



FCC EMI TEST REPORT

FCC ID : 2ABOF-GXRN8356900
Equipment : RN System (Multiband)
Brand Name : Tarana
Model Name : GXRN8356900
Marketing Name : RN Product Line
Applicant : Tarana Wireless, Inc.
630 Alder Drive, Milpitas, CA 95035
Manufacturer : Tarana Wireless, Inc.
630 Alder Drive, Milpitas, CA 95035
Standard : FCC 47 CFR FCC Part 15 Subpart B Class B

The product was received on Apr. 30, 2025 and testing was performed from May 28, 2025 to May 29, 2025. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035



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History of this test report

Report No.	Version	Description	Issue Date
FC250408001	01	Initial issue of report	Jun. 09, 2025

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.107	AC Conducted Emission	Pass	-
3.2	15.109	Radiated Emission	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1. General Description

1.1. Product Feature of Equipment Under Test

Product Feature
General Specs Proprietary radio 5G / 6G, CBRS and GNSS.

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2. Modification of EUT

No modifications made to the EUT during the testing.

1.3. Test Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No.
	CO01-CA, 03CH01-CA

FCC Designation No.: US1250

1.4. Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR FCC Part 15 Subpart B Class B
- ♦ ANSI C63.4-2014
- ♦ ANSI C63.4a-2017

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT is tested along with the peripherals, operating under possible configurations in compliant with normal operation. The maximum emissions can be identified by a pre-scan carried out in different orientations of placement pursuant to ANSI C63.4-2014. Frequency range covered: Conduction Emission (150 kHz to 30 MHz), Radiation Emission (30 MHz to the 5th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Functions Enabled
AC Conducted Emission	Mode 1: CBRS Idle + WLAN 5GHz/6GHz Idle + GPS Rx +POE RJ45 Load + PoE Adaptor 1
	Mode 2: CBRS Idle + WLAN 5GHz/6GHz Idle + GPS Rx +POE RJ45 Load + PoE Adaptor 2
Radiated Emissions	Mode 1: CBRS Idle + WLAN 5GHz/6GHz Idle + GPS Rx +POE RJ45 Load + PoE Adaptor 1
	Mode 2: CBRS Idle + WLAN 5GHz/6GHz Idle + GPS Rx +POE RJ45 Load + PoE Adaptor 2
Remark:	
1. The worst case of AC is mode 1; only the test data of this mode was reported.	
2. The worst case of RE is mode 1; only the test data of this mode was reported.	

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Desktop Computer THINKCENTRE	Lenovo	M93p	N/A	N/A	AC I/P Unshielded 1.2m DC O/P Shielded 1.8m
2.	SINGLE PORT POWEROVER ETHERENT	PHIHONG	POE60U-BTA	N/A	N/A	AC I/P Unshielded 1.2m DC O/P Shielded 1.8m
3.	Switching Gigabit Power Supply/PoE	Shenzhen Gospell Digital Technology	G0566-500-120	N/A	N/A	AC I/P: Unshielded, 1.8m

2.4. EUT Operation Test Setup

The EUT is attached to the support Desktop, and the following programs installed in the EUT are programmed during the test:

1. Execute the command 'cgps' to monitor the EUT receiving continuous signals from the GPS station.
2. EUT links with Desktop Computer and executes ping.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1. Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B>

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

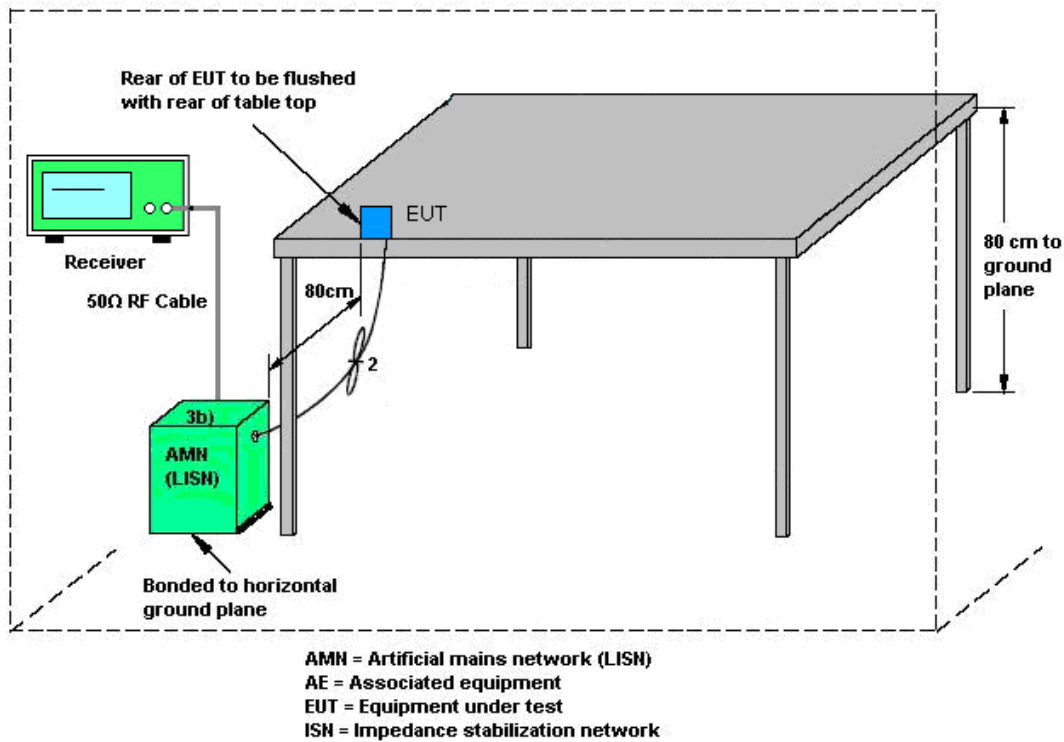
3.1.2. Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3. Test Procedure

1. The EUT is placed 0.4 meter away from the conducting wall of the shielding room, and is kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN shall be used.
6. Both Line and Neutral shall be tested in order to find out the maximum conducted emission.
7. The frequency range from 150 kHz to 30 MHz is scanned.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (If Bandwidth = 9 kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.1.4. Test Setup



3.1.5. Test Result of AC Conducted Emission

Please refer to Appendix A.

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B>

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

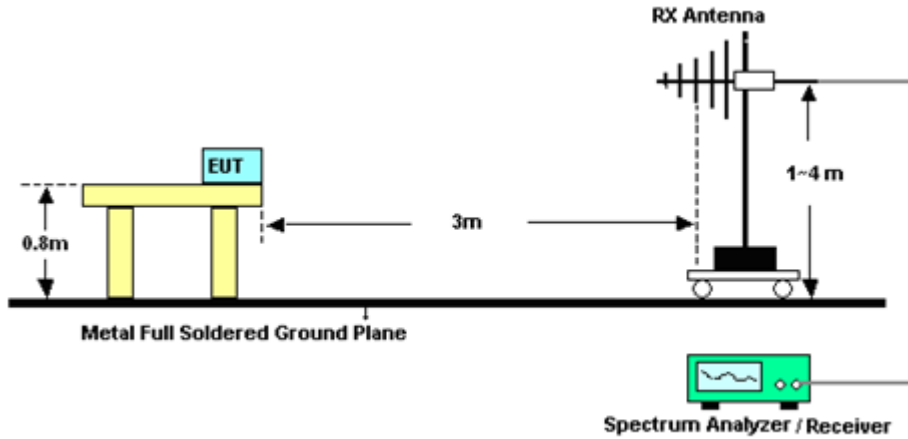
Please refer to the measuring equipment list in this test report.

3.2.3. Test Procedures

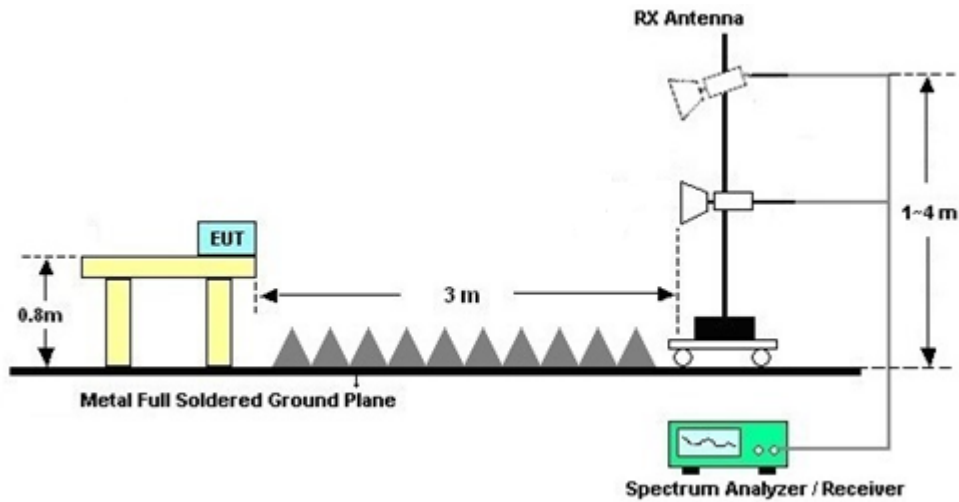
1. The EUT is placed on a turntable with 0.8 meter above ground.
2. The EUT is set 3 meters (1GHz~18GHz) and 1 meter (18GHz~40GHz) from the interference receiving antenna, which is mounted on the top of a variable height antenna tower.
3. The table is rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120 kHz/VBW=300 kHz for frequency below 1 GHz; RBW=1 MHz VBW=3 MHz (Peak), RBW=1 MHz/VBW=10 Hz (Average) for frequency above 1 GHz).
7. If the emission level of the EUT in peak mode is 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.

3.2.4. Test Setup of Radiated Emission

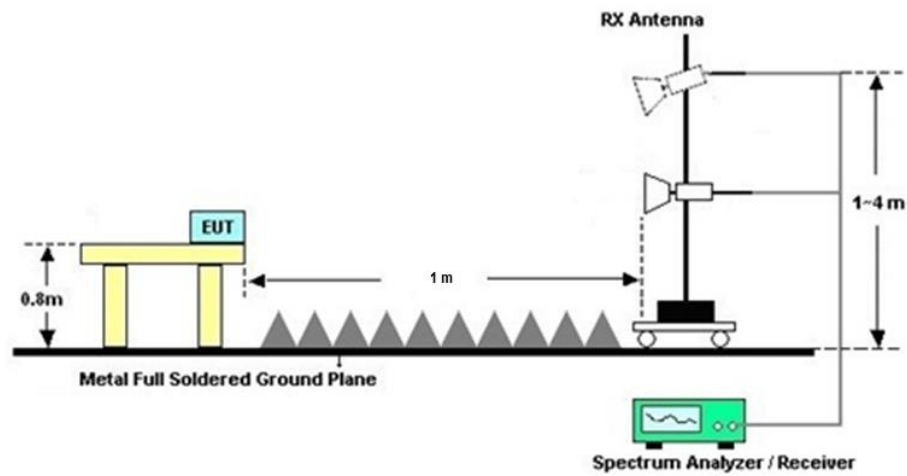
For Radiated Emissions from 30 MHz to 1 GHz



For Radiated Emissions from 1GHz to 18GHz



For Radiated Emissions above 18GHz



3.2.5. Test Result of Radiated Emission

Please refer to Appendix B.



4. List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	6111D	54683	30MHz~1GHz	Nov. 15, 2024	May 29, 2025	Nov. 14, 2025	Radiation (03CH01-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	02115	1GHz~18GHz	Aug. 06, 2024	May 29, 2025	Aug. 05, 2025	Radiation (03CH01-CA)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00841	18GHz~40GHz	Aug. 07, 2024	May 29, 2025	Aug. 06, 2025	Radiation (03CH01-CA)
Amplifier	SONOMA	310N	372241	9kHz~1GHz	Apr. 14, 2025	May 29, 2025	Apr. 13, 2026	Radiation (03CH01-CA)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN8	NA	Jun. 04, 2024	May 29, 2025	Jun. 03, 2025	Radiation (03CH01-CA)
Filter	Wainwright	WLK12-1200-1272-11000-40SS	SN1	1.2GHz Low Pass Filter	Jun. 04, 2024	May 29, 2025	Jun. 03, 2025	Radiation (03CH01-CA)
Preamplifier	Keysight	83017A	MY53270321	1GHz~26.5GHz	Apr. 14, 2025	May 29, 2025	Apr. 13, 2026	Radiation (03CH01-CA)
Preamplifier	E-instrument	ERA-100M-18G-56-01-A70	EC1900252	1GHz~18GHz	Apr. 14, 2025	May 29, 2025	Apr. 13, 2026	Radiation (03CH01-CA)
Preamplifier	EMEC	EMC18G40G	060726	18G-40G	Apr. 15, 2025	May 29, 2025	Apr. 14, 2026	Radiation (03CH01-CA)
RF Cable	HUBER+SUHNER	SUCOFLEX 102	8015932/2, 8015762/2, 804938/2	N/A	Mar. 04, 2025	May 29, 2025	Mar. 03, 2026	Radiation (03CH01-CA)
Hygrometer	TESEO	608-H1	45142559	N/A	Aug. 14, 2024	May 29, 2025	Aug. 13, 2025	Radiation (03CH01-CA)
Controller	Chaintek	EM-1000	060881	Control Turn Table & Antenna Mast	N/A	May 29, 2025	N/A	Radiation (03CH01-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 29, 2025	N/A	Radiation (03CH01-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 29, 2025	N/A	Radiation (03CH01-CA)
Test Software	Audix E3	E3 230621 Sporton US,V9	PK-002093	N/A	N/A	May 29, 2025	N/A	Radiation (03CH01-CA)
LISN	TESEQ	NNB51	47415	N/A	Aug. 14, 2024	May 28, 2025	Aug. 13, 2025	Conduction (CO01-CA)
LISN	TESEQ	NNB51	47407	N/A	Apr. 15, 2025	May 28, 2025	Apr. 14, 2026	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9kHz~7GHz	Apr. 15, 2025	May 28, 2025	Apr. 14, 2026	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-FN	9561-F-N00412	N/A	Jun. 04, 2024	May 28, 2025	Jun. 03, 2025	Conduction (CO01-CA)
LISN Cable	HUBER+SUHNER	RG-214/U	LISN cable -01	N/A	Jun. 04, 2024	May 28, 2025	Jun. 03, 2025	Conduction (CO01-CA)
Test Software	R&S	EMC32 V10.30.0	N/A	N/A	N/A	May 28, 2025	N/A	Conduction (CO01-CA)

5. Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.9 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.5 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5 dB
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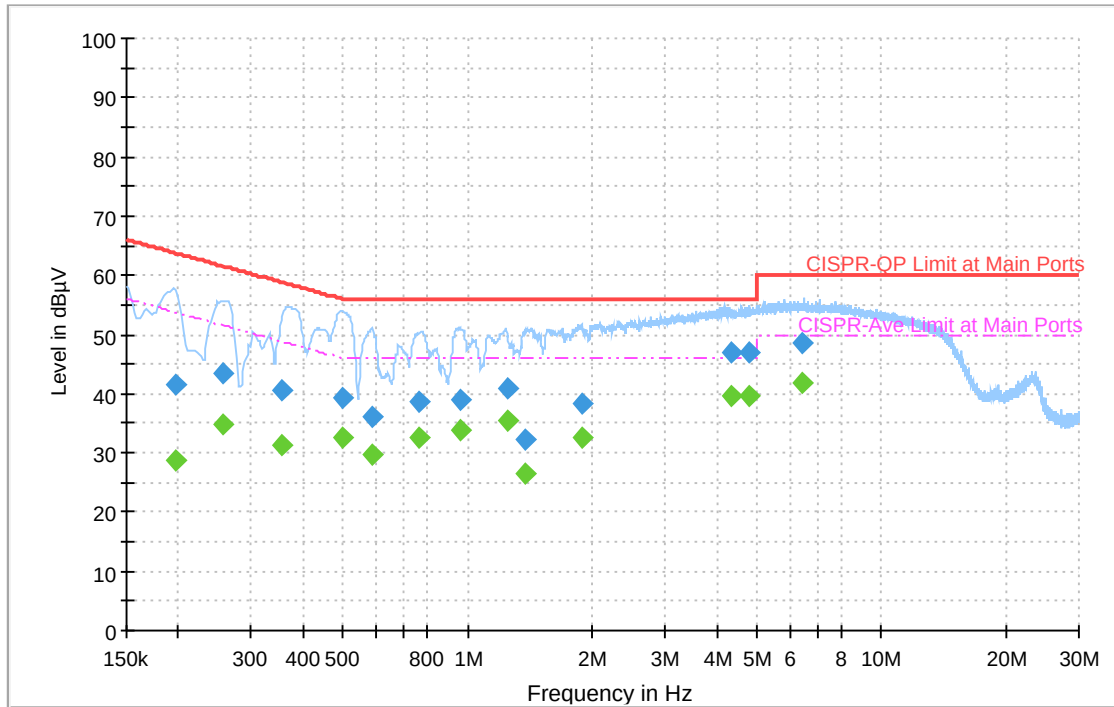
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Leo Liu	Temperature :	20.1 ~ 23.8℃
		Relative Humidity :	39.5 ~ 45.6%

EUT Information

Test Site Location : CO01-CA
 Project 250408001
 Power: 120Vac/60Hz
 Mode 1
 Line

Full Spectrum



Final Result

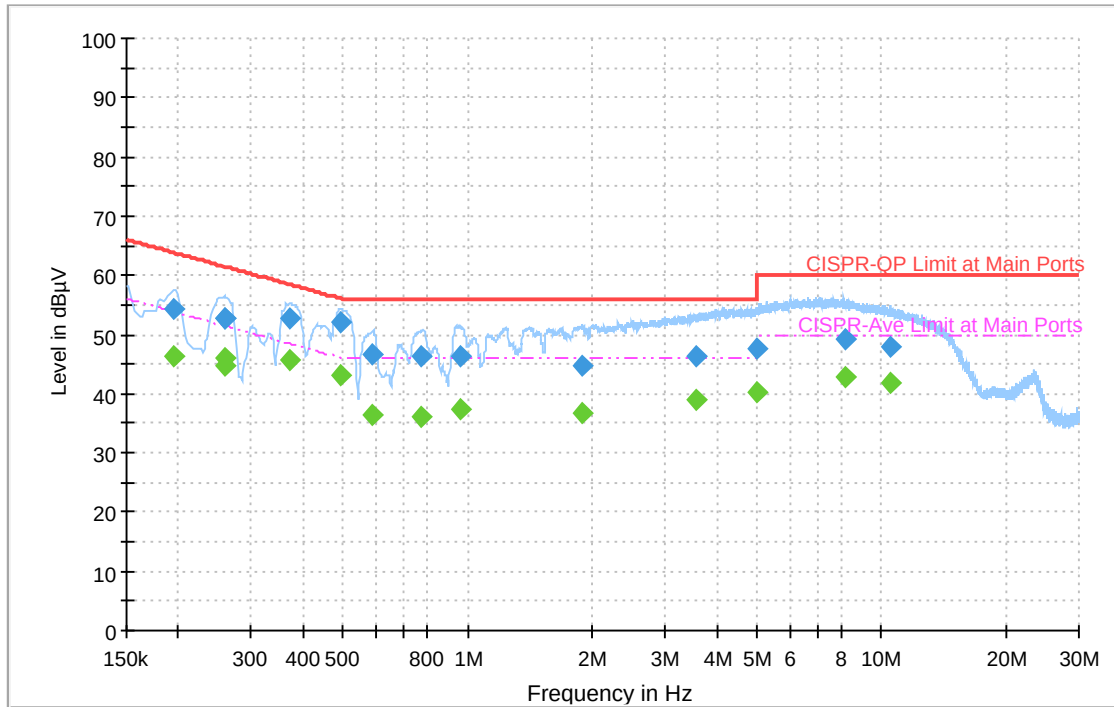
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.197862	---	28.66	53.70	25.04	L1	OFF	20.3
0.197862	41.62	---	63.70	22.08	L1	OFF	20.3
0.256128	---	34.68	51.56	16.88	L1	OFF	20.2
0.256128	43.49	---	61.56	18.07	L1	OFF	20.2
0.355191	---	31.23	48.84	17.61	L1	OFF	20.2
0.355191	40.52	---	58.84	18.32	L1	OFF	20.2
0.500271	---	32.46	46.00	13.54	L1	OFF	20.2
0.500271	39.23	---	56.00	16.77	L1	OFF	20.2
0.585015	---	29.80	46.00	16.20	L1	OFF	20.2
0.585015	36.12	---	56.00	19.88	L1	OFF	20.2
0.766707	---	32.57	46.00	13.43	L1	OFF	20.2
0.766707	38.61	---	56.00	17.39	L1	OFF	20.2
0.956301	---	33.82	46.00	12.18	L1	OFF	20.2
0.956301	38.95	---	56.00	17.05	L1	OFF	20.2
1.252320	---	35.59	46.00	10.41	L1	OFF	20.2
1.252320	40.82	---	56.00	15.18	L1	OFF	20.2
1.375800	---	26.38	46.00	19.62	L1	OFF	20.2
1.375800	32.17	---	56.00	23.83	L1	OFF	20.2
1.883265	---	32.56	46.00	13.44	L1	OFF	20.2
1.883265	38.35	---	56.00	17.65	L1	OFF	20.2

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
4.348347	---	39.76	46.00	6.24	L1	OFF	20.3
4.348347	46.90	---	56.00	9.10	L1	OFF	20.3
4.770213	---	39.74	46.00	6.26	L1	OFF	20.3
4.770213	46.88	---	56.00	9.12	L1	OFF	20.3
6.446193	---	41.71	50.00	8.29	L1	OFF	20.4
6.446193	48.44	---	60.00	11.56	L1	OFF	20.4

EUT Information

Test Site Location : CO01-CA
 Project : 250408001
 Power: 120Vac/60Hz
 Mode : 1
 Neutral

Full Spectrum



Final Result

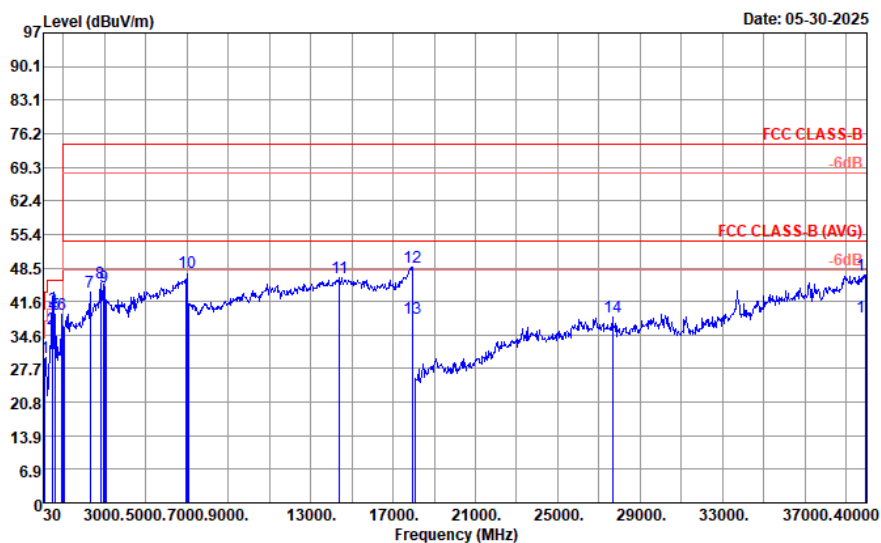
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.195297	---	46.31	53.81	7.50	N	OFF	20.3
0.195297	54.25	---	63.81	9.56	N	OFF	20.3
0.257676	---	45.98	51.51	5.53	N	OFF	20.3
0.257676	52.85	---	61.51	8.66	N	OFF	20.3
0.259467	---	44.75	51.45	6.70	N	OFF	20.3
0.259467	52.71	---	61.45	8.74	N	OFF	20.3
0.373173	---	45.78	48.43	2.65	N	OFF	20.3
0.373173	52.84	---	58.43	5.59	N	OFF	20.3
0.495744	---	43.09	46.07	2.98	N	OFF	20.2
0.495744	51.93	---	56.07	4.14	N	OFF	20.2
0.588642	---	36.28	46.00	9.72	N	OFF	20.2
0.588642	46.77	---	56.00	9.23	N	OFF	20.2
0.776004	---	36.09	46.00	9.91	N	OFF	20.2
0.776004	46.20	---	56.00	9.80	N	OFF	20.2
0.965499	---	37.24	46.00	8.76	N	OFF	20.2
0.965499	46.44	---	56.00	9.56	N	OFF	20.2
1.895037	---	36.71	46.00	9.29	N	OFF	20.3
1.895037	44.73	---	56.00	11.27	N	OFF	20.3
3.546141	---	39.05	46.00	6.95	N	OFF	20.3
3.546141	46.24	---	56.00	9.76	N	OFF	20.3

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
4.975953	---	40.31	46.00	5.69	N	OFF	20.3
4.975953	47.59	---	56.00	8.41	N	OFF	20.3
8.133648	---	42.92	50.00	7.08	N	OFF	20.4
8.133648	49.25	---	60.00	10.75	N	OFF	20.4
10.509099	---	41.91	50.00	8.09	N	OFF	20.5
10.509099	47.93	---	60.00	12.07	N	OFF	20.5

Appendix B. Radiated Emission Test Result

Test Engineer :	Leo Liu	Temperature :	19.8 ~ 24.6°C
		Relative Humidity :	38 ~ 46.6%
Test Distance :	3m (1GHz~18GHz) 1 m (18GHz~40GHz)	Polarization :	Horizontal

- Emission level (dBμV/m) = 20 log Emission level (μV/m)
- Distance extrapolation factor (for above 18GHz) = 20 log (test distance / specific distance) (dB)
- EX.: Distance extrapolation factor = 20 log (1/3) = -9.54 (dB)
- Factor(dB) = Antenna Factor + Cable Loss + Filter loss - Preamp Factor + Distance extrapolation factor
- Level = Read Level + Factor(dB)



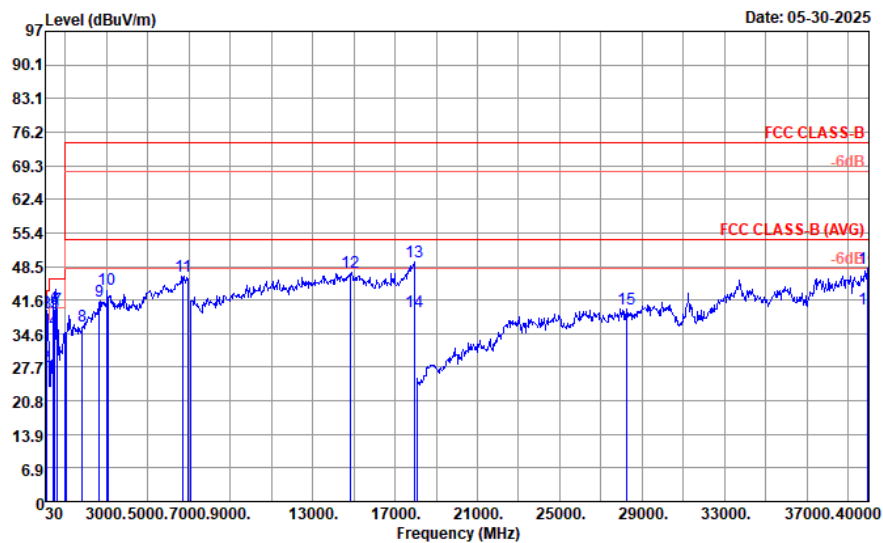
Site : 03CH01-CA
Condition : FCC CLASS-B 1m SHF_HORN_841_240807 HORIZONTAL
Project : 250408001
Power : 120Vac/60Hz
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	cm	deg	
1	125.06	29.97	-13.55	43.52	42.95	-12.98	---	---	Peak
2	468.44	35.94	-10.06	46.00	41.00	-5.06	103	16	QP
3	477.17	39.91	-6.09	46.00	44.89	-4.98	101	20	QP
4	492.69	38.87	-7.13	46.00	43.50	-4.63	111	15	QP
5	624.61	38.89	-7.11	46.00	40.98	-2.09	---	---	Peak
6	925.31	38.87	-7.13	46.00	35.04	3.83	---	---	Peak
7	2306.00	43.42	-30.58	74.00	74.76	-31.34	---	---	Peak
8	2800.00	45.31	-28.69	74.00	72.83	-27.52	---	---	Peak
9	2966.00	44.66	-29.34	74.00	71.30	-26.64	---	---	Peak
10	6996.00	47.48	-26.52	74.00	63.14	-15.66	---	---	Peak
11	14392.00	46.36	-27.64	74.00	52.61	-6.25	---	---	Peak
12	17934.00	48.61	-25.39	74.00	53.08	-4.47	---	---	Peak
13	17934.00	38.10	-15.90	54.00	42.57	-4.47	---	---	Average
14	27645.90	38.37	-35.63	74.00	34.03	4.34	---	---	Peak
15	39945.00	46.99	-27.01	74.00	32.65	14.34	---	---	Peak
16	39945.00	38.34	-15.66	54.00	24.00	14.34	---	---	Average



Test Engineer :	Leo Liu	Temperature :	19.8 ~ 24.6°C
		Relative Humidity :	38 ~ 46.6%
Test Distance :	3m (1GHz~18GHz)	Polarization :	Vertical
	1 m (18GHz~40GHz)		

- Emission level (dBμV/m) = 20 log Emission level (μV/m)
- Distance extrapolation factor (for above 18GHz) = 20 log (test distance / specific distance) (dB)
- EX.: Distance extrapolation factor = 20 log (1/3) = -9.54 (dB)
- Factor(dB) = Antenna Factor + Cable Loss + Filter loss - Preamp Factor + Distance extrapolation factor
- Level = Read Level + Factor(dB)



Site : 03CH01-CA
Condition : FCC CLASS-B 1m SHF_HORN_841_240807 VERTICAL
Project : 250408001
Power : 120Vac/60Hz
Mode : 1

	Freq	Level	Over	Limit	Read		A/Pos	T/Pos	
	MHz	dBuV/m	Limit	Line	Level	Factor			Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	cm	deg	
1	31.94	39.27	-0.73	40.00	46.51	-7.24	101	11	QP
2	40.67	27.94	-12.06	40.00	40.00	-12.06	100	15	QP
3	125.06	39.01	-4.51	43.52	51.99	-12.98	102	2	QP
4	439.34	35.33	-10.67	46.00	41.00	-5.67	103	0	QP
5	479.11	39.04	-6.96	46.00	44.01	-4.97	101	253	QP
6	492.69	39.68	-6.32	46.00	44.31	-4.63	---	---	Peak
7	624.61	39.72	-6.28	46.00	41.81	-2.09	---	---	Peak
8	1830.00	36.11	-37.89	74.00	71.10	-34.99	---	---	Peak
9	2644.00	41.35	-32.65	74.00	70.68	-29.33	---	---	Peak
10	2990.00	43.88	-30.12	74.00	70.33	-26.45	---	---	Peak
11	6720.00	46.49	-27.51	74.00	61.38	-14.89	---	---	Peak
12	14865.00	47.35	-26.65	74.00	54.15	-6.80	---	---	Peak
13	17945.00	49.38	-24.62	74.00	53.67	-4.29	---	---	Peak
14	17945.00	39.28	-14.72	54.00	43.57	-4.29	---	---	Average
15	28234.20	39.77	-34.23	74.00	32.46	7.31	---	---	Peak
16	39923.00	47.97	-26.03	74.00	31.26	16.71	---	---	Peak
17	39923.00	39.71	-14.29	54.00	23.00	16.71	---	---	Average