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EMC TEST REPORT

Dates of Tests: July 01 - 04, 2022
Test Report S/N: LR500172302AG
Test Site : LTA Co., Ltd.

Model No.

PRN-3210B2

APPLICANT

Hanwha Vision Co., Ltd

Equipment Name : NVR
Manufacturer : Hanwha Vision Co., Ltd
Model Name : PRN-3210B2
Additional Model name : PRN-1610B2, PRN-3200B2, PRN-3205B2,
PRN-1600B2, PRN-1605B2
Test Device Serial No.: Identification
Rule Part(s) : VCCI-CISPR 32:2016

Date of issue : February 21, 2023

This test report is issued under the authority of:

Young Kyu Shin, Technical Manager

The test was supervised by:

Hyun Young Ahn, 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.

This test report is not related to KS Q ISO/IEC 17025 and KOLAS accreditation.



Revision history

Revision	Date of issue	Test report No.	Description
0	11.01.2021	LR500172101M	Initial
1	26.05.2021	LR500172105AJ	Add Additional Models (PRN-3200B2, PRN-3205B2, PRN-1600B2, PRN-1605B2)
2	16.12.2021	LR500172112V	Change the PCB. (using with the PCB that has not changed)
3	11.07.2022	LR500172207I	change the PCB. (using with the PCB that has not changed)
4	21.02.2023	LR500172207AG	Change company name and manufacturer name



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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>
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which “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	2022-09-30	ECT accredited Lab.
RRA	KOREA	-	-	RRA accredited Lab.
	U.S.A	KR0049	2023-04-08	
	CANADA		2022-10-18	
VCCI	JAPAN	C-14948	2023-09-10	VCCI registration
		T-12416	2023-09-10	
		R-14483	2023-10-15	
		G-10847	2024-12-13	
KOLAS	KOREA	KT551	2025-10-12	KOLAS accredited Lab.

2. Information's about test item

2-1 Client / Manufacturer

Company name : Hanwha Vision 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 VISION VIETNAM COMPANY LIMITED
 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 : PRN-3210B2
 Additional Model Name : PRN-1610B2, PRN-3200B2, PRN-3205B2, PRN-1600B2, PRN-1605B2
 Additional Models are different number of channels.
 Serial number : Identification
 Date of receipt : June 21, 2022
 EUT condition : Pre-production, not damaged
 Interface ports : AC IN, USB #1 ~ #4, HDMI #1 ~ #2, AUDIO OUT, ALARM IN, ALARM OUT, NETWORK #1 ~ #3, GND
 Console Port is unused port.
 Power rating : AC 100 V, 50 Hz

2-3 Modification

- Insert Aluminum Tape at Internal Signal line.

2-4 Test conditions

Temp. / Humid. / Pressure : (22 – 23) °C / (47 – 49) % R.H.
 Tested Model : PRN-3210B2
 Test mode : Operating mode
 Test Voltage : AC 100 V, 50 Hz

2-5 List of EUT and ACCESSORY

EUT				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
NVR	PRN-3210B2	N/A	HANWHA VISION VIETNAM COMPANY LIMITED D-TECH CO.,LTD.	-
MOUSE	MOKJUO	N/A	Primax Electronics Ltd.	-
ACCESSORY				
Equipment Name	Model Name	Serial No.	Manufacturer	Remarks
KEY BOARD	Y-U0009	N/A	Logitech Co.,Ltd	-
NOTEBOOK	ELITEBOOK219	N/A	HP	-
POE INJECTOR	IpTIME PoE408	N/A	IpTIME	-
POE INJECTOR ADAPTER	ANY480A5C-NI	N/A	Wendent Any Electronics Co.,Ltd	-
USB MEMORY STICK	SDCZ50-016G	N/A	Sandisk	2 EA
HEAD PHONE	SHS-150V/W	N/A	SAMSUNG	-
NETWORK CAMERA #1	QND-6070RNC	N/A	HANHWA TECHWIN CO., LTD.	-
NETWORK CAMERA #2	LND-6032R	N/A	HANHWA TECHWIN CO., LTD.	-
ALARM ZIG #1	DS-360	N/A	Daemyung Electronics Co., Ltd	-
ALARM ZIG #2	N/A	N/A	N/A	-
MOBILE PHONE	SM930K	N/A	SAMSUNG	-
MONITOR #1	6230VP	73010478A2 20371	Lien Fong(Wujiang) Electronics Co.,Ltd	-
MONITOR #2	P2018H	N/A	DELL	-

Cable List						
From		To		Length (m)	Shielding	
Type	I/O Port	Type	I/O Port		Cable	backshell
EUT	AC IN	AC POWER SOURCE	3 PIN AC LINE	1.0	NO	Plastic
	NETWORK #1	NOTEBOOK	LAN	3.0	NO	Plastic
	NETWORK #2	POE INJECTOR	LAN #1	3.0	NO	Plastic
	NETWORK #3	POE INJECTOR	LAN #2	3.0	NO	Plastic
	AUDIO OUT	HEAD PHONE	AUDIO IN	1.0	NO	Plastic
	ALARM IN	ALARM ZIG #2	ALARM OUT	3.0	NO	Plastic
	ALARM OUT	ALARM ZIG #1	ALARM IN	3.0	NO	Plastic
	HDMI #1	MONITOR #1	HDMI	1.0	YES	Plastic
	HDMI #2	MONITOR #2	HDMI	1.0	YES	Plastic
	USB #1	MOUSE	USB	1.0	NO	Plastic
	USB #2	KEY BOARD	USB	1.0	NO	Plastic
	USB #3	USB MEMORY STICK #1	-	-	-	-
	USB #4	USB MEMORY STICK #2	-	-	-	-
	GND	GND	-	1.0	NO	Plastic
POE INJECTOR	DC IN	POE INJECTOR ADAPTER	DC OUT	1.0	NO	Plastic
	LAN #3	NETWORK CAMERA #1	LAN	3.0	NO	Plastic
	LAN #4	NETWORK CAMERA #2	LAN	3.0	NO	Plastic
POE INJECTOR ADAPTER	AC IN	AC POWER SOURCE	2 PIN AC LINE	0.8	NO	Plastic
MONITOR #1	AC IN	AC POWER SOURCE	3 PIN AC LINE	1.0	NO	Plastic
MONITOR #2	AC IN	AC POWER SOURCE	3 PIN AC LINE	1.0	NO	Plastic
MOBILE PHONE	-	-	-	-	-	-

3. Test Report

3.1 Summary of tests

Parameter	Applied Standard	Status
I. Emission		
Conducted Emissions	VCCI-CISPR 32:2016	C
Conducted Emissions at telecommunication ports	VCCI-CISPR 32:2016	C
Radiated Emissions	VCCI-CISPR 32:2016	C
Radiated Emissions at above 1 GHz	VCCI-CISPR 32:2016	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. EMISSION

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	: VCCI-CISPR 32:2016
Measurement Frequency range	: 150 kHz - 30 MHz
Measurement RBW	: 9 kHz
Test Location	: Shielded Room
Test mode	: Operating 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 Emissions 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 0.15MHz to 0.5MHz

Limits for Conducted Emissions 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)



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EUT /Model No. : PRN-3210B2

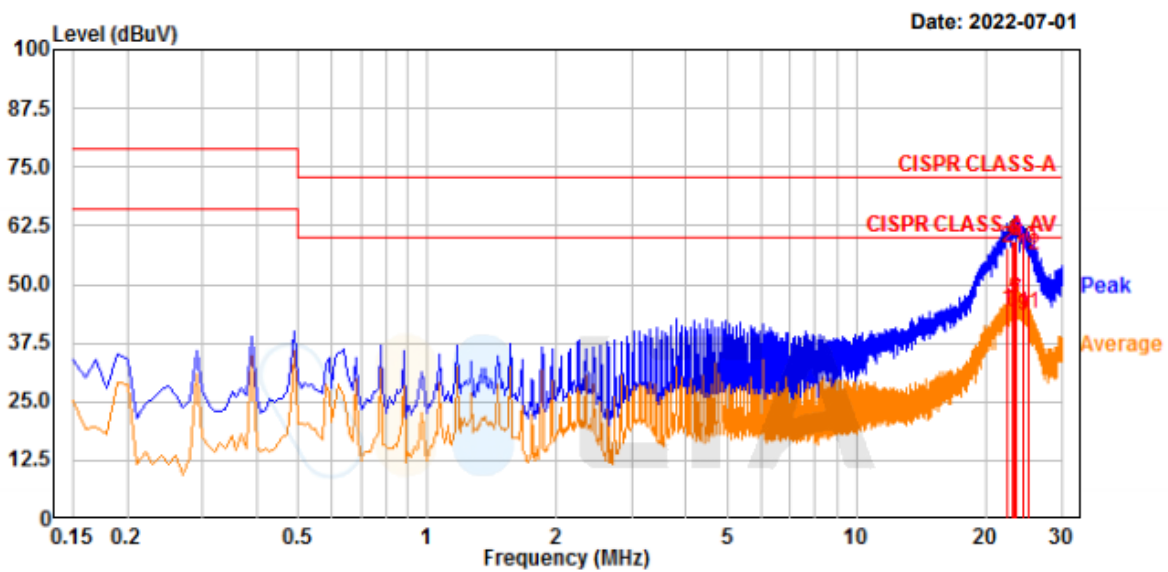
Phase : LINE

Test Mode : Operating mode

Test Power : 100 V / 50 Hz

Temp./ Humi. : 23 'C / 49 % R.H

Test Engineer : AHN H Y



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.	22.424	37.50	24.32	20.05	57.55	44.37	73.00	60.00	15.45	15.63	Line
4.	23.060	39.01	24.21	20.05	59.06	44.26	73.00	60.00	13.94	15.74	Line
6.	23.342	39.09	26.78	20.05	59.14	46.83	73.00	60.00	13.86	13.17	Line
8.	23.497	39.24	26.23	20.06	59.30	46.29	73.00	60.00	13.70	13.71	Line
10.	24.329	37.58	23.50	20.07	57.65	43.57	73.00	60.00	15.35	16.43	Line
12.	24.988	36.02	23.71	20.09	56.11	43.80	73.00	60.00	16.89	16.20	Line

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

Conducted Emissions (NEUTRAL)



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EUT /Model No. : PRN-3210B2

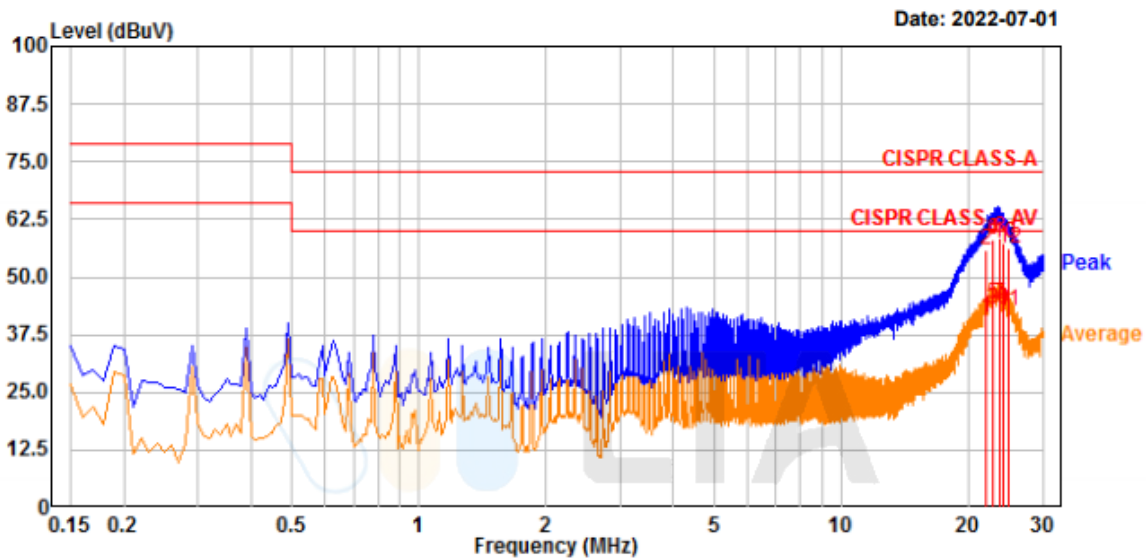
Phase : NEUTRAL

Test Mode : Operating mode

Test Power : 100 V / 50 Hz

Temp./ Humi. : 23 'C / 49 % R.H

Test Engineer : AHN H Y



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.	21.902	35.65	20.95	20.12	55.77	41.07	73.00	60.00	17.23	18.93	neutral
4.	22.779	38.00	22.99	20.14	58.14	43.13	73.00	60.00	14.86	16.87	neutral
6.	22.794	38.01	24.19	20.14	58.15	44.33	73.00	60.00	14.85	15.67	neutral
8.	23.766	38.34	23.96	20.17	58.51	44.13	73.00	60.00	14.49	15.87	neutral
10.	24.146	37.08	23.03	20.17	57.25	43.20	73.00	60.00	15.75	16.80	neutral
12.	24.863	36.03	22.49	20.18	56.21	42.67	73.00	60.00	16.79	17.33	neutral

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

Conducted Emissions (TEL_10 M) / Operating mode (NETWORK #1)



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EUT /Model No. : PRN-3210B2

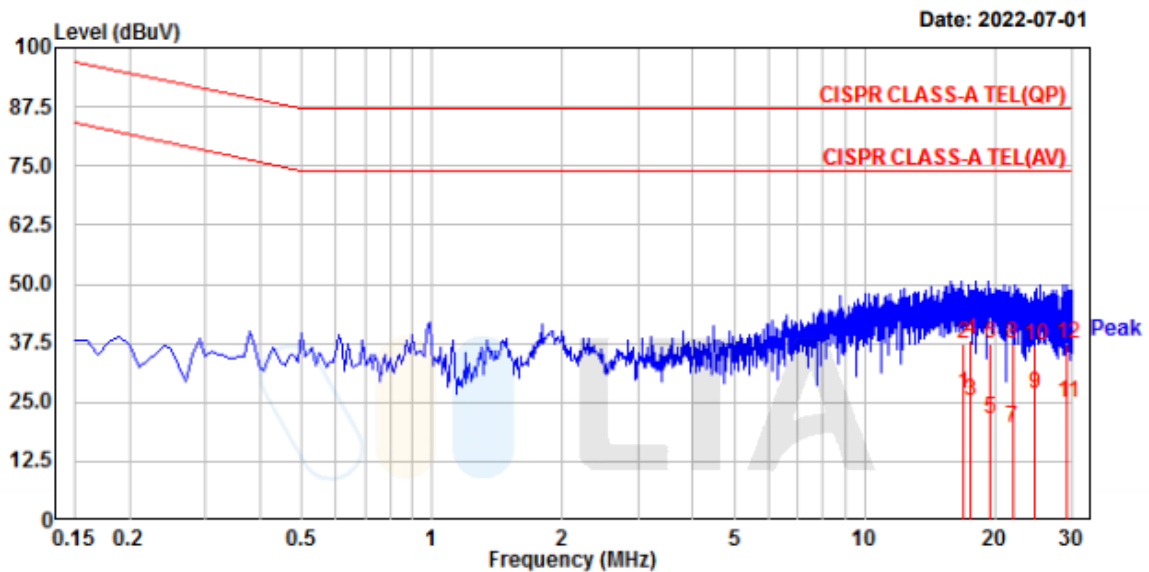
Phase : TEL_10M (NETWORK #1)

Test Mode : Operating mode

Test Power : 100 V / 50 Hz

Temp./ Humi. : 23 'C / 49 % R.H

Test Engineer : AHN H Y



No.	Freq MHz	RD QP dBμV	RD AV dBμV	C.F dB	Result QP dBμV	Result AV dBμV	Limit QP dBμV	Limit AV dBμV	Margin QP dB	Margin AV dB	Phase
2.	16.811	17.43	6.85	19.86	37.29	26.71	87.00	74.00	49.71	47.29	Line
4.	17.543	18.19	5.49	19.89	38.08	25.38	87.00	74.00	48.92	48.62	Line
6.	19.476	17.37	1.67	19.96	37.33	21.63	87.00	74.00	49.67	52.37	Line
8.	21.876	17.24	-0.41	20.05	37.29	19.64	87.00	74.00	49.71	54.36	Line
10.	24.612	16.97	6.66	20.16	37.13	26.82	87.00	74.00	49.87	47.18	Line
12.	29.284	17.14	4.67	20.35	37.49	25.02	87.00	74.00	49.51	48.98	Line

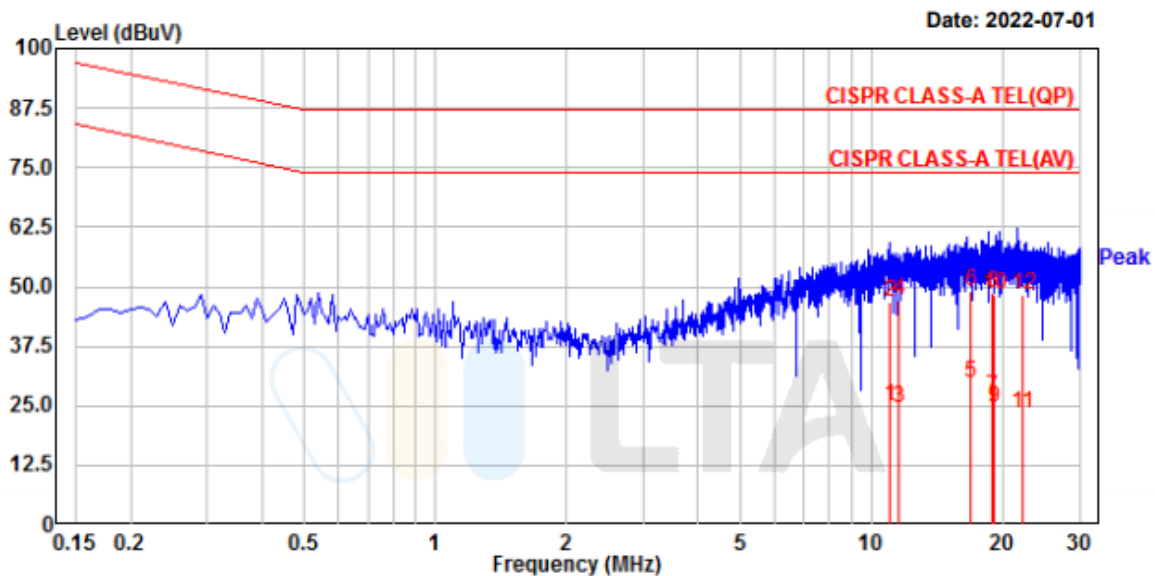
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_1000 M) / Operating mode (NETWORK #1)



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EUT /Model No. : PRN-3210B2	Phase : TEL_1000M (NETWORK #1)
Test Mode : Operating mode	Test Power : 100 V / 50 Hz
Temp./ Humi. : 23 'C / 49 % R.H	Test Engineer : AHN H Y



No.	Freq MHz	RD QP dBμV	RD AV dBμV	C.F dB	Result QP dBμV	Result AV dBμV	Limit QP dBμV	Limit AV dBμV	Margin QP dB	Margin AV dB	Phase
2.	10.955	27.22	5.29	19.45	46.67	24.74	87.00	74.00	40.33	49.26	Line
4.	11.556	27.82	5.11	19.47	47.29	24.58	87.00	74.00	39.71	49.42	Line
6.	16.825	29.38	10.40	19.57	48.95	29.97	87.00	74.00	38.05	44.03	Line
8.	18.959	28.98	7.13	19.61	48.59	26.74	87.00	74.00	38.41	47.26	Line
10.	19.133	28.84	5.09	19.62	48.46	24.71	87.00	74.00	38.54	49.29	Line
12.	22.099	28.58	3.58	19.67	48.25	23.25	87.00	74.00	38.75	50.75	Line

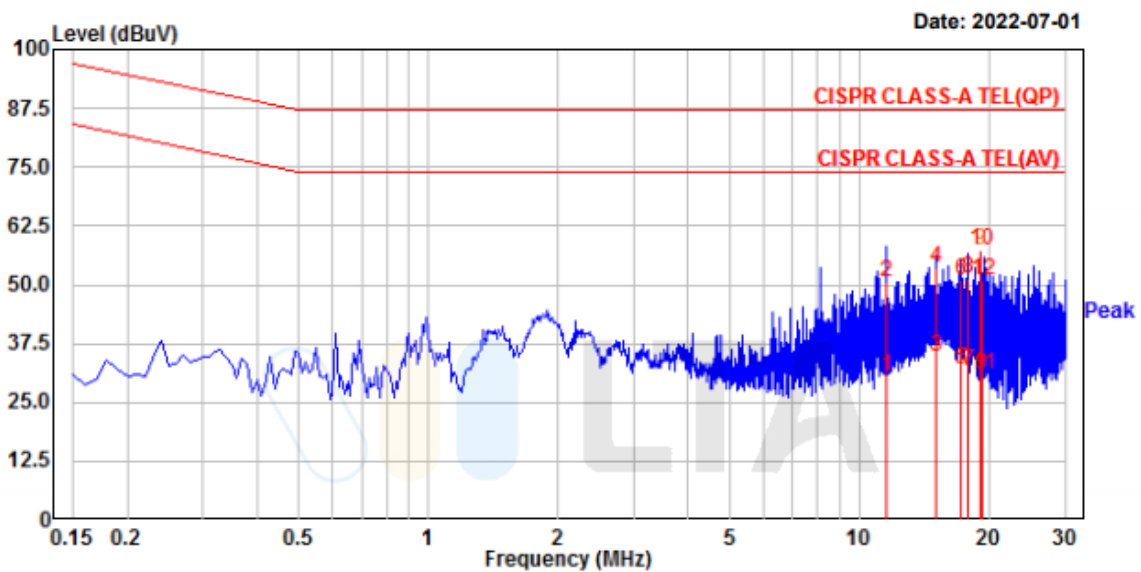
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_10 M) / Operating mode (NETWORK #2)



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EUT /Model No. : PRN-3210B2	Phase : TEL_10M (NETWORK #2)
Test Mode : Operating mode	Test Power : 100 V / 50 Hz
Temp./ Humi. : 23 'C / 49 % R.H	Test Engineer : AHN H Y



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.	11.541	30.86	10.74	19.70	50.56	30.44	87.00	74.00	36.44	43.56	Line
4.	15.022	33.87	15.10	19.79	53.66	34.89	87.00	74.00	33.34	39.11	Line
6.	17.219	31.02	12.21	19.86	50.88	32.07	87.00	74.00	36.12	41.93	Line
8.	17.771	31.51	11.69	19.90	51.41	31.59	87.00	74.00	35.59	42.41	Line
10.	19.053	37.53	11.07	19.93	57.46	31.00	87.00	74.00	29.54	43.00	Line
12.	19.296	31.05	10.87	19.95	51.00	30.82	87.00	74.00	36.00	43.18	Line

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

Conducted Emissions (TEL_1000 M) / Operating mode (NETWORK #2)



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EUT /Model No. : PRN-3210B2

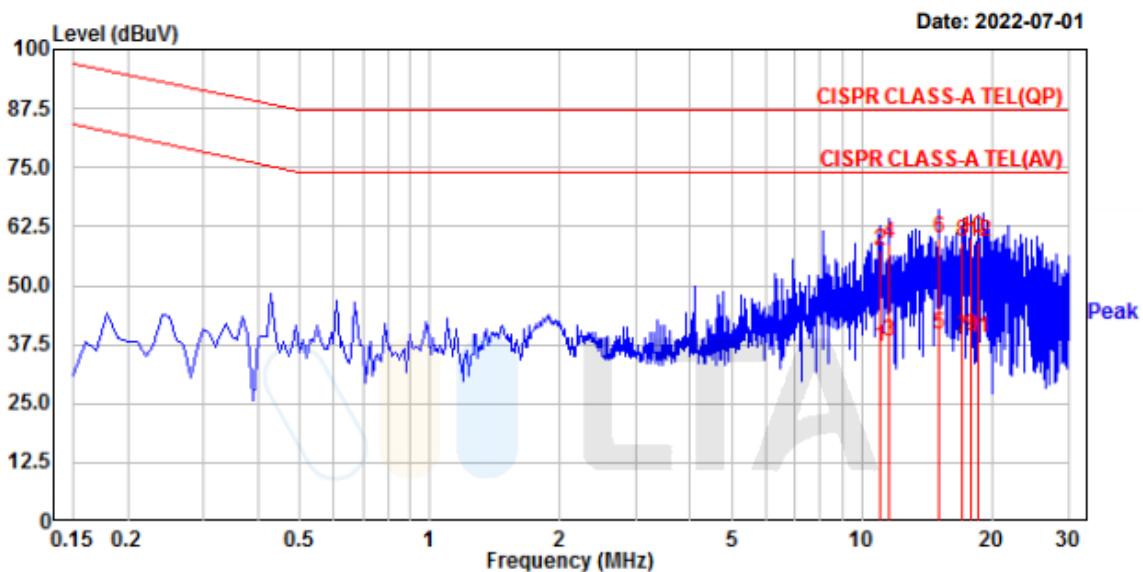
Phase : TEL_1000M (NETWORK #2)

Test Mode : Operating mode

Test Power : 100 V / 50 Hz

Temp./ Humi. : 23 'C / 49 % R.H

Test Engineer : AHN H Y



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.	10.991	38.02	17.61	19.45	57.47	37.06	87.00	74.00	29.53	36.94	Line
4.	11.541	39.34	18.56	19.47	58.81	38.03	87.00	74.00	28.19	35.97	Line
6.	15.081	40.35	20.15	19.54	59.89	39.69	87.00	74.00	27.11	34.31	Line
8.	17.037	39.82	19.28	19.57	59.39	38.85	87.00	74.00	27.61	35.15	Line
10.	17.890	40.49	19.64	19.59	60.08	39.23	87.00	74.00	26.92	34.77	Line
12.	18.501	39.65	19.32	19.61	59.26	38.93	87.00	74.00	27.74	35.07	Line

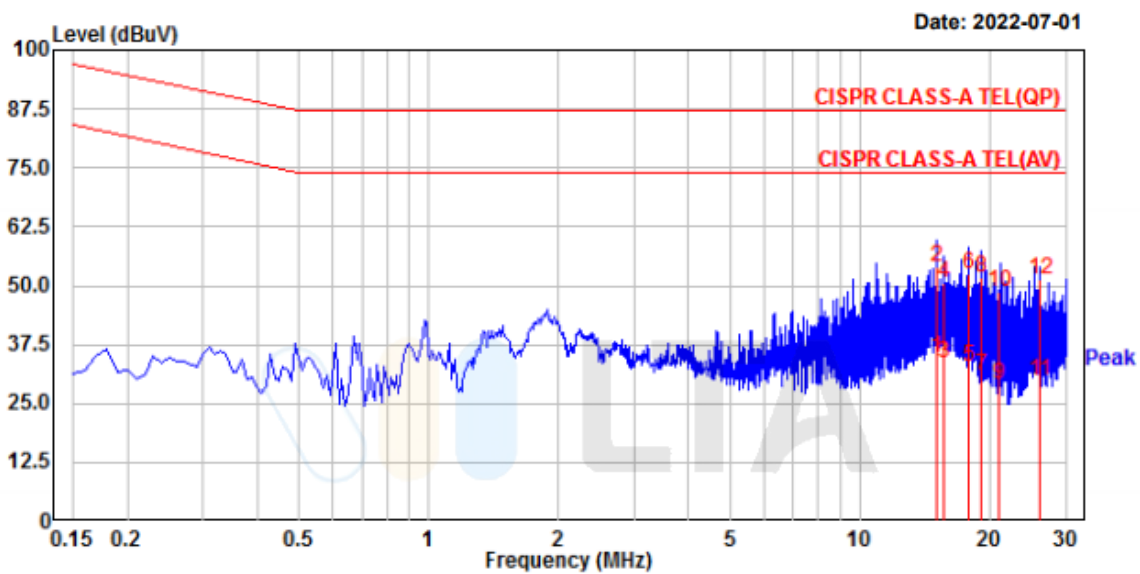
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_10 M) / Operating mode (NETWORK #3)



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EUT /Model No. : PRN-3210B2	Phase : TEL_10M (NETWORK #3)
Test Mode : Operating mode	Test Power : 100 V / 50 Hz
Temp./ Humi. : 23 'C / 49 % R.H	Test Engineer : AHN H Y



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.	15.022	33.99	14.92	19.79	53.78	34.71	87.00	74.00	33.22	39.29	Line
4.	15.633	30.85	13.76	19.80	50.65	33.56	87.00	74.00	36.35	40.44	Line
6.	17.831	32.67	13.02	19.90	52.57	32.92	87.00	74.00	34.43	41.08	Line
8.	19.051	31.63	10.98	19.93	51.56	30.91	87.00	74.00	35.44	43.09	Line
10.	21.005	28.71	8.96	20.01	48.72	28.97	87.00	74.00	38.28	45.03	Line
12.	26.013	31.15	9.56	20.22	51.37	29.78	87.00	74.00	35.63	44.22	Line

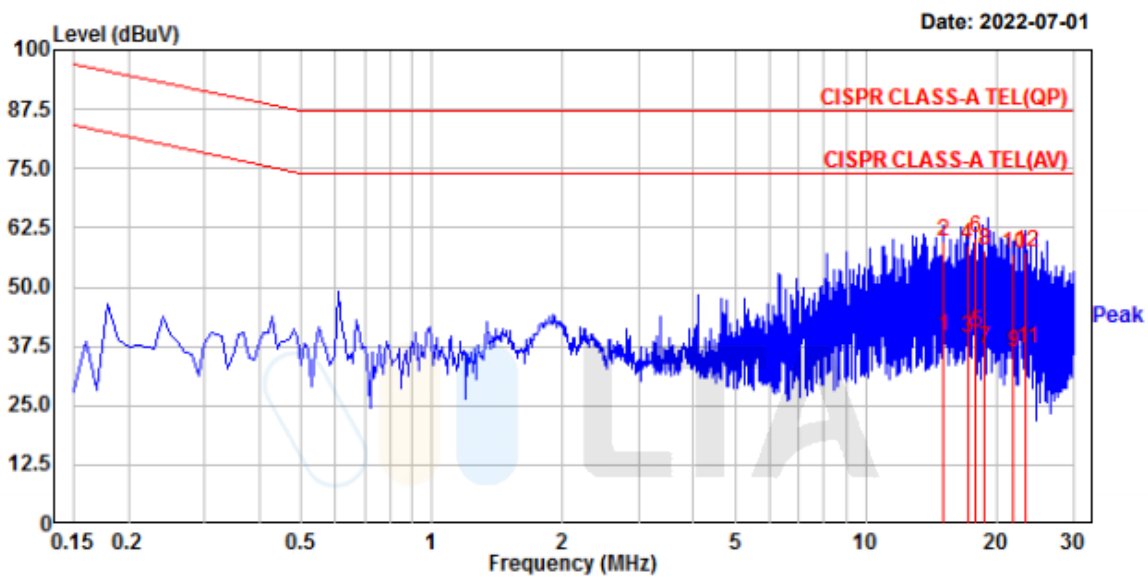
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL_1000 M) / Operating mode (NETWORK #3)



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EUT /Model No. : PRN-3210B2	Phase : TEL_1000M (NETWORK #3)
Test Mode : Operating mode	Test Power : 100 V / 50 Hz
Temp./ Humi. : 23 'C / 49 % R.H	Test Engineer : AHN H Y



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.	15.025	40.04	20.00	19.54	59.58	39.54	87.00	74.00	27.42	34.46	Line
4.	17.097	39.35	19.74	19.57	58.92	39.31	87.00	74.00	28.08	34.69	Line
6.	17.830	40.95	20.64	19.59	60.54	40.23	87.00	74.00	26.46	33.77	Line
8.	18.746	38.20	17.39	19.61	57.81	37.00	87.00	74.00	29.19	37.00	Line
10.	21.863	37.19	16.39	19.67	56.86	36.06	87.00	74.00	30.14	37.94	Line
12.	23.323	37.68	17.32	19.69	57.37	37.01	87.00	74.00	29.63	36.99	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	: VCCI-CISPR 32:2016
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 Location	: 10 m Chamber
Test mode	: Operating 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 : 4.1 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,
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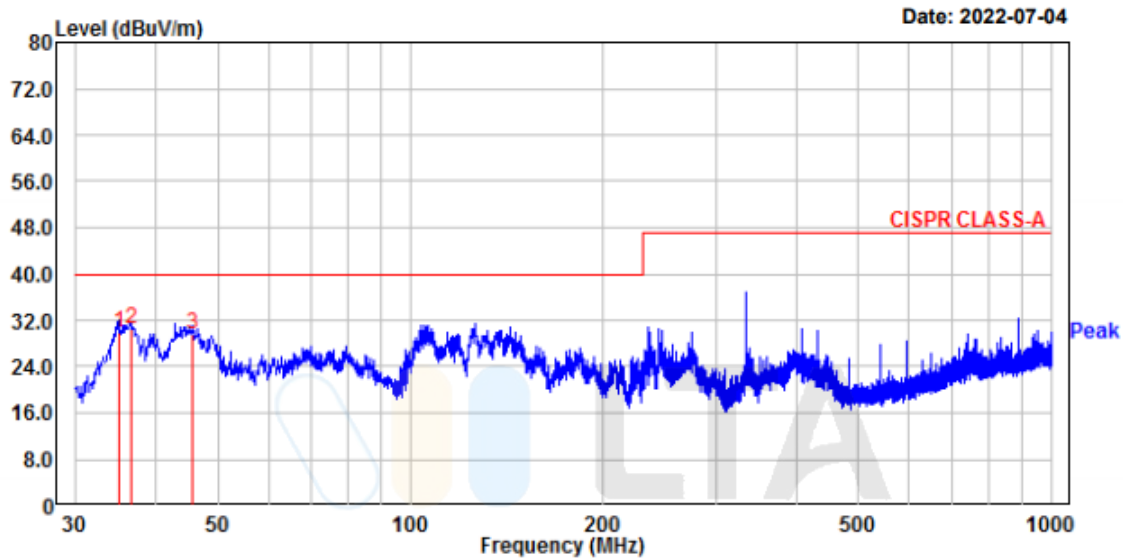
EUT/Model No.: PRN-3210B2

Temp/Humi: 22 'C / 47 % R.H.

Test Mode : Operating mode

Tested by: AHN H Y

Power : 100 V / 50 Hz



No.	Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
1.	34.97	42.80	-12.84	29.96	40.00	10.04	250	40	vertical
2.	36.67	42.90	-12.45	30.45	40.00	9.55	300	6	vertical
3.	45.64	40.70	-11.25	29.45	40.00	10.55	210	8	vertical

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

Radiated Emissions (Below 1 GHz) / H



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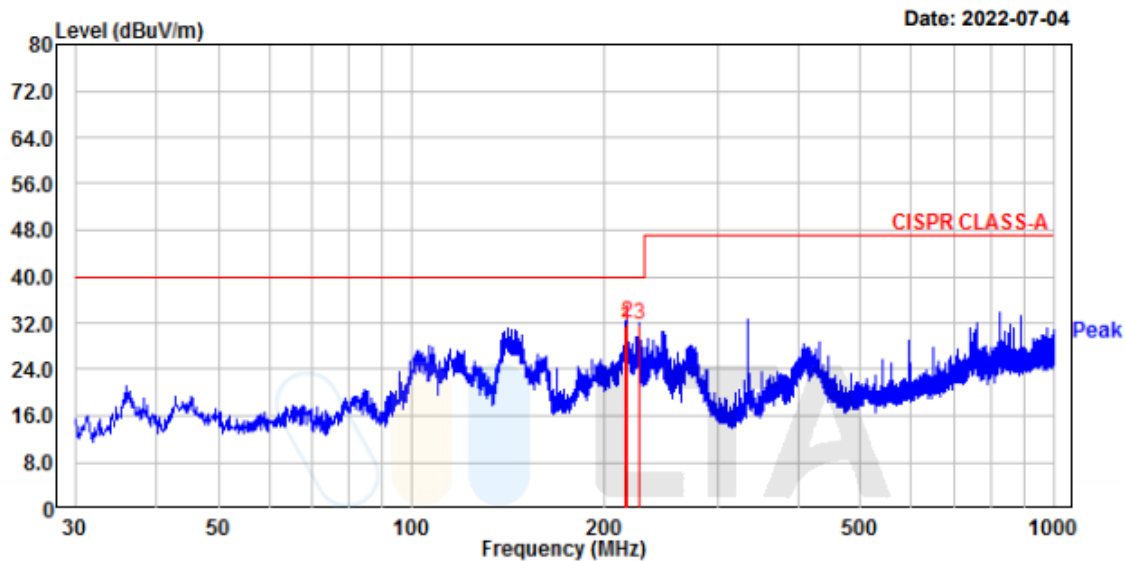
EUT/Model No.: PRN-3210B2

Temp/Humi: 22 'C / 47 % R.H.

Test Mode : Operating mode

Tested by: AHN H Y

Power : 100 V / 50 Hz



No.	Freq MHz	Reading dBuV	C.F dB	Result QP dBuV/m	Limit dBuV/m	Margin dB	Height cm	Angle deg	Polarity
1.	214.54	44.60	-13.12	31.48	40.00	8.52	250	80	horizontal
2.	216.73	45.09	-13.13	31.96	40.00	8.04	300	2	horizontal
3.	225.70	44.90	-13.16	31.74	40.00	8.26	170	60	horizontal

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

Radiated Emissions

(Above 1 GHz) / V

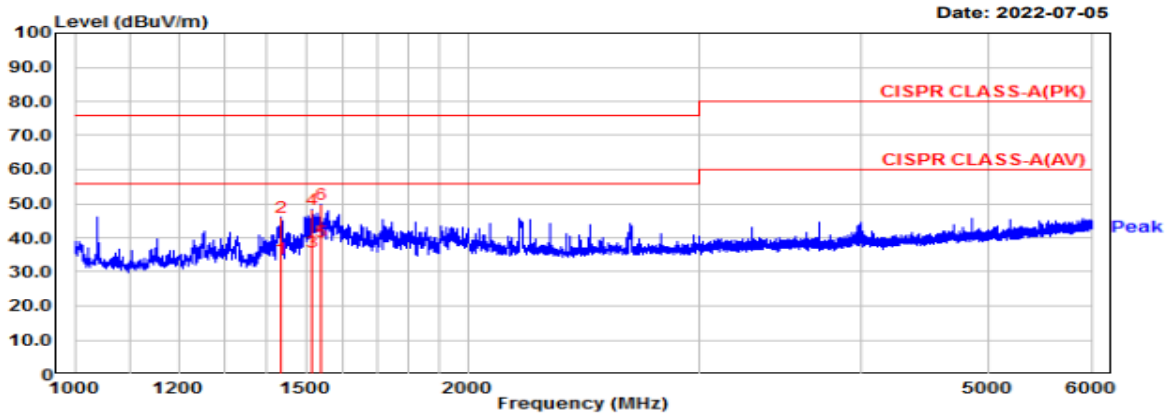
EUT/Model No.: PRN-3210B2

Temp/Humi: 22 °C / 47 % R.H.

Test Mode : Operating mode

Tested by: AHN H Y

Power : 100 V / 50 Hz



(Above 1 GHz) / H

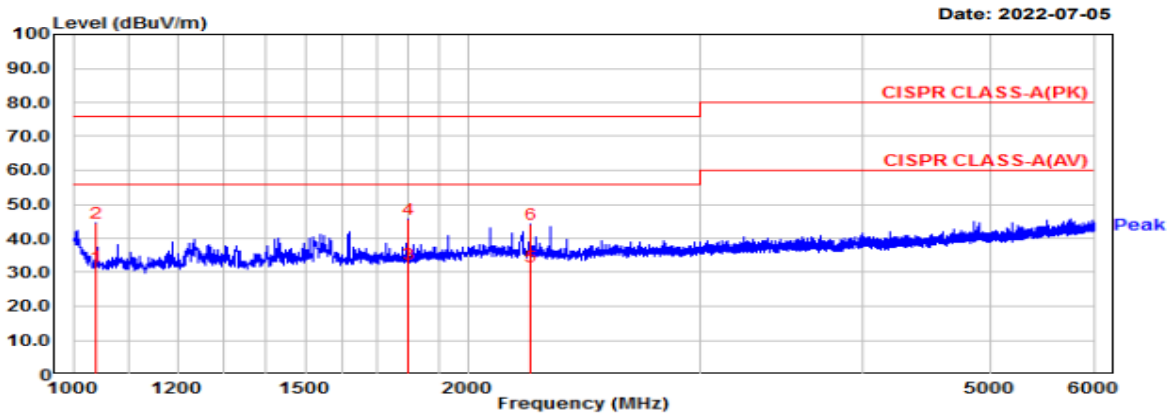
EUT/Model No.: PRN-3210B2

Temp/Humi: 22 °C / 47 % R.H.

Test Mode : Operating mode

Tested by: AHN H Y

Power : 100 V / 50 Hz



Manufacture : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.

Test Date

Temp.:

Humidity:

Distance

Model : PRN-3210B2

2022.07.05

22.00

47.00

3.6

TEST mode : Operating mode

Frequency	Reading(PK)	Reading(AV)	C.F	Result(PK)	Result(AV)	Limit(PK)	Limit(AV)	Margin(PK)	Margin(AV)	Height	Angle	Polarity
MHz	dBuV	dBuV	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	cm	deg	H/V
1039.38	53.97	41.17	-7.87	46.10	33.30	76.00	56.00	29.90	22.70	100	122	H
1795.63	50.18	36.79	-2.88	47.30	33.91	76.00	56.00	28.70	22.09	100	0	H
2227.50	45.18	32.97	0.49	45.67	33.46	76.00	56.00	30.33	22.54	100	148	H
1438.13	52.10	40.09	-4.46	47.64	35.63	76.00	56.00	28.36	20.37	100	328	V
1518.13	53.60	41.18	-3.91	49.69	37.27	76.00	56.00	26.31	18.73	100	279	V
1542.50	55.15	44.38	-3.94	51.21	40.44	76.00	56.00	24.79	15.56	100	279	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	2023.03.14	1 year
☒	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2023.03.14	1 year
☒	ISN	ISN T800	TESEQ	27109	2022.09.06	1 year
☒	ISN	ENY81-CA6	Rohde & Schwarz	101565	2022.09.06	1 year
☐	ISN	ISN S8	Schwarzbeck	79	2022.09.02	1 year
☐	CURRENT PROBE	EZ-17	Rohde & Schwarz	100508	2022.09.02	1 year
☐	CDN	TSCDN-C1-BNC-75	F.C.C	07004	2023.03.14	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	100378	2022.09.02	1 year
☐	LISN	ESH3-Z6	Rohde & Schwarz	101468	2022.09.02	1 year
☒	LISN(main)	ENV216	Rohde & Schwarz	100408	2022.09.02	1 year
☒	LISN(sub)	LT32C/10	AFJ	32031518210	2022.09.02	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	ESCI7	Rohde & Schwarz	100772	2022.09.02	1 year
☒	Amplifier	8447D	HP	1937A03453	2022.11.30	1 year
☒	BILOG Antenna	VULB 9168	SCHWARZBECK	775	2023.03.22	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	ESCI7	Rohde & Schwarz	100772	2022.09.02	1 year
☐	EMI TEST Receiver	ESU	Rohde & Schwarz	100092	2022.09.02	1 year
☒	Amplifier	8449B	Agilent	3008A02126	2023.03.14	1 year
☐	Amplifier	PAM-840A	COM-POWER	461314	2023.03.17	1 year
☐	HORN ANTENNA	3116B	ETS	133350	2024.03.22	2 year
☐	HORN ANTENNA	3116B	ETS	81109	2024.04.25	2 year
☒	HORN ANTENNA	3115	ETS	114105	2023.05.12	2 year
☒	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

APPENDIX B
PHOTOGRAPHS



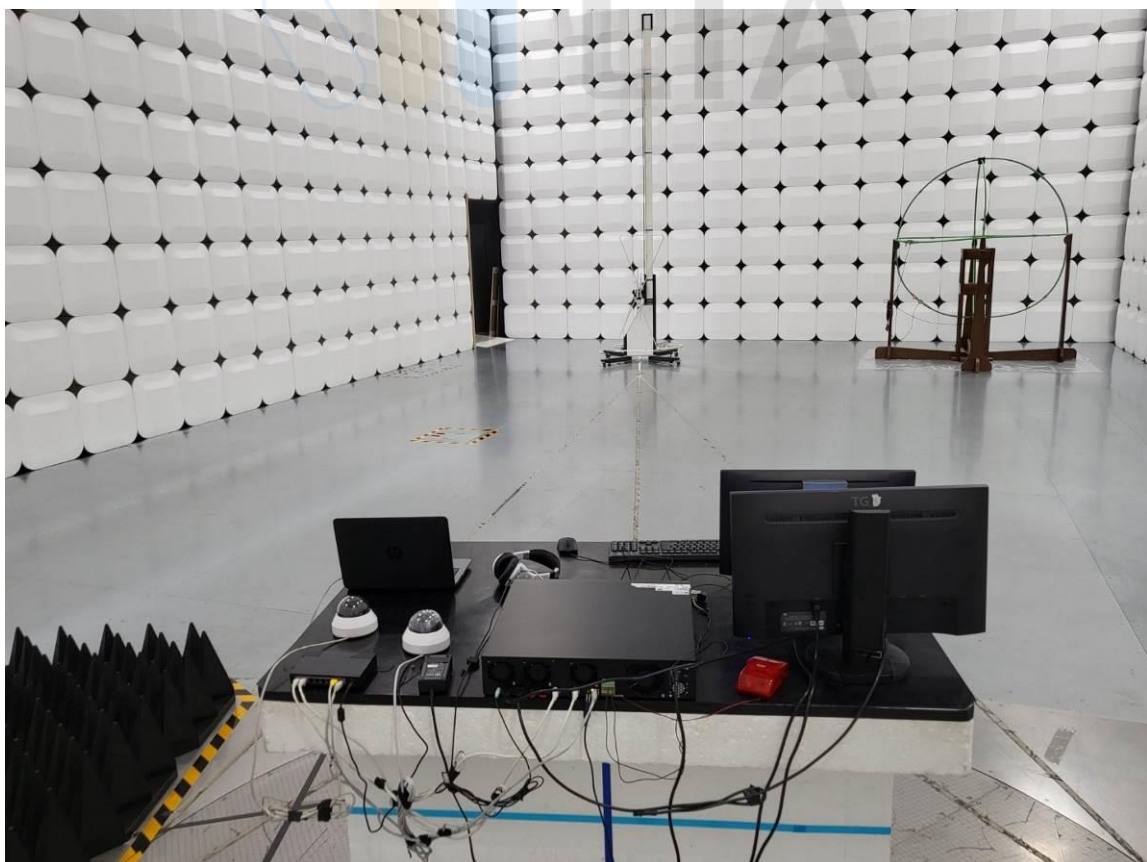
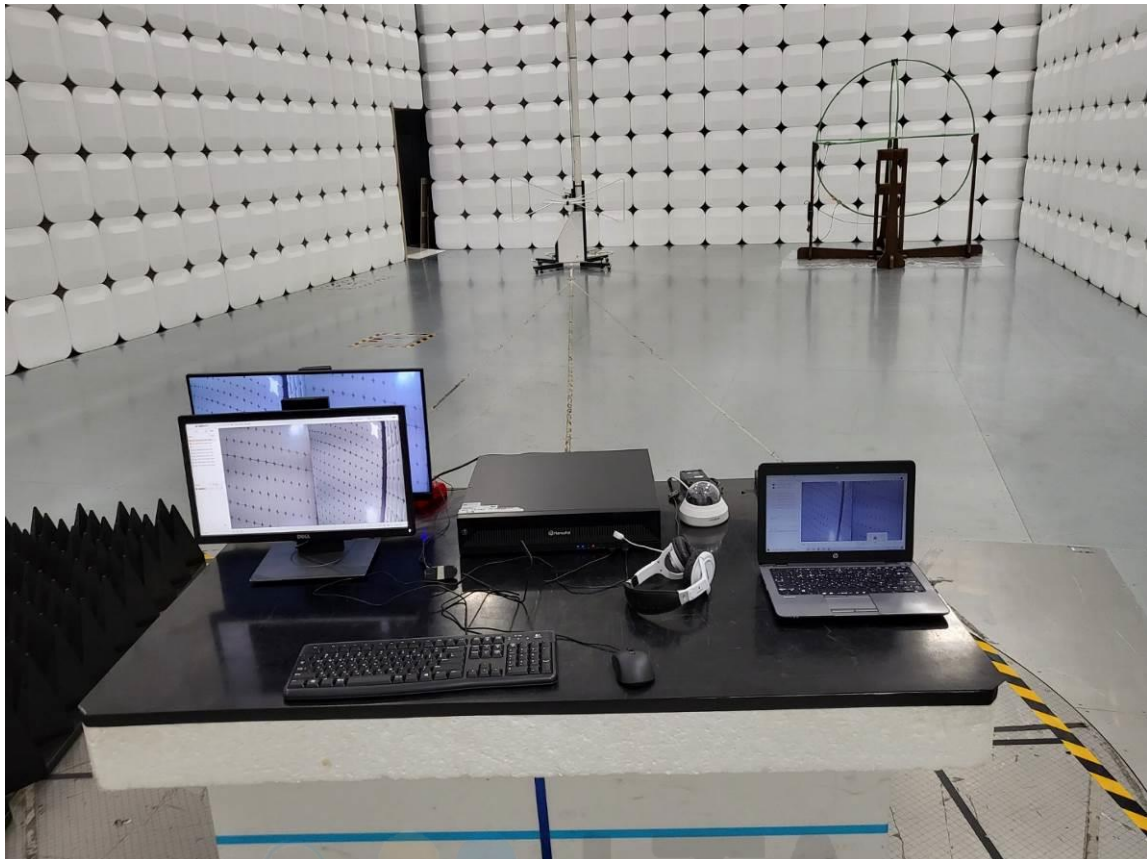
Conducted Emissions



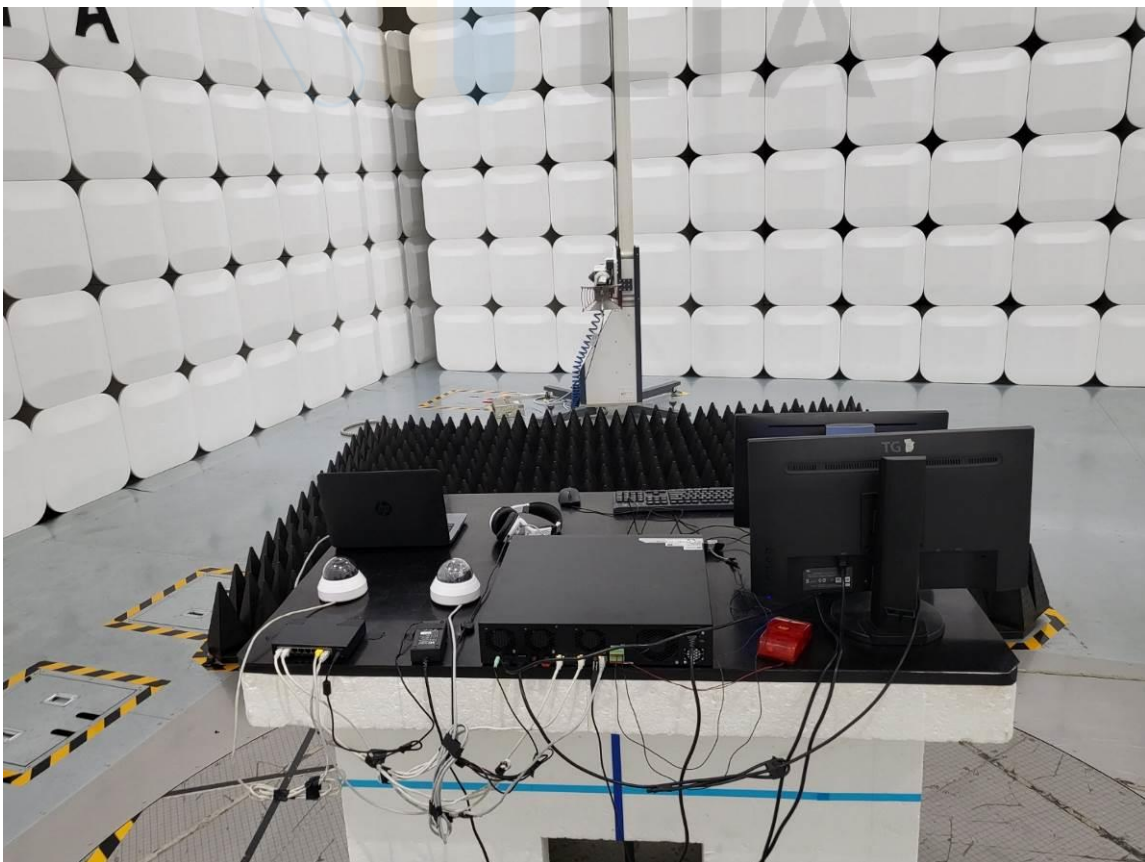
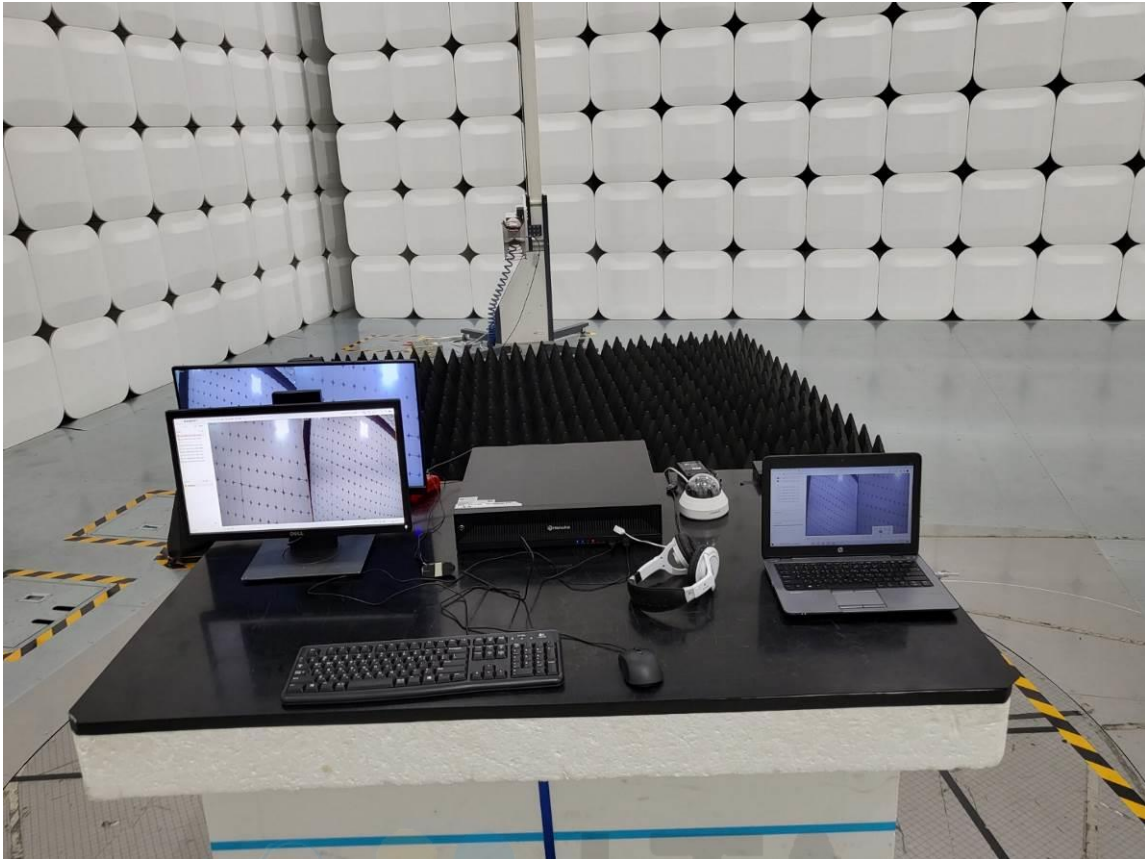
Conducted Emissions (TEL)



Radiated Emissions - Below 1 GHz



Radiated Emissions - Above 1 GHz



EUT



EUT



EUT Modification

