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<http://www.ltalab.com>

## EMC TEST REPORT

Dates of Tests: July 30 - 31, 2024  
Project No: 240717-1057  
Test Site : LTA Co., Ltd.

Model No.

**XRN-6420RB2**

APPLICANT

**Hanwha Vision Co., Ltd**

**Equipment Name** : NETWORK VIDEO RECORDER  
**Manufacturer** : Hanwha Vision Co., Ltd  
**Model Name** : XRN-6420RB2  
**Additional Model Name** : XRN-3220RB2  
**Test Device Serial No.:** : Identification  
**Rule Part(s)** : VCCI-CISPR 32:2016

**Date of issue** : August 07, 2024

This test report is issued under the authority of:

The test was supervised by:

Young Kyu Shin, Technical Manager

Jin Hwan Jeong, 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.

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	07.08.2024	LR500172408J	Initial



**TABLE OF CONTENTS**

1. General information’s .....4

2. Information’s about test item .....5

3. Test Report .....8

    3.1 Summary of tests .....8

4. EMISSION.....9

    4.1 Conducted Emissions .....9

    4.2 Radiated Emissions .....27

APPENDIX A   TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS.....37

APPENDIX B   PHOTOGRAPHS .....39



## 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
RRA	KOREA		-	RRA accredited Lab.
	U.S.A	KR0049	2025-03-29	
	CANADA		2024-08-15	
VCCI	JAPAN	C-14948	2026-09-10	VCCI registration
		T-12416	2026-09-10	
		R-14483	2026-10-15	
		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 : +82-10-2667-4196 / +82-70-7147-8361

### 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 : NETWORK VIDEO RECORDER  
 Model Name : XRN-6420RB2  
 Additional Model Name : XRN-3220RB2  
 Serial number : Identification  
 Date of receipt : July 17, 2024  
 EUT condition : Pre-production, not damaged  
 Interface ports : AC IN, HDMI #1~2, AUDIO OUT, USB #1~4, NETWORK #1~3, ALARM IN, ALARM OUT, GROUND  
 Power rating : AC 100 V, 50, 60 Hz

### 2-3 Modification

- NONE

### 2-4 Test conditions

Temp. / Humid. : (22 ~ 23) °C / (52 ~ 55) % R.H.  
 Tested Model : XRN-6420RB2  
 Test mode : Operating mode  
 Test Voltage : AC 100 V, 50, 60 Hz

**2-5 List of EUT and ACCESSORY**

<b>EUT</b>				
<b>Equipment Name</b>	<b>Model Name</b>	<b>Serial No.</b>	<b>Manufacturer</b>	<b>Remarks</b>
<b>NETWORK VIDEO RECORDER</b>	<b>XRN-6420RB2</b>	<b>N/A</b>	<b>HANWHA VISION VIETNAM COMPANY LIMITED D-TECH CO., LTD.</b>	<b>EUT</b>
<b>MOUSE</b>	<b>MOKJUO</b>	<b>44A08568</b>	<b>Primax Electronics Ltd.</b>	<b>EUT</b>
<b>ACCESSORY</b>				
<b>Equipment Name</b>	<b>Model Name</b>	<b>Serial No.</b>	<b>Manufacturer</b>	<b>Remarks</b>
KEY BOARD	N/A	N/A	ATEC	-
USB MEMORY	N/A	N/A	SANDISK	2EA
EAR PHONE	N/A	N/A	N/A	-
CCTV	XNO-8030RT/EX	N/A	HANWHA TECHWIN CO., LTD	2EA
ALARM JIG#1	N/A	N/A	N/A	-
ALARM JIG#2	N/A	N/A	N/A	-
NOTEBOOK	THINKBOOK	N/A	LENOVO	-
POE	N/A	N/A	N/A	-
MONITOR #1	N/A	N/A	TG	-
MONITOR #2	N/A	N/A	SAMSUNG	-

**2-6 Cable List**

Cable List					
From		To		Length (m)	Shielding
Type	I/O Port	Type	I/O Port		
EUT	AC IN	AC POWER SOURCE	AC OUT	1.0	NO
	HDMI #1	MONITOR #1	HDMI	1.2	NO
	HDMI #2	MONITOR #2	HDMI	1.2	NO
	AUDIO OUT	EARPHONE	AUDIO IN	0.8	NO
	USB #1~2	USB MEMORY#1,2	USB	-	-
	USB #3	MOUSE	USB	1.2	NO
	USB #4	KEYBOARD	USB	1.2	NO
	NETWORK #1	POE	LAN	3.0	NO
	NETWORK #2	NOTEBOOK	LAN	3.0	NO
	NETWORK #3	POE	LAN	3.0	NO
	ALARM IN	ALARM JIG #1	ALARM OUT	0.8	NO
	ALARM OUT	ALARM JIG #2	ALARM IN	0.5	NO
	GROUND	GROUND	GROUND	1.0	NO

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	: <b>Complies</b>

#### 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 $\mu$ V	66 dB $\mu$ V
(0.5 – 30) MHz	73 dB $\mu$ V	60 dB $\mu$ 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 $\mu$ V	(56 - 46) dB $\mu$ V
(0.5 – 5) MHz	56 dB $\mu$ V	46 dB $\mu$ V
(5 – 30) MHz	60 dB $\mu$ V	50 dB $\mu$ 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 $\mu$ V	(84 – 74) dB $\mu$ V	(53 – 43) dB $\mu$ V	(40 – 30) dB $\mu$ V
(0.5 – 30) MHz	87 dB $\mu$ V	74 dB $\mu$ V	43 dB $\mu$ V	30 dB $\mu$ 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  $\Omega$  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 $\mu$ V	(74 – 64) dB $\mu$ V	(40 – 30) dB $\mu$ V	(30 – 20) dB $\mu$ V
(0.5 – 30) MHz	74 dB $\mu$ V	64 dB $\mu$ V	30 dB $\mu$ V	20 dB $\mu$ V

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

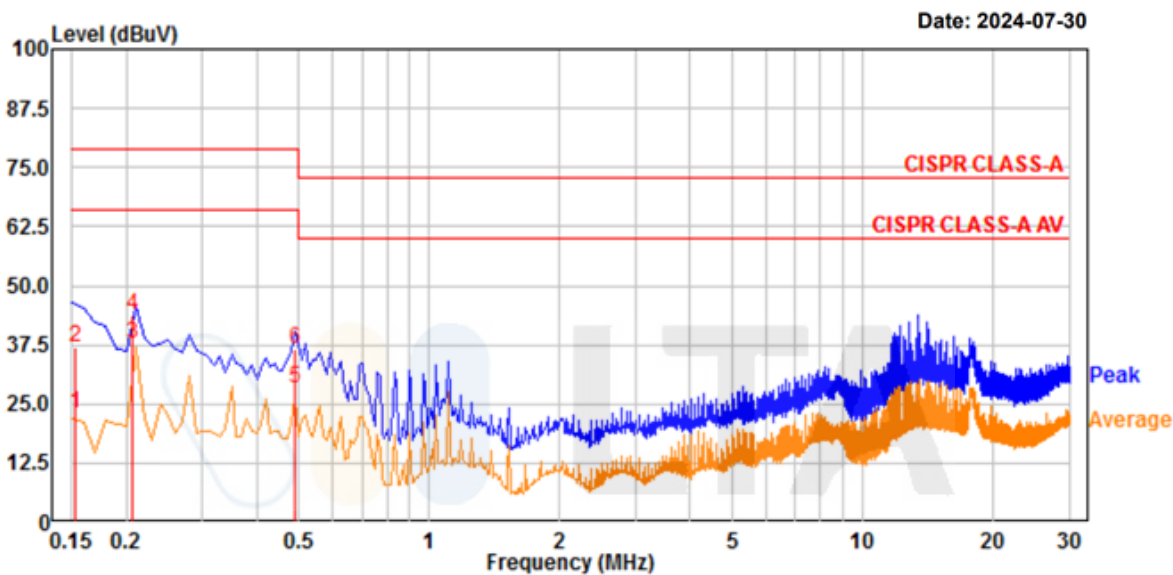
Note 2: The current and voltage disturbance limits are derived for use with an impedance stabilization network (ISN) which presents a common mode (asymmetric mode) impedance of 150  $\Omega$  to the telecommunication port under test (conversion factor is  $20 \log_{10} 150/I = 44$  dB)

Conducted Emissions (LINE) / 50 Hz



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Project No.	: 240717-1057	Phase	: LINE
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG 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.	0.153	17.40	3.59	19.47	36.87	23.06	79.00	66.00	42.13	42.94	Line
4.	0.208	24.37	18.17	19.47	43.84	37.64	79.00	66.00	35.16	28.36	Line
6.	0.489	17.27	8.78	19.49	36.76	28.27	79.00	66.00	42.24	37.73	Line

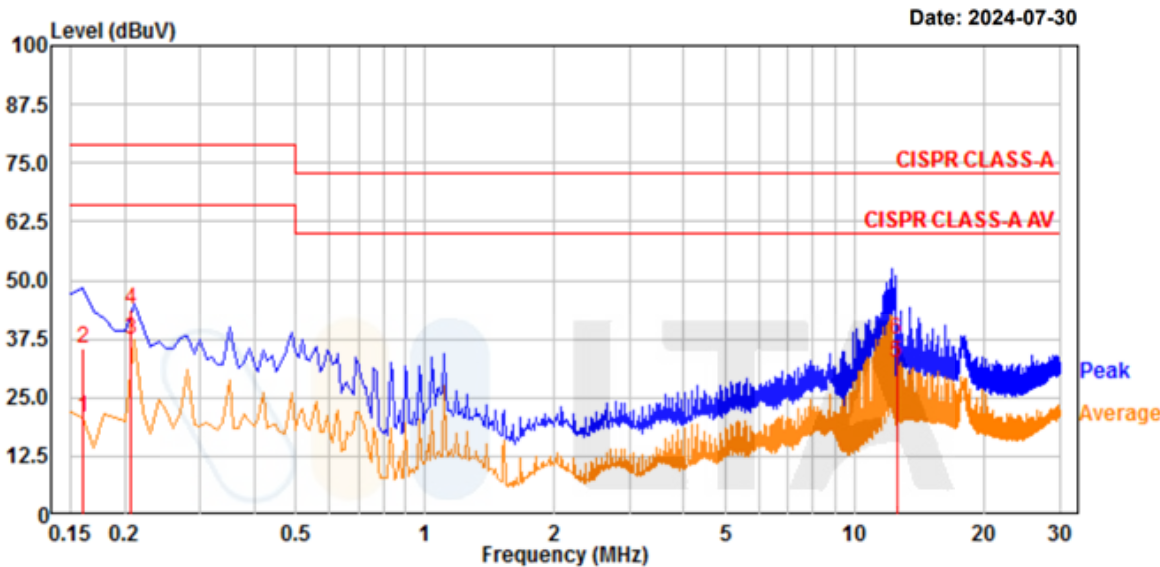
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (NEUTRAL) / 50 Hz



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Project No.	: 240717-1057	Phase	: NEUTRAL
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.160	16.20	1.30	19.46	35.66	20.76	79.00	66.00	43.34	45.24	neutral
4.	0.207	24.27	17.99	19.46	43.73	37.45	79.00	66.00	35.27	28.55	neutral
6.	12.503	17.34	12.52	19.88	37.22	32.40	73.00	60.00	35.78	27.60	neutral

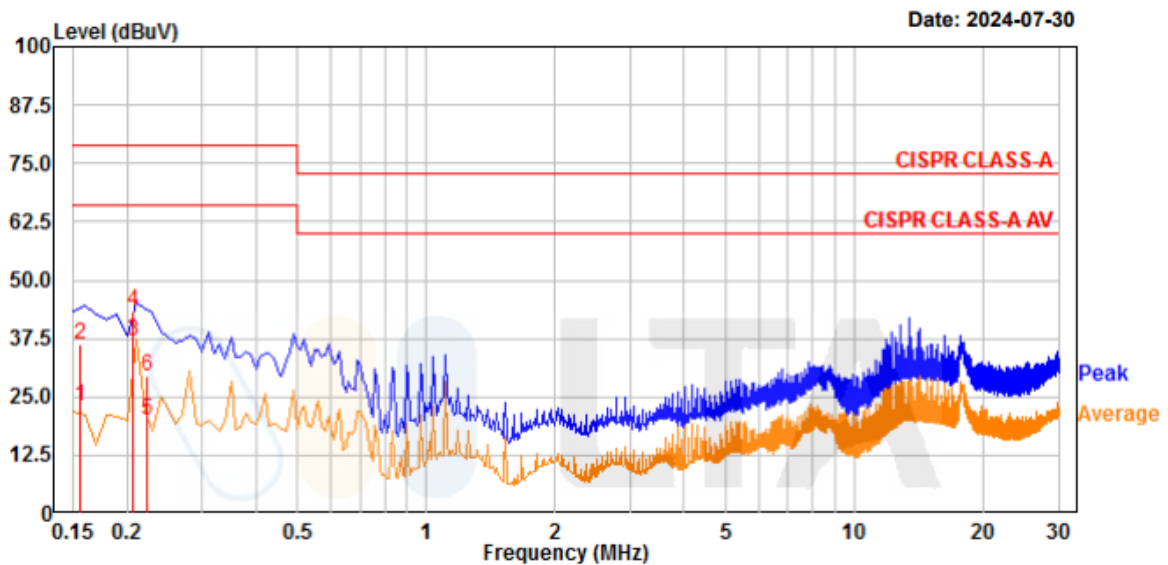
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

## Conducted Emissions (LINE) / 60 Hz



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Project No.	: 240717-1057	Phase	: LINE
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.156	16.64	3.51	19.47	36.11	22.98	79.00	66.00	42.89	43.02	Line
4.	0.207	23.93	17.63	19.47	43.40	37.10	79.00	66.00	35.60	28.90	Line
6.	0.224	10.00	0.71	19.47	29.47	20.18	79.00	66.00	49.53	45.82	Line

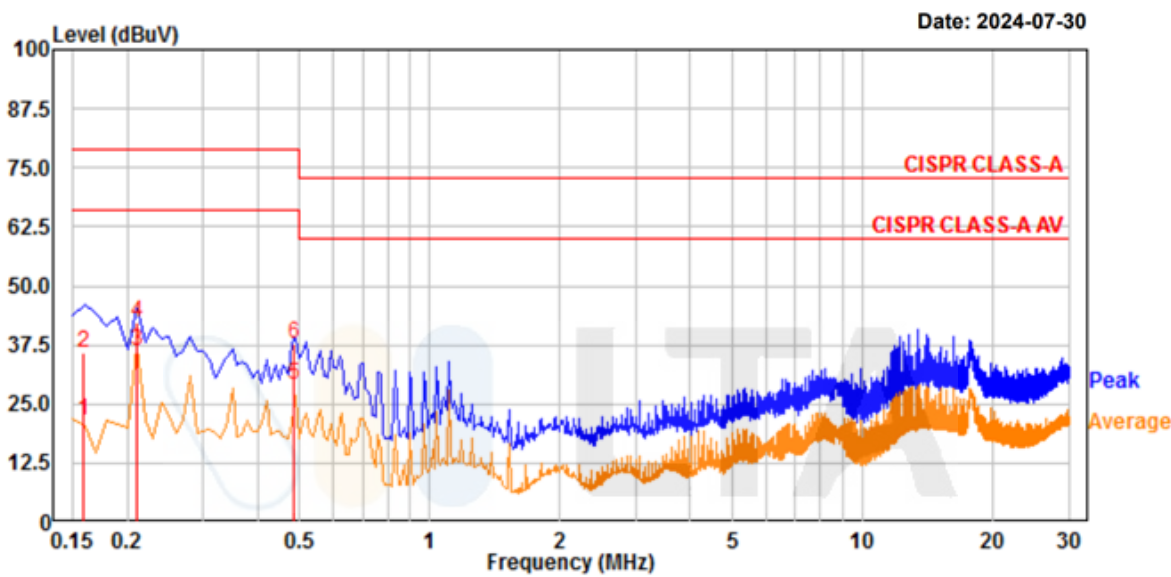
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (NEUTRAL) / 60 Hz



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Project No.	: 240717-1057	Phase	: NEUTRAL
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.159	16.26	2.08	19.46	35.72	21.54	79.00	66.00	43.28	44.46	neutral
4.	0.211	22.83	16.81	19.46	42.29	36.27	79.00	66.00	36.71	29.73	neutral
6.	0.488	18.17	9.75	19.49	37.66	29.24	79.00	66.00	41.34	36.76	neutral

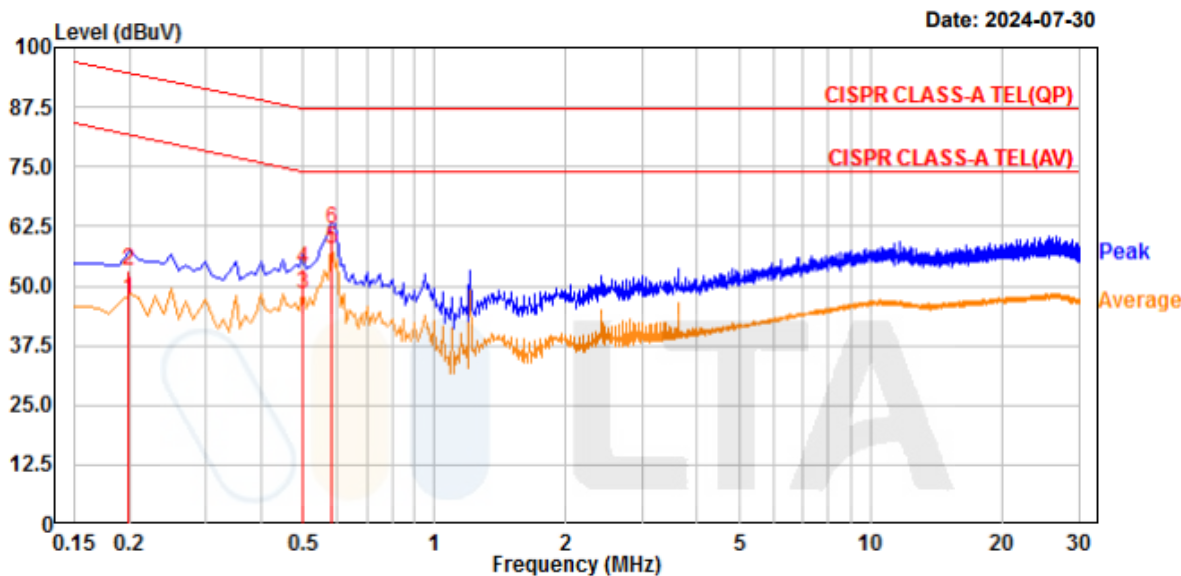
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_10 M #1) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_10M #1
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG J H



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.	0.199	33.29	27.49	19.86	53.15	47.35	94.63	81.63	41.48	34.28	Line
4.	0.498	33.83	28.86	19.61	53.44	48.47	87.03	74.03	33.59	25.56	Line
6.	0.582	42.23	38.06	19.58	61.81	57.64	87.00	74.00	25.19	16.36	Line

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

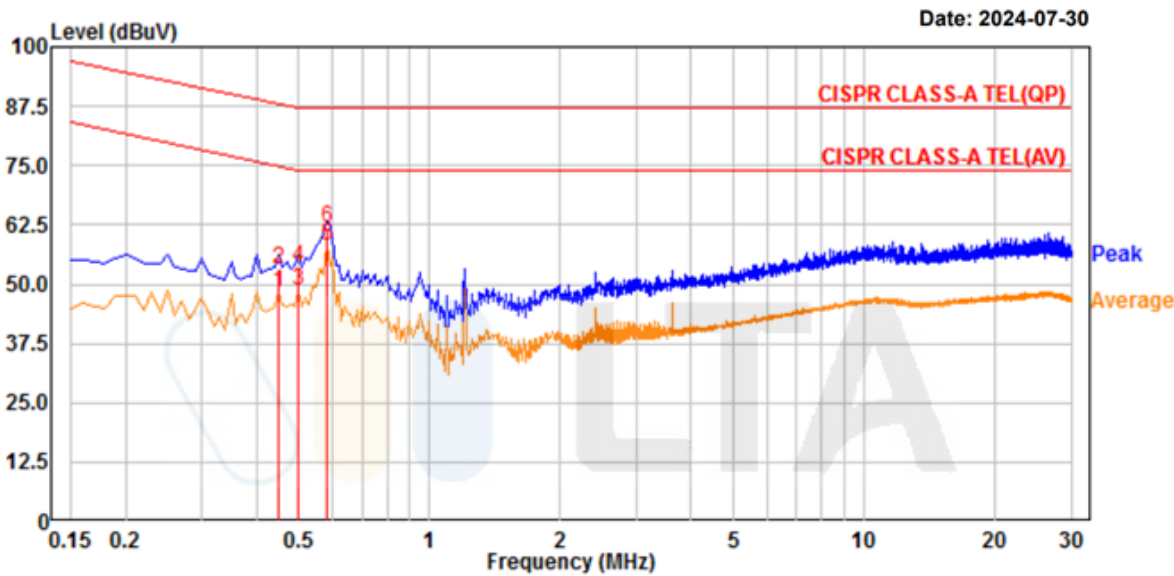


Conducted Emissions (TEL\_10 M #2) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_10M #2
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG J H



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.	0.449	33.44	28.66	19.63	53.07	48.29	87.89	74.89	34.82	26.60	Line
4.	0.499	33.94	29.02	19.61	53.55	48.63	87.02	74.02	33.47	25.39	Line
6.	0.581	42.33	38.39	19.58	61.91	57.97	87.00	74.00	25.09	16.03	Line

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

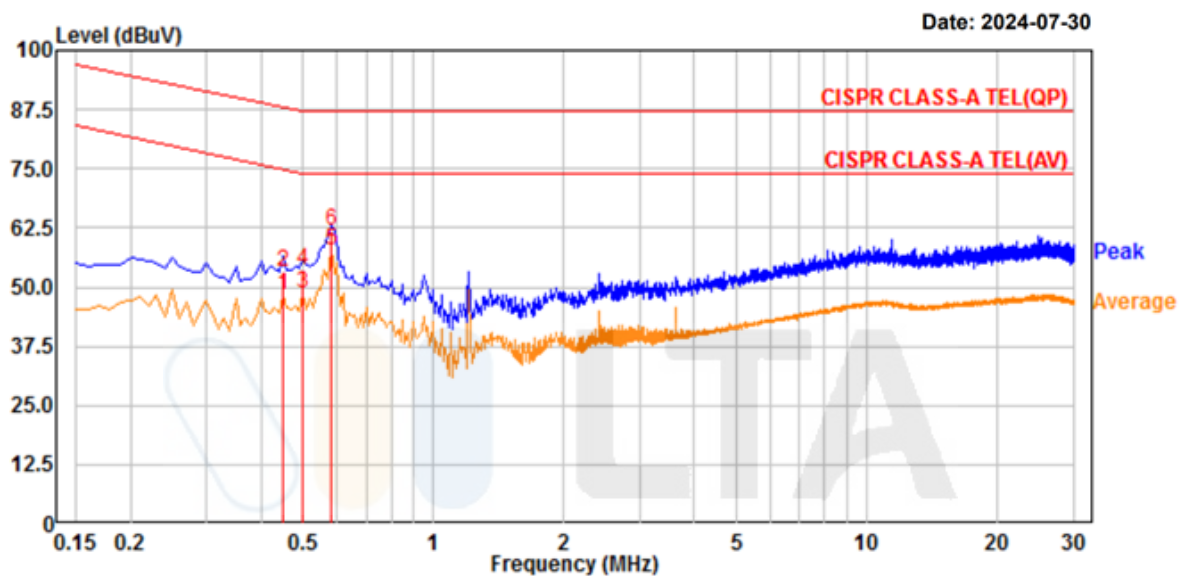


## Conducted Emissions (TEL\_10 M #3) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_10M #3
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG J H



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.	0.450	33.54	28.62	19.63	53.17	48.25	87.88	74.88	34.71	26.63	Line
4.	0.499	33.91	29.01	19.61	53.52	48.62	87.01	74.01	33.49	25.39	Line
6.	0.581	42.28	38.21	19.58	61.86	57.79	87.00	74.00	25.14	16.21	Line

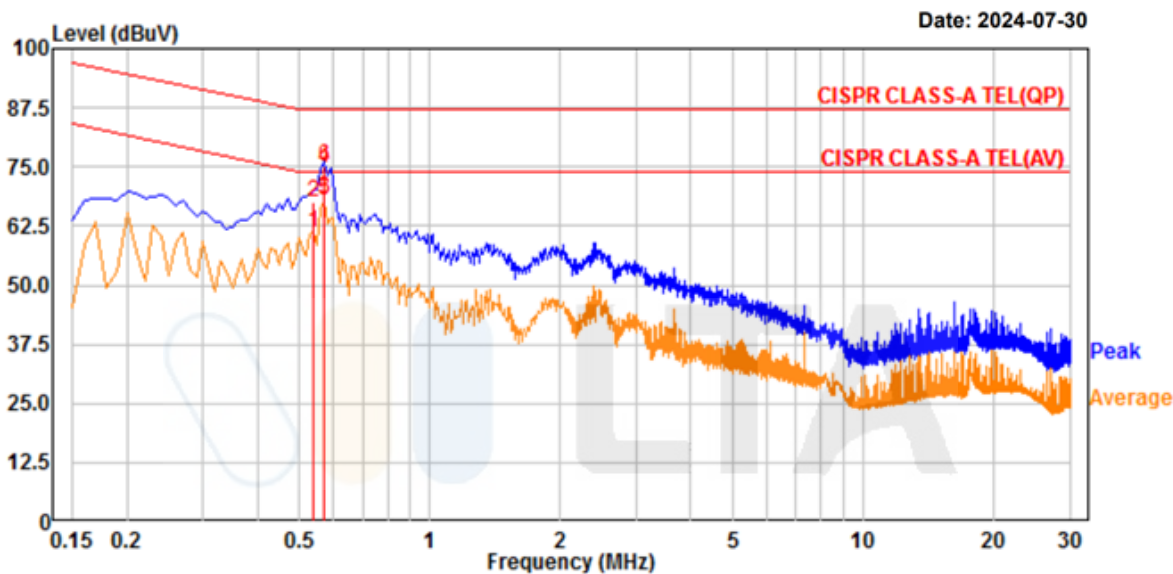
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_1000 M #1) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_1000M #1
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.538	48.25	41.76	19.39	67.64	61.15	87.00	74.00	19.36	12.85	Line
4.	0.571	55.21	49.00	19.38	74.59	68.38	87.00	74.00	12.41	5.62	Line
6.	0.573	55.59	48.47	19.38	74.97	67.85	87.00	74.00	12.03	6.15	Line

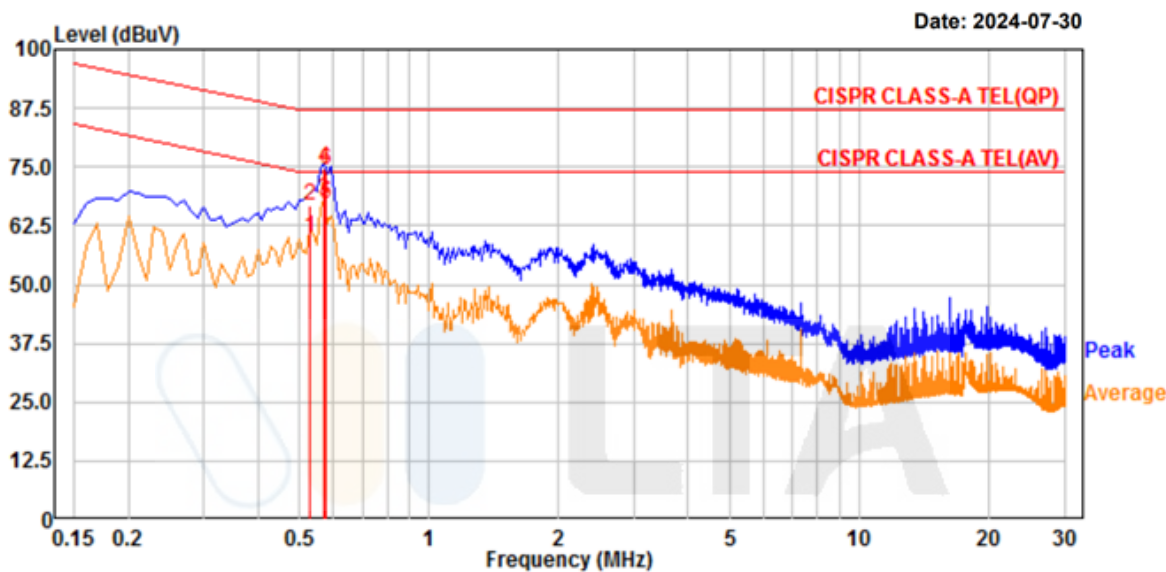
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_1000 M #2) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_1000M #2
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.527	47.55	40.73	19.39	66.94	60.12	87.00	74.00	20.06	13.88	Line
4.	0.572	55.52	48.59	19.38	74.90	67.97	87.00	74.00	12.10	6.03	Line
6.	0.574	55.14	47.77	19.38	74.52	67.15	87.00	74.00	12.48	6.85	Line

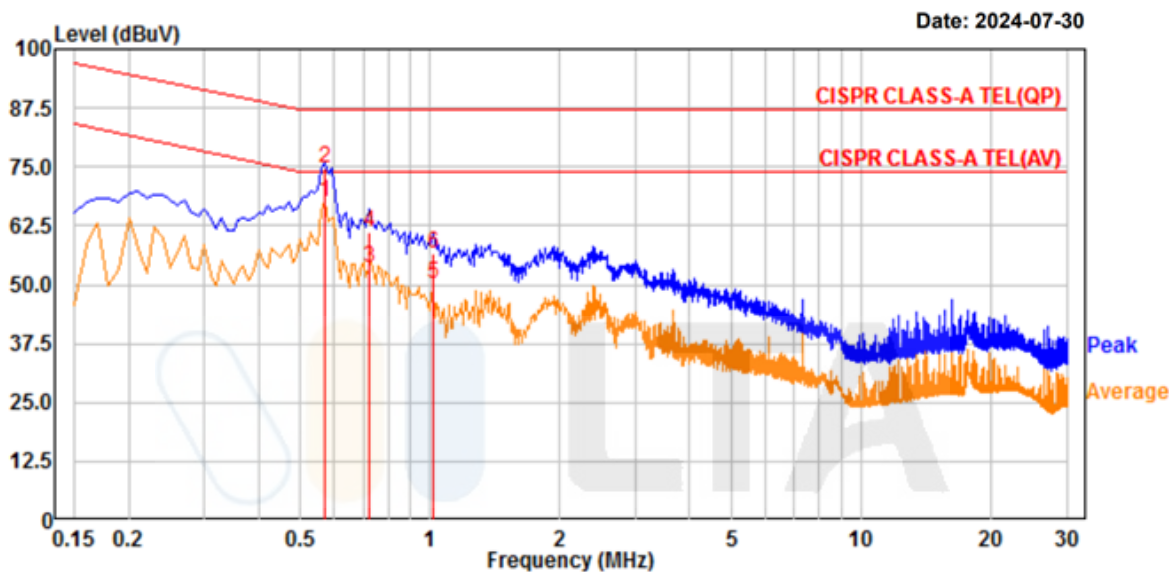
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_1000 M #3) / 50 Hz



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Project No.	: 240717-1057	Phase	: TEL_1000M #3
Test Mode	: OPERATING	Test Power	: AC 100 V / 50 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.573	55.49	48.30	19.38	74.87	67.68	87.00	74.00	12.13	6.32	Line
4.	0.721	41.85	34.28	19.35	61.20	53.63	87.00	74.00	25.80	20.37	Line
6.	1.019	37.27	30.92	19.33	56.60	50.25	87.00	74.00	30.40	23.75	Line

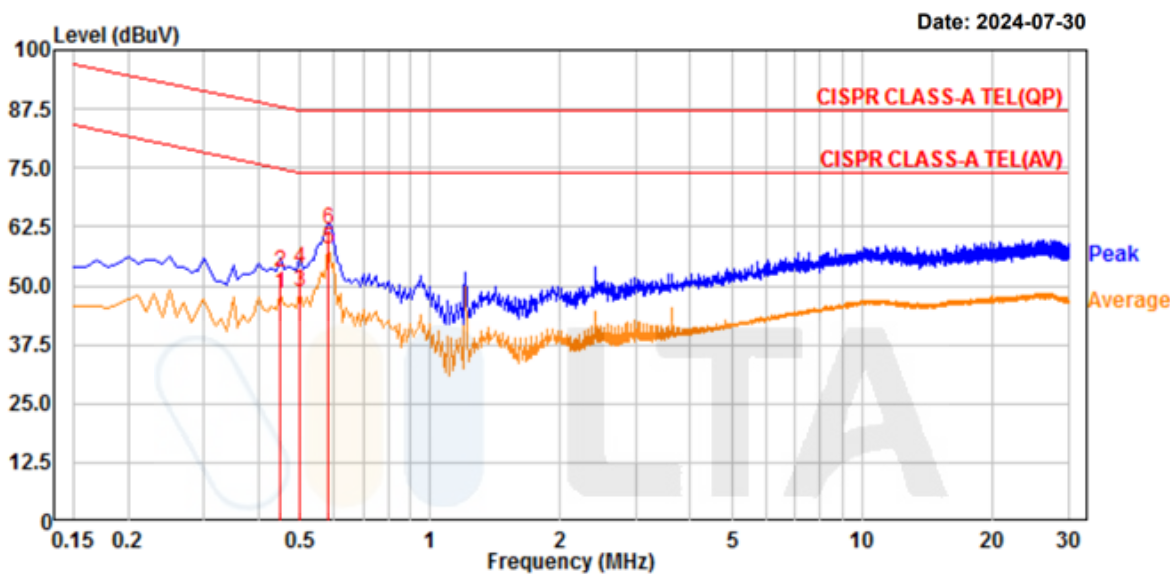
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_10 M #1) / 60 Hz



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Project No.	: 240717-1057	Phase	: TEL_10M #1
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG J H



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.	0.450	33.38	28.48	19.63	53.01	48.11	87.88	74.88	34.87	26.77	Line
4.	0.500	33.81	28.89	19.61	53.42	48.50	87.01	74.01	33.59	25.51	Line
6.	0.581	42.22	38.21	19.58	61.80	57.79	87.00	74.00	25.20	16.21	Line

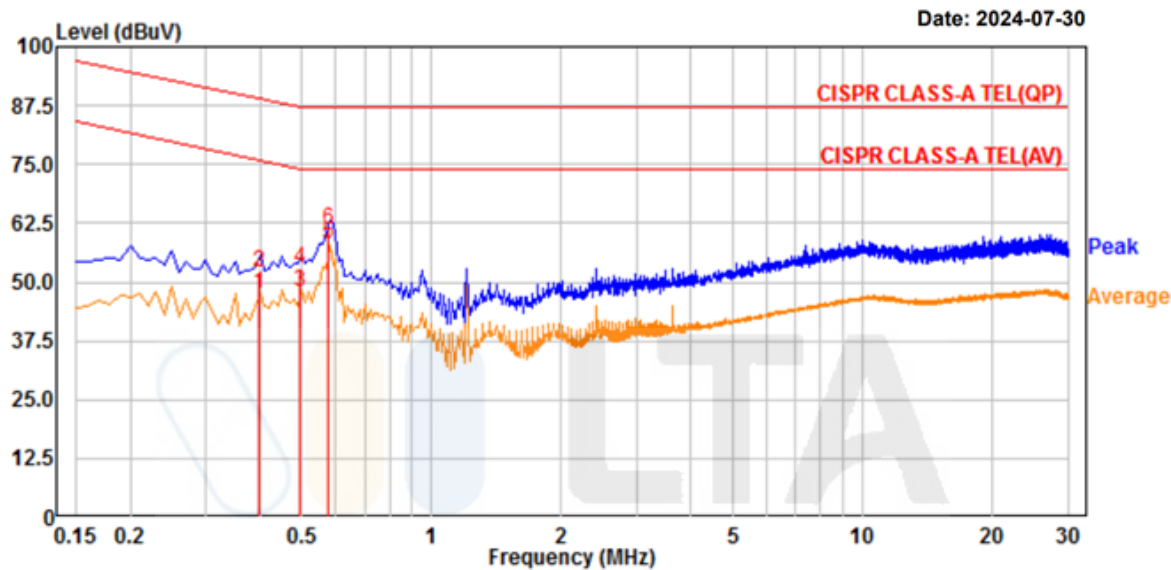
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_10 M #2) / 60 Hz



4, Songjuro 236 Beon-gil, Yangji-myeon  
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Fax:+82-31-3236010

Project No.	: 240717-1057	Phase	: TEL_10M #2
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG J H



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.	0.398	32.44	27.90	19.64	52.08	47.54	88.88	75.88	36.80	28.34	Line
4.	0.497	33.40	28.50	19.61	53.01	48.11	87.06	74.06	34.05	25.95	Line
6.	0.578	41.44	38.59	19.58	61.02	58.17	87.00	74.00	25.98	15.83	Line

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

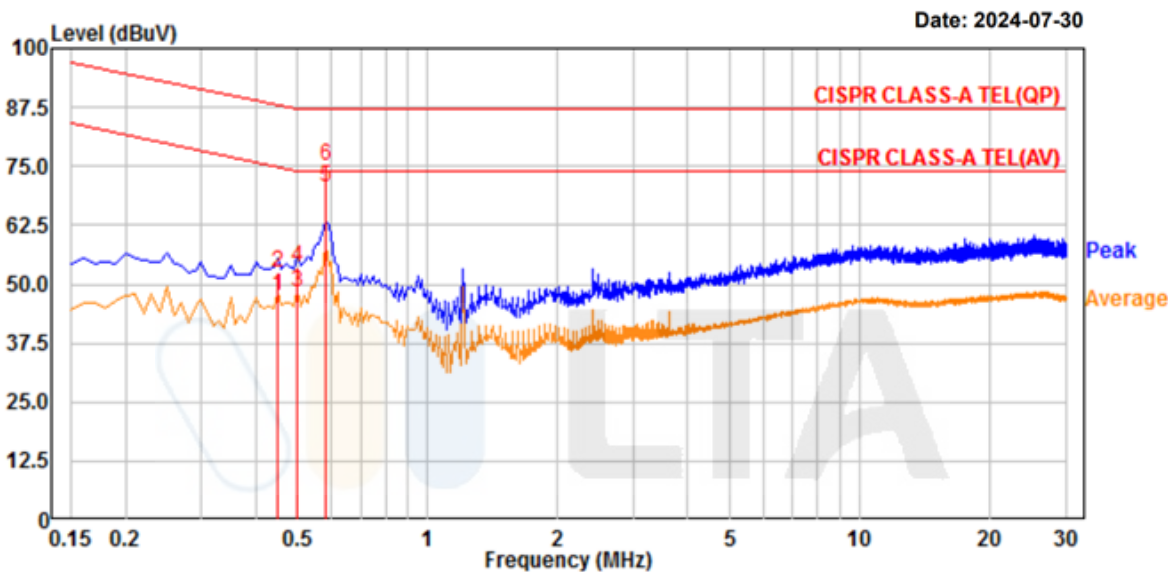


Conducted Emissions (TEL\_10 M #3) / 60 Hz



4, Songjuro 236 Beon-gil, Yangji-myeon  
Cheoin-gu, Youngin-si, Gyeonggi-do  
449-822 Korea  
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Project No.	: 240717-1057	Phase	: TEL_10M #3
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 24 'C / 56 % R.H.	Test Engineer	: JUNG 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.	0.452	32.82	27.79	19.63	52.45	47.42	87.85	74.85	35.40	27.43	Line
4.	0.499	33.85	28.86	19.61	53.46	48.47	87.02	74.02	33.56	25.55	Line
6.	0.582	55.53	51.16	19.58	75.11	70.74	87.00	74.00	11.89	3.26	Line

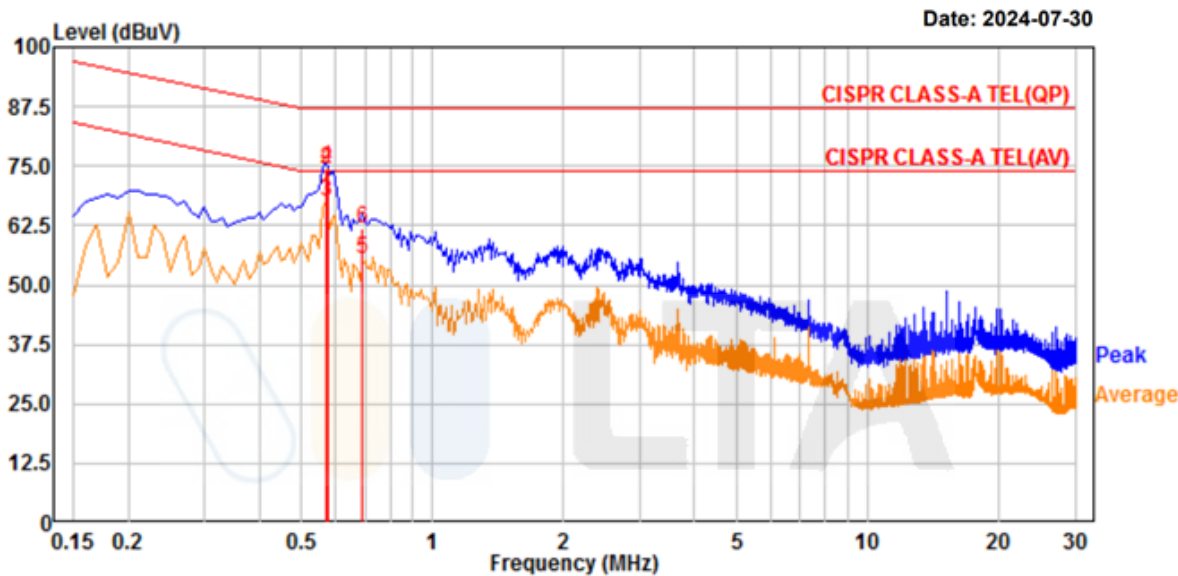
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_1000 M #1) / 60 Hz



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Fax:+82-31-3236010

Project No.	: 240717-1057	Phase	: TEL_1000M #1
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.570	54.95	49.04	19.38	74.33	68.42	87.00	74.00	12.67	5.58	Line
4.	0.573	55.39	48.01	19.38	74.77	67.39	87.00	74.00	12.23	6.61	Line
6.	0.692	42.50	36.09	19.35	61.85	55.44	87.00	74.00	25.15	18.56	Line

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

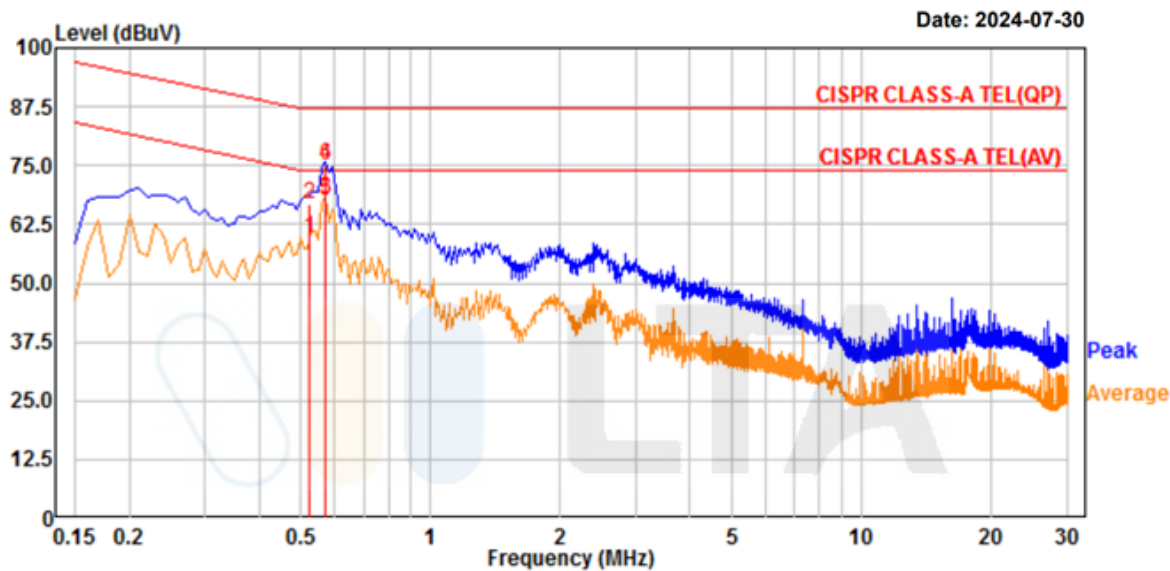


Conducted Emissions (TEL\_1000 M #2) / 60 Hz



4, Songjuro 236 Beon-gil, Yangji-myeon  
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Project No.	: 240717-1057	Phase	: TEL_1000M #2
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.525	47.31	40.29	19.39	66.70	59.68	87.00	74.00	20.30	14.32	Line
4.	0.573	55.59	48.45	19.38	74.97	67.83	87.00	74.00	12.03	6.17	Line
6.	0.573	55.54	48.22	19.38	74.92	67.60	87.00	74.00	12.08	6.40	Line

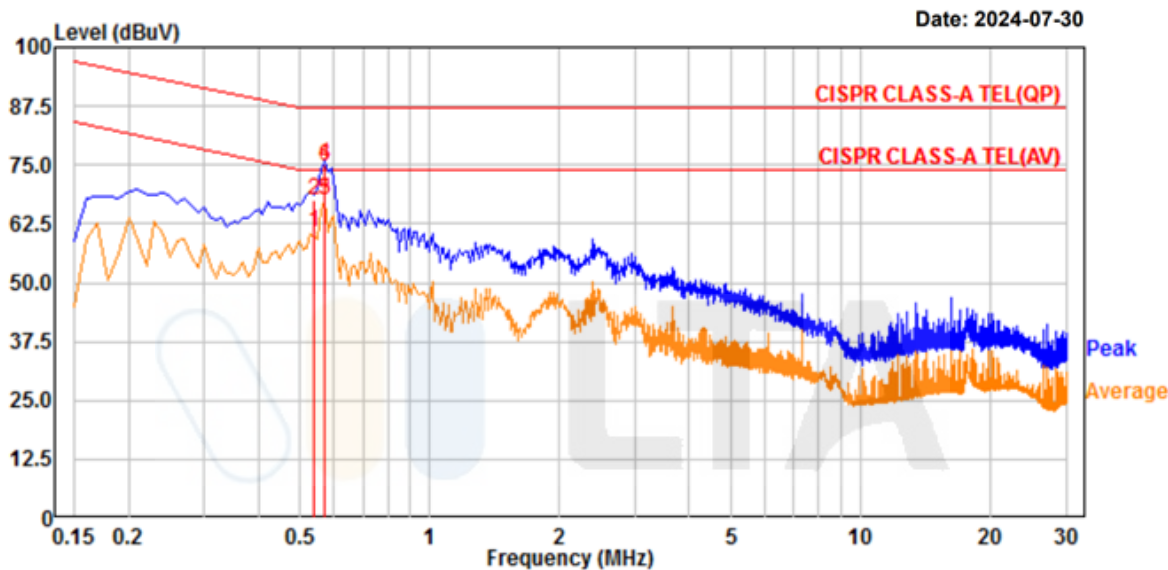
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

Conducted Emissions (TEL\_1000 M #3) / 60 Hz



4, Songjuro 236 Beon-gil, Yangji-myeon  
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Tel:+82-31-3236008,9  
Fax:+82-31-3236010

Project No.	: 240717-1057	Phase	: TEL_1000M #3
Test Mode	: OPERATING	Test Power	: AC 100 V / 60 Hz
Temp./ Humi.	: 23 'C / 52 % R.H.	Test Engineer	: JUNG J H



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.	0.538	47.98	41.39	19.39	67.37	60.78	87.00	74.00	19.63	13.22	Line
4.	0.573	55.53	48.16	19.38	74.91	67.54	87.00	74.00	12.09	6.46	Line
6.	0.573	55.49	48.09	19.38	74.87	67.47	87.00	74.00	12.13	6.53	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	: <b>Complies</b>

### Measurement Data:

- Refer to the Next page (Maximum emission configuration)
- The highest internal source of an EUT is 108 MHz, the measurement shall only be made up to 6 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 $\mu$ V/m
(230 – 1 000) MHz	47 dB $\mu$ V/m

**CLASS B**

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

**Limit of 3m above 1 GHz****CLASS A**

Frequency Range	Average Limit @ 3m (dB $\mu$ V/m)	Peak limit @ 3m (dB $\mu$ 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 $\mu$ V/m)	Peak limit @ 3m (dB $\mu$ 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) / H / 50 Hz



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www.ltalab.com

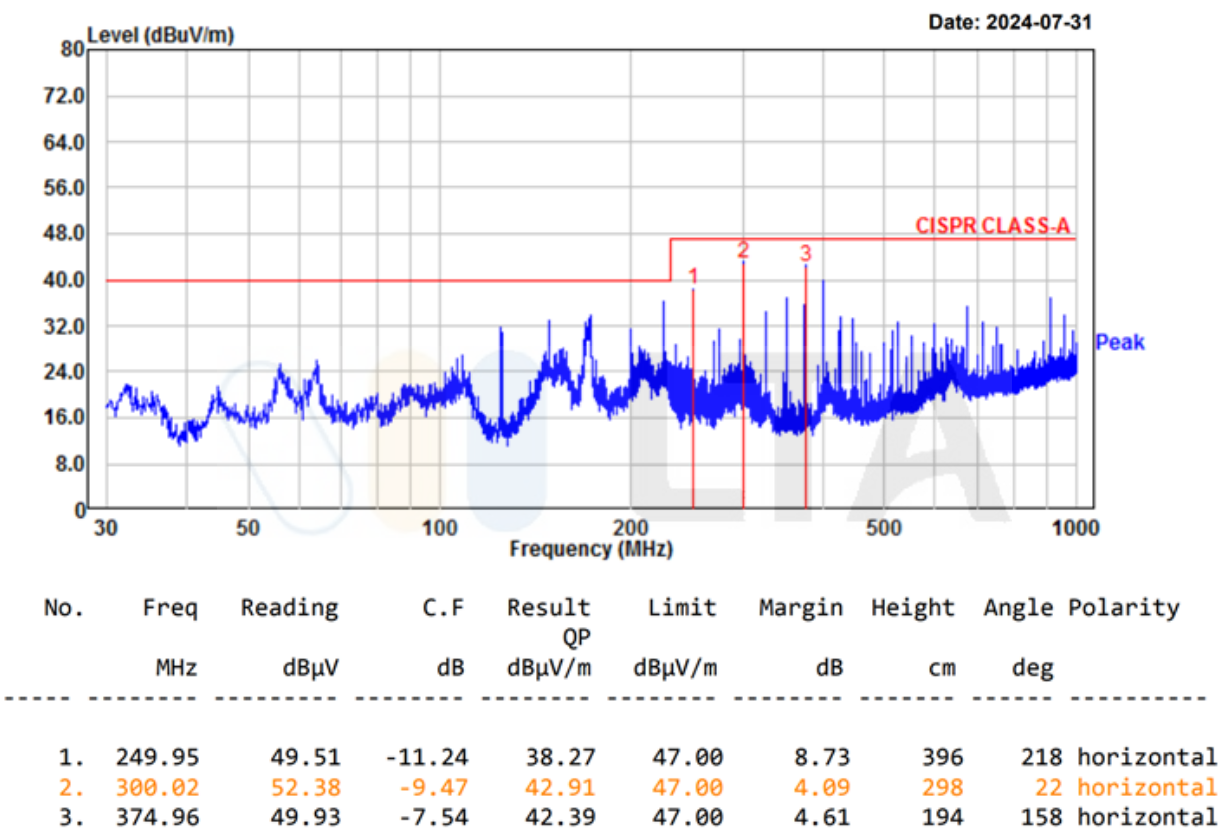
Project No. : 240717-1057

Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 50 Hz



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

Radiated Emissions (Below 1 GHz) / V / 50 Hz



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Fax : +82-31-3236010  
www.ltalab.com

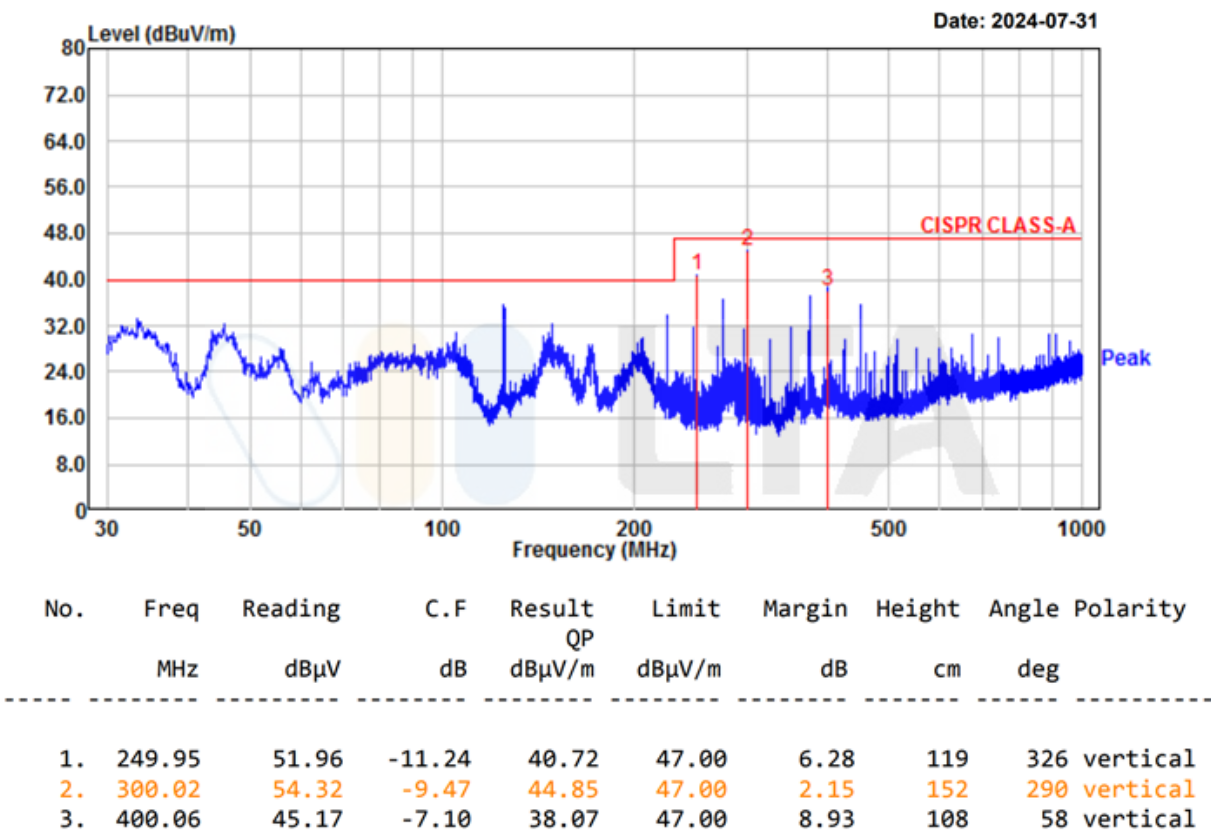
Project No. : 240717-1057

Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 50 Hz



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

Radiated Emissions (Below 1 GHz) / H / 60 Hz



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www.ltalab.com

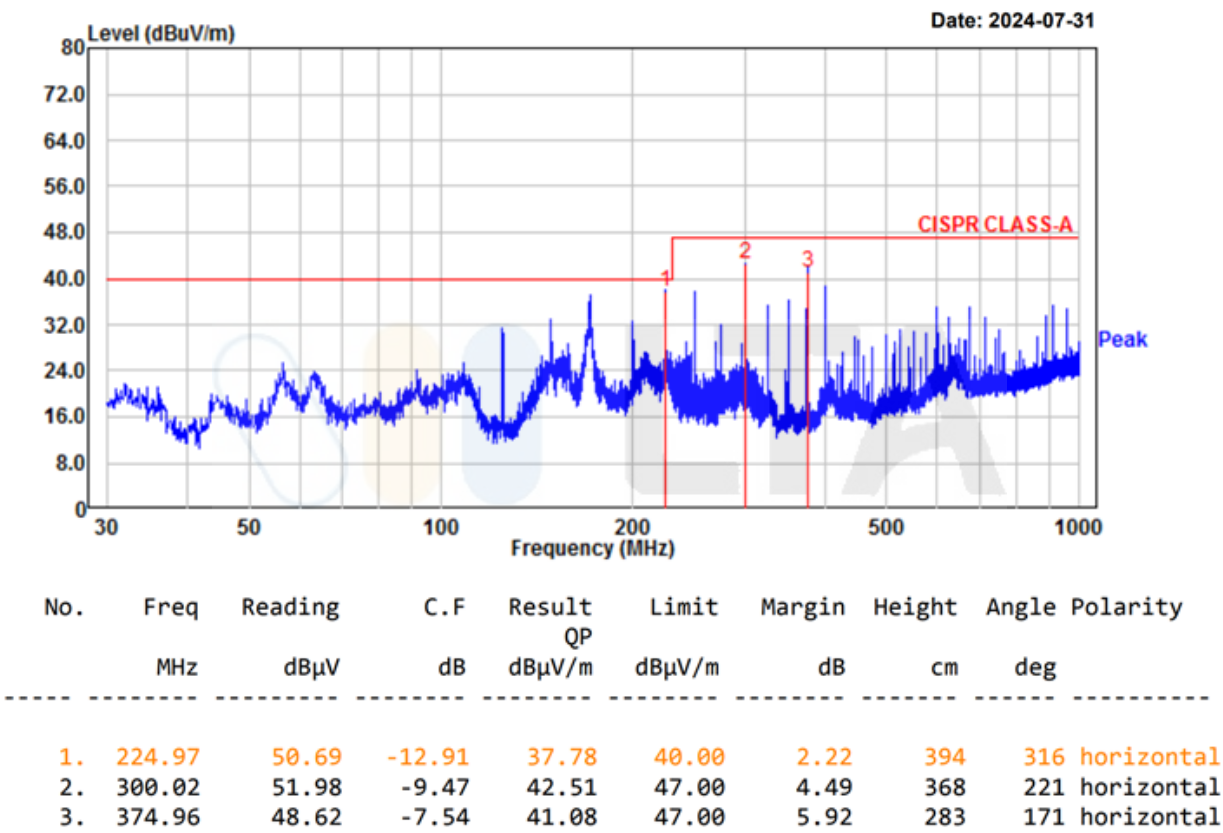
Project No. : 240717-1057

Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 60 Hz



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

Radiated Emissions (Below 1 GHz) / V / 60 Hz



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Yongin-si, Gyeonggi-do, Korea  
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Fax : +82-31-3236010  
www.ltalab.com

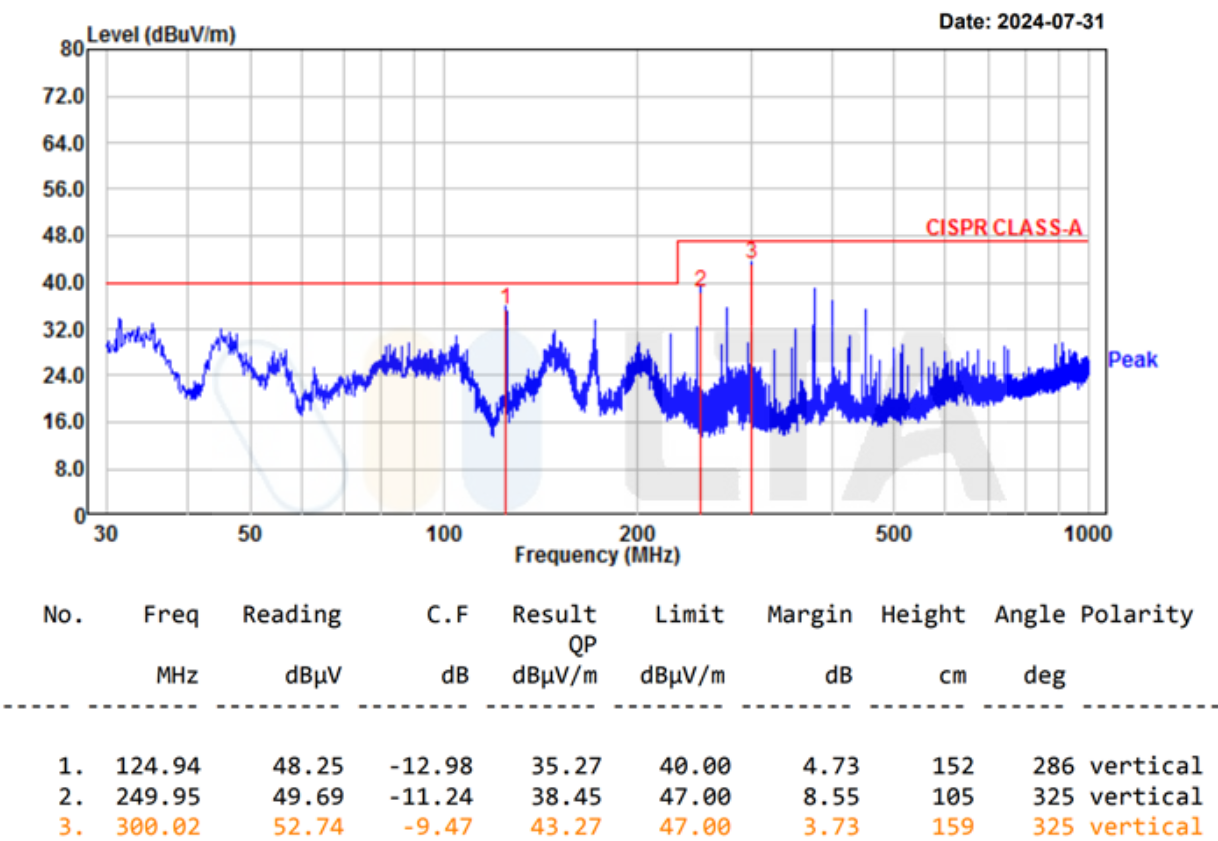
Project No. : 240717-1057

Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 60 Hz



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



Radiated Emissions (Above 1 GHz) / H / 50 Hz



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Fax : +82-31-3236010  
www.ltalab.com

Project No. : 240717-1057

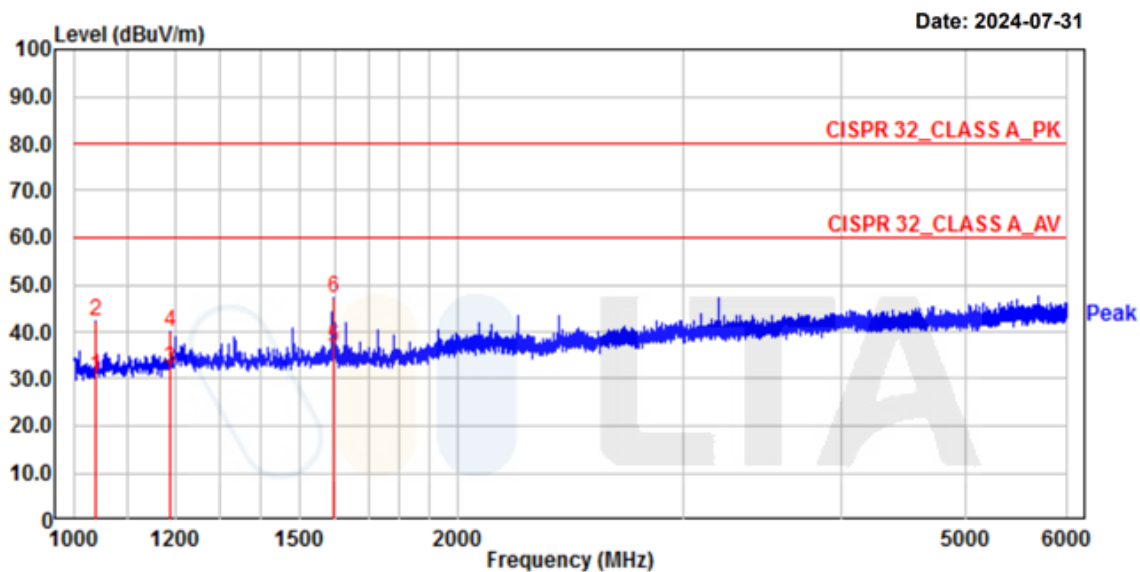
Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 50 Hz

Measure distance : 3.9 m



No.	Freq MHz	RD		C.F	Result		Limit		Margin		Height	Angle	Polarity
		PK dBµV	AV dBµV		PK dBµV	AV dBµV	PK dBµV	AV dBµV	PK dB	AV dB			
2.	1039.38	47.73	35.91	-5.40	42.33	30.51	80.00	60.00	37.67	29.49	100	139	horizontal
4.	1187.50	43.55	35.74	-3.68	39.87	32.06	80.00	60.00	40.13	27.94	100	78	horizontal
6.	1596.25	47.82	37.18	-0.66	47.16	36.52	80.00	60.00	32.84	23.48	100	324	horizontal

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

Radiated Emissions (Above 1 GHz) / V / 50 Hz



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Tel : +82-31-3236008,9  
Fax : +82-31-3236010  
www.ltalab.com

Project No. : 240717-1057

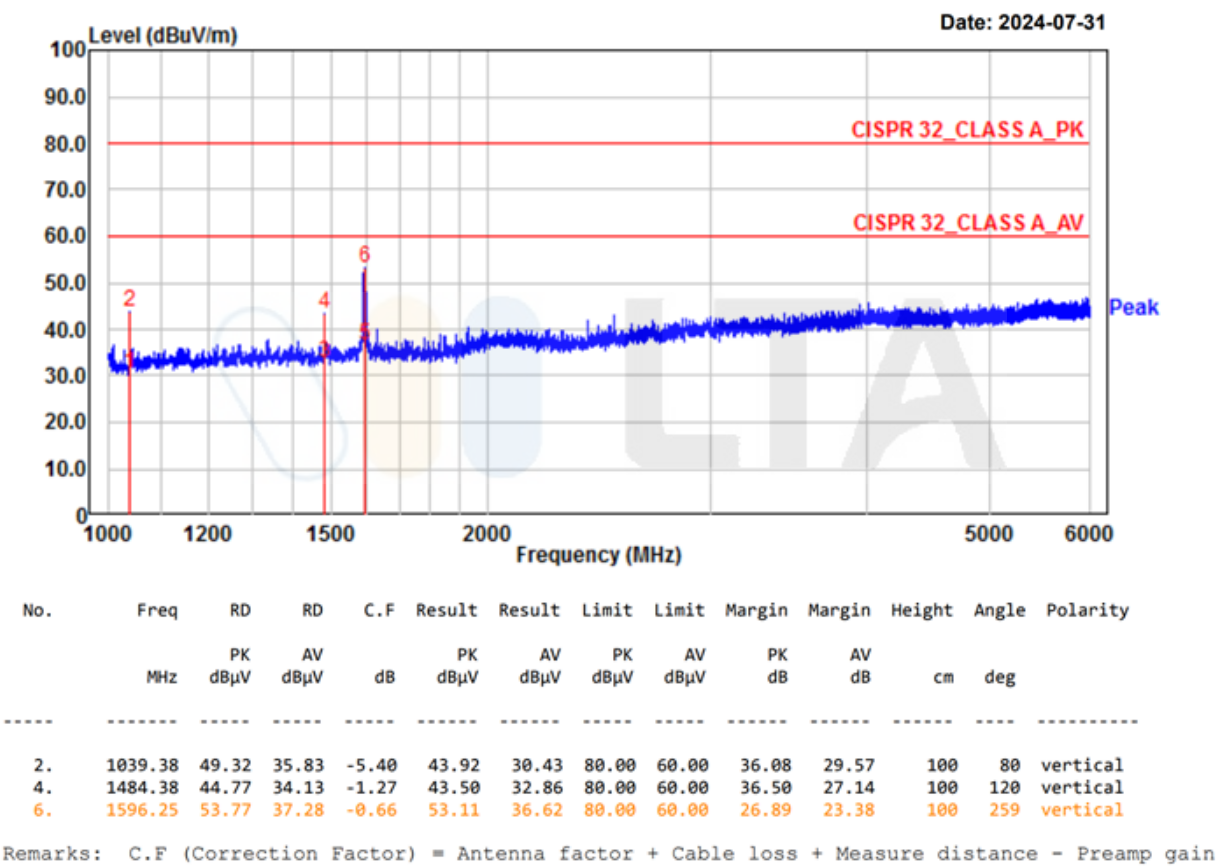
Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 50 Hz

Measure distance : 3.9 m



Radiated Emissions (Above 1 GHz) / H / 60 Hz



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Yongin-si, Gyeonggi-do, Korea  
Tel : +82-31-3236008,9  
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www.ltalab.com

Project No. : 240717-1057

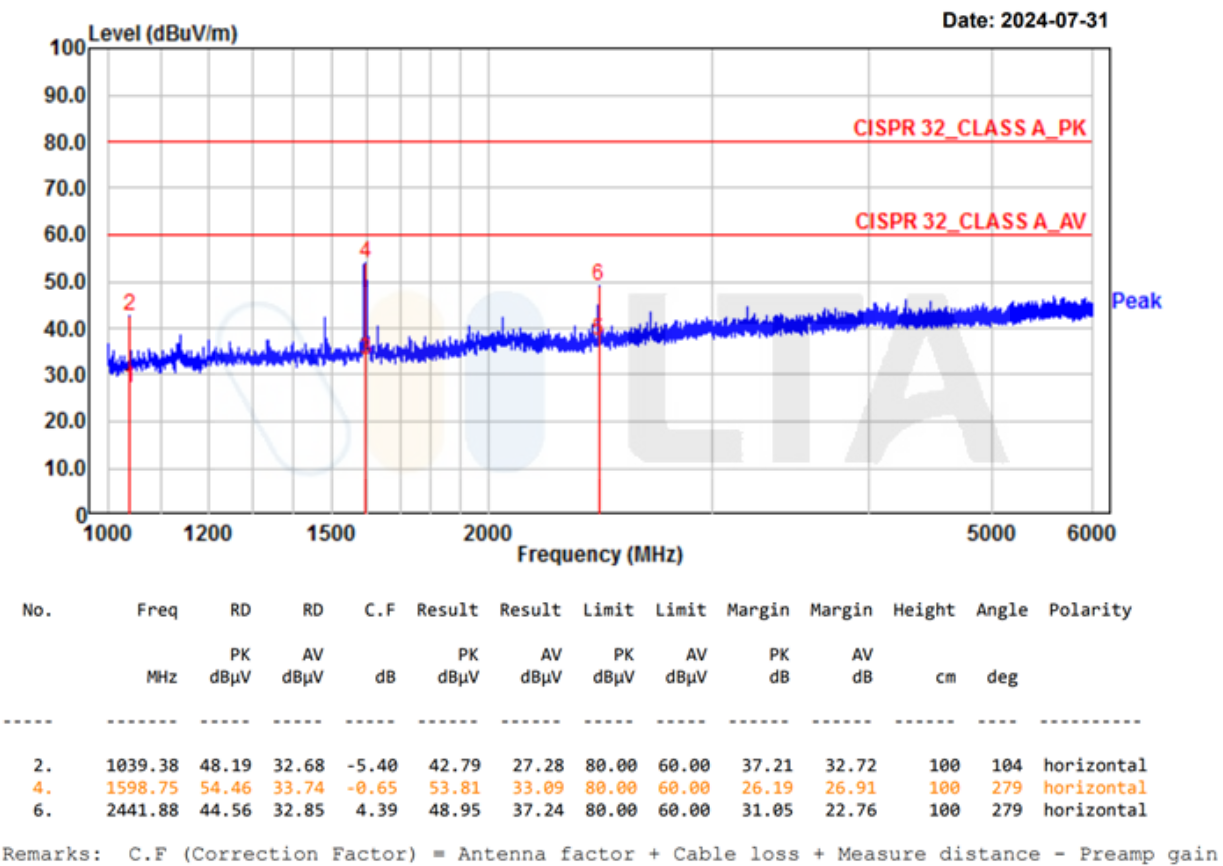
Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 60 Hz

Measure distance : 3.9 m



Radiated Emissions (Above 1 GHz) / V / 60 Hz



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

Project No. : 240717-1057

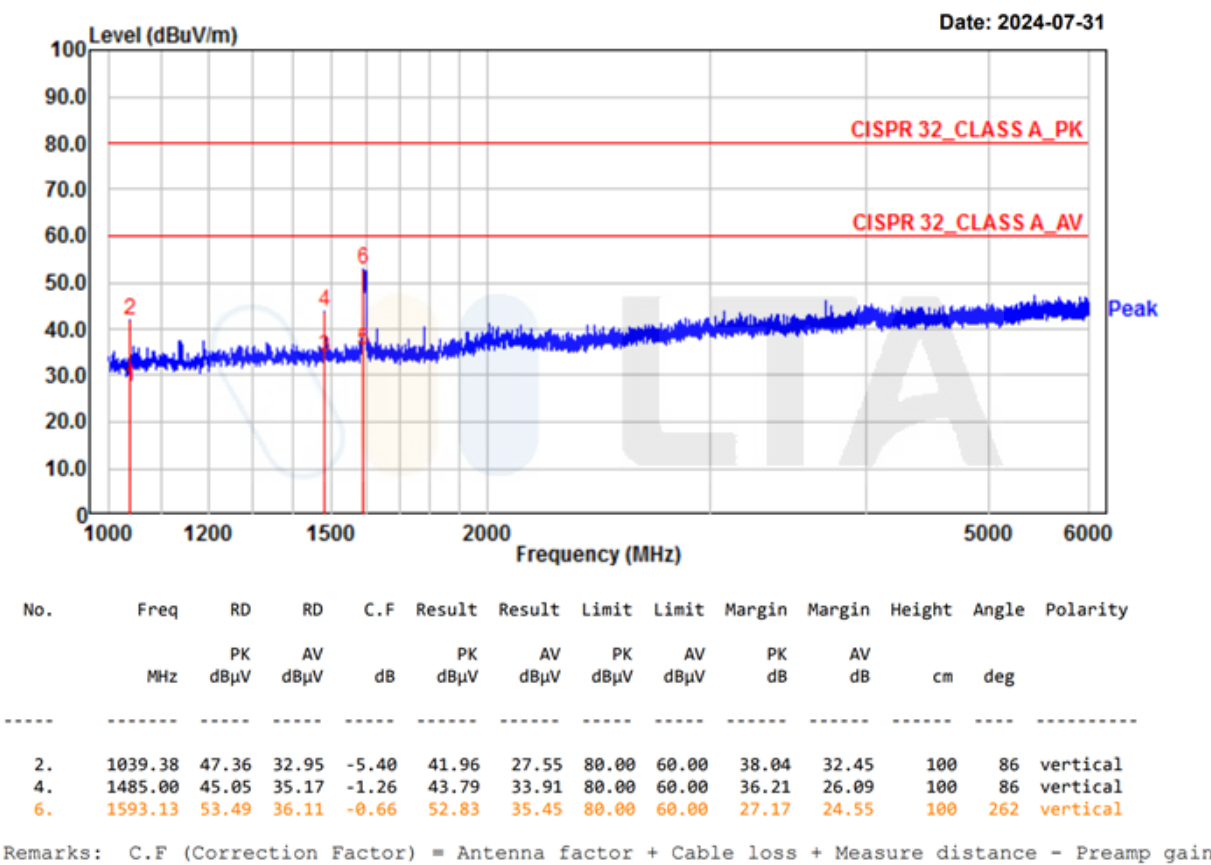
Temp/Humi: 22 'C / 55 % R.H.

Test Mode : OPERATING

Tested by: JUNG J H

Power : AC 100 V / 60 Hz

Measure distance : 3.9 m



## **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
<input checked="" type="checkbox"/>	EMI TEST Receiver	ESR	Rohde & Schwarz	101499	2025.03.08	1 year
<input checked="" type="checkbox"/>	Pulse Limiter	ESH3-Z2	Rohde & Schwarz	100710	2025.03.08	1 year
<input checked="" type="checkbox"/>	ISN	ISN T800	TESEQ	27109	2024.08.17	1 year
<input checked="" type="checkbox"/>	ISN	ENY81-CA6	Rohde & Schwarz	101565	2024.08.17	1 year
<input type="checkbox"/>	ISN	ISN S8	Schwarzbeck	79	2024.08.17	1 year
<input type="checkbox"/>	CURRENT PROBE	EZ-17	Rohde & Schwarz	100508	2024.08.23	1 year
<input type="checkbox"/>	CDN	TSCDN-C1-BNC-75	F.C.C	07004	2025.03.08	1 year
<input type="checkbox"/>	LISN	ESH3-Z6	Rohde & Schwarz	100378	2024.08.22	1 year
<input type="checkbox"/>	LISN	ESH3-Z6	Rohde & Schwarz	101468	2024.08.22	1 year
<input checked="" type="checkbox"/>	LISN(main)	ENV216	Rohde & Schwarz	102872	2024.09.07	1 year
<input checked="" type="checkbox"/>	LISN(sub)	LT32C/10	AFJ	32031518210	2024.08.22	1 year
<input checked="" type="checkbox"/>	TEST PROGRAM	e3_ce 20181212a (V9)	AUDIX	-	-	-

**Radiated Emissions – Below 1 GHz**

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
<input checked="" type="checkbox"/>	EMI TEST Receiver	ESCI7	Rohde & Schwarz	100772	2024.08.22	1 year
<input checked="" type="checkbox"/>	Amplifier	8447D	HP	1937A03453	2024.08.22	1 year
<input checked="" type="checkbox"/>	BILOG Antenna	VULB 9168	SCHWARZBECK	749	2025.03.29	2 year
<input checked="" type="checkbox"/>	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

**Radiated Emissions – Above 1 GHz**

	Item	Model Name	Manufacturer	Serial No.	Next Cal.	Interval
<input checked="" type="checkbox"/>	EMI TEST Receiver	ESCI7	Rohde & Schwarz	100772	2024.08.22	1 year
<input checked="" type="checkbox"/>	Amplifier	8449B	Agilent	3008A02126	2025.03.08	1 year
<input type="checkbox"/>	Amplifier	PAM-840A	COM-POWER	461314	2025.03.14	1 year
<input type="checkbox"/>	HORN ANTENNA	3116B	ETS	133350	2025.03.28	1 year
<input type="checkbox"/>	HORN ANTENNA	3116B	ETS	81109	2025.03.19	1 year
<input checked="" type="checkbox"/>	HORN ANTENNA	3115	ETS	114105	2025.04.02	1 year
<input checked="" type="checkbox"/>	TEST PROGRAM	e3 20181212a (V9)	AUDIX	-	-	-

## **APPENDIX B**

### **PHOTOGRAPHS**





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## Conducted Emissions

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## Conducted Emissions (TEL)

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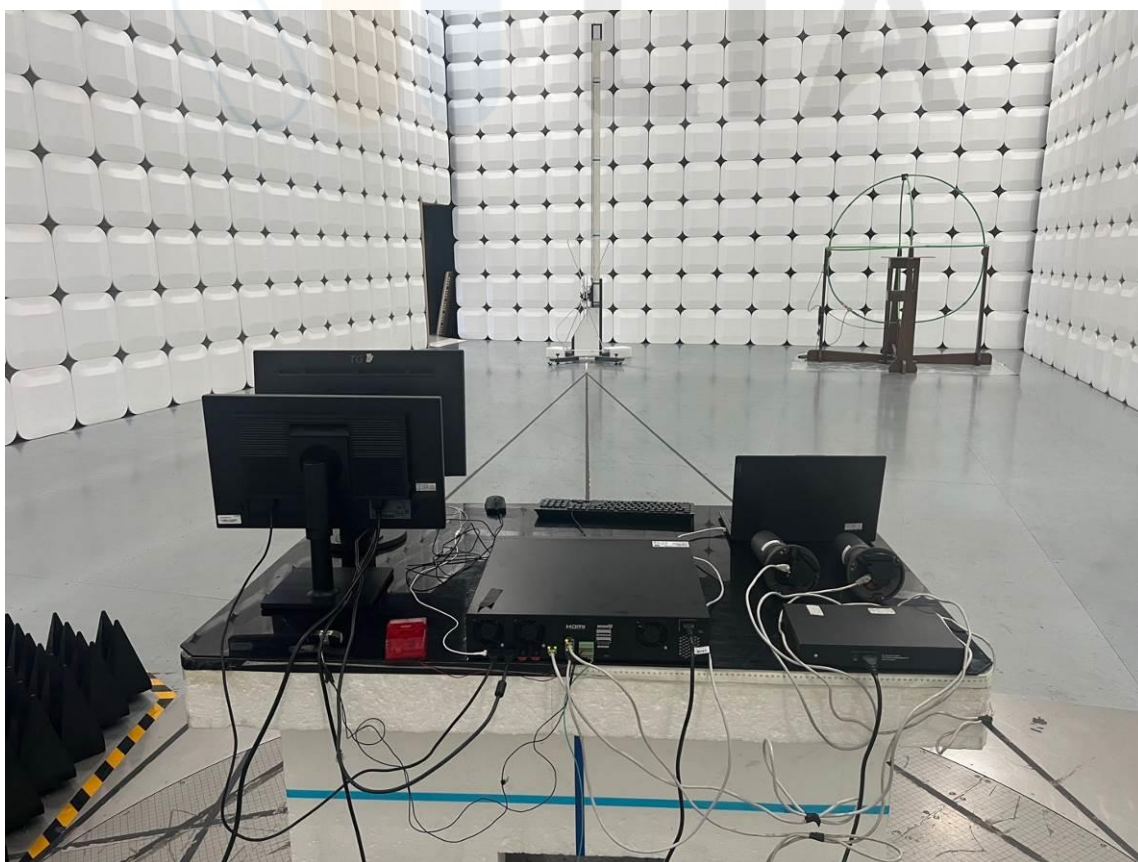
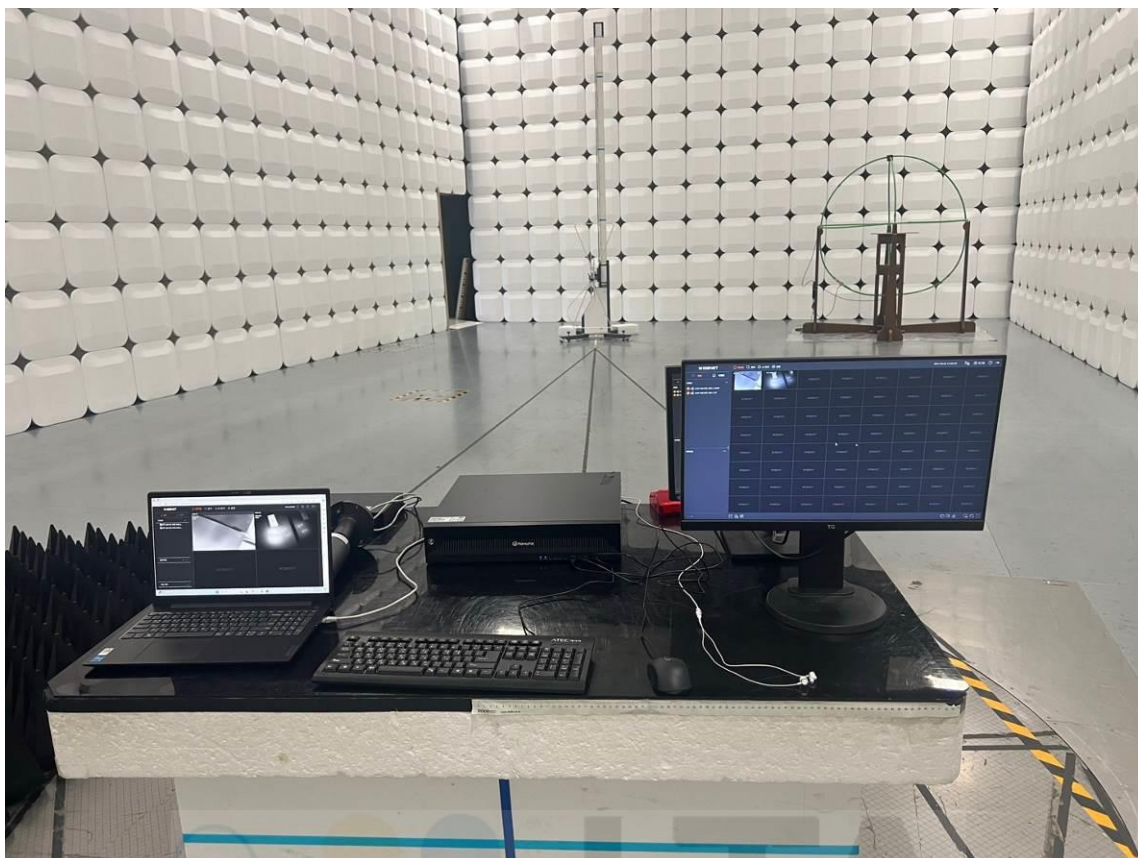




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## Radiated Emissions - Below 1 GHz

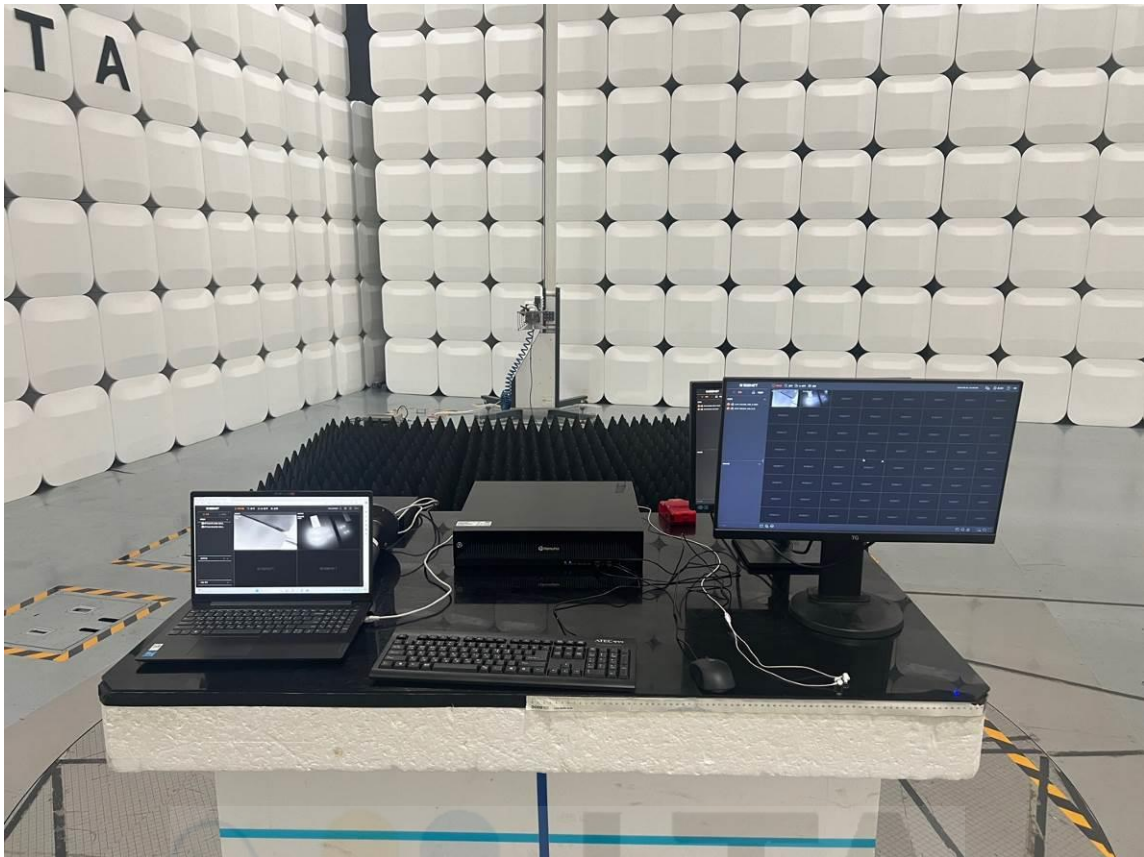
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## Radiated Emissions - Above 1 GHz

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EUT

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EUT

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