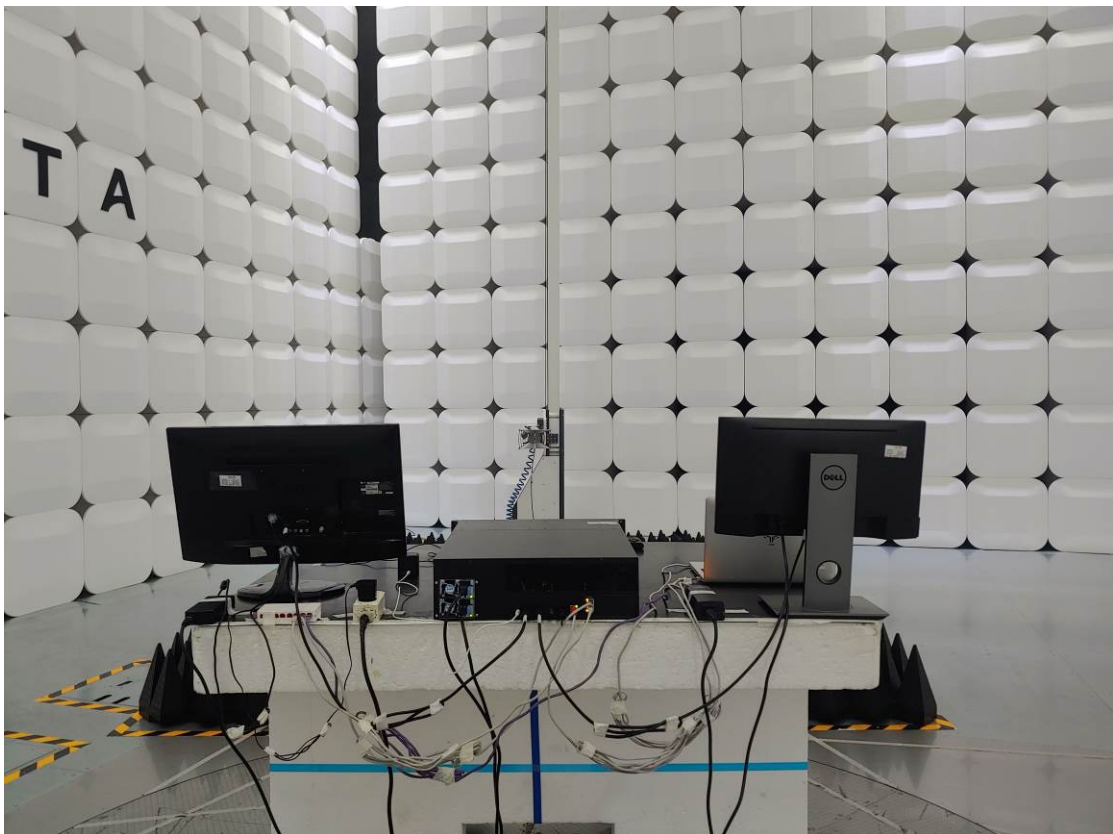
Conducted Emissions (TEL)



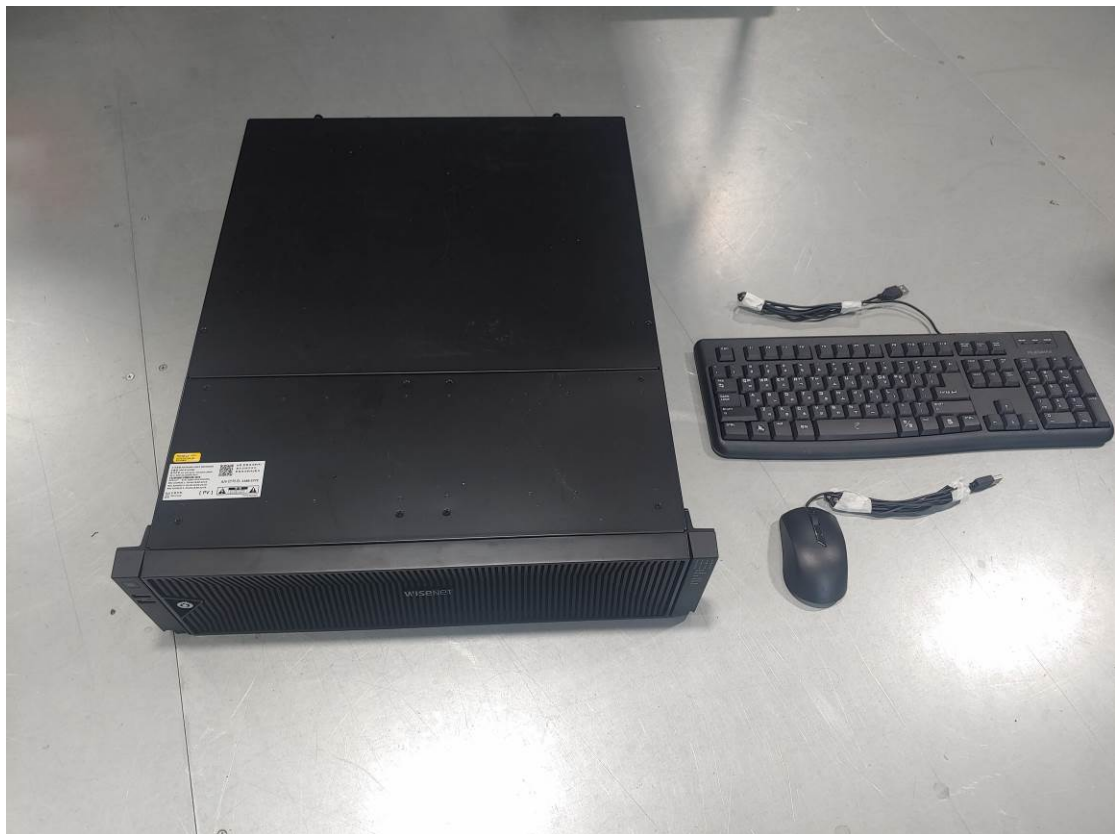
Radiated Emissions - Below 1 GHz



Radiated Emissions - Above 1 GHz



EUT



EUT

