TEST REPORT

Applicant Name:	Grandstream Networks, Inc.
Address:	126 Brookline Ave., 3rd Floor Boston, MA 02215, USA
Report Number:	2401A50849E-EM-00
FCC ID:	YZZGWN7802PV2

Test Standard (s)

FCC Part 15, Subpart B (Class A)

Sample Description

Product Type:	Enterprise Layer 2+ Managed Network Switch
Model No.:	GWN7802P
Multiple Model(s) No.:	N/A
Trade Mark:	GRANDSTREAM
Date Received:	2024/12/06
Issue Date:	2025/02/24

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Carl Lu

EMC Engineer

Approved By:

Moon Liu

EMC Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401A50849E-EM-00	Original Report	2025/02/24

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Enterprise Layer 2+ Managed Network Switch
Tested Model	GWN7802P
Multiple Model(s)	N/A
Voltage Range	AC 100-240V 50/60Hz 4A
Highest operating frequency#	500MHz (Provided by the applicant)
Equipment Class	Class A
Sample number	Sample1(BOF-280S54E-A): 2VKF-1 Sample2(UES280-540520SPA-OP): 2VKF-2 (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A

Objective

This test report is in accordance with Part 2-Subpart J, Part 15B Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15B.

Measurement Uncertainty

Item	Frequency Range		Expanded Measurement uncertainty
Conducted Emissions	AC Mains	150 kHz ~30MHz	3.66dB(k=2, 95% level of confidence)
Radiated Disturbance	30MHz~200MHz	Horizontal	5.32dB(k=2, 95% level of confidence)
	30MHz~200MHz	Vertical	5.43dB(k=2, 95% level of confidence)
	200MHz~1000MHz	Horizontal	5.77dB(k=2, 95% level of confidence)
	200MHz~1000MHz	Vertical	5.73dB(k=2, 95% level of confidence)
	1GHz~6GHz	/	5.34dB(k=2, 95% level of confidence)
	6GHz~18GHz	/	5.40dB(k=2, 95% level of confidence)
	18GHz~40GHz	/	5.64dB(k=2, 95% level of confidence)

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

Each test item follows test standards and with no deviation.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in worst case condition.

Test Mode 1: Data transmitting+ Full load +Sample1

Test Mode 2: Data transmitting+ Full load +Sample2

Note: Samlpe1 power by BOF-280S54E-A; Samlpe2 power by UES280-540520SPA-OP.

EUT exercise software

"LanTest20" exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
TP-Link	POE Load	PRL-12 1.0	NA
TP-Link	Interface Board (For POE Load)	WLS031339	NA
DELL	PC1	Latitude E6520	DL0ZCS1
DELL	PC2	Latitude E5570	GNDLKC2
TP-Link	Fiber module*4	N/A	N/A

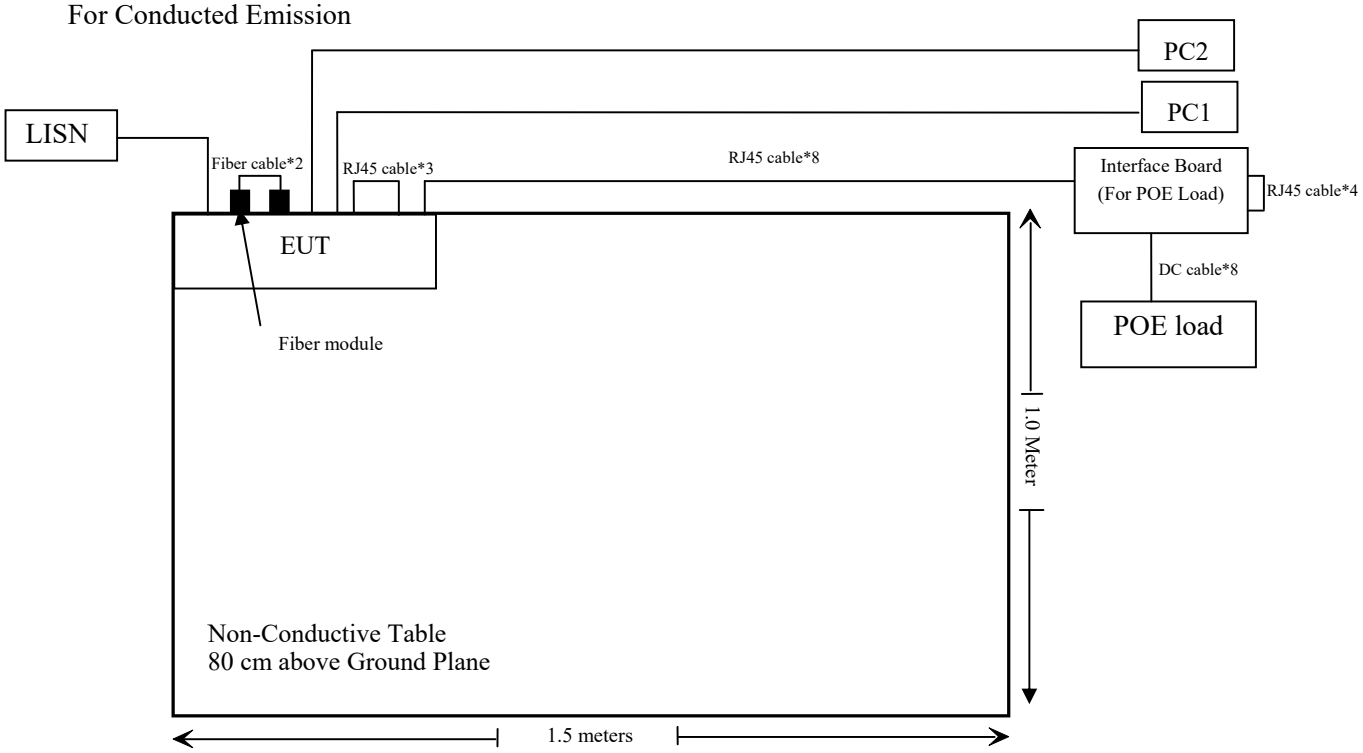
External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded detachable AC cable	1.2	EUT	Mains/LISN
Unshielded detachable RJ45 cable*8	10.0	EUT	Interface Board (For POE Load)
Unshielded detachable Fiber cable*2	1.0	Fiber module	Fiber module
Unshielded detachable RJ45 cable	10.0	EUT	PC1
Unshielded detachable RJ45 cable	10.0	EUT	PC2

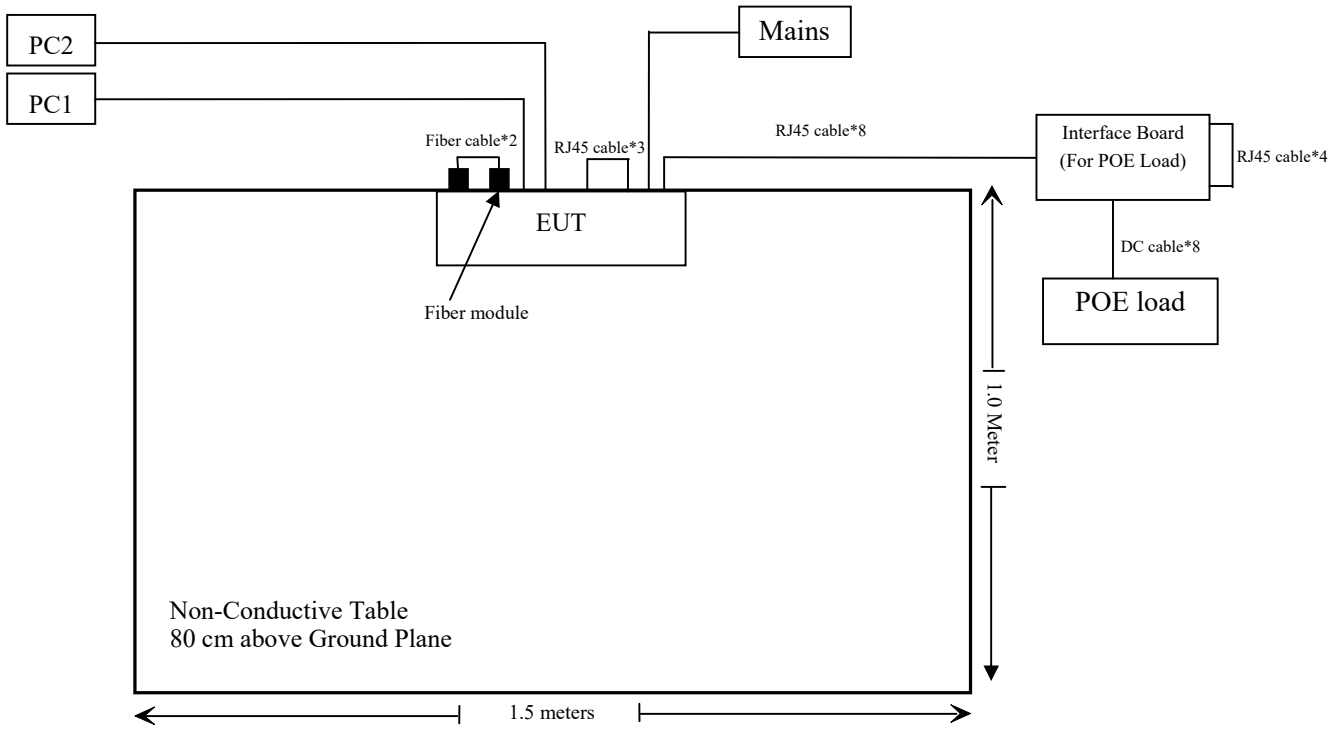
Block Diagram of Test Setup

Test Mode 1&2

For Conducted Emission



For Radiated Emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2024/12/04	2025/12/03
Rohde & Schwarz	LISN	ENV216	101613	2024/12/04	2025/12/03
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2024/05/21	2025/05/20
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2024/05/21	2025/05/20
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/12/04	2025/12/03
Sonoma instrument	Pre-amplifier	310 N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	2024/06/18	2025/06/17
Unknown	Cable	XH500C	J-10M-A	2024/06/18	2025/06/17
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
A.H.System	Preamplifier	PAM-0118P	489	2024/11/15	2025/11/14
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	735	2024/12/04	2025/12/03
Unknown	RF Cable	UFA147	219661	2024/12/04	2025/12/03
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

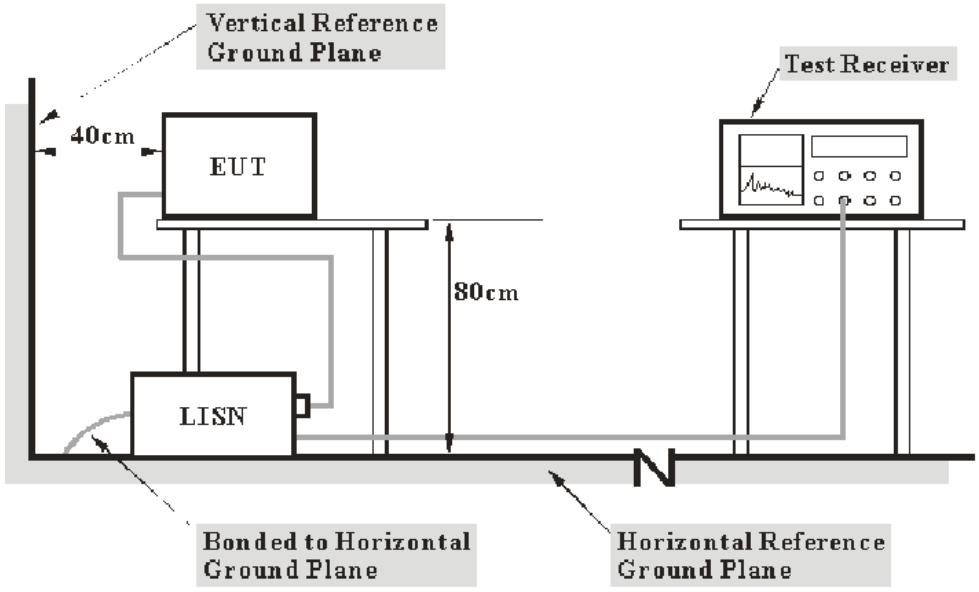
*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 - AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC§15.107

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Level & Over Limit Calculation

The Level is calculated by adding the LISN Factor, Cable Loss and the Read Level. The basic equation is as follows:

Level (dBuV) =Read Level (dBuV) +LISN Factor +Cable Loss

The "**Over limit**" column of the following data tables indicates the degree of compliance with the applicable limit.

Over Limit (dB) =Level (dBuV) -Limit Line (dBuV)

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

Test Data

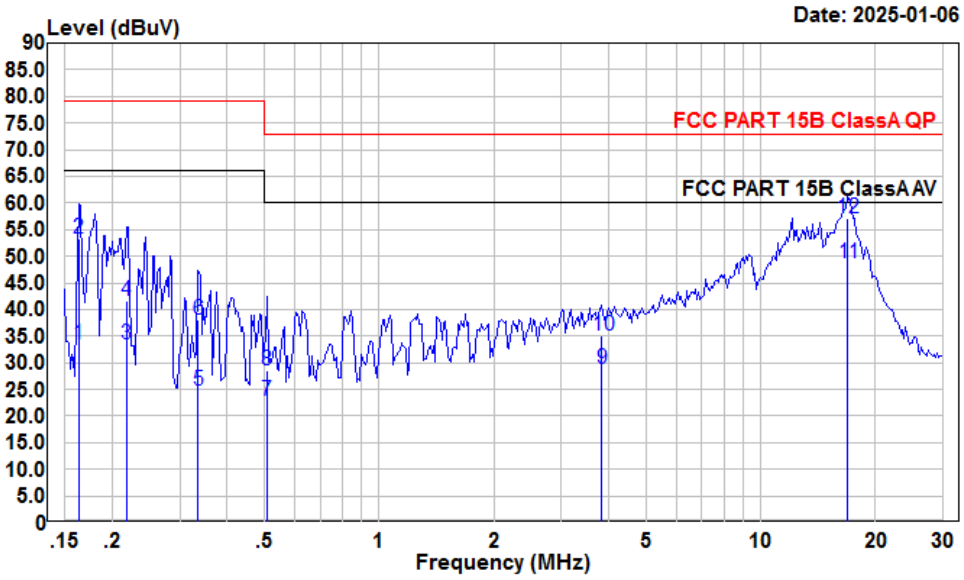
Environmental Conditions

Temperature:	22.9 ℃
Relative Humidity:	36 %
ATM Pressure:	101.3 kPa

The testing was performed by Macy Shi on 2025-01-06.

Test Mode 1

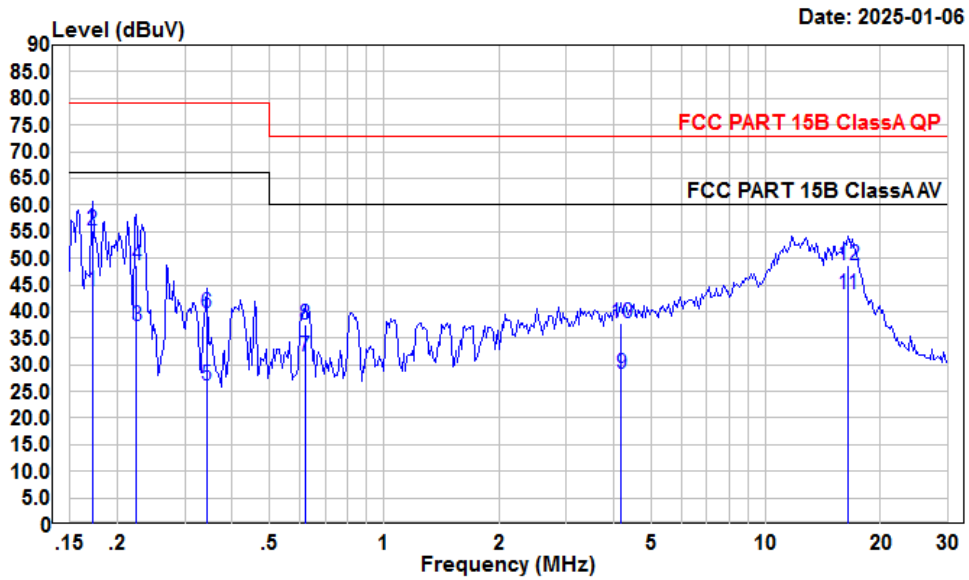
AC 120V/60 Hz, Line



Condition: Line
Project : 2401A50849E-EM
test Mode: Mode1
tester : Macy.shi
Setting : RBW:9kHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Cable Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.163	12.89	33.40	10.40	10.11	66.00	-32.60	Average
2	0.163	32.85	53.36	10.40	10.11	79.00	-25.64	QP
3	0.217	12.89	33.36	10.38	10.09	66.00	-32.64	Average
4	0.217	21.23	41.70	10.38	10.09	79.00	-37.30	QP
5	0.336	4.46	24.87	10.29	10.12	66.00	-41.13	Average
6	0.336	17.72	38.13	10.29	10.12	79.00	-40.87	QP
7	0.507	2.52	22.87	10.21	10.14	60.00	-37.13	Average
8	0.507	8.34	28.69	10.21	10.14	73.00	-44.31	QP
9	3.840	8.35	28.95	10.39	10.21	60.00	-31.05	Average
10	3.840	14.52	35.12	10.39	10.21	73.00	-37.88	QP
11	16.928	27.98	48.65	10.47	10.20	60.00	-11.35	Average
12	16.928	36.48	57.15	10.47	10.20	73.00	-15.85	QP

AC 120V/60 Hz, Neutral

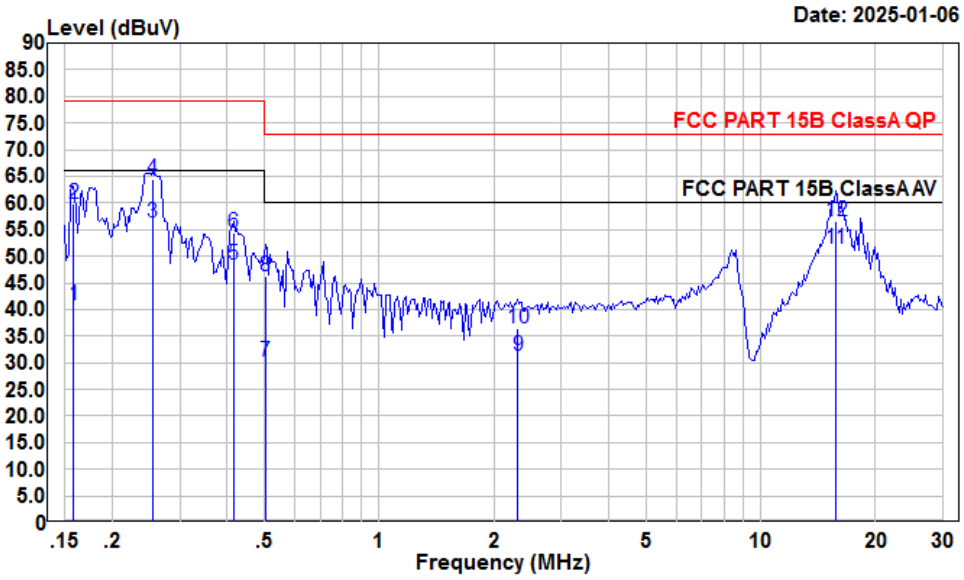


Condition: Neutral
Project : 2401A50849E-EM
test Mode: Mode1
tester : Macy.shi
Setting : RBW:9kHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Cable Factor	Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.172	23.28	43.77	10.39	10.10	66.00	-22.23	Average
2	0.172	34.79	55.28	10.39	10.10	79.00	-23.72	QP
3	0.224	16.57	37.29	10.63	10.09	66.00	-28.71	Average
4	0.224	27.88	48.60	10.63	10.09	79.00	-30.40	QP
5	0.343	5.14	25.98	10.72	10.12	66.00	-40.02	Average
6	0.343	18.89	39.73	10.72	10.12	79.00	-39.27	QP
7	0.621	10.92	31.66	10.61	10.13	60.00	-28.34	Average
8	0.621	16.79	37.53	10.61	10.13	73.00	-35.47	QP
9	4.180	7.65	28.25	10.40	10.20	60.00	-31.75	Average
10	4.180	17.26	37.86	10.40	10.20	73.00	-35.14	QP
11	16.398	22.78	43.33	10.34	10.21	60.00	-16.67	Average
12	16.398	28.03	48.58	10.34	10.21	73.00	-24.42	QP

Test Mode 2

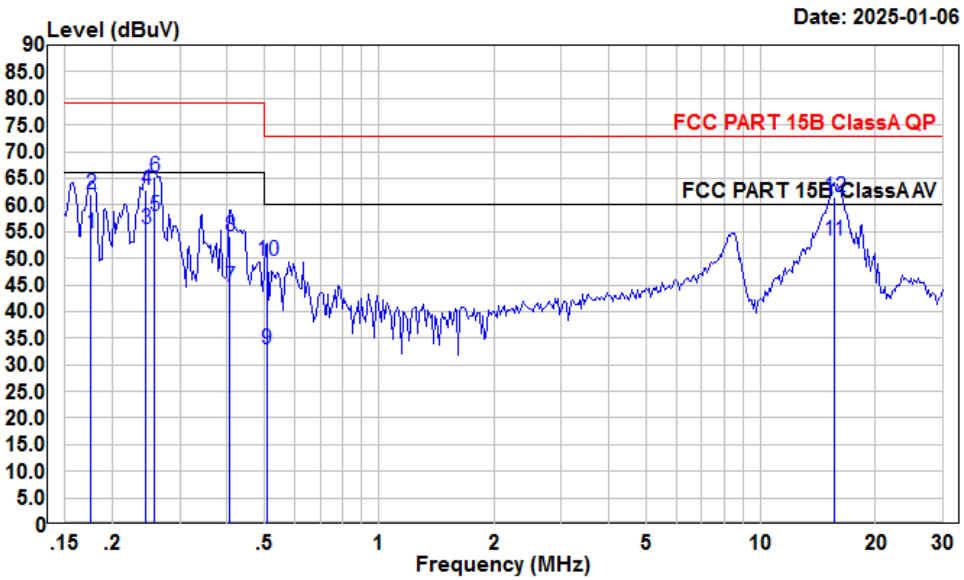
AC 120V/60 Hz, Line



Condition: Line
Project : 2401A50849E-EM
test Mode: Mode2
tester : Macy.shi
Setting : RBW:9kHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Cable Factor	Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.158	20.34	40.86	10.40	10.12	66.00	-25.14	Average
2	0.158	39.30	59.82	10.40	10.12	79.00	-19.18	QP
3	0.255	35.79	56.22	10.35	10.08	66.00	-9.78	Average
4	0.255	43.93	64.36	10.35	10.08	79.00	-14.64	QP
5	0.415	28.02	48.37	10.24	10.11	66.00	-17.63	Average
6	0.415	34.02	54.37	10.24	10.11	79.00	-24.63	QP
7	0.502	9.96	30.30	10.20	10.14	60.00	-29.70	Average
8	0.502	25.79	46.13	10.20	10.14	73.00	-26.87	QP
9	2.309	10.77	31.27	10.32	10.18	60.00	-28.73	Average
10	2.309	15.88	36.38	10.32	10.18	73.00	-36.62	QP
11	15.718	30.86	51.44	10.37	10.21	60.00	-8.56	Average
12	15.718	35.92	56.50	10.37	10.21	73.00	-16.50	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401A50849E-EM
test Mode: Mode2
tester : Macy.shi
Setting : RBW:9kHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Cable Factor	Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.176	34.13	54.65	10.42	10.10	66.00	-11.35	Average
2	0.176	41.46	61.98	10.42	10.10	79.00	-17.02	QP
3	0.244	34.70	55.42	10.64	10.08	66.00	-10.58	Average
4	0.244	42.10	62.82	10.64	10.08	79.00	-16.18	QP
5	0.258	37.17	57.91	10.66	10.08	66.00	-8.09	Average
6	0.258	44.55	65.29	10.66	10.08	79.00	-13.71	QP
7	0.406	23.68	44.53	10.75	10.10	66.00	-21.47	Average
8	0.406	33.35	54.20	10.75	10.10	79.00	-24.80	QP
9	0.507	11.93	32.86	10.79	10.14	60.00	-27.14	Average
10	0.507	28.48	49.41	10.79	10.14	73.00	-23.59	QP
11	15.552	32.67	53.25	10.37	10.21	60.00	-6.75	Average
12	15.552	40.96	61.54	10.37	10.21	73.00	-11.46	QP

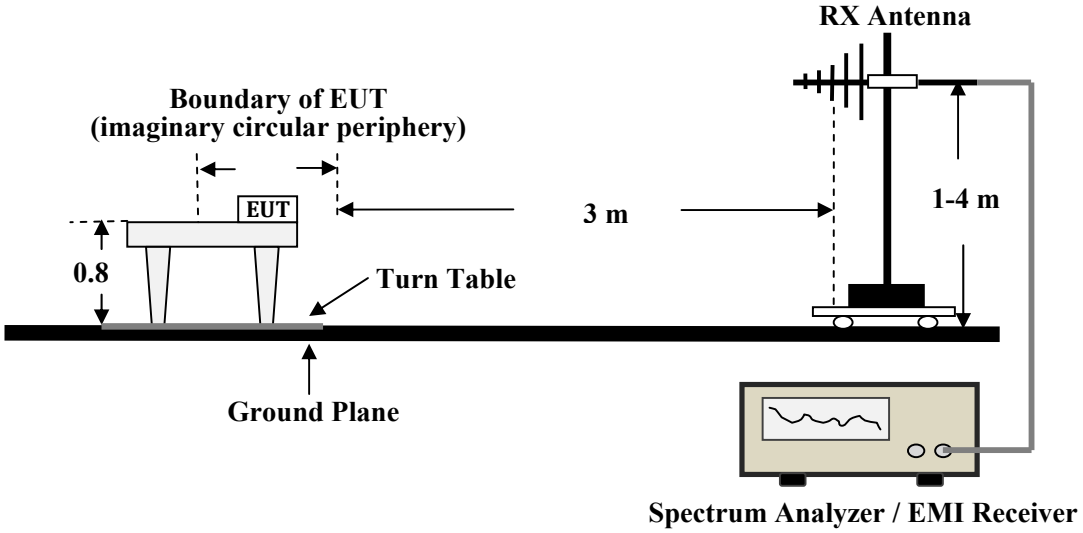
FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

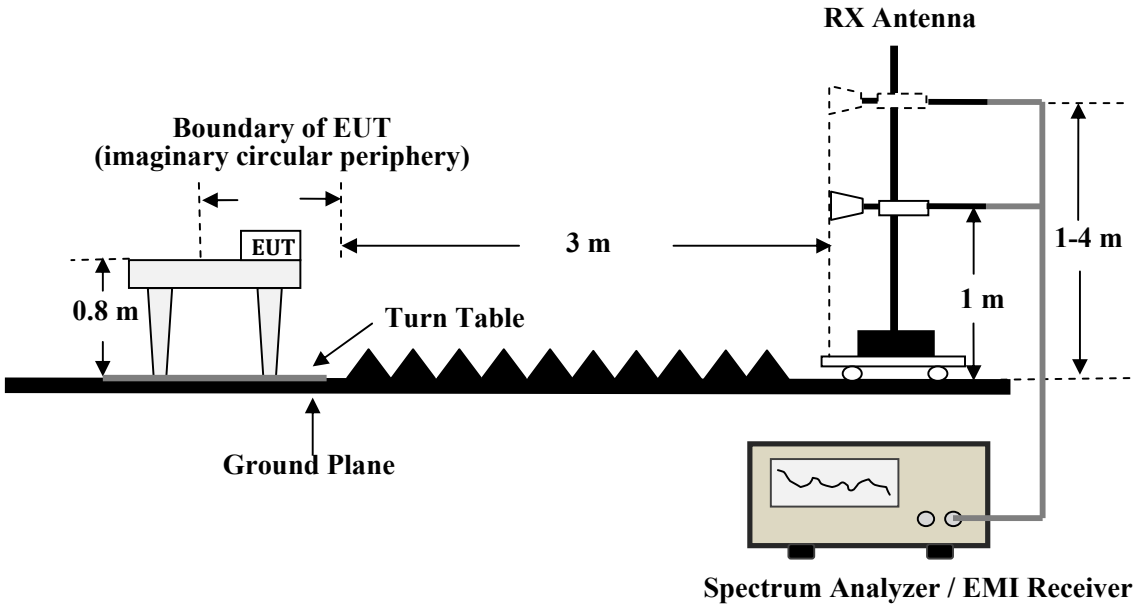
FCC §15.109

EUT Setup

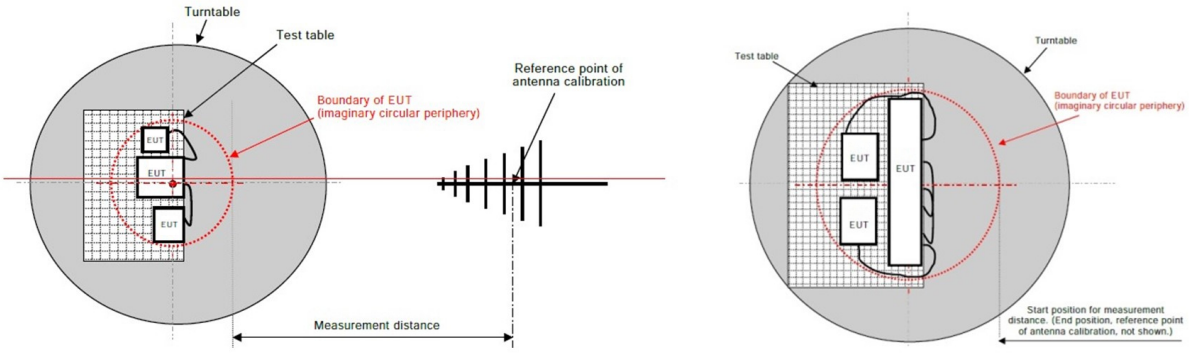
Below 1GHz for Radiated Emissions



Above 1GHz for Radiated Emissions



Radiated Emissions Setup Configuration



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The related limit was specified in FCC Part 15B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver and Spectrum analyzer Setup

During the radiated emission test, the EMI test receiver and spectrum analyzer setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

If emission level of the EUT in Peak measurement mode is 20dB lower than peak limit line (that means the emission level in Peak measurement mode complies with both Peak and average limit lines) then only Peak measurement result is reported .Otherwise, Emission in average measurement mode shall be measured, and reported for frequency range above 1GHz.

Level & Over Limit Calculation

The Level is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Read Level. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

Level = Read Level + Factor

The "Over limit" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -6 dB means the emission is 6dB below the limit for Class A. The equation for Over Limit calculation is as follows:

Over limit = Level– Limit

Test Data

Environmental Conditions

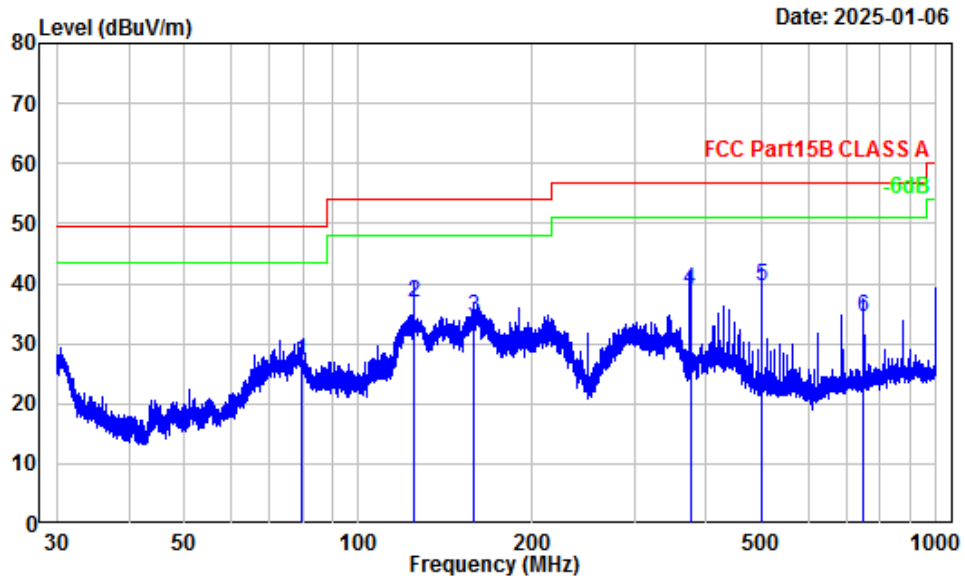
Temperature:	21.2~23.6 ℃
Relative Humidity:	38~47 %
ATM Pressure:	101.3~102.7 kPa

The testing was performed by Anson Su and Jack Liu from 2024-12-30 to 2025-01-06 for below 1GHz and Wing K Ji on 2025-02-24 for above 1GHz.

Test Mode 1

30 MHz~1 GHz

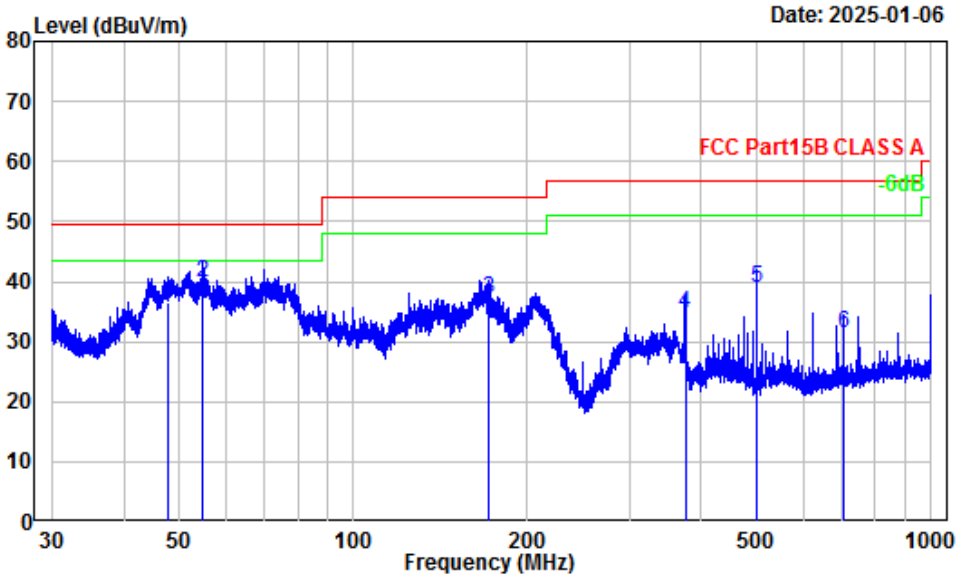
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401A50849E-EM
Test Mode : Mode1
Setting QP RBW: 120KHz
Tester : Jack Liu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	79.63	-17.90	44.92	27.02	49.54	-22.52	QP
2	125.01	-11.12	48.10	36.98	53.98	-17.00	QP
3	157.84	-12.63	47.18	34.55	53.98	-19.43	QP
4	375.12	-9.28	48.30	39.02	56.90	-17.88	QP
5	500.08	-5.76	45.39	39.63	56.90	-17.27	QP
6	750.11	-2.88	37.25	34.37	56.90	-22.53	QP

Vertical

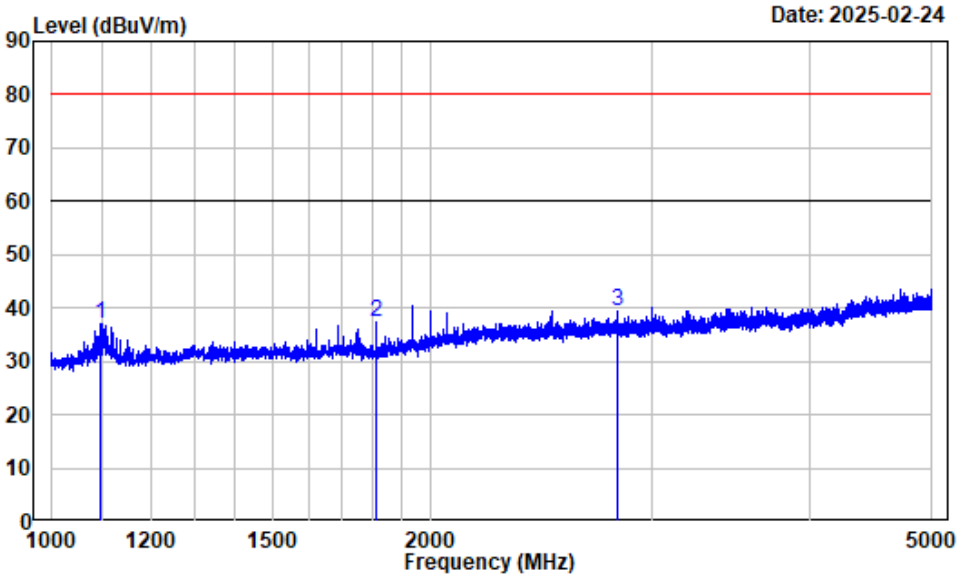


Site : Chamber A
Condition : 3m Vertical
Project Number: 2401A50849E-EM
Test Mode : Mode1
Setting QP RBW: 120KHz
Tester : Jack Liu

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	47.64	-17.21	53.81	36.60	49.54	-12.94	QP
2	54.67	-18.31	58.01	39.70	49.54	-9.84	QP
3	171.09	-13.19	50.27	37.08	53.98	-16.90	QP
4	375.12	-9.28	43.91	34.63	56.90	-22.27	QP
5	500.08	-5.76	44.74	38.98	56.90	-17.92	QP
6	703.92	-3.44	34.91	31.47	56.90	-25.43	QP

1 ~ 5 GHz

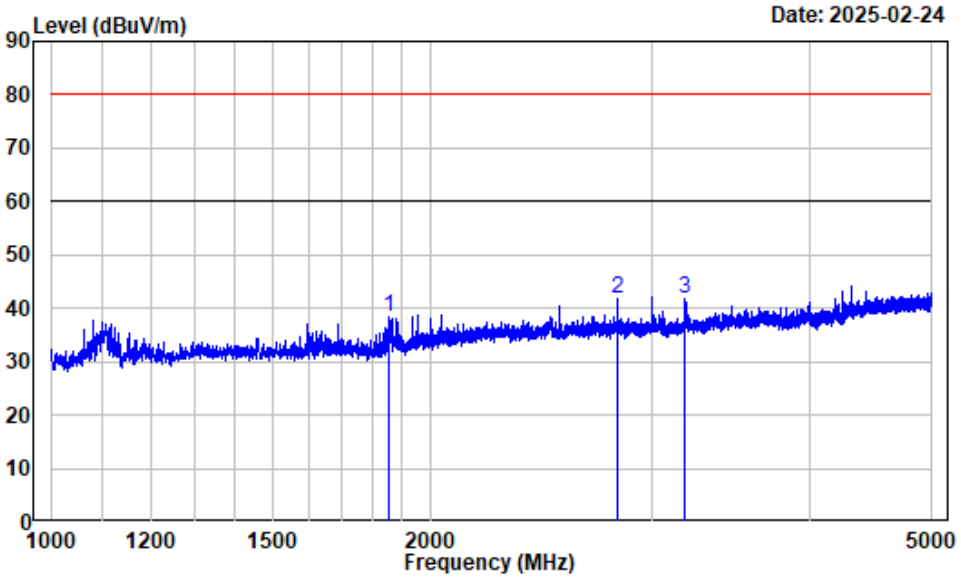
Horizontal



Site : chamber B
Condition : Horizontal
Project Number : 2401A50849E-EM
Test mode : mode1
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1093.012	-15.23	52.12	36.89	80.00	-43.11	Peak
2	1812.602	-13.96	51.33	37.37	80.00	-42.63	Peak
3	2812.727	-10.52	49.96	39.44	80.00	-40.56	Peak

Vertical



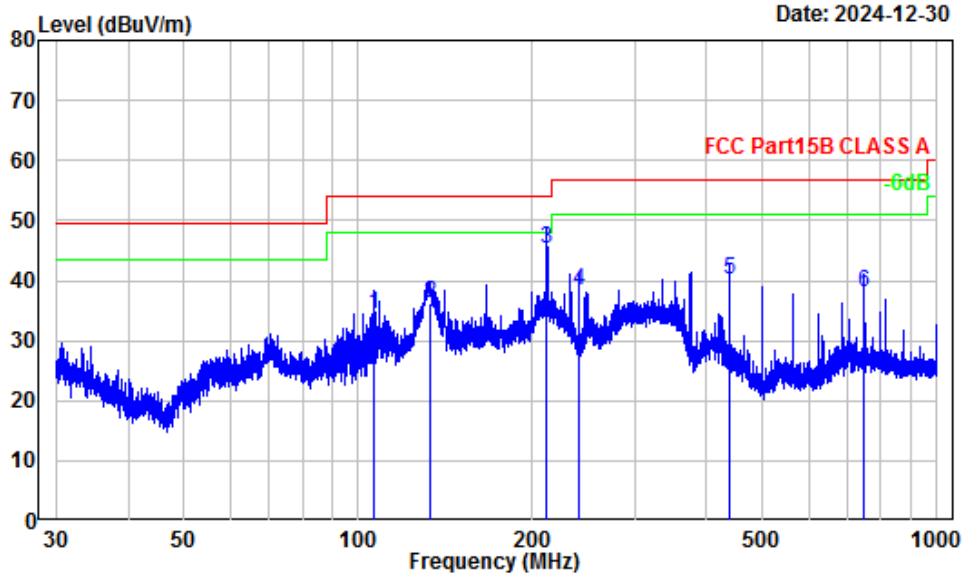
Site : chamber B
Condition : Vertical
Project Number : 2401A50849E-EM
Test mode : mode1
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1855.607	-13.73	52.14	38.41	80.00	-41.59	Peak
2	2812.727	-10.52	52.15	41.63	80.00	-38.37	Peak
3	3187.773	-10.59	52.31	41.72	80.00	-38.28	Peak

Test Mode 2

30 MHz~1 GHz

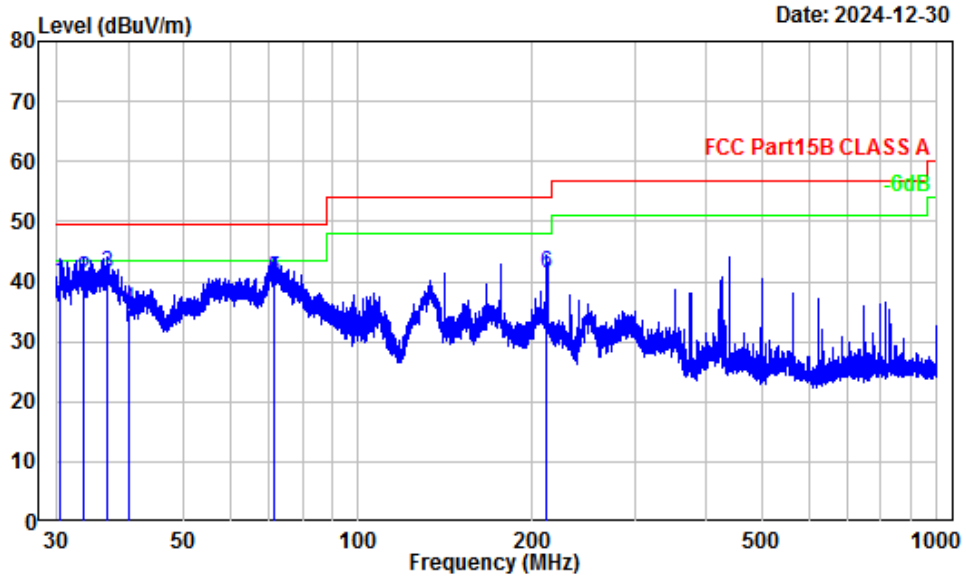
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401A50849E-EM
Test Mode : Mode 2
Setting QP RBW: 120KHz
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	106.71	-13.92	48.21	34.29	53.98	-19.69	QP
2	132.86	-11.39	47.50	36.11	53.98	-17.87	QP
3	211.25	-14.07	59.40	45.33	53.98	-8.65	QP
4	239.99	-13.32	51.67	38.35	56.90	-18.55	QP
5	437.50	-7.72	47.87	40.15	56.90	-16.75	QP
6	750.11	-2.88	40.89	38.01	56.90	-18.89	QP

Vertical

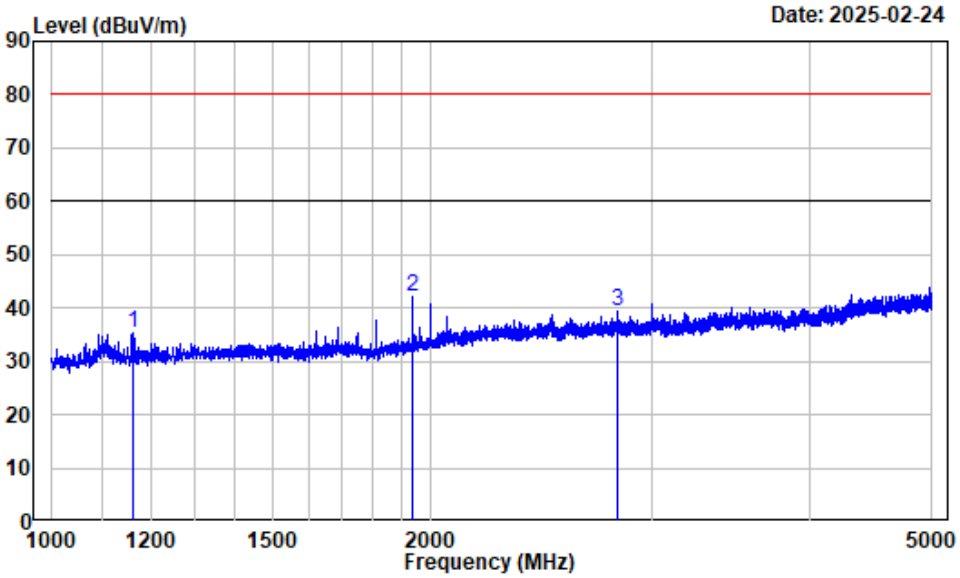


Site : Chamber A
Condition : 3m Vertical
Project Number: 2401A50849E-EM
Test Mode : Mode 2
Setting QP RBW: 120KHz
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	30.58	-6.26	46.10	39.84	49.54	-9.70	QP
2	33.46	-7.90	48.21	40.31	49.54	-9.23	QP
3	36.72	-10.05	51.35	41.30	49.54	-8.24	QP
4	40.12	-12.45	47.78	35.33	49.54	-14.21	QP
5	71.71	-17.85	58.19	40.34	49.54	-9.20	QP
6	211.34	-14.07	55.36	41.29	53.98	-12.69	QP

1 ~ 5 GHz

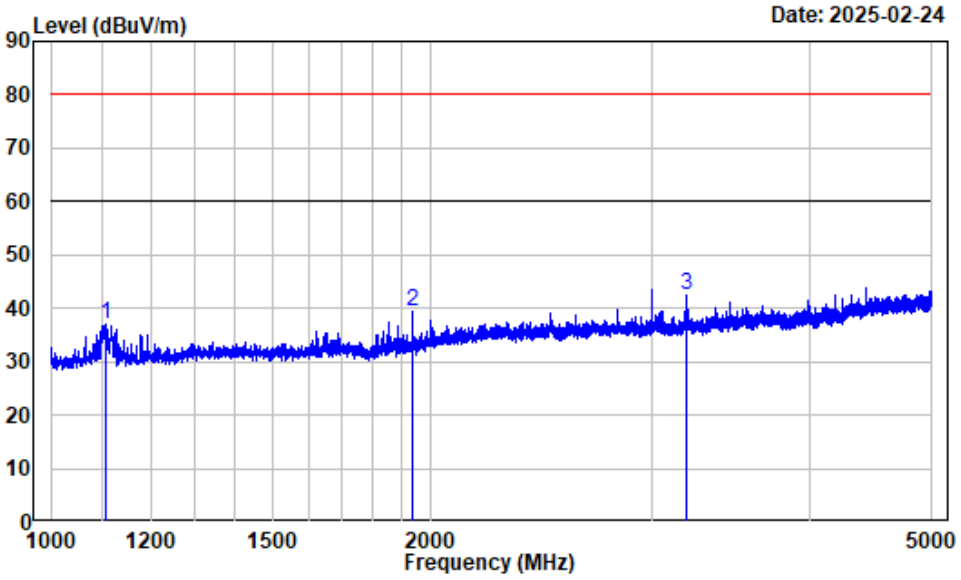
Horizontal



Site : chamber B
Condition : Horizontal
Project Number : 2401A50849E-EM
Test mode : mode2
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1161.020	-15.27	50.69	35.42	80.00	-44.58	Peak
2	1937.617	-13.15	55.30	42.15	80.00	-37.85	Peak
3	2812.227	-10.52	49.90	39.38	80.00	-40.62	Peak

Vertical



Site : chamber B
Condition : Vertical
Project Number : 2401A50849E-EM
Test mode : mode2
Tester : Wing K Ji
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1106.513	-15.21	52.20	36.99	80.00	-43.01	Peak
2	1938.117	-13.15	52.54	39.39	80.00	-40.61	Peak
3	3188.774	-10.59	53.19	42.60	80.00	-37.40	Peak

EUT PHOTOGRAPHS

Please refer to the attachment 2401A50849E-EM External photo and 2401A50849E-EM Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401A50849E-EM Test Setup photo.

******* END OF REPORT *******