시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E231038-0A
신청자 Client	기관명 Name	Sense Monitoring Sp. z o.o.
	주 소 Address	ul. Zofii Nałkowskiej 11, 38-500 Sanok
시험대상품목 Sample description		Sensor S-One
모델명 Type designation		s-one-4.0
정 격 Ratings		MODE 1,2: DC 9 V ~ DC 30 V / MODE 3: DC 9 V(Adapter)
시험장소 Place of test		■ 고정시험실(Permanent Testing Lab) □ 현장시험(On Site Testing) 주소지(Address): 112, Hwanggeum3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		2023. 04. 25 ~ 2023. 04. 28
시험방법/항목 Test Method/Item		FCC CFR 47 Part 15, Subpart B / ICES-003 (Other Class B digital devices & peripherals)
시험결과 Test Results		Refer to summary of test results
확 인 Affirmation	작성자 Tested by 성 명 Name: 강웅걸 (서 명) Kang, Woong-gul(Signature)	기술책임자 Technical Manager 성 명 Name: 박명철 (서 명) Park, Myeongcheol (Signature)

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2023. 05. 10

주식회사 아이씨알 대표이사

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The authenticity of the test report can be checked on the G4B or ICR website.

Contents

1. Applicant Information

1.1 Applicant

Applicant : Sense Monitoring Sp. z o.o.
Address : ul. Zofii Nałkowskiej 11, 38-500 Sanok

1.2 Manufacture

Applicant : Sense Monitoring Sp. z o.o.
Address : ul. Zofii Nałkowskiej 11, 38-500 Sanok

2. Laboratory

2.1 Information

Laboratory : ICR Co., Ltd
Address : 112, Hwanggeum3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No. : +82-2-6351-9001
Facsimile No. : +82-2-6351-9007

KOLAS No. : KT652
RRA No. : KR0165

3. Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E231038-0A	2023. 05. 10	First issue.	-

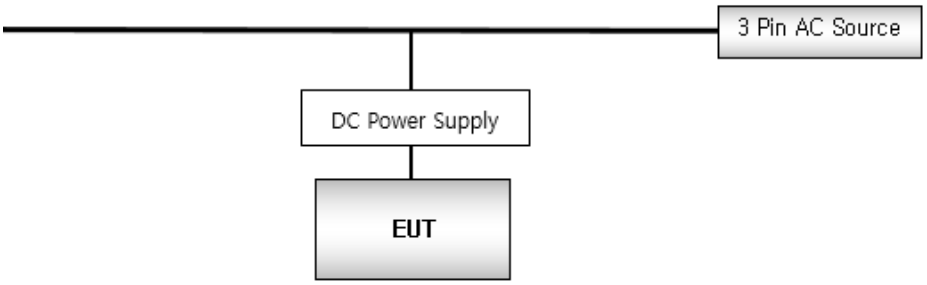
4. List of EUT and Accessory

4.1 Used equipment

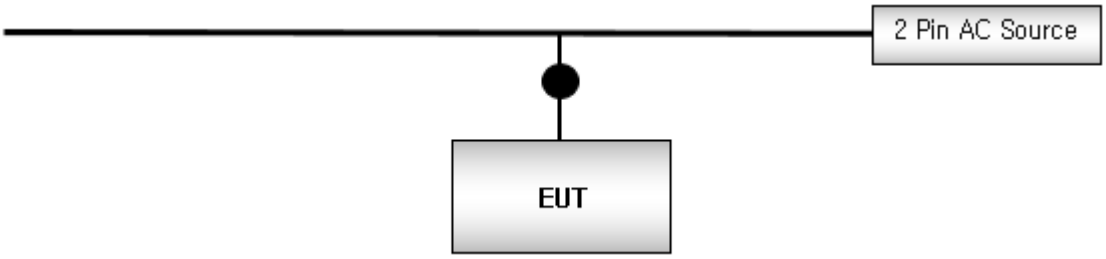
Description	Model	Manufacturer	Remark
Sensor S-One	s-one-4.0	Sense Monitoring Sp. z o.o.	EUT
DC Power Supply	PL-3005D0553	Protek	AE
Adapter	MCS-H05KD	Dongdo Electronics(Yantai)Co., Ltd	AE
Spectrum Analyzer	FSH8	Rohde&Schwarz	AE

4.2 Test Configuration

MODE 1, 2



MODE 3



: Signal line : Power line : GROUND : Adapter

4.3 Cable List

Equipment	Port	Equipment	Port	Length (m)	Shielded
EUT (MODE 1,2)	DC IN	DC Power Supply	DC OUT	0.8	Unshielded
EUT (MODE 3)	DC IN	Adapter	DC OUT	0.8	Unshielded

4.4 Mode of Operating during the test

[MODE 1] : After placing the EUT as shown in the layout, test it with RF RX Mode. (DC 30 V, DC Power Supply)
[MODE 2] : After placing the EUT as shown in the layout, test it with RF RX Mode. (DC 9 V, DC Power Supply)
[MODE 3] : After placing the EUT as shown in the layout, test it with RF RX Mode. (DC 9 V, Adapter)

4.5 EUT Modifications

- None.

4.6 Family Model Name

- None.

5. Summary of test result

5.1 Test Summary

Standard	Test items	Applied	Results
FCC Part 15.109	Radiated emission	☒	**Pass**
FCC Part 15.107	Conducted emission	☒	**Pass**
* The data in this test report are traceable to the national or international standards.			

Frequency range to be scanned:

0.15 MHz to 30 MHz as Conducted measurement

5th harmonic of the highest frequency or 40 GHz, whichever is lower as Radiated measurement

Bandwidth:

Measured by the CISPR quasi-peak function Bandwidth is 9 kHz in the frequency 0.15 MHz ~ 30 MHz and 120 kHz in the frequency 30 MHz ~ 1 000 MHz.
Measured by the CISPR Peak function Bandwidth is 1 MHz in the frequency 1 GHz ~ 40 GHz.
The EUT is powered by a vehicle battery, and the conduction disturbance test is excluded.

- **Maximum operating frequency: 108 MHz or higher**
- **Frequency CH: 12_2.410 GHz, CH:19_2.445 GHz, CH 25_2.475 GHz**
- **RF Module (MODEL: XBee3, FCC ID: MCQ-XBEE3)**

6. Test Description

6.1 Facility

All the testing facilities are periodically serviced as a daily check for equipment and cables systems, an every 6 months facility check for the facilities and a monthly check and annual calibration for testing equipment according to ISO/IEC 17025. All the testing facilities are used as the same specifications shown below. There are descriptions both for radiated disturbance measurement and conducted disturbance measurement conformed by ANSI C 63.4-2014.

6.2 Test Procedure

6.2.1 Radiated Disturbance Measurements – Below 1 GHz

- Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m/10 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1 m and 4 m in height above the ground.
- The EUT is placed on the non-conducting table with 0.8 m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (100 kHz bandwidth) and an EMI receiver with quasi-peak detectors(120 kHz bandwidth).
- Refer to the list of test equipment used for the test.
- Trilog antenna are used as Broadband antenna.
- The Trilog antenna is used in the frequency range of 30 ~ 1 000MHz, the Horn antenna is used in the frequency range of 1 GHz ~ 18 GHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information"(page 4-5) about details of the EUT and configuration of the cables.
- Measurement is carried out by a ICR operator as manual operation.

– searching for some of High disturbance frequency points than the other points with the following settings;
bandwidth 100 kHz, frequency range 10 MHz between 30 MHz and 300 MHz and frequency range 50 MHz between 300 MHz and 1 GHz.
– searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.
– setting the height of the antenna with the maximum level of the disturbance wave from 1 m ~ 4 m.
– reading the disturbance level by the EMI receiver with quasi-peak detectors (120 kHz bandwidth) according to ANSI C 63.4-2014.
– measuring to vertical and horizontal polarization.
– calculating the measurement result with the following formula or equation:
[Measurement result= measured value + Antenna factor + Cable loss - (Amp.)]

6.2.2 Radiated Disturbance Measurements – Above 1 GHz

- Test site is met the requirements of ANSI C 63.4-2014 and the distance between the EUT and the antenna is adjusted 3 m.
- The turntable can be rotated 360 degrees.
- The antenna can be adjusted between 1 m in height above the ground.
- The EUT is placed on the non-conducting table with 1 m height on the turntable.
- Measurements are carried out using a EMI test receiver with peak detectors (1 MHz bandwidth) and an EMI receiver with peak and average detectors(1 MHz bandwidth).
- Refer to the list of test equipment used for the test.
- HORN ANTENNA are used as WIDEBAND ANTENNA.
- The HORN ANTENNA is used in the frequency range of 1 GHz ~ 18 GHz.
- A variable attenuator is used for verifying amplifier's linearity.
- Rotating the turntable and adjusting the height of the antenna are carried out by control buttons on the console.
- Refer to "Brief Information"(page 4-5) about details of the EUT and configuration of the cables.

・Measurement is carried out by a ICR operator as manual operation.
– searching the worst direction with the maximum level of the disturbance wave in rotating the turntable 360 degrees at each searched frequency point.– setting the height of the antenna with the maximum level of the disturbance wave from 1 m
– reading the disturbance level by the EMI receiver with peak and average detectors (1 MHz bandwidth) according to ANSI C 63.4-2014.
– measuring to vertical and horizontal polarization.
– calculating the measurement result with the following formula or equation:
[Measurement result= measured value + Antenna factor + Cable loss - (Amp.)]

6.2.3 Conducted Disturbance Measurements

・The measurement is carried out on an open site with horizontal and metallic ground plane.
・An AMN(Artificial Mains Network) with a nominal impedance (50 Ω/50 μH) as defined in ANSIC 63.4-2014., shall be utilized.
・The AMN is grounded on a horizontal metal ground plane.
・Measurement is carried out using an EMI receiver with quasi-peak detectors and average detector. (Refer to the List of test equipment used for the test.)
・The shortest distance between the EUT and the AMN is 0.8 m.
・The EUT is placed on the non-conducting table with 0.8 m height.
・A remote switch is used for changing phases between Line (L) and Neutral (N).
・Refer to "Brief Information"(page 4-5) about details of the EUT and configuration of the cables.
・Measurement is carried out as manual operation.
– detecting the maximized emission level using the maxhold function after setting the spectrum analyzer bandwidth 1 kHz and the frequency range from 150 kHz ~ 1 MHz, 1 MHz ~ 5 MHz and 5 MHz ~ 30 MHz.
– searching the maximum frequency point of the disturbance wave in each frequency range.
– reading the disturbance level of quasi-peak, average and Line (L) and Neutral (N) in 9 kHz bandwidth by the EMI receiver.
– calculating the measurement result with the following formula or equation.
(Result = Reading + Corr)
(Margin = Limit - Result)

7. EMISSION

7.1 Radiated emission

Definition:

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

Test method	:	FCC Part 15.109
[Below 1 GHz]		
Test Date	:	2023. 04. 26
Temperature, Humidity	:	23.4 °C ~ 24.2 °C, 42.2 % R.H. ~ 42.9 % R.H.
Measurement Frequency range	:	30 MHz ~ 1 GHz
Measurement Distance		3 m
Measurement RBW	:	120 kHz
[Above 1 GHz]		
Test Date	:	2023. 04. 28
Temperature, Humidity	:	23.4 °C ~ 24.2 °C, 42.2 % R.H. ~ 42.9 % R.H.
Measurement Frequency range	:	1 GHz ~ 18 GHz
Measurement Distance		3 m
Measurement RBW	:	1 000 kHz
Test mode	:	MODE 1, 2, 3 (refer to 4.4)
Ut	:	AC 120 V, 60 Hz
Result	:	Pass

A sample calculation:

- Corr (correction factor) = Ant. Factor + Cable loss – (Amp.)
- Emission Level = meter reading + Corr
- Sample calculation ; Below 1 GHz: MODE 3 (Quasi-Peak)
  At Frequency : 860.019 MHz Result = Reading + Corr = 48.06 dB(μV/m) + (-10.4) dB = 37.66 dB(μV/m)
- Sample calculation ; Above 1 GHz : MODE 1 (CAverage)
  At Frequency : 17 896.300 MHz Result = Reading + Corr = 24.26 dB(μV/m) + (16.8) dB = 41.06 dB(μV/m)
- Measurement Data kept in ICR

Limits of below 1 GHz - CLASS A

Frequency Range (MHz)	Field strength (μV/m)	Distance (m)
30 ~ 88	90	10
88 ~ 216	150	
216 ~ 960	210	
Above 960	300	

Limits of below 1 GHz - CLASS B

Frequency Range (MHz)	Field strength (μV/m)	Distance (m)
30 ~ 88	100	3
88 ~ 216	150	
216 ~ 960	200	
Above 960	500	

Used equipments:

- Below 1 GHz

Used	Equipment	Model name	Manufacturer	Serial No.	Next Cal.
☒	EMI Test Receiver	ESR26	R&S	101462	2024. 04. 04
☒	TRILOG BROAD BAND ANTENNA	VULB 9162	SCHWARZBECK	120	2024. 12. 26
☐	LOOP Antenna	HFH2-Z2	R&S	100506	2023. 07. 05
☒	RF Pre Amplifier	SCU 08	R&S	100746	2024. 04. 03
☒	HUMIDITY/TEMP. DATA RECORDER	MHT-381SD	LUTRON	AI.63107	2024. 02. 07

- Above 1 GHz

Used	Equipment	Model name	Manufacturer	Serial No.	Next Cal.
☒	EMI Test Receiver	ESR26	R&S	101461	2024. 04. 04
☒	HORN ANTENNA	HF907	R&S	102556	2023. 08. 22
☒	RF Pre Amplifier	SCU 18	R&S	102342	2024. 04. 03
☒	HUMIDITY/TEMP. DATA RECORDER	MHT-381SD	LUTRON	AI.63106	2024. 02. 07

Test Software:

Used	Description	Model name	Manufacturer	Version.
☒	EMI Test Software	EMC32	R & S	10.01.00

Measurement Data:

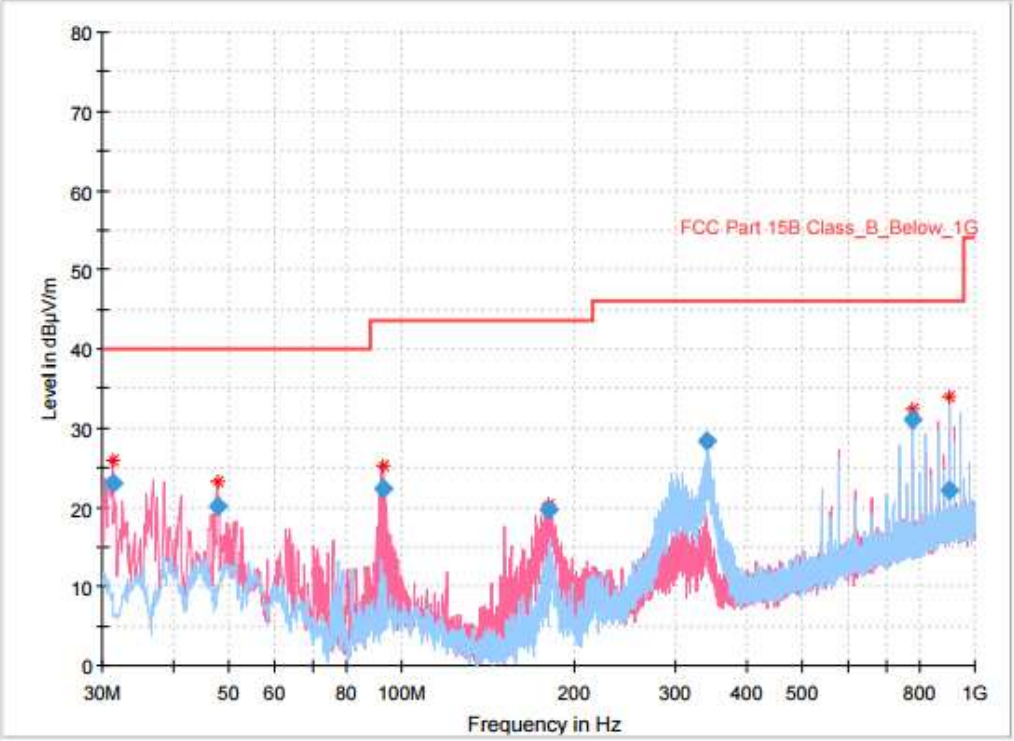
- Refer to the Next page.

[Below 1 GHz : MODE 1]
DATA

Test Report

Common Information

Test Description:	2023-1706
Operating Conditions:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	RE_MODE 1



Final_Result

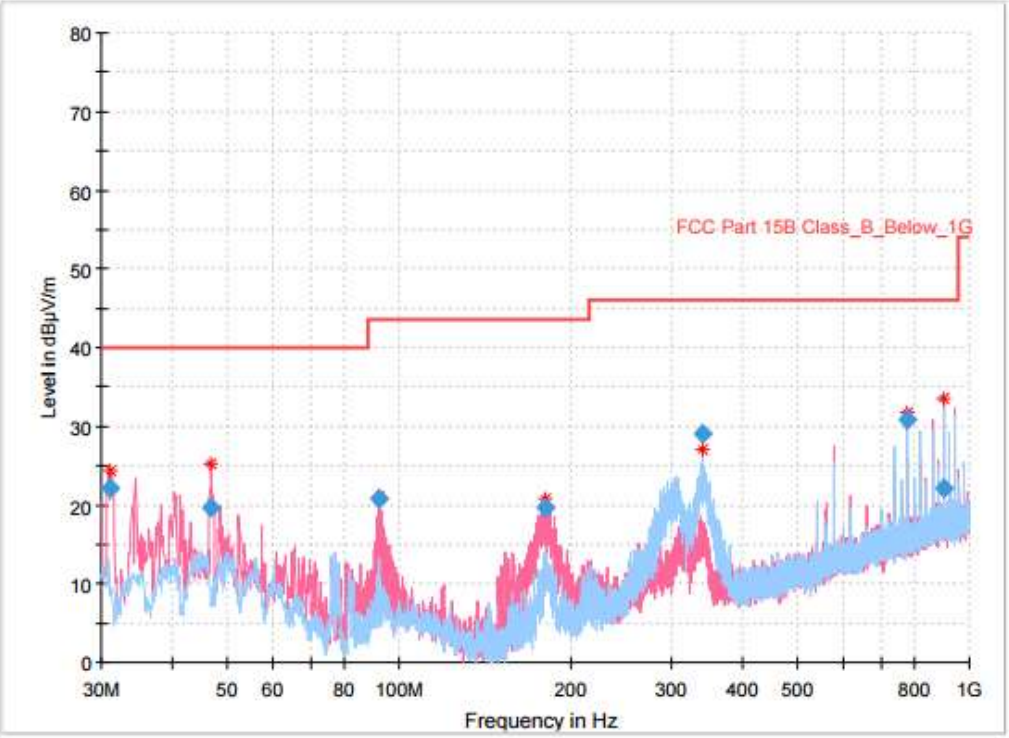
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.261000	22.95	40.00	17.05	1000.0	120.000	300.0	V	259.0	-26.9
47.654000	20.17	40.00	19.83	1000.0	120.000	100.0	V	0.0	-22.9
92.953000	22.24	43.50	21.26	1000.0	120.000	200.0	V	0.0	-25.7
180.350000	19.71	43.50	23.79	1000.0	120.000	200.0	V	326.0	-26.7
340.012000	28.34	46.00	17.66	1000.0	120.000	100.0	H	75.0	-20.0
780.004000	31.11	46.00	14.89	1000.0	120.000	100.0	H	53.0	-12.1
900.090000	22.11	46.00	23.89	1000.0	120.000	400.0	V	115.0	-10.2

[Below 1 GHz : MODE 2]
DATA

Test Report

Common Information

Test Description:	2023-1706
Operating Conditions:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	RE_MODE 2



Final_Result

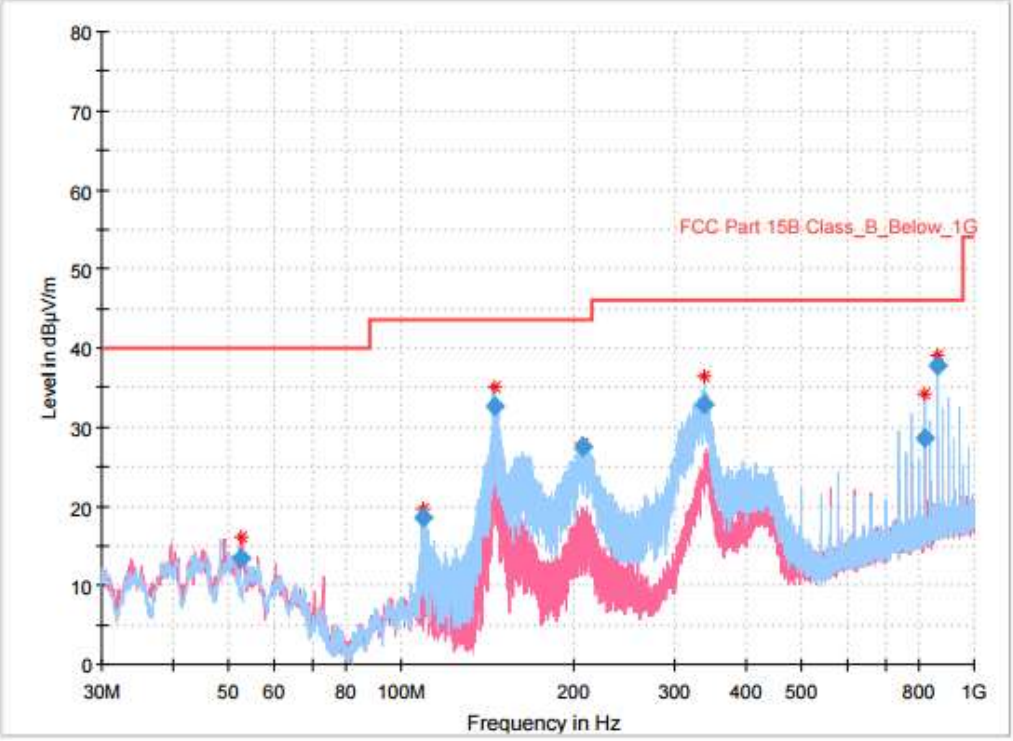
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.164000	22.13	40.00	17.87	1000.0	120.000	100.0	V	235.0	-26.9
46.878000	19.62	40.00	20.38	1000.0	120.000	300.0	V	89.0	-23.1
92.274000	20.89	43.50	22.61	1000.0	120.000	100.0	V	0.0	-25.9
180.544000	19.56	43.50	23.94	1000.0	120.000	100.0	V	332.0	-26.7
340.012000	29.14	46.00	16.86	1000.0	120.000	200.0	H	80.0	-20.0
780.004000	30.91	46.00	15.09	1000.0	120.000	200.0	H	26.0	-12.1
900.090000	22.12	46.00	23.88	1000.0	120.000	100.0	V	145.0	-10.2

[Below 1 GHz : MODE 3]
DATA

Test Report

Common Information

Test Description:	2023-1706
Operating Conditions:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	RE_MODE 3



Final_Result

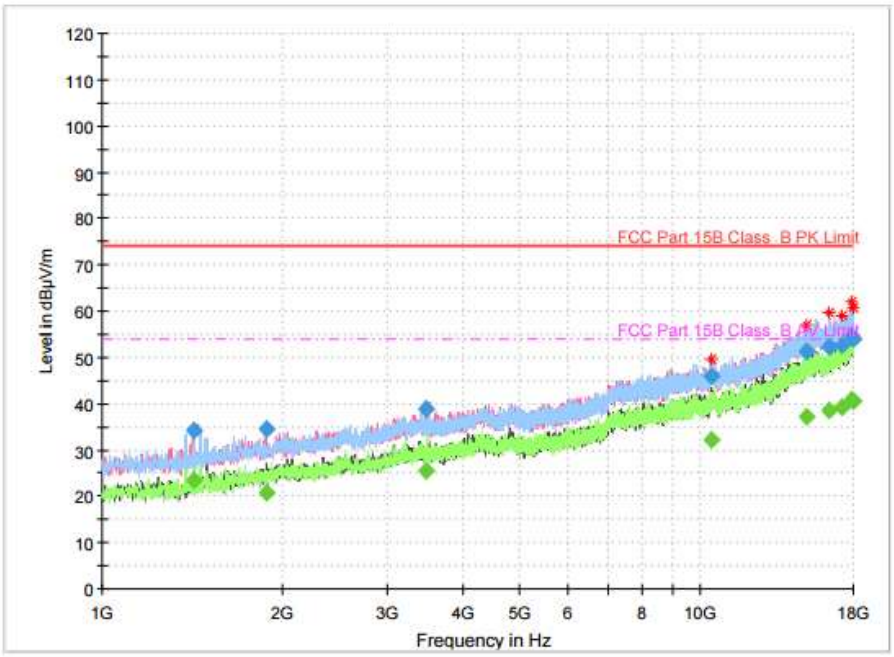
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
52.407000	13.47	40.00	26.53	1000.0	120.000	200.1	V	0.0	-23.1
108.958000	18.48	43.50	25.02	1000.0	120.000	300.0	H	7.0	-25.1
145.818000	32.61	43.50	10.89	1000.0	120.000	200.1	H	359.0	-28.4
207.316000	27.42	43.50	16.08	1000.0	120.000	100.1	H	27.0	-25.1
338.557000	32.90	46.00	13.10	1000.0	120.000	100.1	H	93.0	-20.1
820.065000	28.49	46.00	17.51	1000.0	120.000	100.1	H	93.0	-11.3
860.029000	37.66	46.00	8.34	1000.0	120.000	100.1	H	93.0	-10.4

[Above 1 GHz : MODE 1]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	ABOVE_MODE 1



Final_Result

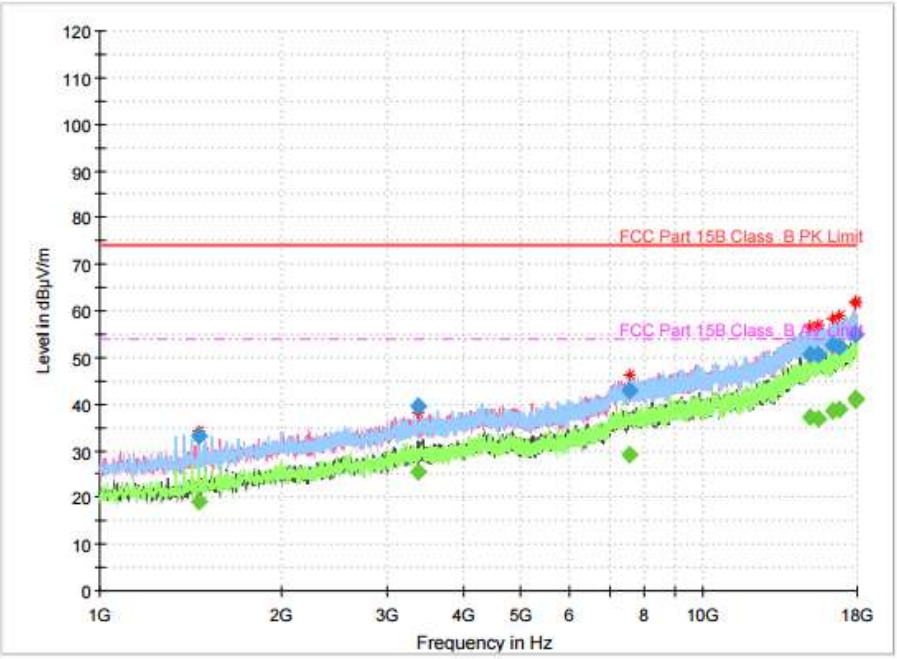
Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1419.900	34.05	---	74.00	39.95	10000.0	1000.000	149.8	V	151.0	-15.1
1419.900	---	23.62	54.00	30.38	10000.0	1000.000	149.8	V	151.0	-15.1
1880.600	---	20.87	54.00	33.13	10000.0	1000.000	300.3	V	283.0	-12.1
1880.600	34.43	---	74.00	39.57	10000.0	1000.000	300.3	V	283.0	-12.1
3471.800	---	25.57	54.00	28.43	10000.0	1000.000	149.8	V	323.0	-4.7
3471.800	38.94	---	74.00	35.06	10000.0	1000.000	149.8	V	323.0	-4.7
10438.400	45.82	---	74.00	28.18	10000.0	1000.000	149.8	H	2.0	7.2
10438.400	---	32.09	54.00	21.91	10000.0	1000.000	149.8	H	2.0	7.2
15023.300	---	37.35	54.00	16.65	10000.0	1000.000	300.3	H	0.0	13.0
15023.300	51.31	---	74.00	22.69	10000.0	1000.000	300.3	H	0.0	13.0
16422.400	---	38.50	54.00	15.50	10000.0	1000.000	149.8	H	170.0	13.3
16422.400	52.24	---	74.00	21.76	10000.0	1000.000	149.8	H	170.0	13.3
17199.300	52.78	---	74.00	21.22	10000.0	1000.000	149.8	V	115.0	15.2
17199.300	---	39.26	54.00	14.74	10000.0	1000.000	149.8	V	115.0	15.2
17896.300	---	41.06	54.00	12.94	10000.0	1000.000	300.3	V	246.0	16.8
17896.300	54.69	---	74.00	19.31	10000.0	1000.000	300.3	V	246.0	16.8
17998.300	54.09	---	74.00	19.91	10000.0	1000.000	149.8	V	355.0	16.8
17998.300	---	40.63	54.00	13.37	10000.0	1000.000	149.8	V	355.0	16.8

[Above 1 GHz : MODE 2]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	ABOVE_MODE 2



Final_Result

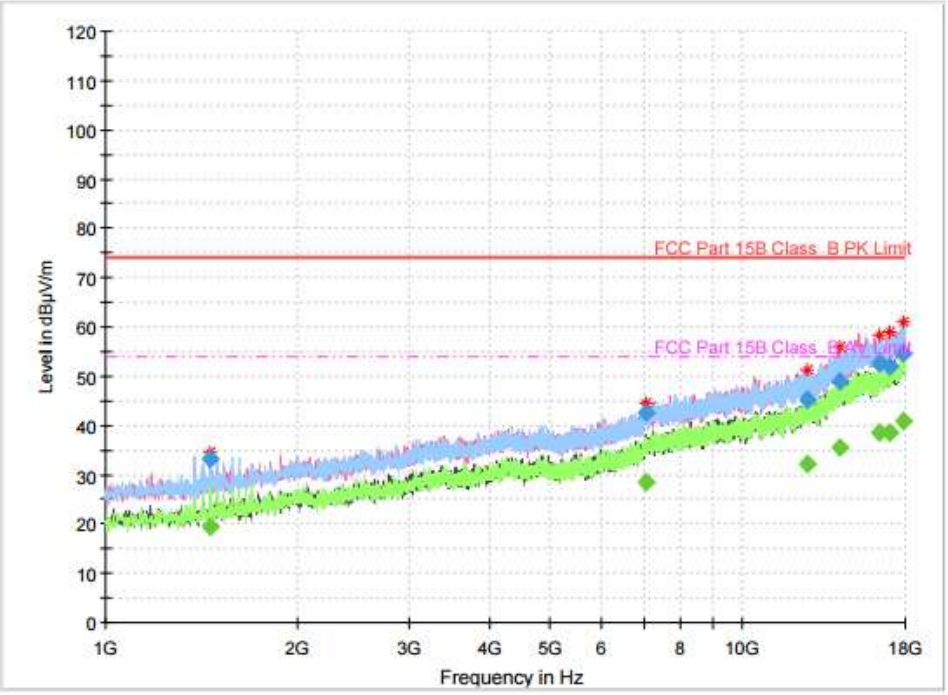
Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1459.000	33.09	---	74.00	40.91	10000.0	1000.000	149.8	H	165.0	-14.6
1459.000	---	19.15	54.00	34.85	10000.0	1000.000	149.8	H	165.0	-14.6
3371.500	39.61	---	74.00	34.39	10000.0	1000.000	149.8	V	0.0	-4.4
3371.500	---	25.64	54.00	28.36	10000.0	1000.000	149.8	V	0.0	-4.4
7563.700	---	29.22	54.00	24.78	10000.0	1000.000	300.1	H	261.0	3.6
7563.700	43.06	---	74.00	30.94	10000.0	1000.000	300.1	H	261.0	3.6
15036.900	50.45	---	74.00	23.55	10000.0	1000.000	149.8	H	21.0	13.0
15036.900	---	37.15	54.00	16.85	10000.0	1000.000	149.8	H	21.0	13.0
15514.600	50.55	---	74.00	23.45	10000.0	1000.000	300.1	H	0.0	12.6
15514.600	---	36.79	54.00	17.21	10000.0	1000.000	300.1	H	0.0	12.6
16413.900	52.46	---	74.00	21.54	10000.0	1000.000	149.8	V	319.0	13.3
16413.900	---	38.61	54.00	15.39	10000.0	1000.000	149.8	V	319.0	13.3
16855.900	52.39	---	74.00	21.61	10000.0	1000.000	300.1	H	261.0	14.2
16855.900	---	38.75	54.00	15.25	10000.0	1000.000	300.1	H	261.0	14.2
17870.800	---	41.03	54.00	12.97	10000.0	1000.000	300.1	V	240.0	16.6
17870.800	55.10	---	74.00	18.90	10000.0	1000.000	300.1	V	240.0	16.6
17909.900	---	41.20	54.00	12.80	10000.0	1000.000	149.8	H	0.0	16.9
17909.900	55.02	---	74.00	18.98	10000.0	1000.000	149.8	H	0.0	16.9

[Above 1 GHz : MODE 3]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site:	ICR 3 m Chamber
Operator Name:	KWG
Comment:	ABOVE_MODE 3



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1459.000	33.18	---	74.00	40.82	10000.0	1000.000	149.7	H	230.0	-14.6
1459.000	---	19.31	54.00	34.69	10000.0	1000.000	149.7	H	230.0	-14.6
7065.600	42.59	---	74.00	31.41	10000.0	1000.000	300.3	V	197.0	2.8
7065.600	---	28.50	54.00	25.50	10000.0	1000.000	300.3	V	197.0	2.8
12611.000	45.24	---	74.00	28.76	10000.0	1000.000	149.7	V	312.0	8.8
12611.000	---	32.12	54.00	21.88	10000.0	1000.000	149.7	V	312.0	8.8
14217.500	48.88	---	74.00	25.12	10000.0	1000.000	149.7	V	0.0	12.1
14217.500	---	35.47	54.00	18.53	10000.0	1000.000	149.7	V	0.0	12.1
16434.300	52.56	---	74.00	21.44	10000.0	1000.000	149.7	H	120.0	13.4
16434.300	---	38.59	54.00	15.41	10000.0	1000.000	149.7	H	120.0	13.4
16974.900	---	38.65	54.00	15.35	10000.0	1000.000	149.7	V	0.0	14.4
16974.900	52.04	---	74.00	21.96	10000.0	1000.000	149.7	V	0.0	14.4
17916.700	54.57	---	74.00	19.43	10000.0	1000.000	300.3	V	42.0	16.9
17916.700	---	41.02	54.00	12.98	10000.0	1000.000	300.3	V	42.0	16.9

7.2 Conducted emission

Definition:

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

Test method	:	FCC Part 15.107
Test Date	:	2023. 04. 25
Temperature, Humidity	:	23.4 °C ~ 24.2 °C, 42.2 % R.H. ~ 42.9 % R.H.
Measurement Frequency range and RBW	:	150 kHz ~ 30 MHz
Test mode	:	MODE 1, 2, 3 (refer to 4.4)
Ut	:	AC 120 V, 60 Hz
Result		Pass

A sample calculation:

- Corr (correction factor) = LISN Insertion loss + Cable loss
- Emission Level = meter reading + Corr
- Sample calculation; MODE 1
- At Frequency: 10.196 250 MHz Result = Reading + Corr = 13.40 dB(μV) + 9.9 dB = 23.30 dB(μV)
  (☐ Quasi-peak, ☒ CISPR-Average)
- Measurement Data kept in ICR

Limits for conducted emissions from the AC mains ports of class A equipment.

Applicable to AC mains power port		
Frequency Range (MHz)	Quasi-Peak [dB(μV)]	CISPR-Average [dB(μV)]
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60

Limits for conducted emissions from the AC mains ports of class B equipment.

Applicable to AC mains power port		
Frequency Range (MHz)	Quasi-Peak [dB(μV)]	CISPR-Average [dB(μV)]
0.15 ~ 0.5	66 ~ 56*	56 ~ 46*
0.5 ~ 5	56	46
5 ~ 30	60	50
* Decreases with the logarithm of the frequency		

Used equipments:

Used	Equipment	Model no.	Makers	Serial no.	Next Cal.
☒	EMI Test Receiver	ESR3	R&S	102119	2024. 04. 04
☒	LISN(main)	ENV216	R&S	102194	2024. 04. 03
☐	LISN(sub)	ENV216	R&S	102193	2024. 04. 03
☐	LISN	NNLK 8130	SCHWARZBECK	05184	2023. 08. 11
☐	LISN	NNLK 8121	SCHWARZBECK	8121-668	2023. 12. 08
☒	HUMIDITY/TEMP. DATA RECORDER	MHT-381SD	LUTRON	AI.63101	2024. 02. 07

Test Software:

Used	Description	Model name	Manufacturer	Version.
☒	EMI Test Software	EMC32	R & S	10.01.02

Measurement Data:

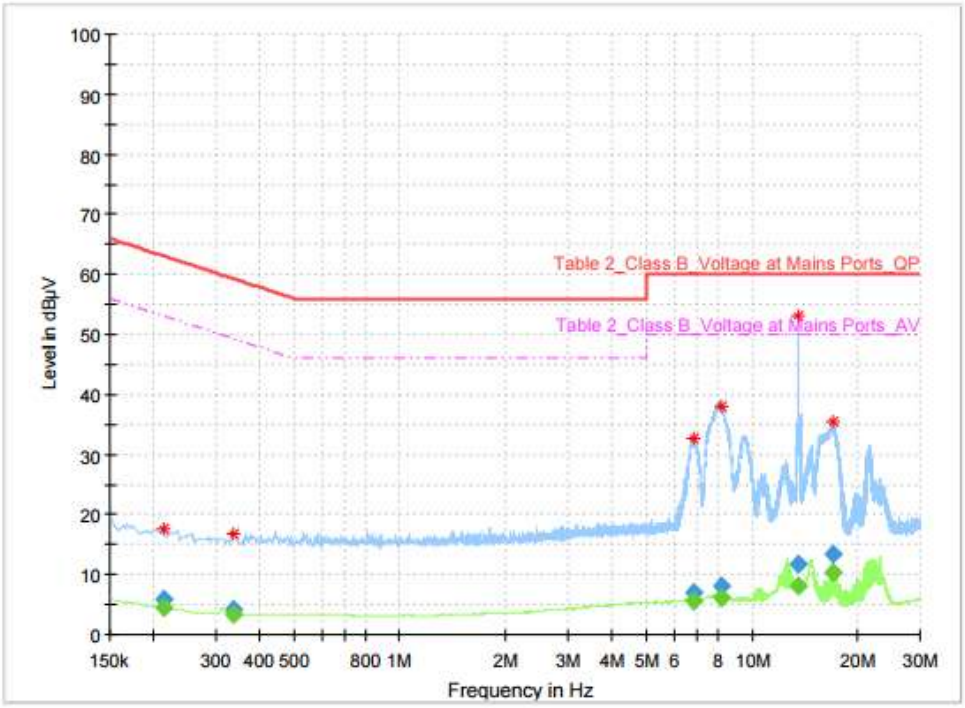
- Refer to the Next page.

[MODE 1]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site	ICR Shield Room
Operator Name:	KWG
Comment:	CE_MODE 1



Final_Result

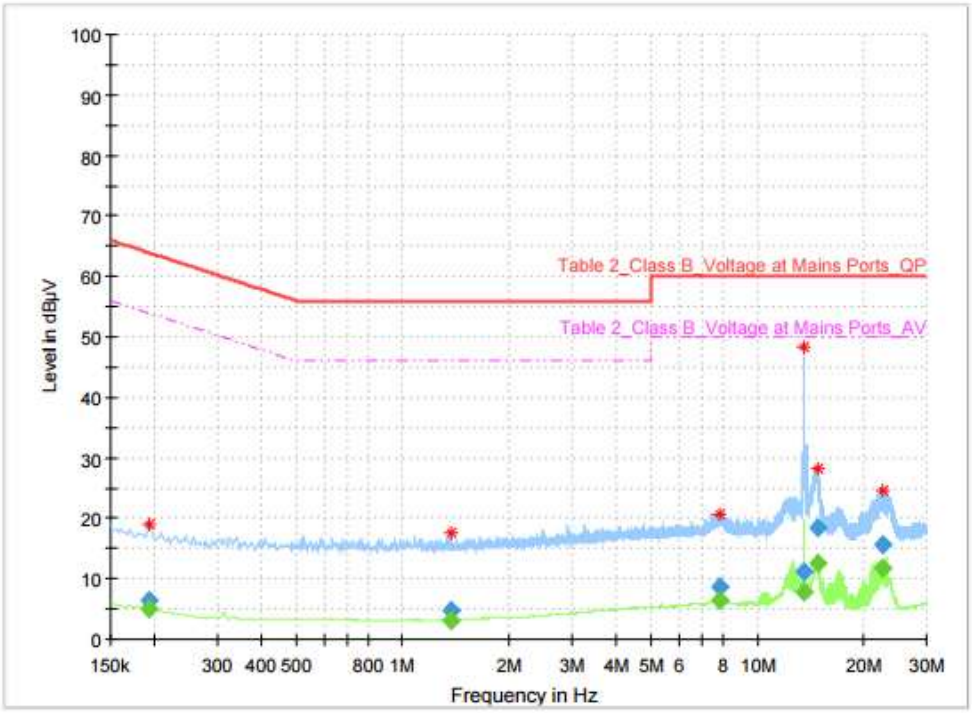
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.213000	5.92	---	63.09	57.16	5000.0	9.000	N	9.8
0.213000	---	4.56	53.09	48.53	5000.0	9.000	N	9.8
0.336750	4.27	---	59.28	55.02	5000.0	9.000	L1	9.8
0.336750	---	3.49	49.28	45.80	5000.0	9.000	L1	9.8
6.846000	---	5.61	50.00	44.39	5000.0	9.000	N	9.8
6.846000	7.10	---	60.00	52.90	5000.0	9.000	N	9.8
8.173500	---	6.15	50.00	43.85	5000.0	9.000	N	9.8
8.173500	8.04	---	60.00	51.96	5000.0	9.000	N	9.8
13.560000	---	8.08	50.00	41.92	5000.0	9.000	N	9.8
13.560000	11.77	---	60.00	48.23	5000.0	9.000	N	9.8
16.919250	---	10.32	50.00	39.68	5000.0	9.000	N	9.9
16.919250	13.51	---	60.00	46.49	5000.0	9.000	N	9.9

[MODE 2]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site	ICR Shield Room
Operator Name:	KWG
Comment:	CE_MODE 2



Final_Result

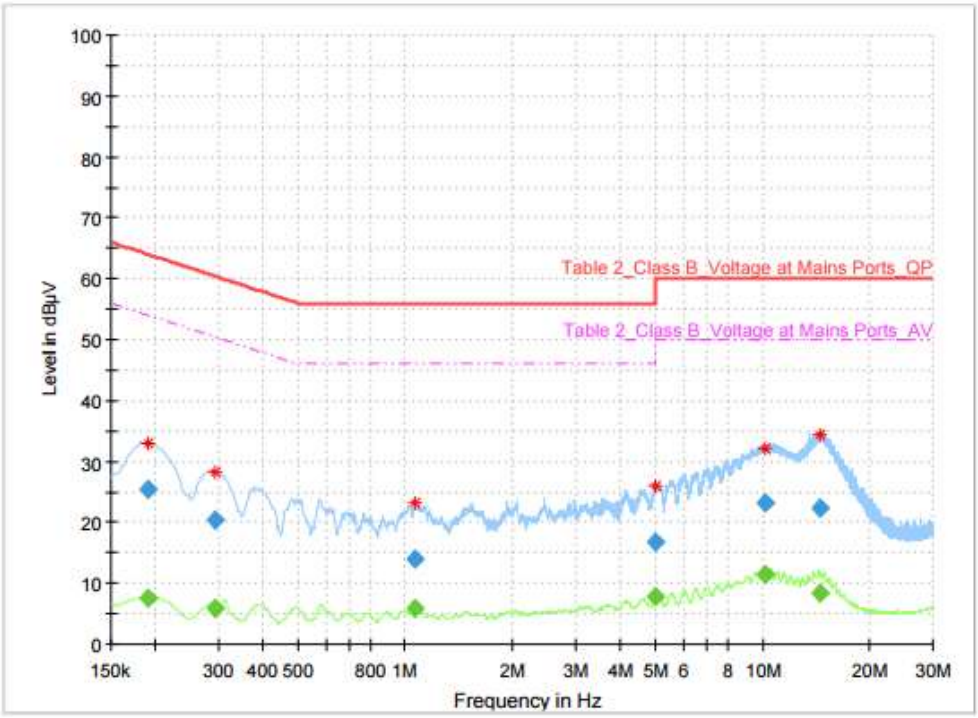
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.192750	---	4.98	53.92	48.94	5000.0	9.000	L1	9.9
0.192750	6.35	---	63.92	57.57	5000.0	9.000	L1	9.9
1.365000	---	3.21	46.00	42.79	5000.0	9.000	L1	9.7
1.365000	4.67	---	56.00	51.33	5000.0	9.000	L1	9.7
7.847250	---	6.41	50.00	43.59	5000.0	9.000	L1	9.8
7.847250	8.56	---	60.00	51.44	5000.0	9.000	L1	9.8
13.560000	11.23	---	60.00	48.77	5000.0	9.000	N	9.8
13.560000	---	7.85	50.00	42.15	5000.0	9.000	N	9.8
14.725500	18.44	---	60.00	41.56	5000.0	9.000	L1	9.9
14.725500	---	12.44	50.00	37.56	5000.0	9.000	L1	9.9
22.456500	---	11.63	50.00	38.37	5000.0	9.000	N	10.0
22.456500	15.73	---	60.00	44.27	5000.0	9.000	N	10.0

[MODE 3]
DATA

Test Report

Common Information

Test Description:	2023-1706
Test Site	ICR Shield Room
Operator Name:	KWG
Comment:	CE_MODE 3



Final_Result

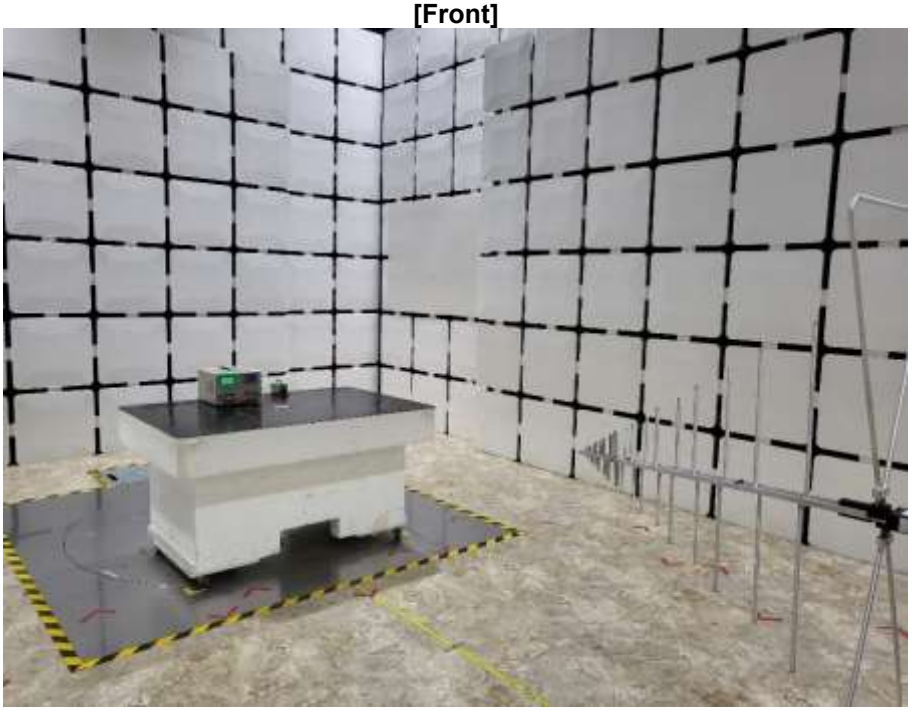
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190500	---	7.49	54.02	46.53	5000.0	9.000	L1	9.9
0.190500	25.30	---	64.02	38.71	5000.0	9.000	L1	9.9
0.294000	---	5.83	50.41	44.58	5000.0	9.000	L1	9.7
0.294000	20.39	---	60.41	40.02	5000.0	9.000	L1	9.7
1.068000	14.03	---	56.00	41.97	5000.0	9.000	N	9.8
1.068000	---	5.99	46.00	40.01	5000.0	9.000	N	9.8
5.039250	---	7.76	50.00	42.24	5000.0	9.000	N	9.7
5.039250	16.73	---	60.00	43.27	5000.0	9.000	N	9.7
10.196250	---	11.49	50.00	38.51	5000.0	9.000	N	9.9
10.196250	23.30	---	60.00	36.70	5000.0	9.000	N	9.9
14.541000	22.28	---	60.00	37.72	5000.0	9.000	L1	9.9
14.541000	---	8.40	50.00	41.60	5000.0	9.000	L1	9.9

Attachment I

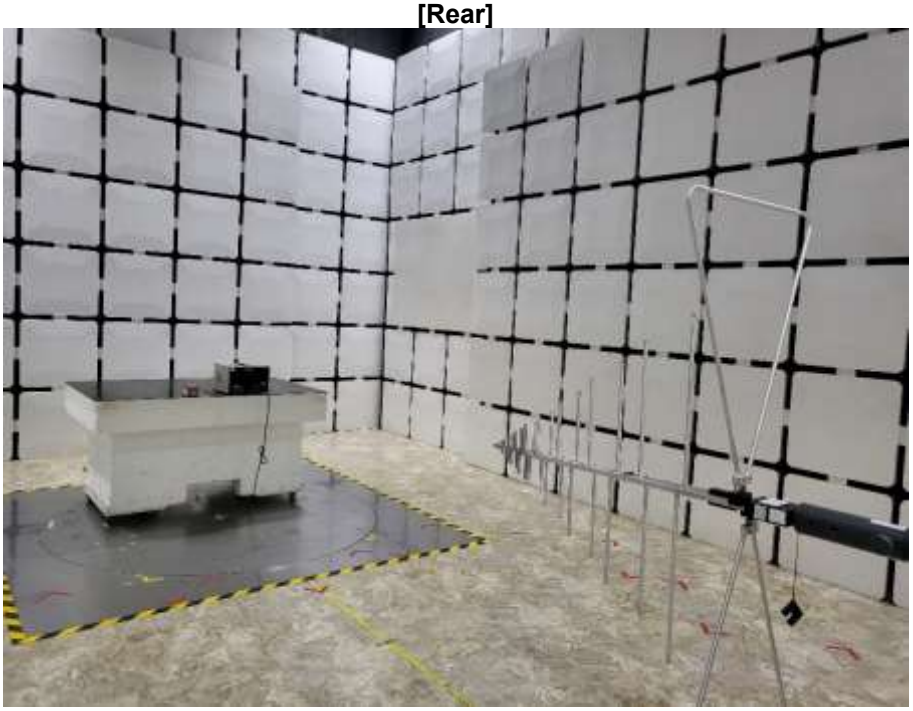
PHOTOGRAPHS

Radiated emission (Below 1 GHz : MODE 1,2)

[Front]

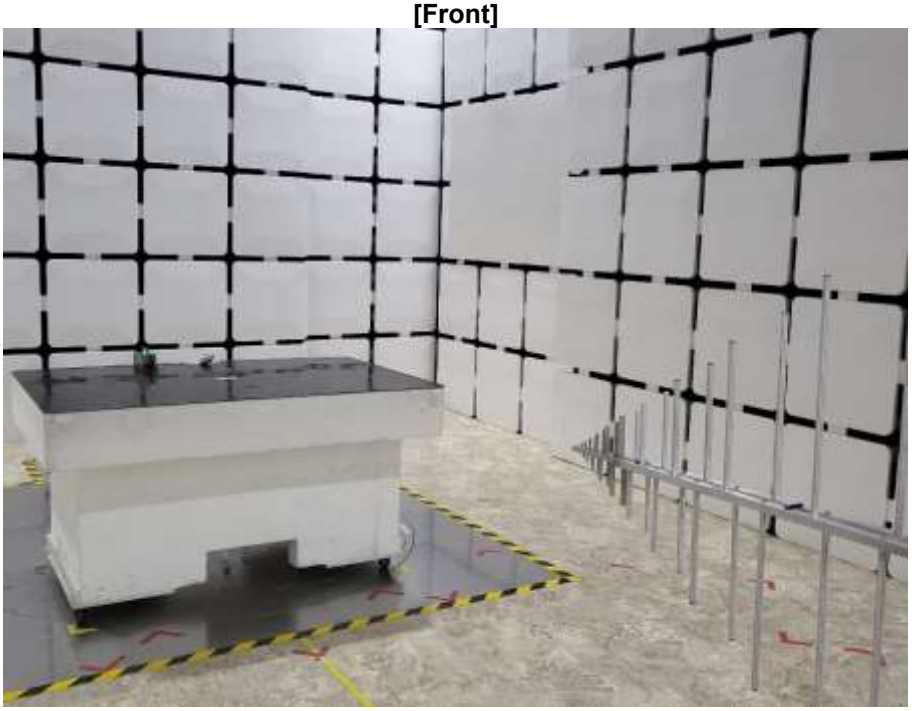


[Rear]

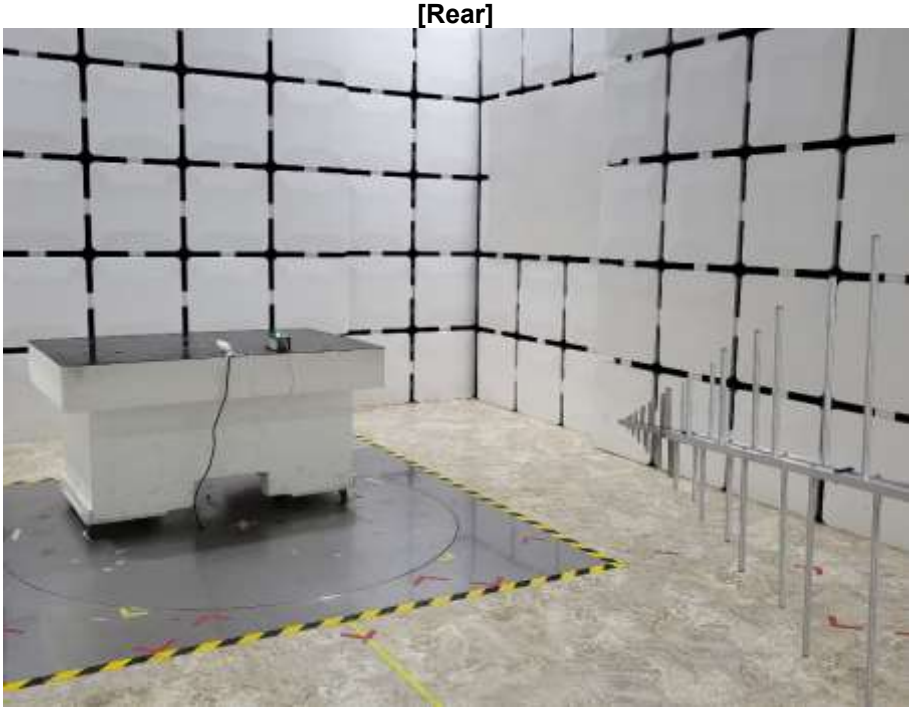


Radiated emission (Below 1 GHz : MODE 3)

[Front]

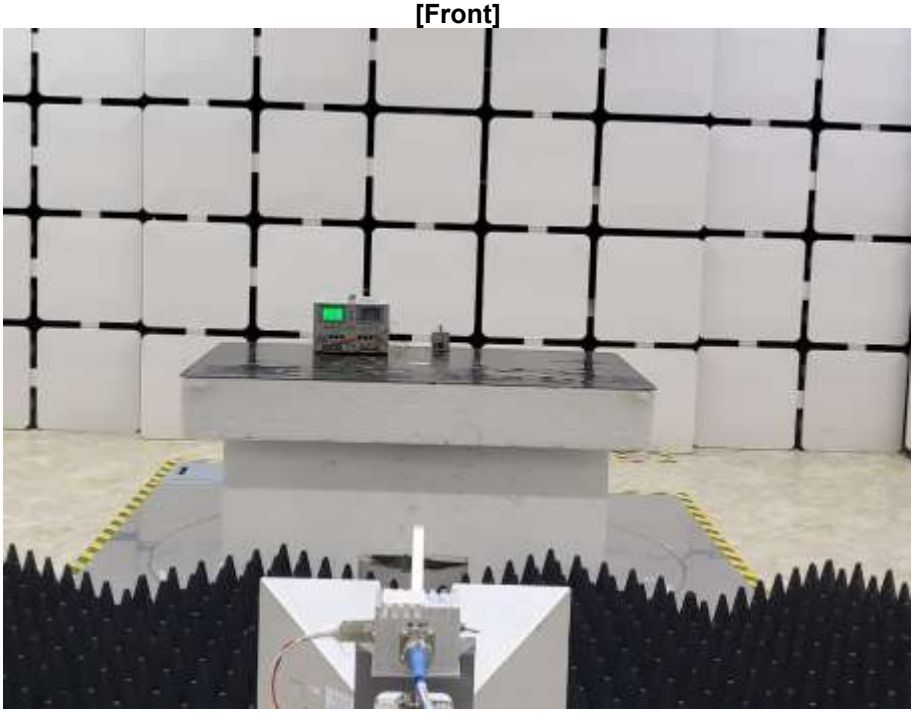


[Rear]

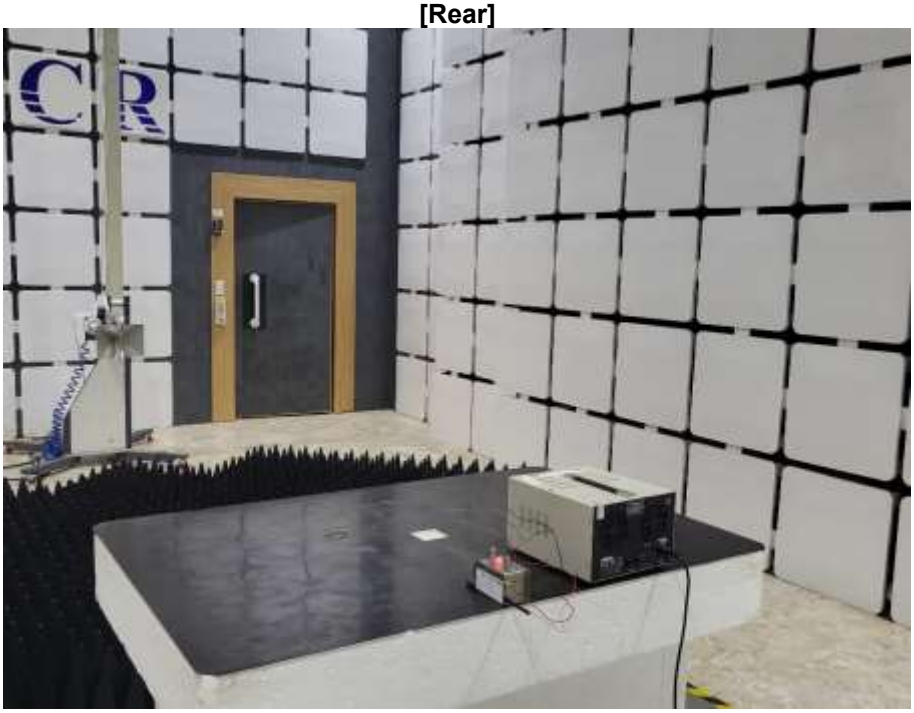


Radiated emission (Above 1 GHz : MODE 1,2)

[Front]

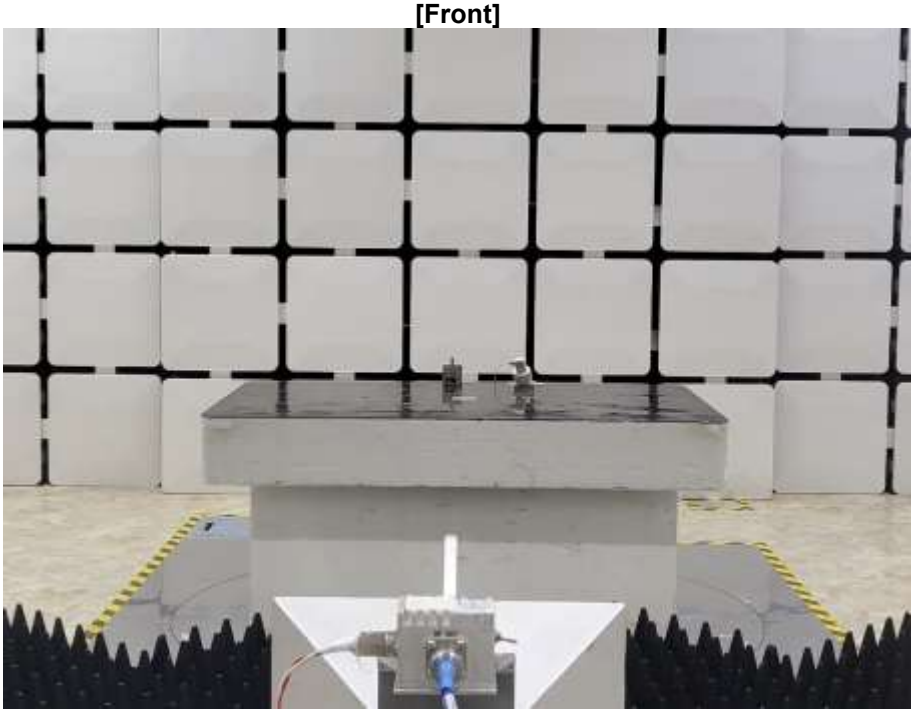


[Rear]

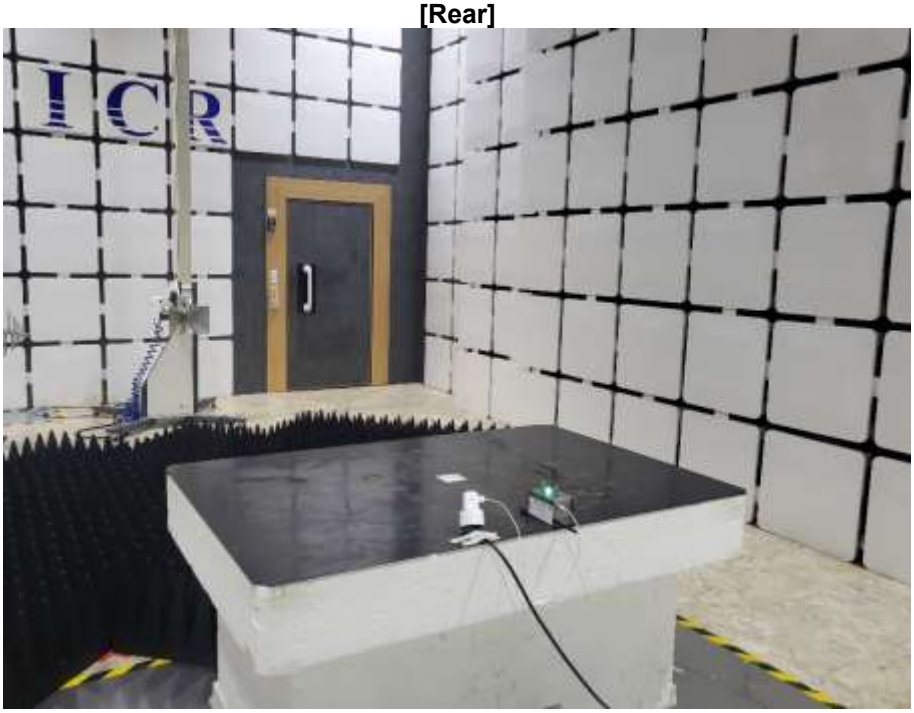


Radiated emission (Above 1 GHz : MODE 3)

[Front]

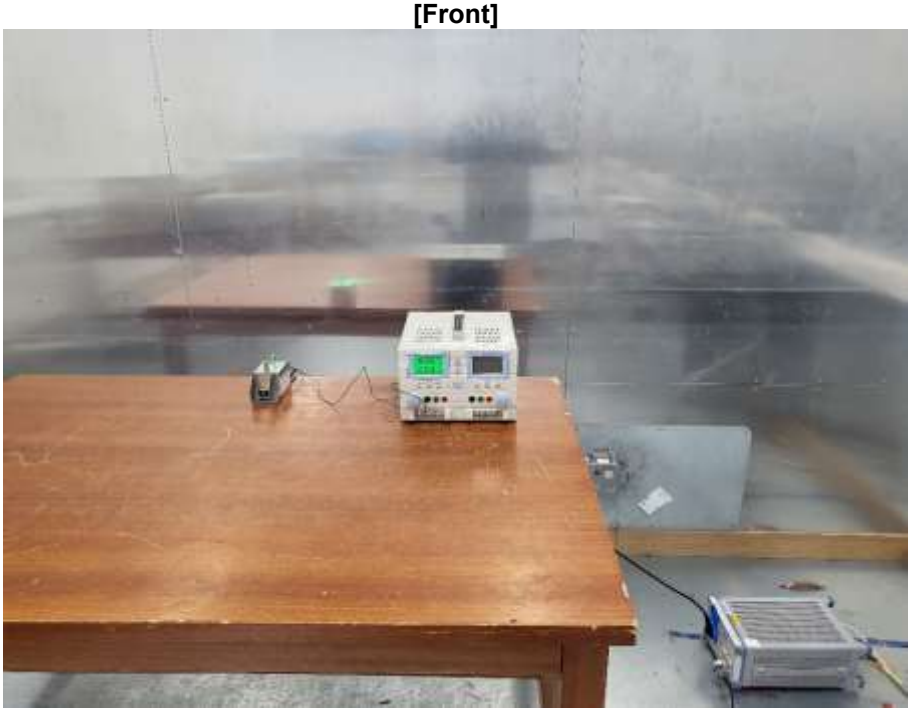


[Rear]

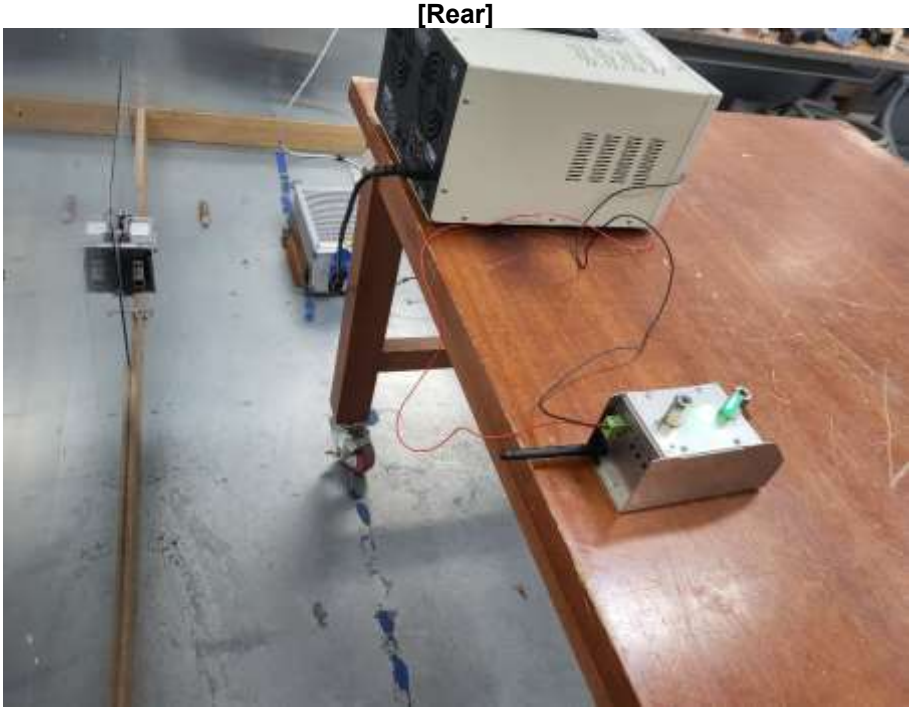


Conducted emission (MODE 1,2)

[Front]

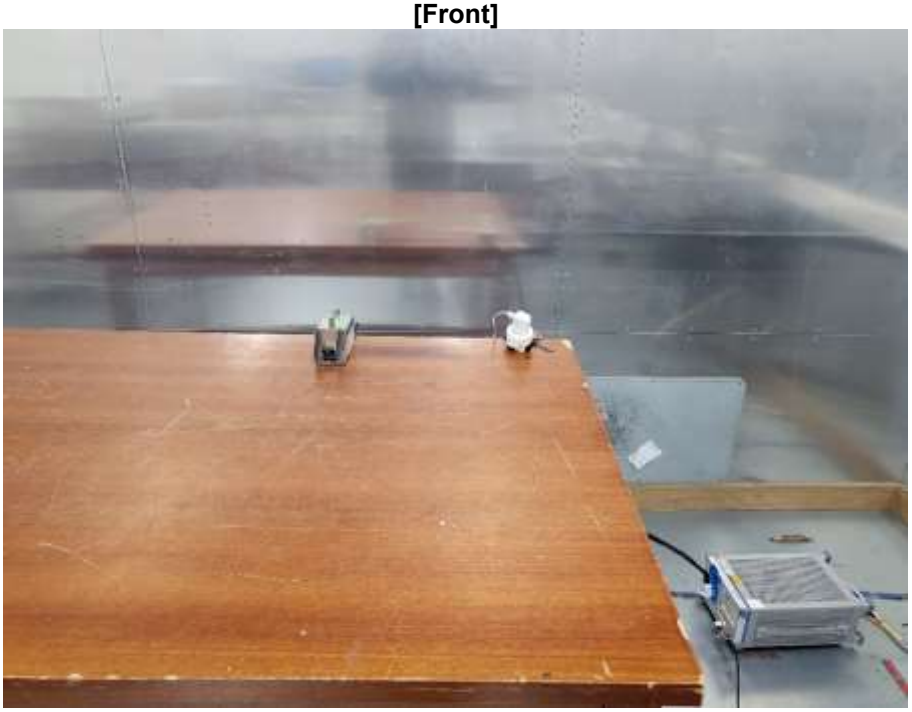


[Rear]



Conducted emission (MODE 3)

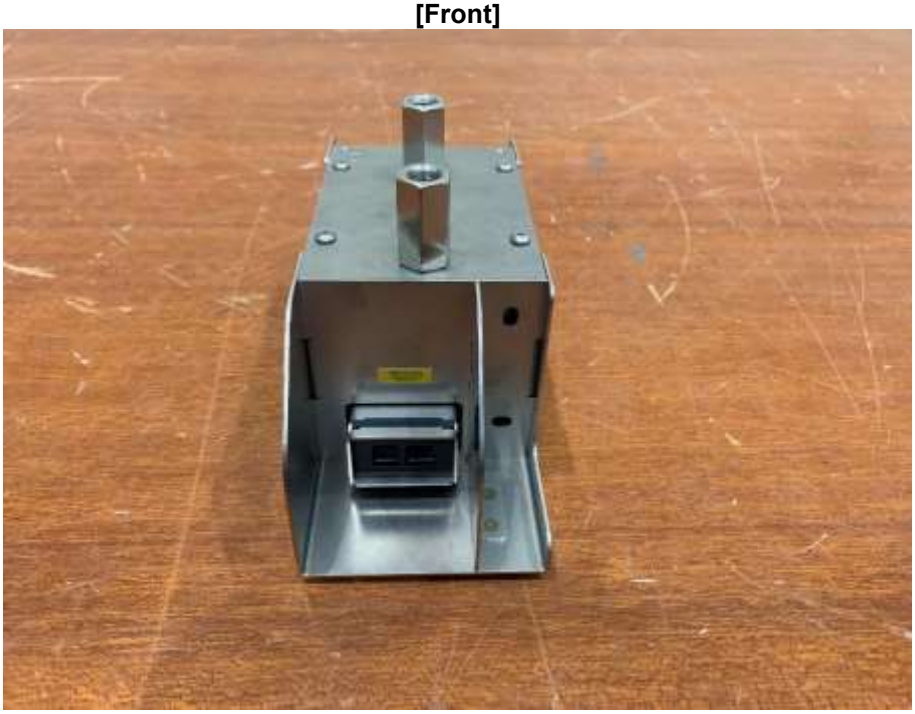
[Front]



[Rear]

EUT

[Front]



[Rear]

[Inside]

- END –