



FCC SDoC Test Report

Issued date: Dec. 06, 2024

Project No.: 24Q101106

Product : Rugged Embedded System

Model : ABP-4000

Series Model : ABP-4000 Series, ABP-4XXXXXXXXXX ("X" can be 0-9, A-Z or blank)

Applicant : Vecow Co., Ltd

Address : 3F, No. 10, Jiankang Rd., Zhonghe Dist., New Taipei City 23586, Taiwan

Report No: WD-EF-R-240374-A0

According to

47 CFR FCC Part 15, Subpart B, Class A

ANSI C63.4: 2014

ANSI C63.4a: 2017

Authorized Signatory :  / Ken Huang



Wendell Industrial Co., Ltd
Wendell EMC & RF Laboratory

Add: 5F-1, No. 188, Baoqiao Road, Xindian District, New Taipei City 23145, Taiwan R.O.C.



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History of this test report

Report No.	Issue date	Description
WD-EF-R-240374-A0	Dec. 06, 2024	Initial Issue

Declaration

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us.



History of supplementary report

Report No.	Issue date	Description
WD-EF-R-240374-A0	Dec. 06, 2024	Original report

Declaration

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us.



1 Certification

Product: Rugged Embedded System
Brand Name: Vecow
Model: ABP-4000
Series Model: ABP-4000 Series, ABP-4XXXXXXXXXXXX ("X" can be 0-9, A-Z or blank)
Applicant: Vecow Co., Ltd
Tested: Nov. 27 ~ Nov. 29, 2024
Standard: 47 CFR FCC Part 15, Subpart B, Class A
ANSI C63.4: 2014
ANSI C63.4a: 2017

The above equipment (Model: ABP-4000) has been tested by **Wendell EMC & RF Laboratory**, and found compliance with the requirement of the above standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Please note that the measurement uncertainty are provided for informational purpose only and are not used in determining the Pass/Fail results.



1.1 Summary of Result

The EUT has been tested according to the following specifications:

Emission				
Standard	Test Item	Limit	Result	Remark
47 CFR FCC Part 15, Subpart B	Conducted disturbance at mains power ports	Class A	Pass	Meets the requirements
	Radiated disturbance	Class A	Pass	Meets the requirements

Note: Test record contained in the referenced test report relate only to the EUT sample and test item.



2 Laboratory Information

2.1 Measurement Facility

Conducted disturbance at main power port test

W01: 5F-1, No.188, Baoqiao Rd., Xindian Dist., New Taipei City 23145, Taiwan (R.O.C)

Conducted disturbance at main power port and Radiated disturbance (9*6*6 Chamber) test

W08: No.119, Wugong 3rd Rd., Wugu Dist., New Taipei City 248, Taiwan (R.O.C)

ACCREDITATIONS

The laboratories are accredited and approved by the TAF according to ISO/IEC 17025.

2.2 Measurement Uncertainty

The measurement instrumentation uncertainty is evaluated according to CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Wendell EMC & RF Laboratory U_{lab} is less than U_{cispr} , therefore compliance or non-compliance with a disturbance limit shall be determined in the following manner.

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

Please note that the measurement uncertainty (U_{lab}) is provided for informational purpose only and is not used in determining the Pass/Fail results.

2.2.1 Conducted Emission Measurement

Test Site	Frequency Range	dB (U_{lab})	Note
W01-CE	150 kHz ~ 30 MHz	2.84	LISN
W08-CE	150 kHz ~ 30 MHz	2.72	LISN

2.2.2 Radiated Emission Measurement

Test Site	Frequency Range	Ant	dB (U_{lab})	Note
W08-966-1	30 MHz ~ 200 MHz	V	3.50	N/A
	30 MHz ~ 200 MHz	H	2.96	N/A
	200 MHz ~ 1000 MHz	V	5.09	N/A
	200 MHz ~ 1000 MHz	H	3.41	N/A
	1 GHz ~ 6 GHz	V	4.37	N/A
	1 GHz ~ 6 GHz	H	4.30	N/A
	6 GHz ~ 18 GHz	V	4.49	N/A
	6 GHz ~ 18 GHz	H	4.60	N/A
	18 GHz ~ 40 GHz	V	4.44	N/A
	18 GHz ~ 40 GHz	H	4.44	N/A



3 General Information

3.1 Description of Equipment Under Test

Product	Rugged Embedded System
Brand	Vecow
Model	ABP-4000
Series Model	ABP-4000 Series, ABP-4XXXXXXXXXX ("X" can be 0-9, A-Z or blank)
Applicant	Vecow Co., Ltd
Received Date	Oct. 15, 2024
EUT Power Rating	24Vdc (from adapter)
Model Differences	The models are electrically identical, different models no. are for marketing purpose. The series model information is provided by client.
Operating System	Windows 11 Pro version: 22H2
Data Cable Supplied	N/A
Accessory Device	N/A
I/O Port	Please refer to the User's Manual

Note:

- The EUT uses the follow adapter:

Adapter (support unit only)	
Brand	FSP
Model	FSP120-AAAN2
Input Power	100-240Vac, 1.8A, 50-60Hz
Output Power	24Vdc, 5A
Power line	Input: 1.8m non-shielded cable Output: 1.4m non-shielded cable with 1 core

- The EUT contains following components.

Item	Brand	Model	Spec.	Qty.
Main Board	-	ABP-4000	Rev. C	1
CPU	Intel	13th Gen Intel® Core™ i7-1365UE	1.70 GHz	1
RAM	Vecow	VMD4NIS-32G00C	32GB DDR4 3200 W/T SODIMM	2
M.2 SSD	innodisk	DEM28-C12DD1KWAQF-H03	M.2(P80) 3TE6 512GB	1

- The EUT's highest operating frequency is 1.7GHz. Therefore the radiated emission is tested up to 9GHz.

3.2 Description of Measurement Modes

Test results are presented in the report as below.

Test Mode	Measurement Condition
Conducted Emission Measurement	
-	AC-DC Adapter mode
Radiated Emission 30MHz ~ 1GHz Measurement	
-	AC-DC Adapter mode
Radiated Emission above 1GHz Measurement	
-	AC-DC Adapter mode

3.3 Description of Operating Condition

- a. The EUT placed on test table.
- b. Prepare PC to act as a communication partner and placed it outside of testing area.
- c. The EUT was connected to the PC with LAN cable.
- d. The communication partner sent data to EUT by command "ping" via LAN.
- e. The EUT read / write data with Internal SSD & External HDD/SSD.
- f. The EUT run test program BurnIN.exe to enable all functions
- g. The EUT sent H message to monitor and displayed on screen.
- h. The microphone sent voice signal to EUT.
- i. The EUT sent voice signal to earphone.



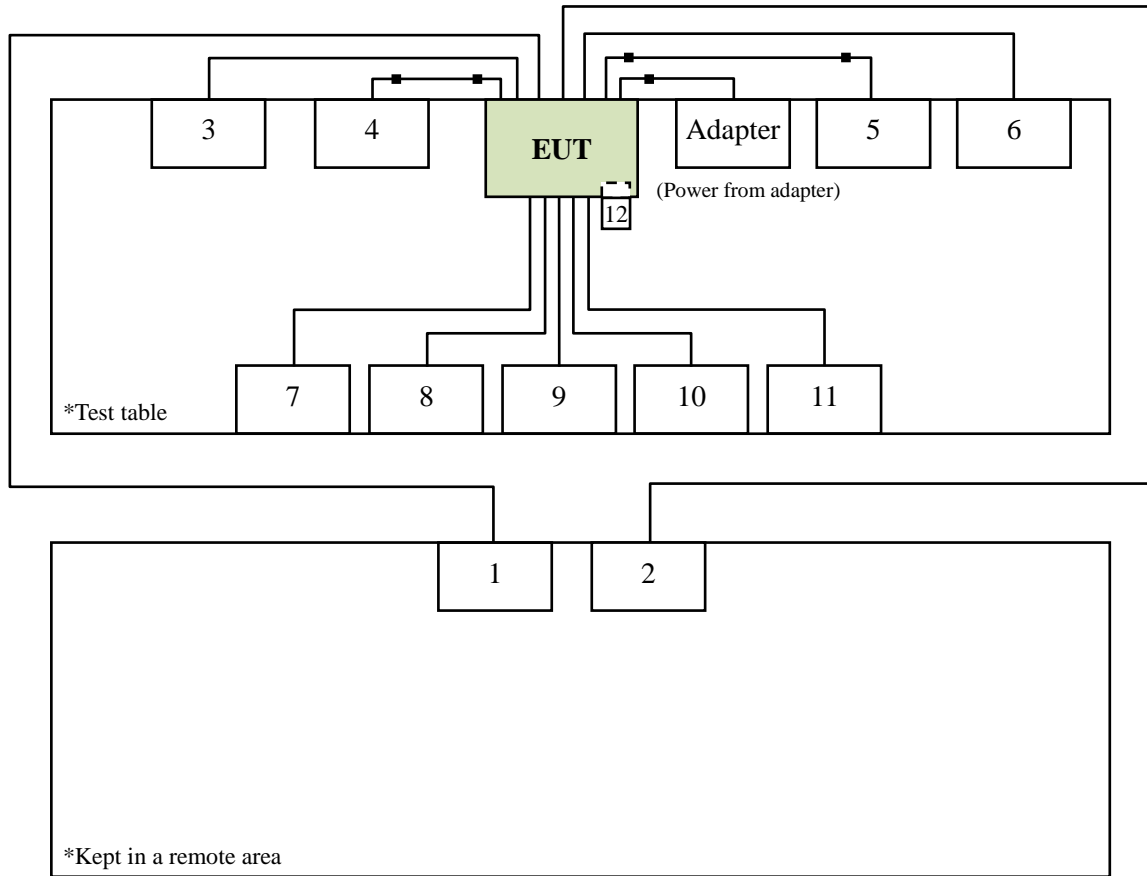
3.4 Description of Associated Equipment

The EUT has been conducted testing with other necessary accessories or support units.

Item	Equipment	Brand	Model No.	Serial No.	FCC ID	Data Cable	Power Cable	Remark
1	Desktop PC	DELL	D19M	N/A	PPD-QCN FA335	20m CAT.5E non-shielded LAN cable	AC: 1.8m non-shielded cable	-
2	Desktop PC	DELL	D24M	N/A	PD93165NG	20m CAT.5E non-shielded LAN cable	AC: 1.8m non-shielded cable	-
3	4K monitor	PHILIPS	276E8V	UKC19260004 58	FCC DoC Approved	1.5m shielded HDMI cable	AC: 1.8m non-shielded cable DC: 1.4m non-shielded cable with 1 core	-
4	4K monitor	HP	HP 27f 4k Display	3CM01935TF	FCC DoC Approved	1.5m shielded HDMI cable with 2 cores	AC: 1.8m non-shielded cable DC: 1.4m non-shielded cable with 1 core	-
5	4K Monitor	ASUS	XG27UCS	S5LMTF2007 65	FCC SDoC Approved	1.5m shielded HDMI cable with 2 cores	AC: 1.8m non-shielded cable	-
6	4K Monitor	ASUS	XG27UCS	S7LMT011954	FCC SDoC Approved	1.5m shielded HDMI cable	AC: 1.8m non-shielded cable	-
7	Keyboard	DELL	KB216t	CN-0W33XP- L0300 -7C1-15UP	FCC SDoC Approved	1.5m non-shielded USB cable	N/A	-
8	Mouse	DELL	MS116	CN-0DV0RH- L0300 -7C1-15UP	FCC SDoC Approved	1.5m non-shielded USB cable	N/A	-
9	Earphone & Microphone	Avier	AEP-MM	N/A	N/A	1.2m non-shielded audio cable	N/A	-
10	External Hard Drive (x2)	Transcend	TS1TSJ25C 3N	D62397-0399	FCC SDoC Approved	1m shielded USB cable	N/A	-
11	External Portable SSD	Transcend	TS120GES D240C	F96474-0001	FCC SDoC Approved	1m shielded USB cable	N/A	-
12	RS232 terminator (x2)	N/A	N/A	N/A	N/A	N/A	N/A	Supplied by client

- Note:**
1. The core(s) is(are) originally attached to the cable(s).
 2. Item 1-2 acted as communication partners to transfer data.

3.5 Configuration of Equipment Under Test





4 Emission Measurement

4.1 Conducted Emission Measurement

4.1.1 Limit of Conducted Emission Measurement

Frequency (MHz)	Class A (dB μ V)		Class B (dB μ V)	
	Quasi-peak (dB μ V)	Average (dB μ V)	Quasi-peak (dB μ V)	Average (dB μ V)
0.15 to 0.5	79	66	66 to 56*	56 to 46*
0.5 to 5	73	60	56	46
5 to 30	73	60	60	50

* Decreases with the logarithm of the frequency.

- Note:**
1. The lower limit shall apply at the transition frequencies.
 2. Detector function in the form: QP = Quasi Peak, AVG = Average
 3. The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = LISN Factor + Cable Loss + Transient Limiter (If use)
Margin Level = Measurement Value – Limit Value



4.1.2 Measurement Instrument

Test Site: W01-CE					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	TWO-LINE V-NETWORK	R&S	ENV216	CT-1-025-1	Jun. 05, 2024
2	Pulse limiter	R&S	ESH3-Z2	CT-2-015	Jun. 06, 2024
3	EMI Test Receiver	R&S	ESCI	CT-1-024	Jun. 06, 2024
4	Artificial Mains Network (AMN)	SCHWARZBECK	NSLK 8127	CT-1-104-1	Jun. 06, 2024
5	RF Cable	MVE	200200.400LL .500A	CT-9-101	Jun. 06, 2024
6	50ohm Termination	N/A	N/A	CT-1-065-1	May 30, 2024
7	Measurement Software	EZ-EMC	Ver: EMC-CON 3A1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.

Test Site: W08-CE					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	TWO-LINE V-NETWORK	R&S	ENV216	CT-1-025-2	Jun. 20, 2024
2	RF Cable	EMCI	EMCCFD300-BM-BM-5000	CT-1-107-2	Jun. 24, 2024
3	EMI Test Receiver	R&S	ESR3	CT-1-103	Jun. 20, 2024
4	Artificial Mains Network (AMN)	SCHWARZBECK	NSLK 8127 RC	CT-1-104-1RC	Jun. 20, 2024
5	Transient Limiter	Electro-Metrics	EM-7600	CT-1-026	Jun. 24, 2024
6	50ohm Termination	N/A	N/A	CT-1-109-1	Jun. 20, 2024
7	Measurement Software	EZ-EMC	Ver: EMC-CON 3A1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.



4.1.3 Measurement Procedure

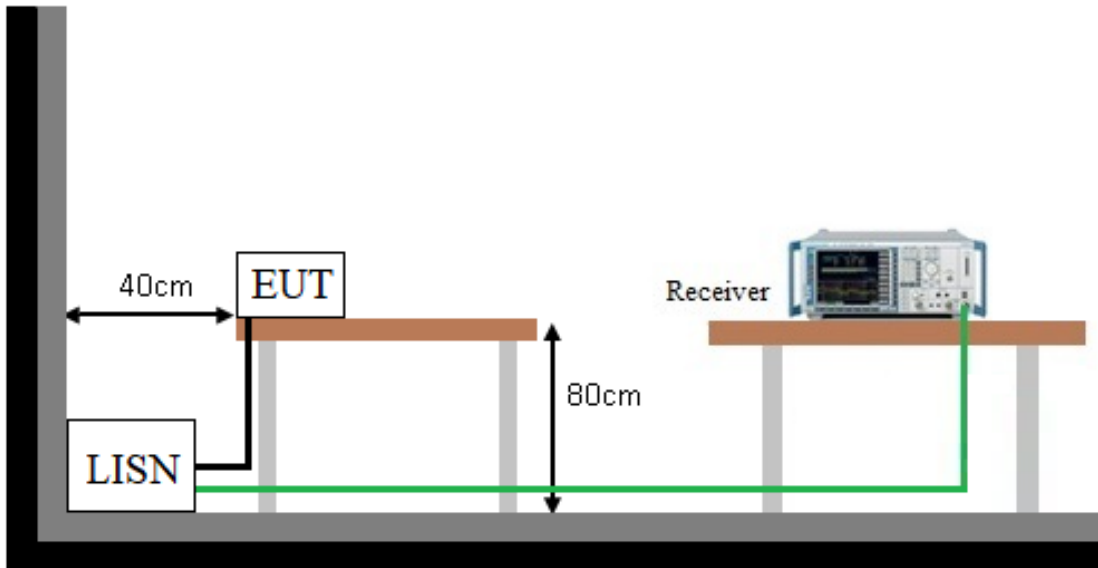
- a. The table-top equipment under test was placed 0.8 meter height wooden table from the horizontal ground plane with EUT being connected to power source through a line impedance stabilization network (LISN). The floor-standing equipment under test and all cables shall be insulated from the ground plane by up to 12 mm of insulating material if required. The LISN at least be 0.8 meter from nearest chassis of equipment under test.
- b. The line impedance stabilization network (LISN) provides 50 ohm/50uH of coupling impedance for the measuring instrument. All associated equipment powered from additional LISN(s).
- c. Interrelating cables that hang closer than 0.4 meter to the ground plane shall be folded back and forth in the center forming a bundle. All I/O cables were positioned to simulate typical usage.
- d. Interconnect cabling or wiring shall be connected to one of each type of functional port of the equipment under test, and each cable or wire shall be terminated in a device typical of actual usage. Where there are multiple ports all of the same type, additional connecting cables or wires shall be added to the equipment under test to determine the effect these cables or wires have on emission from the equipment under test.
- e. The EMI test receiver connected to the line impedance stabilization network (LISN) powering the equipment. The measurements shall be limited to the operating ranges of voltage and frequency as specified for the equipment under test, having regard to the supply voltage and frequency for the intended market of the equipment under test.
- f. The EMI test receiver scanned from 150kHz to 30MHz for emissions in each of modes. A scan was taken on both power lines, Line and Neutral, recording at least six highest emission amplitude.
- g. The equipment under test and cable configuration of the above highest emission amplitude were recorded

4.1.4 Deviation from Standard

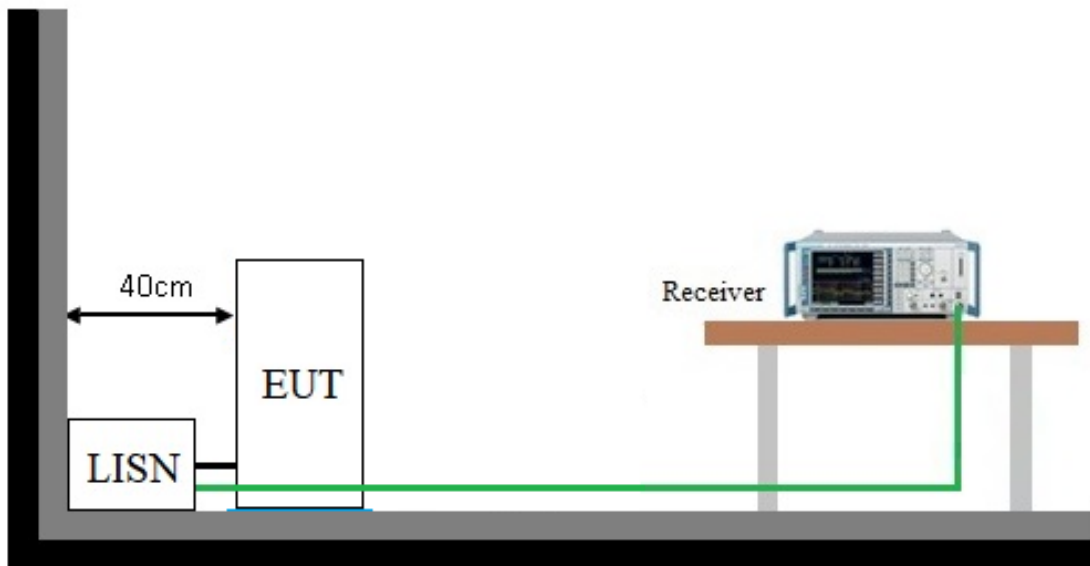
No deviation

4.1.5 Measurement Configuration

< Table-Top equipment under test >



< Floor-Standing equipment under test >

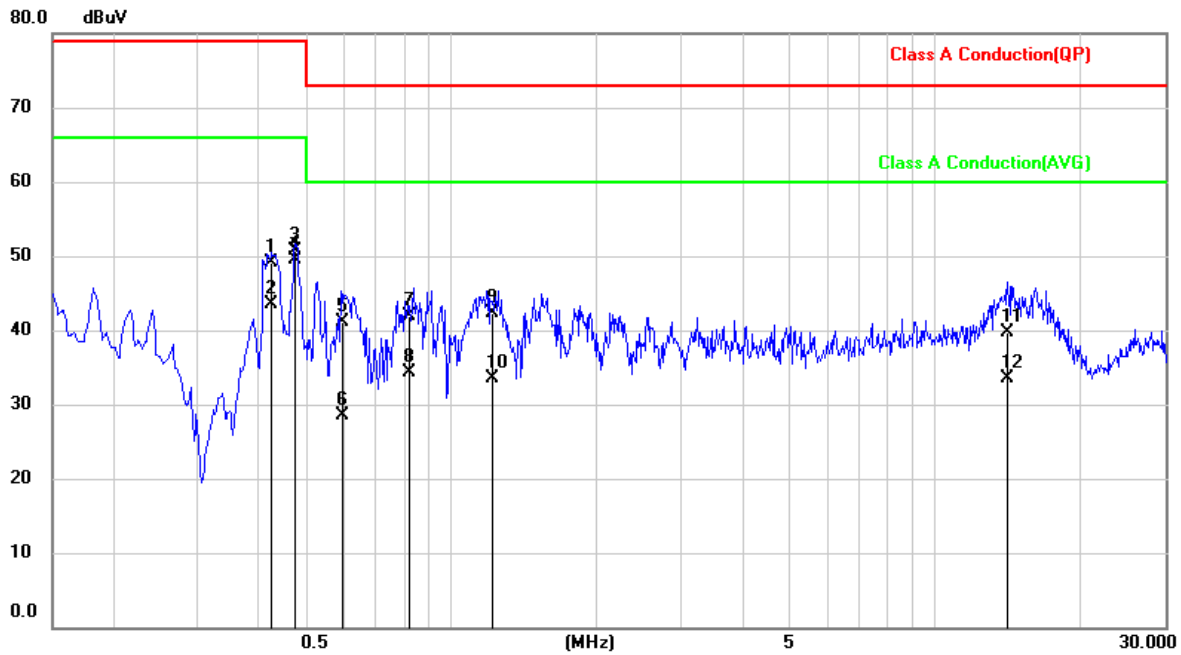


Note: Please refer to 4.1.7 for the actual test configuration.



4.1.6 Measurement Result

Test Voltage	120Vac, 60Hz	Frequency Range	0.15 ~ 30 MHz
Environmental Conditions	22°C, 51% RH	6dB Bandwidth	9 kHz
Test Date	2024/11/29	Phase	L
Tested by	Guanwei Liao	Test Site	W01-CE

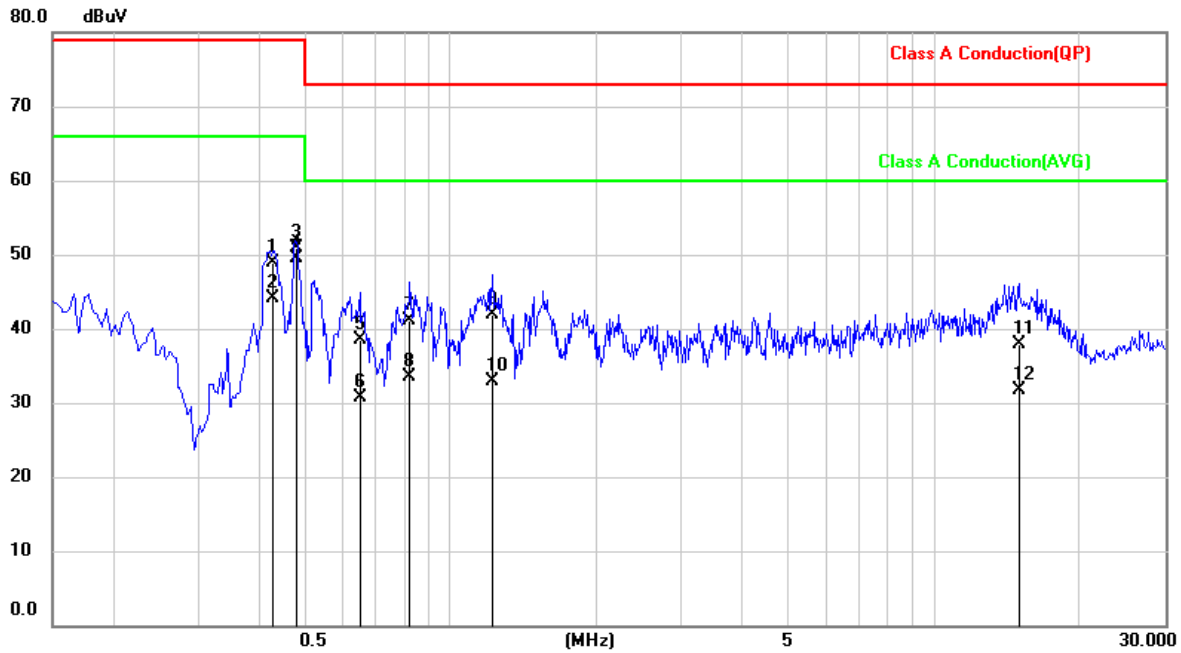


No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.4273	39.12	9.93	49.05	79.00	-29.95	QP
2	0.4273	33.56	9.93	43.49	66.00	-22.51	AVG
3	0.4783	40.83	9.93	50.76	79.00	-28.24	QP
4	0.4783	39.58	9.93	49.51	66.00	-16.49	AVG
5	0.5963	31.24	9.93	41.17	73.00	-31.83	QP
6	0.5963	18.52	9.93	28.45	60.00	-31.55	AVG
7	0.8277	31.92	9.95	41.87	73.00	-31.13	QP
8	0.8277	24.33	9.95	34.28	60.00	-25.72	AVG
9	1.2209	32.27	9.95	42.22	73.00	-30.78	QP
10	1.2209	23.58	9.95	33.53	60.00	-26.47	AVG
11	14.1920	29.45	10.21	39.66	73.00	-33.34	QP
12	14.1920	23.38	10.21	33.59	60.00	-26.41	AVG

Remark: 1. QP = Quasi Peak, AVG = Average
 2. Correct Factor = LISN Factor + Cable Loss + Transient Limiter (If use)
 3. Measurement Value = Reading Level + Correct Factor
 4. Margin Level = Measurement Value – Limit Value



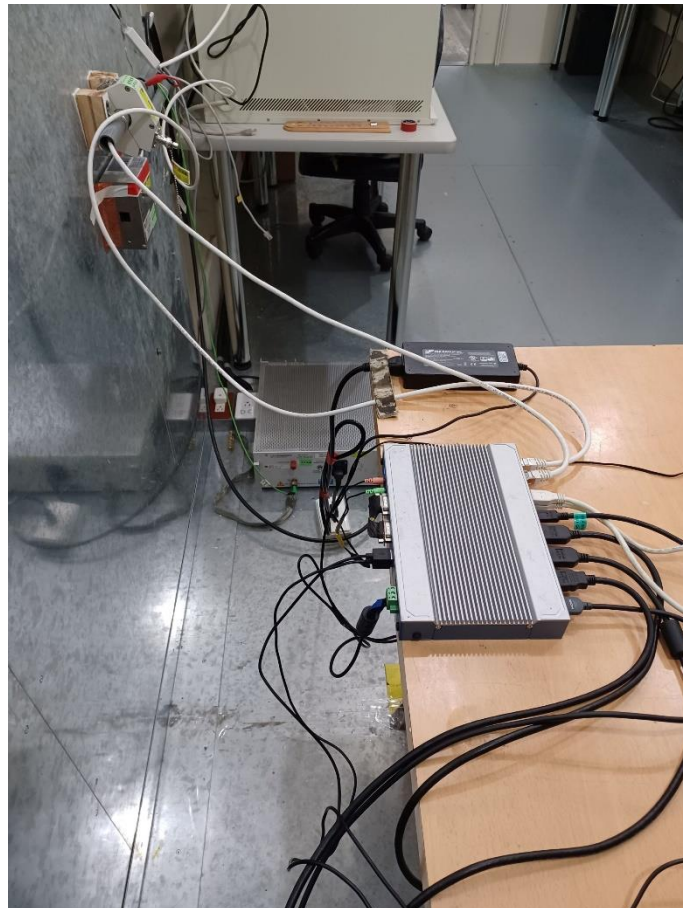
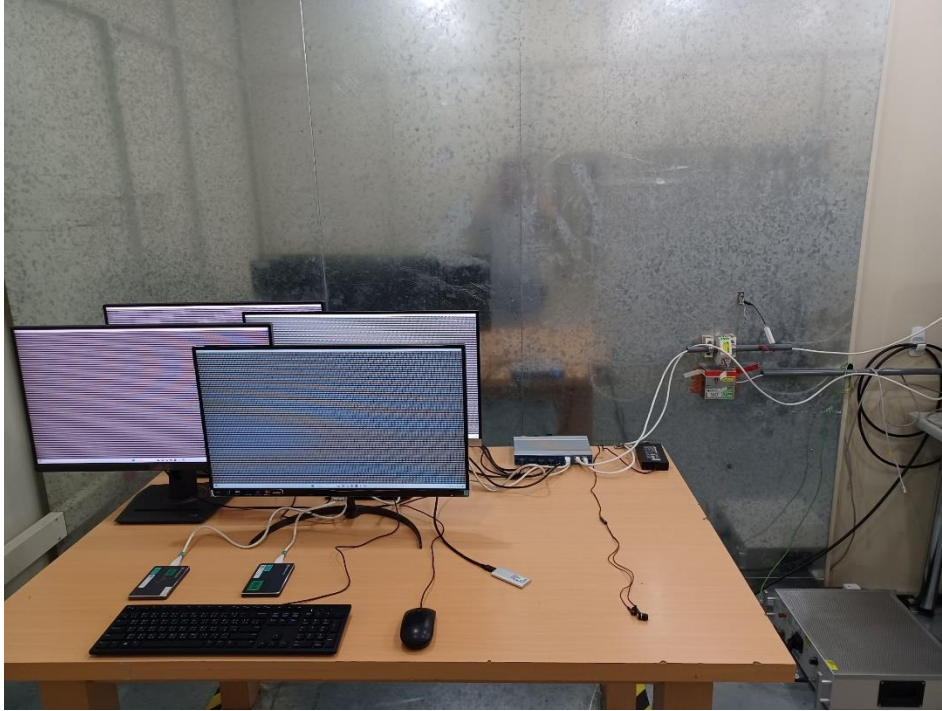
Test Voltage	120Vac, 60Hz	Frequency Range	0.15 ~ 30 MHz
Environmental Conditions	22°C, 51% RH	6dB Bandwidth	9 kHz
Test Date	2024/11/29	Phase	N
Tested by	Guanwei Liao	Test Site	W01-CE



No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measurement (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.4282	39.06	9.91	48.97	79.00	-30.03	QP
2	0.4282	34.28	9.91	44.19	66.00	-21.81	AVG
3	0.4786	41.01	9.91	50.92	79.00	-28.08	QP
4	0.4786	39.59	9.91	49.50	66.00	-16.50	AVG
5	0.6538	28.56	9.91	38.47	73.00	-34.53	QP
6	0.6538	20.74	9.91	30.65	60.00	-29.35	AVG
7	0.8222	31.10	9.93	41.03	73.00	-31.97	QP
8	0.8222	23.50	9.93	33.43	60.00	-26.57	AVG
9	1.2182	31.89	9.93	41.82	73.00	-31.18	QP
10	1.2182	22.91	9.93	32.84	60.00	-27.16	AVG
11	15.0363	27.60	10.22	37.82	73.00	-35.18	QP
12	15.0363	21.40	10.22	31.62	60.00	-28.38	AVG

Remark: 1. QP = Quasi Peak, AVG = Average
 2. Correct Factor = LISN Factor + Cable Loss + Transient Limiter (If use)
 3. Measurement Value = Reading Level + Correct Factor
 4. Margin Level = Measurement Value – Limit Value

4.1.7 Photographs of Measurement Configuration





4.2 Radiated Emission Measurement

4.2.1 Limit of Radiated Emission Measurement

Radiated Frequency Range 30 MHz to 1000 MHz

FCC 15B Radiated Emissions Limits				
Frequency range (MHz)	Class A (3m) Quasi-peak (dB μ V/m)	Class A (10m) Quasi-peak (dB μ V/m)	Class B (3m) Quasi-peak (dB μ V/m)	Class B (10m) Quasi-peak (dB μ V/m)
30 - 88	49.5	39.1	40	29.5
88 - 216	54	43.5	43.5	33.1
216 - 230	56.9	46.4	46	35.6
230 - 960				
960 - 1000	60	49.5	54	43.5

- Note:**
1. The lower limit shall apply at the transition frequency.
 2. Detector function in the form: PK = Peak, QP = Quasi Peak, AVG = Average
 3. The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) -
Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
Margin Level = Measurement Value - Limit Value

**Radiated Frequency Range above 1 GHz**

FCC 15B Radiated Emissions Limits				
Frequency range (GHz)	Class A (3m) (dB μ V/m)		Class B (3m) (dB μ V/m)	
	Peak	Average	Peak	Average
1 - 40	80	60	74	54

- Note:** 1. The lower limit shall apply at the transition frequency.
 2. Detector function in the form: PK = Peak, QP = Quasi Peak, AVG = Average
 3. The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) -
 Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
 Margin Level = Measurement Value - Limit Value

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower



4.2.2 Measurement Instrument

Test Site: W08-966-1					
Item	Equipment	Manufacturer	Model	Meter No.	Calibration Date
1	Horn Antenna	Schwarzbeck	BBHA 9120D	CT-9-031	Jul. 29, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9170	CT-9-032	Aug. 15, 2024
3	TRILOG Broadband Antenna with 6 dB Attenuator	Schwarzbeck & MVE	VULB 9168 & MVE2251-06	CT-1-096-1	May 06, 2024
4	Spectrum Analyzer	Agilent	E4407B	CT-1-003(1)	Aug. 08, 2024
5	EXA Signal Analyzer	Keysight	N9010A	CT-1-093	Aug. 18, 2024
6	EMI Test Receiver	Keysight	N9038A	CT-9-007	Aug. 09, 2024
7	Preamplifier	EM	EMC330	CT-9-024	Aug. 08, 2024
8	Preamplifier	SGH & MCL	SGH118 & BW-S15W2+	CT-9-071	Aug. 08, 2024
9	Preamplifier	EMCI	EMC184045SE	CT-9-013	Aug. 16, 2024
10	Test Cable	EMCI	EMCCFD400-NM-NM-1000	CT-1-132	Aug. 10, 2024
11	Test Cable	PEWC	CFD400NL-LW-NM-NM-3000	CT-1-141	Aug. 10, 2024
12	Test Cable	EMCI	EMCCFD400-NM-NM-15000	CT-1-133	Aug. 10, 2024
13	Test Cable	EMCI	EMC104-SM-35M-600	CT-1-134	Aug. 09, 2024
14	Test Cable	MVE	280280.LL266.1400	CT-9-106	Aug. 09, 2024
15	Test Cable	EMCI	EMC102-KM-KM-600	CT-1-136	Aug. 21, 2024
16	Measurement Software	EZ-EMC	Ver :WD-03A1-1	CT-3-012	No calibration request

Note: 1. The calibration interval of the above test instruments is 12 months.



4.2.3 Measurement Procedure

- a. The table-top equipment under test was placed on the top of a turntable 0.8 meters above the ground at 3 m 966 chamber. The floor-standing equipment under test and all cables shall be insulated from the ground plane by up to 12 mm of insulating material if required. The turntable was rotated 360 degrees to determine the position of the highest radiation emissions.
- b. The height of the antenna shall vary between 1 m to 4 m. Both vertical and horizontal polarizations of the antenna were set to make the measurement.
- c. The EUT was set up as per the test configuration to simulate typical usage per the user's manual. All I/O cables were positioned to simulate typical usage.
- d. Interconnect cabling or wiring shall be connected to one of each type of functional port of the equipment under test, and each cable or wire shall be terminated in a device typical of actual usage. Where there are multiple ports all of the same type, additional connecting cables or wires shall be added to the equipment under test to determine the effect these cables or wires have on emission from the equipment under test.
- e. The initial step in collecting radiated emission data is a spectrum mode scanning the measurement frequency range.

Below 1GHz:

Reading in which marked as QP means measurements by using receiver mode with detector setting in RBW = 120 kHz.

If the spectrum mode measured peak value compliance with and lower than QP Limit, the equipment under test shall be deemed to meet QP Limits.

Above 1GHz:

Reading in which marked as Peak & AVG means measurements by using spectrum mode with setting in RBW = 1 MHz.

If the spectrum mode measured value compliance with the Peak Limits and lower than AVG Limits, the equipment under test shall be deemed to meet both Peak and AVG Limits.

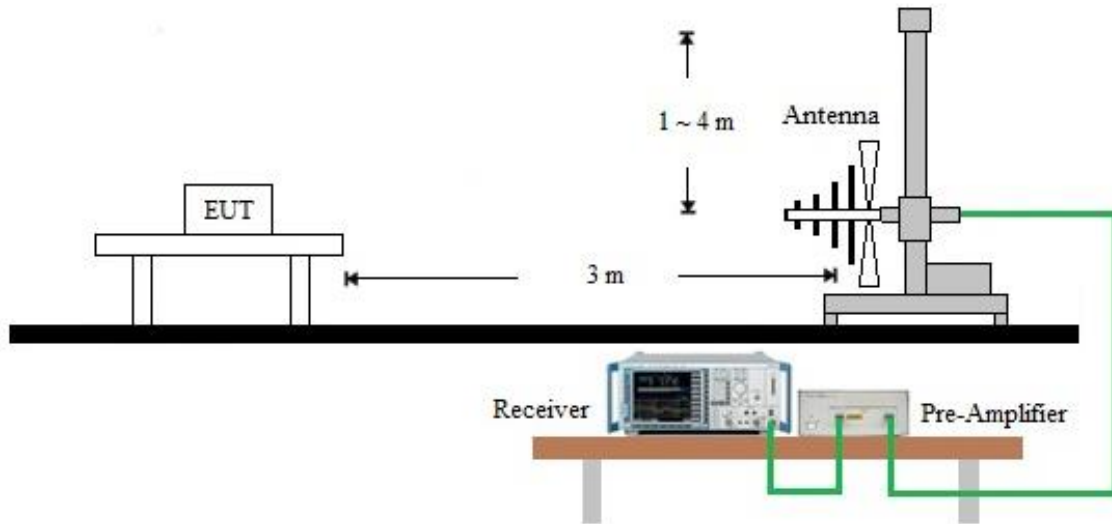
- f. Emission frequency and amplitude were recorded, recording at least six highest emissions. The equipment under test and cable configuration of the above highest emission amplitude were recorded.

4.2.4 Deviation from Standard

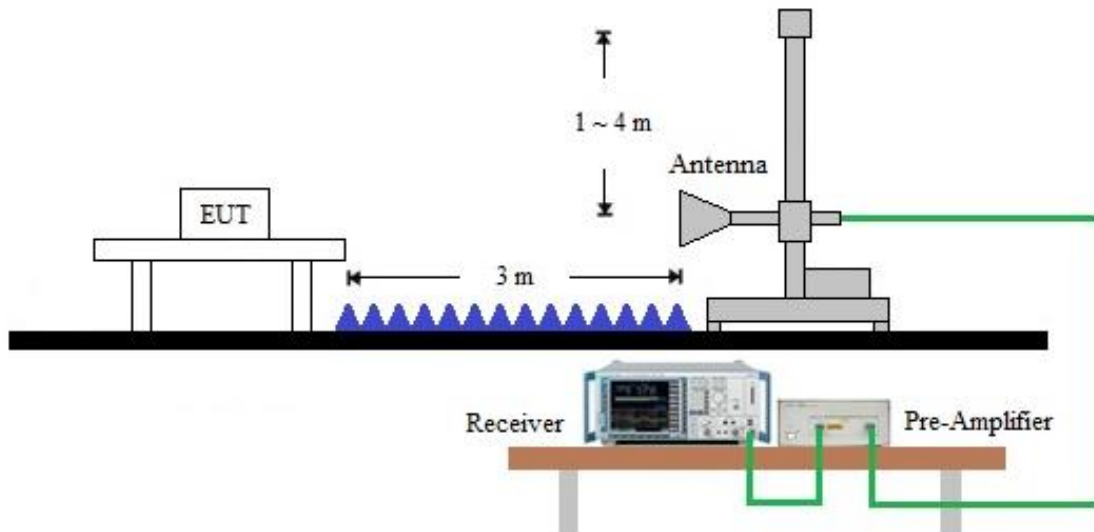
No deviation

4.2.5 Measurement Configuration

< Radiated Emissions Frequency: 30 MHz to 1000 MHz >



< Radiated Emissions Frequency: above 1GHz >



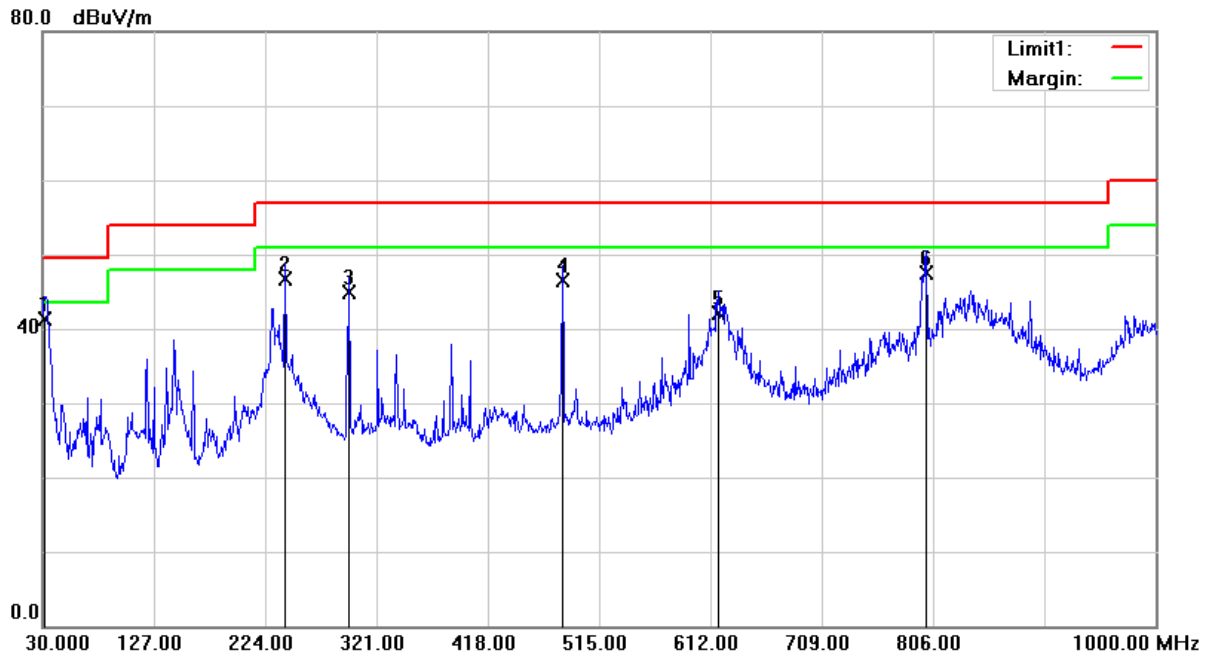
Note:

- (1) Please refer to the 4.2.7 for the actual test configuration.
- (2) Detector function in the form: PK = Peak, QP = Quasi Peak, AVG = Average
- (3) The test result calculated as following:
 $Measurement\ Value = Reading\ Level + Correct\ Factor$
 $Correct\ Factor = Antenna\ Factor + Cable\ Loss - Pre-Amplifier\ Gain\ (if\ use)$
 $Margin\ Level = Measurement\ Value - Limit\ Value$



4.2.6 Measurement Result

Test Voltage	120Vac, 60Hz	Frequency Range	30 ~ 1000 MHz
Environmental Conditions	22°C, 50% RH	6dB Bandwidth	120 kHz
Test Date	2024/11/27	Test Distance	3m
Tested by	Karwin Kao	Polarization	Vertical
Test Site	W08-966-1		



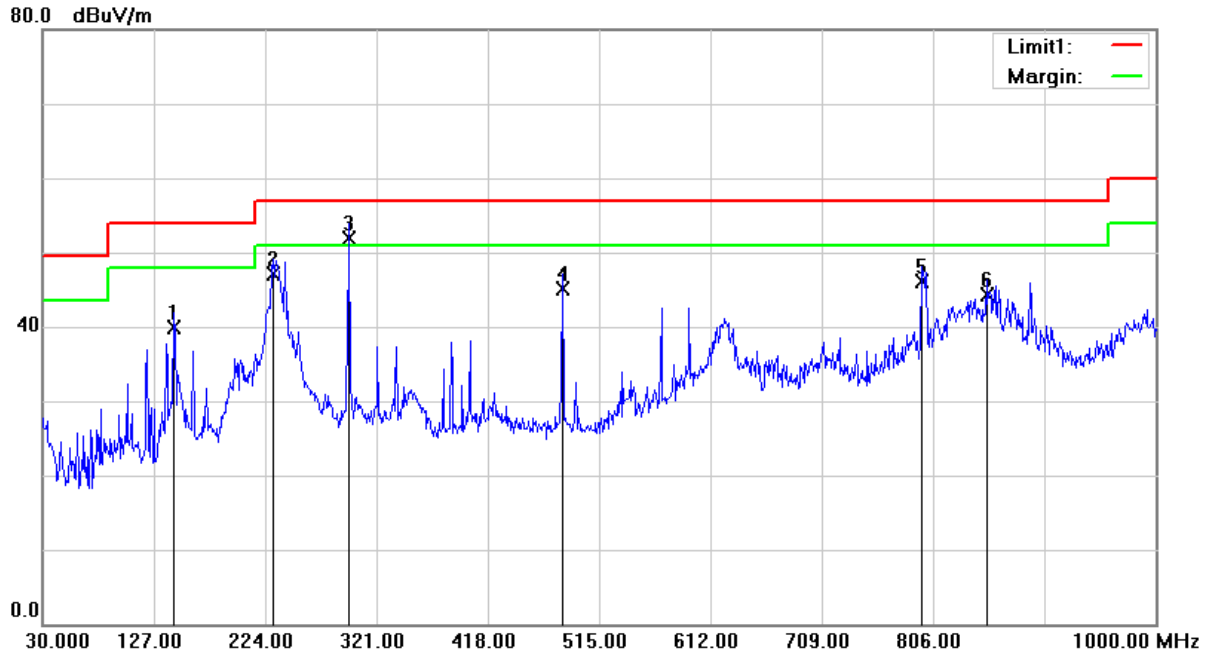
No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	31.9400	52.57	-11.19	41.38	49.50	-8.12	235	100	QP
2	241.4600	57.40	-10.72	46.68	56.90	-10.22	354	200	QP
3	296.7500	53.40	-8.45	44.95	56.90	-11.95	19	200	QP
4	482.9900	49.70	-3.29	46.41	56.90	-10.49	59	100	QP
5	618.7900	41.68	0.48	42.16	56.90	-14.74	157	100	QP
6	800.1800	43.48	4.11	47.59	56.90	-9.31	360	100	QP

Remark:

1. QP = Quasi Peak
2. Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) - Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



Test Voltage	120Vac, 60Hz	Frequency Range	30 ~ 1000 MHz
Environmental Conditions	22°C, 50% RH	6dB Bandwidth	120 kHz
Test Date	2024/11/27	Test Distance	3m
Tested by	Karwin Kao	Polarization	Horizontal
Test Site	W08-966-1		

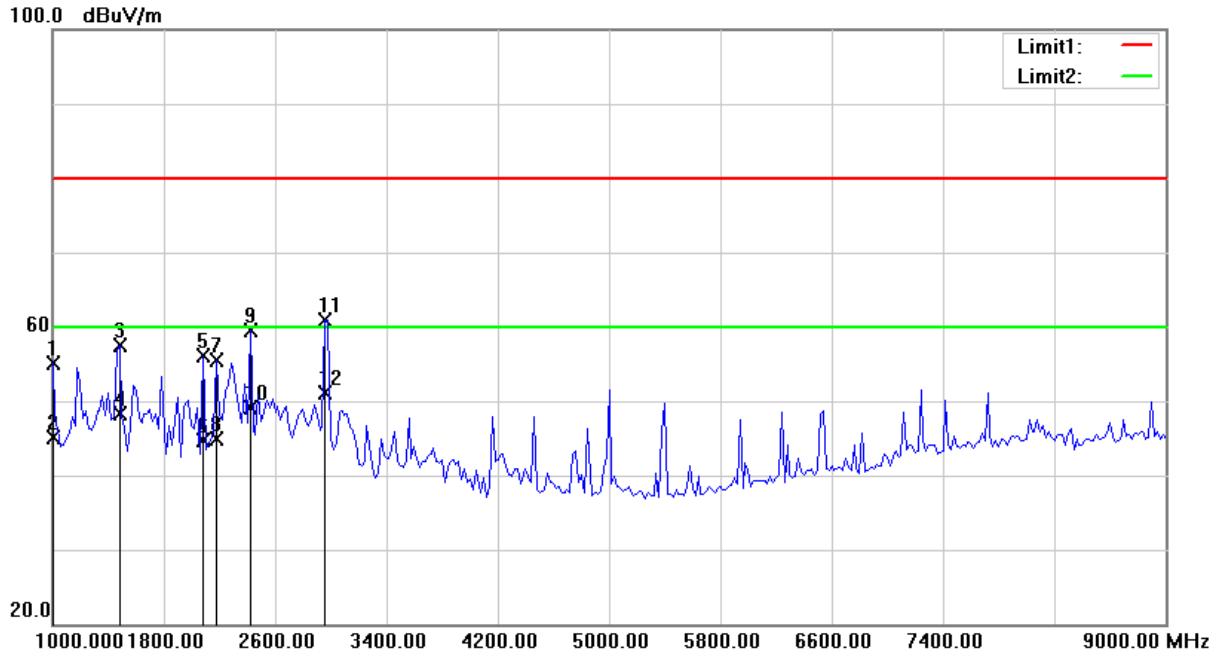


No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	144.4600	49.41	-9.49	39.92	54.00	-14.08	313	200	QP
2	230.7900	59.19	-12.03	47.16	56.90	-9.74	76	100	QP
3	296.7500	60.35	-8.45	51.90	56.90	-5.00	144	100	QP
4	482.9900	48.35	-3.29	45.06	56.90	-11.84	198	200	QP
5	796.3000	42.10	4.08	46.18	56.90	-10.72	185	100	QP
6	852.5600	39.39	4.82	44.21	56.90	-12.69	158	100	QP

Remark: 1. QP = Quasi Peak
 2. Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) - Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
 3. Measurement Value = Reading Level + Correct Factor
 4. Margin Level = Measurement Value - Limit Value



Test Voltage	120Vac, 60Hz	Frequency Range	1 ~ 9 GHz
Environmental Conditions	22°C, 50% RH	6dB Bandwidth	1MHz
Test Date	2024/11/27	Test Distance	3m
Tested by	Karwin Kao	Polarization	Vertical
Test Site	W08-966-1		



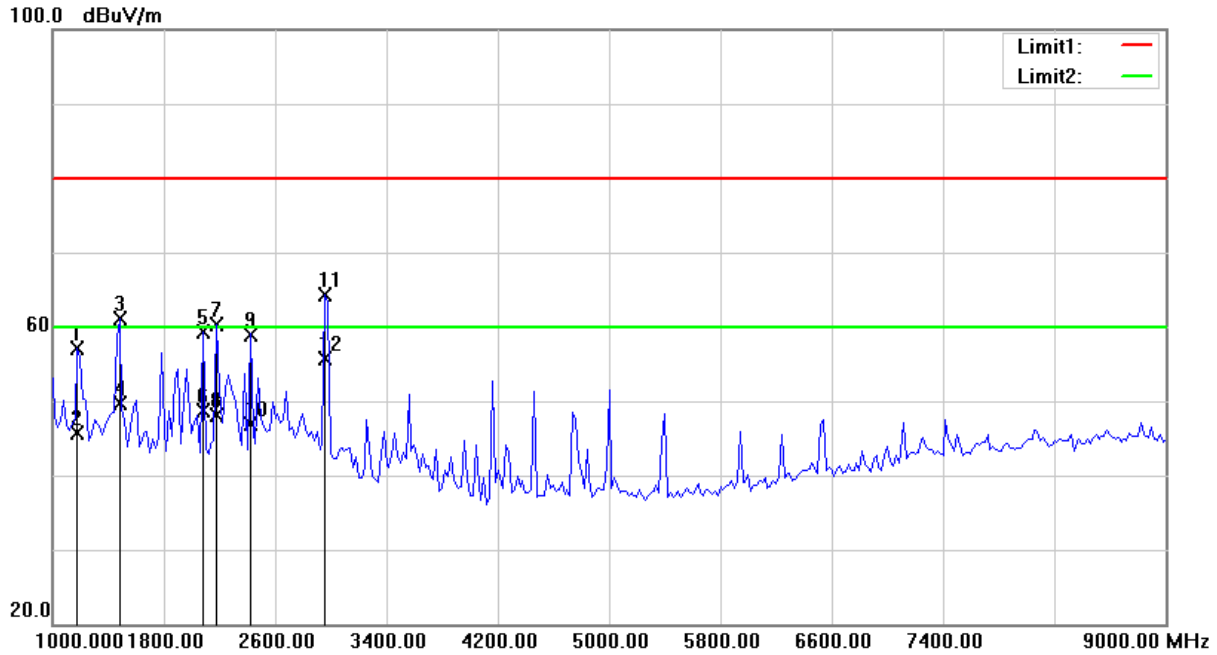
No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	1000.0000	75.72	-20.63	55.09	80.00	-24.91	202	100	peak
2	1000.0000	65.71	-20.63	45.08	60.00	-14.92	202	100	AVG
3	1480.000	76.17	-18.64	57.53	80.00	-22.47	40	200	peak
4	1480.000	66.90	-18.64	48.26	60.00	-11.74	40	200	AVG
5	2080.000	72.56	-16.53	56.03	80.00	-23.97	27	100	peak
6	2080.000	61.28	-16.53	44.75	60.00	-15.25	27	100	AVG
7	2180.000	70.83	-15.40	55.43	80.00	-24.57	194	200	peak
8	2180.000	60.30	-15.40	44.90	60.00	-15.10	194	200	AVG
9	2420.000	74.70	-15.26	59.44	80.00	-20.56	218	100	peak
10	2420.000	64.29	-15.26	49.03	60.00	-10.97	218	100	AVG
11	2960.000	74.43	-13.55	60.88	80.00	-19.12	33	100	peak
12	2960.000	64.59	-13.55	51.04	60.00	-8.96	33	100	AVG

Remark:

1. peak = Peak, AVG = Average
2. Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) - Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value



Test Voltage	120Vac, 60Hz	Frequency Range	1 ~ 9 GHz
Environmental Conditions	22°C, 50% RH	6dB Bandwidth	1MHz
Test Date	2024/11/28	Test Distance	3m
Tested by	Karwin Kao	Polarization	Horizontal
Test Site	W08-966-1		



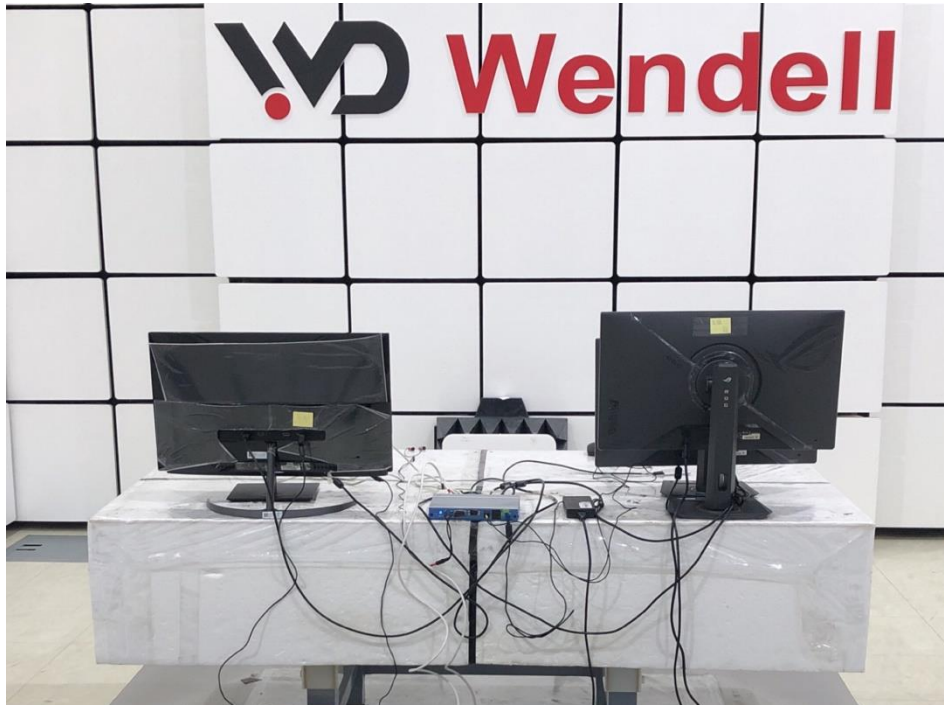
No.	Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB/m)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Table Degree (degree)	Antenna Height (cm)	Detector
1	1180.000	76.53	-19.48	57.05	80.00	-22.95	0	135	peak
2	1180.000	65.28	-19.48	45.80	60.00	-14.20	0	135	AVG
3	1480.000	79.82	-18.64	61.18	80.00	-18.82	4	100	peak
4	1480.000	68.29	-18.64	49.65	60.00	-10.35	4	100	AVG
5	2080.000	75.80	-16.53	59.27	80.00	-20.73	346	100	peak
6	2080.000	65.27	-16.53	48.74	60.00	-11.26	346	100	AVG
7	2180.000	75.61	-15.40	60.21	80.00	-19.79	332	200	peak
8	2180.000	63.44	-15.40	48.04	60.00	-11.96	332	200	AVG
9	2420.000	74.26	-15.26	59.00	80.00	-21.00	323	200	peak
10	2420.000	62.19	-15.26	46.93	60.00	-13.07	323	200	AVG
11	2960.000	77.93	-13.55	64.38	80.00	-15.62	336	100	peak
12	2960.000	69.18	-13.55	55.63	60.00	-4.37	336	100	AVG

Remark:

1. peak = Peak, AVG = Average
2. Correct Factor = Antenna Factor + Cable Loss (Antenna to Pre-Amplifier) - Pre-Amplifier Gain + Cable Loss (Pre-Amplifier to Receiver)
3. Measurement Value = Reading Level + Correct Factor
4. Margin Level = Measurement Value - Limit Value

4.2.7 Photographs of Measurement Configuration

Frequency Range: 30 MHz ~ 1 GHz



Frequency Range: Above 1 GHz



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