



# FCC EMI TEST REPORT

**FCC ID** : 2ABOF-G2BNF356900  
**Equipment** : G2 Base Node (BN)  
**Brand Name** : Tarana  
**Model Name** : G2BNF356900  
**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 A

The product was received on Mar. 20, 2025 and testing was performed from Apr. 22, 2025 to Apr. 22, 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.

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Approved by: Neil Kao

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



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## History of this test report



## 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/manufacturer 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
<b>General Specs</b>
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

<b>Test Site</b>	Sportun International (USA) Inc.
<b>Test Site Location</b>	1175 Montague Expressway Milpitas, CA 95035 TEL: 408 9043300
<b>Test Site No.</b>	<b>Sportun Site No.</b>
	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 A
- ♦ ANSI C63.4-2014

**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

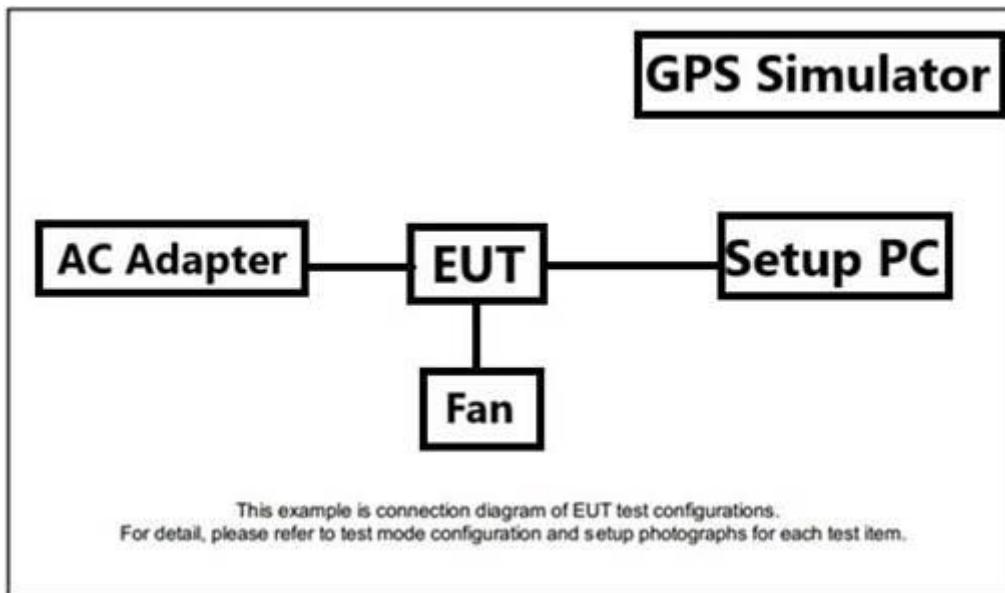
### 2.1. Test Mode

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 5<sup>th</sup> harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Functions Enabled
AC Conducted Emission	Mode 1: WLAN (5GHz) Idle + optical fiber Link + LAN Load (Data 3) + LAN Load ( MGMT ) + AC Adapter + FAN
Radiated Emissions	Mode 1: WLAN (5GHz) Idle + optical fiber Link + LAN Load (Data 3) + LAN Load ( MGMT ) + AC Adapter + GPS Rx Mode 2: WLAN (5GHz) Idle + optical fiber Link + LAN Load (Data 3) + LAN Load ( MGMT ) + AC Adapter + GPS Rx + FAN

**Remark:** The worst case of RE is mode 2; 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.	GPS Station	Spectracom	GSG-5	N/A	N/A	Unshielded, 1.8 m
2.	Desktop Computer THINKCENTRE	Lenovo	M93p	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Adapter	MEAN WELL	HLG-600H-54A	NA	NA	AC I/P : Unshielded, 1.8m

## 2.4. EUT Operation Test Setup

The EUT is attached to the WLAN AP, 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 A>

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

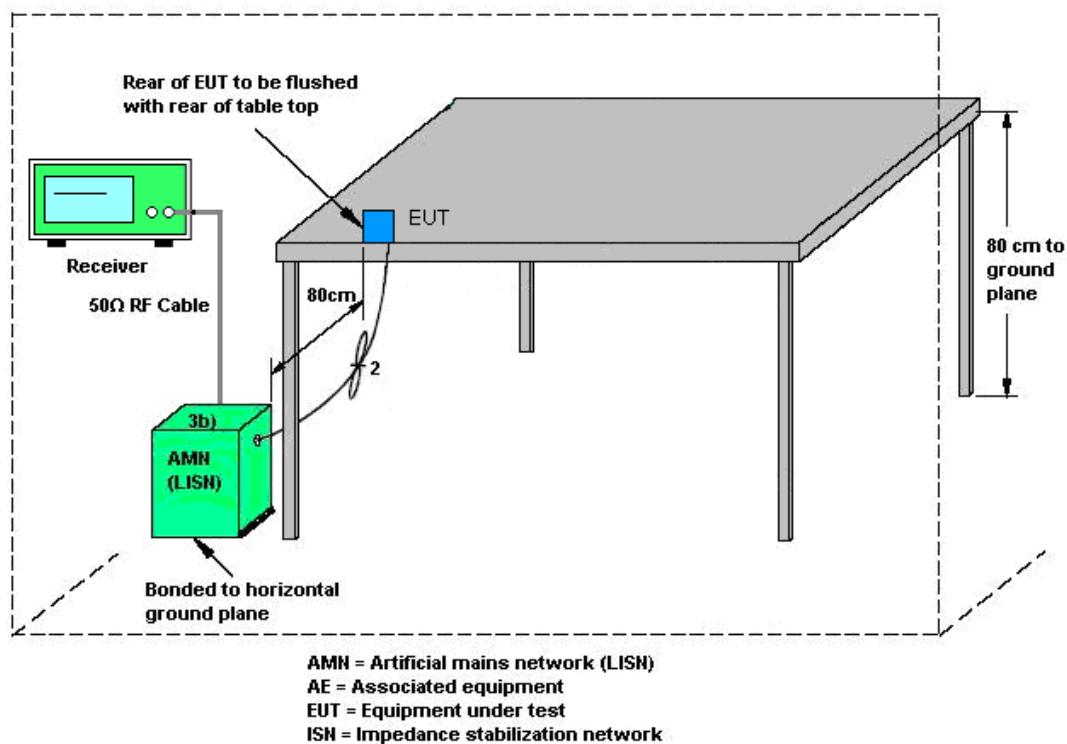
##### 3.1.2. Measuring Instruments

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 A>**

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	90	10
88 – 216	150	10
216 - 960	210	10
Above 960	300	10

Frequency (MHz)	Field Strength (dBuV/meter)	Measurement Distance (meters)
30 – 230	40	10
230 – 1000	47	10

Frequency (GHz)	Average (dBuV/meter)	Peak (dBuV/meter)
1 to 3	56	76
3 to 6	60	80

**Remark:** A disclaimer from test lab., based on the FCC Part 15.31(f)(1) standard applicability, the results which are consents by manufacturer, are extrapolated to the specified 10m distance using an extrapolation factor of 20 dB/decade, an Aux factor corrected for the test result tested at 3m distance, and which are declared by manufacturer, are not impacted by near field effect due to the characteristic of EUT, when measurement between frequency 30MHz to 1GHz.

### 3.2.2. Measuring Instruments

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

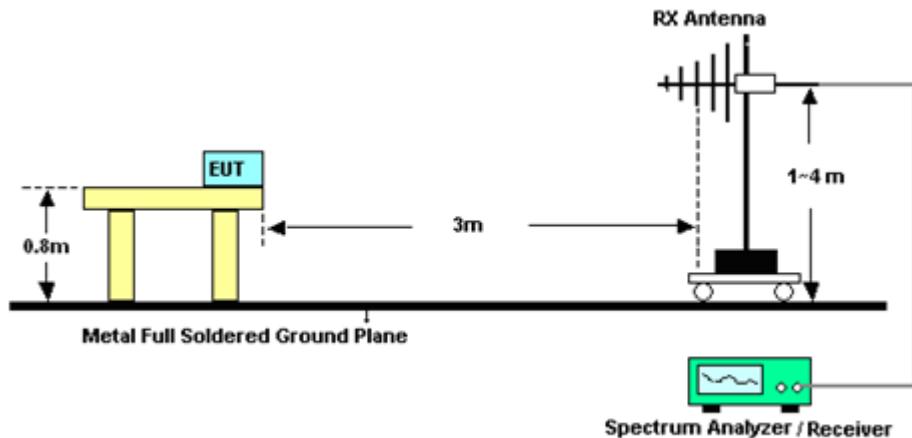


### 3.2.3. Test Procedures

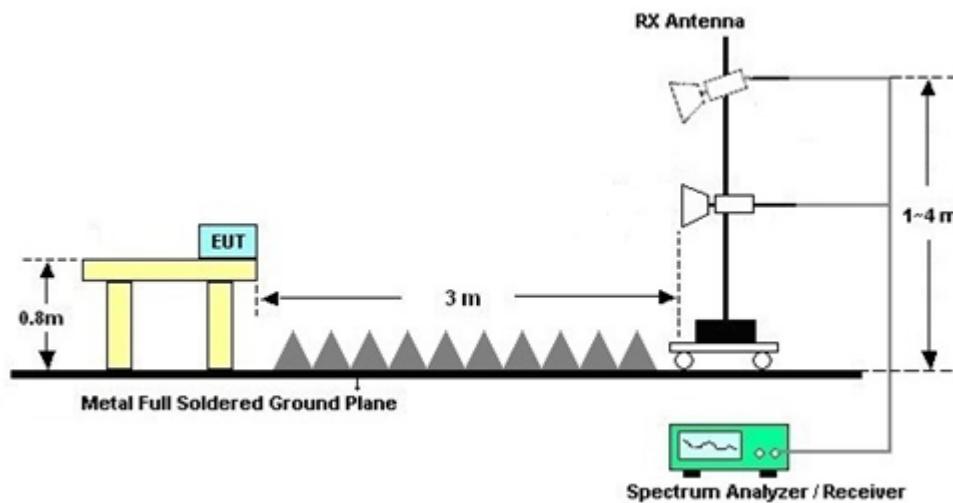
1. The EUT is placed on a turntable with 0.8 meter above ground.
2. The EUT is set 3 meters (30MHz~18GHz) and 1 meters (18GHz~40GHz) from the interference receiving antenna, which is mounted on the top of a variable height antenna tower.
3. The table is rotated 360 degrees to determine the position of 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

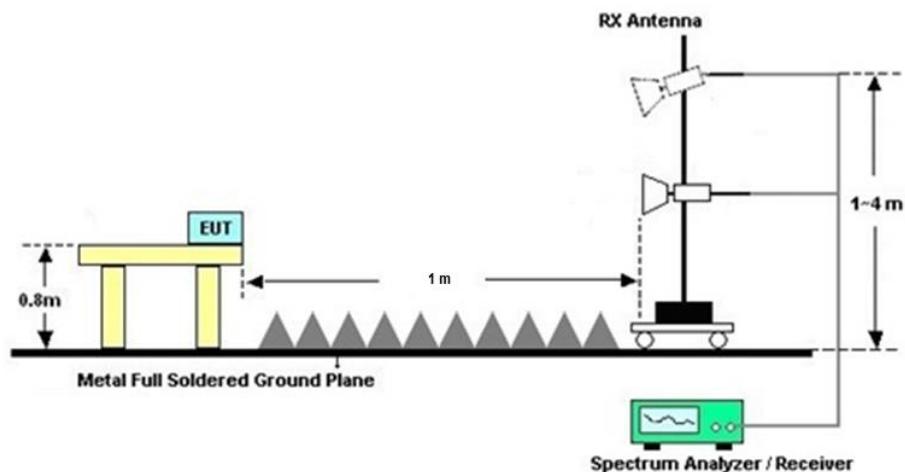
For Radiated Emissions from 30 MHz to 1 GHz



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
LISN	TESEQ	NNB51	47415	N/A	Aug. 14, 2024	Apr. 22, 2025	Aug. 13, 2025	Conduction (CO01-CA)
LISN	TESEQ	NNB51	47407	N/A	Apr 15, 2025	Apr. 22, 2025	Apr. 14, 2026	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9kHz~7GHz	Apr. 15, 2025	Apr. 22, 2025	Apr. 14, 2026	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-F N	9561-F-N00412	N/A	Jun. 04, 2024	Apr. 22, 2025	Jun. 03, 2025	Conduction (CO01-CA)
LISN Cable	HUBER+SUH NER	RG-214/U	LISN cable -01	N/A	Jun. 04, 2024	Apr. 22, 2025	Jun. 03, 2025	Conduction (CO01-CA)
Test Software	R&S	EMC32 V10.30.0	N/A	N/A	N/A	Apr. 22, 2025	N/A	Conduction (CO01-CA)
Bilog Antenna	TESEQ	6111D	54683	30MHz~1GHz	Nov.15, 2024	Apr.22,2025	Nov.14, 2025	Radiation (03CH01-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	02115	1GHz~18GHz	Aug. 06, 2024	Apr.22,2025	Aug. 05, 2025	Radiation (03CH01-CA)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00841	18GHz~40GHz	Aug. 07, 2024	Apr.22,2025	Aug. 06, 2025	Radiation (03CH01-CA)
Preamplifier	SONOMA	310N	372241	9kHz~1GHz	Apr. 24, 2024	Apr.22,2025	Apr. 23, 2025	Radiation (03CH01-CA)
Preamplifier	E-instrument	ERA-100M-18G -56-01-A70	EC1900252	1GHz~18GHz	Apr. 25, 2024	Apr.22,2025	Apr. 24, 2025	Radiation (03CH01-CA)
Preamplifier	EMEC	EMC18G40G	060725	18G-40G	Apr. 24, 2024	Apr.22,2025	Apr. 23, 2025	Radiation (03CH01-CA)
EMI Test Receiver	R&S	ESU26	100049	20Hz~26.5GHz	Apr. 25, 2024	Apr.22,2025	Apr. 24, 2025	Radiation (03CH01-CA)
Spectrum Analyzer	Keysight	N9010B	MY63440343	10Hz - 44GHz	Jan. 29, 2025	Apr.22,2025	Jan. 28, 2026	Radiation (03CH01-CA)
RF Cable	HUBER+SUH NER	SUCOFLEX 102	8015932/2,801 5762/2, 804938/2	NA	Mar. 04, 2025	Apr.22,2025	Mar. 03, 2026	Radiation (03CH01-CA)
Hygrometer	TESTO	608-H1	45142559	NA	Aug. 14, 2024	Apr.22,2025	Aug. 13, 2025	Radiation (03CH01-CA)
Controller	Chaintek	EM-1000	060881	Control Turn Table & Antenna Mast	N/A	Apr.22,2025	N/A	Radiation (03CH01-CA)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Apr.22,2025	N/A	Radiation (03CH01-CA)
Test Software	Audix E3	E6.2009-8-24d	PK-002093	N/A	N/A	Apr.22,2025	N/A	Radiation (03CH01-CA)



## 5. Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2U <sub>c</sub> (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 = 2U <sub>c</sub> (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 = 2U <sub>c</sub> (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 = 2U <sub>c</sub> (y))	4.5 dB
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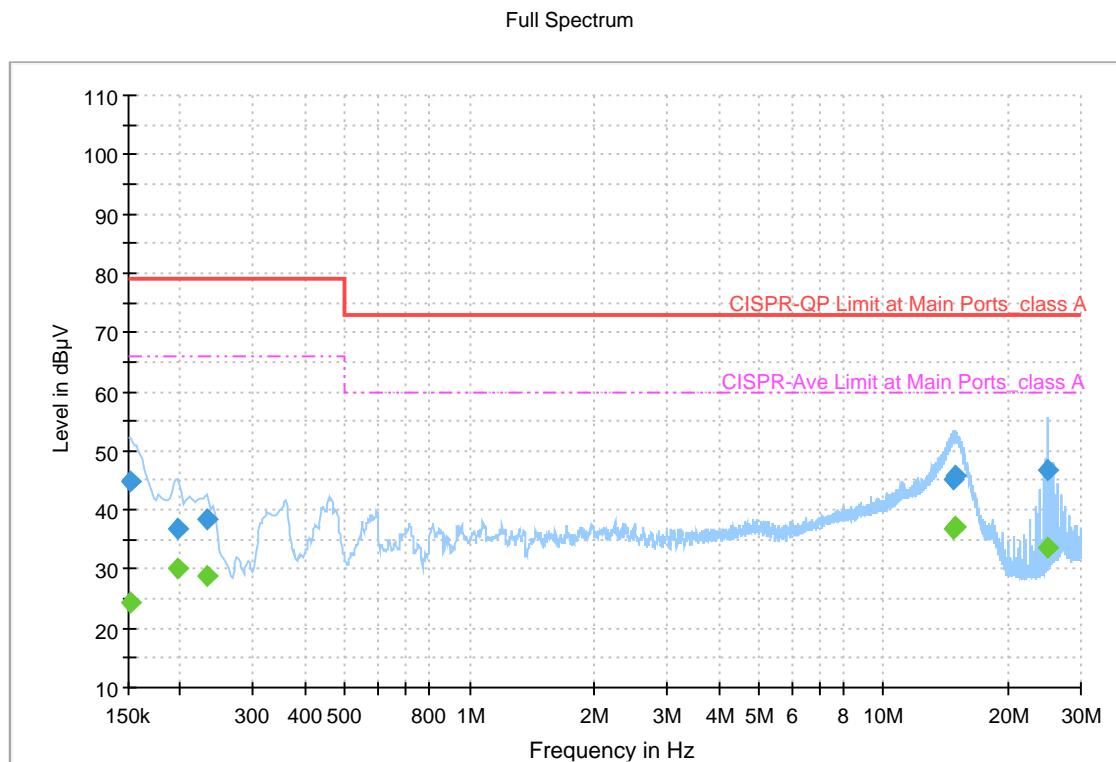


## Appendix A. AC Conducted Emission Test Results

<b>Test Engineer :</b>	Leo Liu	<b>Temperature :</b>	20.2~23.6°C
		<b>Relative Humidity :</b>	40.1~47.3%

## EUT Information

Test Site Location : CO01-CA  
 Project 250228001  
 Power: 120Vac/60Hz  
 Mode 1  
 Line

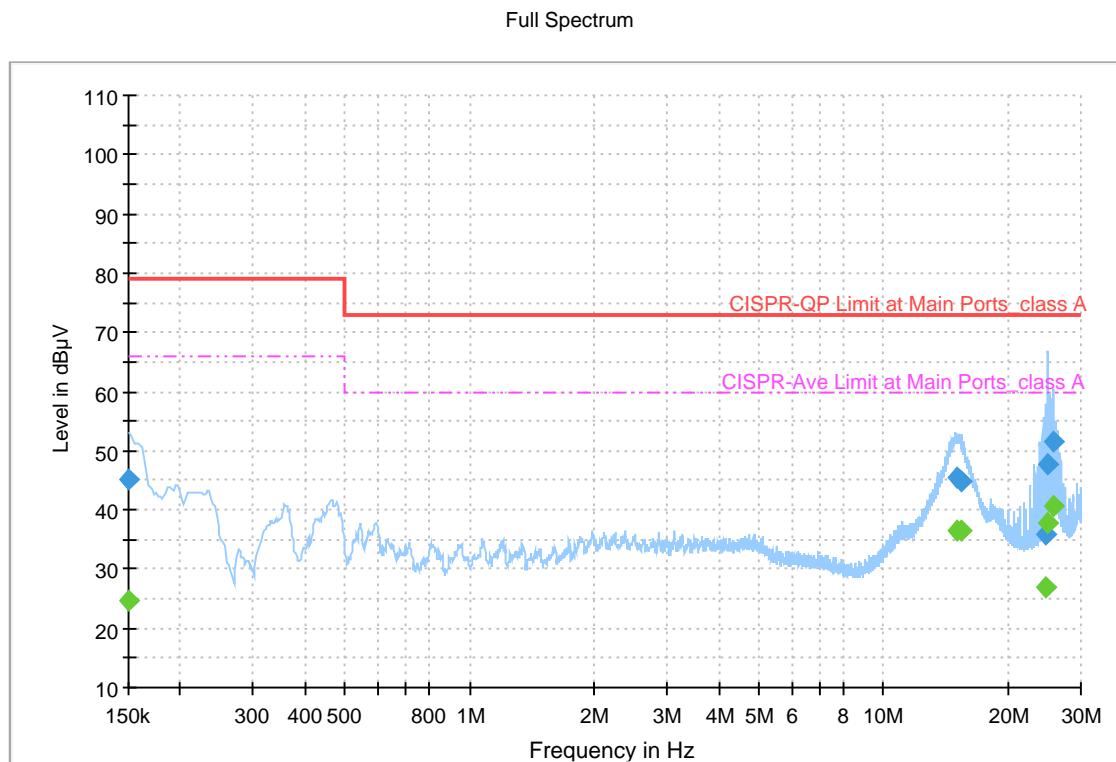


## Final Result

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	CAverage (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.152018	44.76	---	79.00	34.24	L1	OFF	20.3
0.152018	---	24.32	66.00	41.68	L1	OFF	20.3
0.196350	36.98	---	79.00	42.02	L1	OFF	20.3
0.196350	---	30.03	66.00	35.97	L1	OFF	20.3
0.232179	38.30	---	79.00	40.70	L1	OFF	20.2
0.232179	---	28.93	66.00	37.07	L1	OFF	20.2
14.772750	45.30	---	73.00	27.70	L1	OFF	20.6
14.772750	---	36.83	60.00	23.17	L1	OFF	20.6
14.922546	45.65	---	73.00	27.35	L1	OFF	20.6
14.922546	---	37.08	60.00	22.92	L1	OFF	20.6
25.000170	46.88	---	73.00	26.12	L1	OFF	21.0
25.000170	---	33.58	60.00	26.42	L1	OFF	21.0

## EUT Information

Test Site Location : CO01-CA  
 Project 250228001  
 Power: 120Vac/60Hz  
 Mode 1  
 Neutral



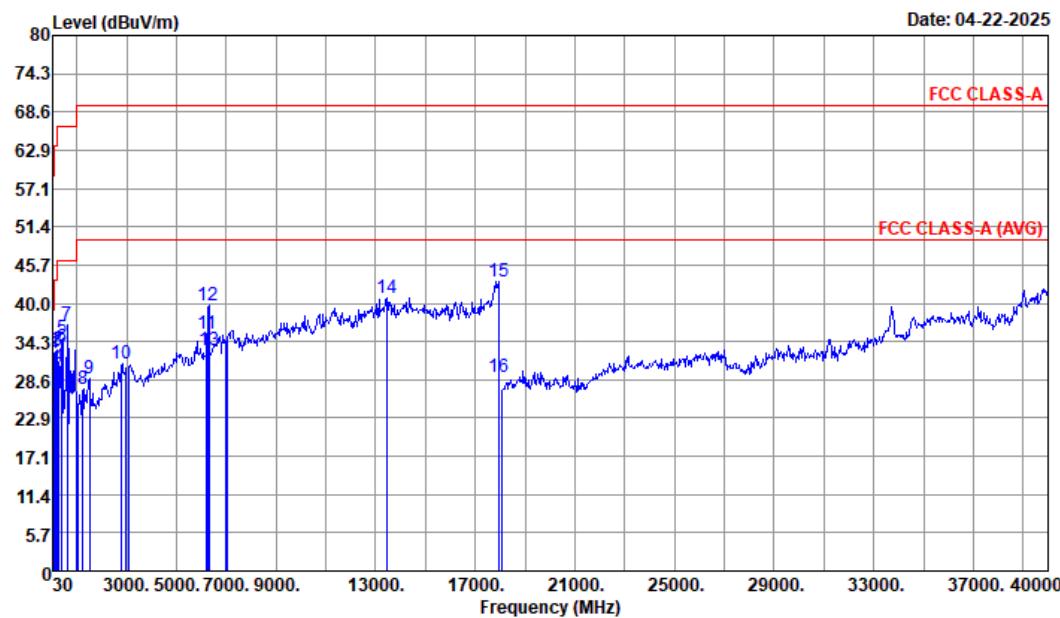
## Final Result

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	CAverage (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Line	Filter	Corr. (dB)
0.150725	45.13	---	79.00	33.87	N	OFF	20.3
0.150725	---	24.73	66.00	41.27	N	OFF	20.3
15.081990	45.53	---	73.00	27.47	N	OFF	20.7
15.081990	---	36.67	60.00	23.33	N	OFF	20.7
15.352458	44.78	---	73.00	28.22	N	OFF	20.7
15.352458	---	36.47	60.00	23.53	N	OFF	20.7
24.617877	35.83	---	73.00	37.17	N	OFF	21.0
24.617877	---	27.05	60.00	32.95	N	OFF	21.0
24.973017	47.75	---	73.00	25.25	N	OFF	21.0
24.973017	---	37.79	60.00	22.21	N	OFF	21.0
25.672254	51.41	---	73.00	21.59	N	OFF	21.1
25.672254	---	40.61	60.00	19.39	N	OFF	21.1



## Appendix B. Radiated Emission Test Result

Test Engineer :	Leo Liu	Temperature :	19.2~25.3°C
Test Distance :	3m (30MHz~18GHz) 1m (18GHz~40GHz)	Relative Humidity :	39~45%
■ Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m) ■ Factor(dB) = Antenna Factor + Cable Loss + Filter loss – Preamp Factor ■ Distance extrapolation factor = 20 log (specific distance / test distance) (dB) =10.45			



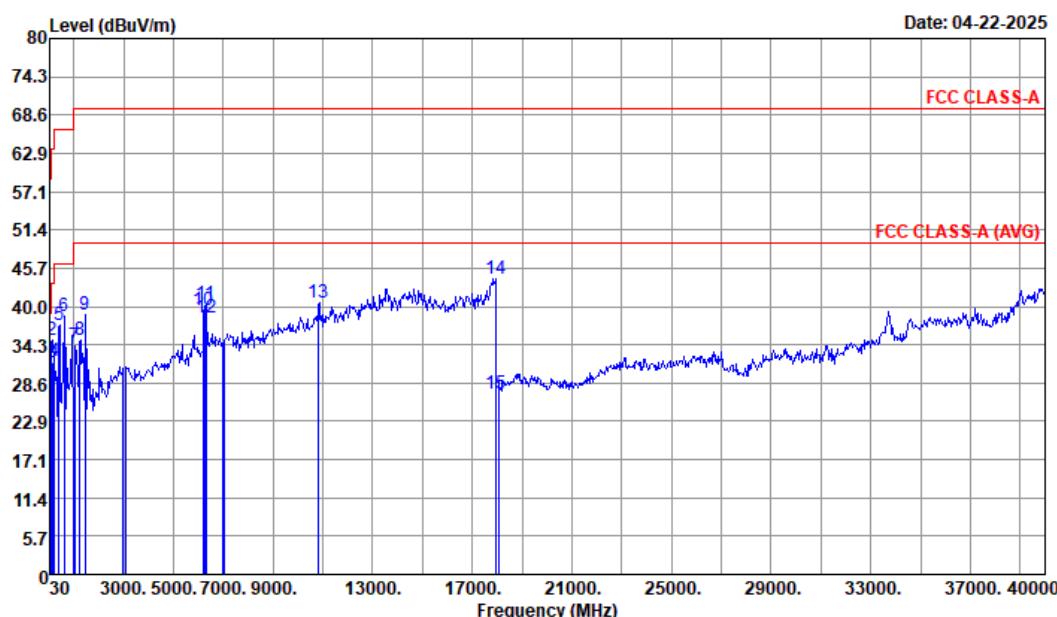
Site : 03CH01-CA  
 Condition : FCC CLASS-A 1m SHF\_HORN\_841\_240807 HORIZONTAL  
 Project : 250228001  
 Power : 120Vac/60Hz  
 Mode : 2

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	108.57	32.53	-10.99	43.52	56.43	17.12	1.72	32.40	---	--- Peak
2	138.64	32.81	-10.71	43.52	56.03	17.51	2.03	32.41	---	--- Peak
3	210.42	32.91	-10.61	43.52	58.05	15.20	2.45	32.45	---	--- Peak
4	281.23	30.48	-15.96	46.44	51.41	19.02	2.86	32.50	---	--- Peak
5	403.45	34.87	-11.57	46.44	52.23	22.18	3.44	32.66	---	--- Peak
6	411.21	33.32	-13.12	46.44	50.32	22.50	3.47	32.67	---	--- Peak
7	624.61	36.68	-9.76	46.44	49.53	26.05	4.29	32.92	---	--- Peak
8	1250.00	27.13	-42.41	69.54	74.73	26.15	5.98	69.28	---	--- Peak
9	1500.00	28.69	-40.85	69.54	75.43	25.55	6.57	68.41	---	--- Peak
10	2808.00	30.89	-38.65	69.54	69.46	28.50	10.66	67.28	---	--- Peak
11	6204.00	35.42	-34.12	69.54	63.46	34.25	12.85	64.69	---	--- Peak
12	6284.00	39.57	-29.97	69.54	67.39	34.44	12.96	64.77	---	--- Peak
13	6312.00	32.99	-36.55	69.54	60.88	34.51	13.00	64.95	---	--- Peak
14	13446.00	40.77	-28.77	69.54	59.29	40.13	18.93	67.36	---	--- Peak
15	17945.00	43.31	-26.23	69.54	59.50	42.48	21.90	70.42	---	--- Peak
16	17945.00	29.05	-20.49	49.54	45.24	42.48	21.90	70.42	---	--- Average



<b>Test Engineer :</b>	Leo Liu	<b>Temperature :</b>	19.2~25.3°C
<b>Test Distance :</b>	3m (30MHz~18GHz) 1m (18GHz~40GHz)	<b>Relative Humidity :</b>	39~45%
<b>Polarization :</b>	Vertical		

- Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
- Factor(dB) = Antenna Factor + Cable Loss + Filter loss – Preamp Factor
- Distance extrapolation factor = 20 log (specific distance / test distance) (dB) =10.45



Site : 03CH01-CA  
 Condition : FCC CLASS-A 1m SHF\_HORN\_841\_240807 VERTICAL  
 Project : 250228001  
 Power : 120Vac/60Hz  
 Mode : 2

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	A/Pos	T/Pos	Remark
		MHz	dB $\mu$ V/m	dB	dB $\mu$ V/m	dB $\mu$ V	dB/m	dB	dB	
1	69.77	28.90	-10.18	39.08	58.00	12.32	1.41	32.42	101	359 QP
2	115.36	34.99	-8.53	43.52	58.57	17.44	1.77	32.41	---	--- Peak
3	135.73	31.71	-11.81	43.52	54.99	17.49	2.00	32.41	---	--- Peak
4	210.42	31.76	-11.76	43.52	56.90	15.20	2.45	32.45	---	--- Peak
5	403.45	37.16	-9.28	46.44	54.52	22.18	3.44	32.66	---	--- Peak
6	624.61	38.54	-7.90	46.44	51.39	26.05	4.29	32.92	---	--- Peak
7	1040.00	34.11	-35.43	69.54	82.77	25.24	5.48	68.93	---	--- Peak
8	1240.00	35.09	-34.45	69.54	82.67	26.21	5.95	69.29	---	--- Peak
9	1450.00	38.87	-30.67	69.54	85.49	25.65	6.45	68.27	---	--- Peak
10	6204.00	39.43	-30.11	69.54	67.47	34.25	12.85	64.69	---	--- Peak
11	6284.00	40.26	-29.28	69.54	68.08	34.44	12.96	64.77	---	--- Peak
12	6324.00	38.41	-31.13	69.54	66.40	34.55	13.01	65.10	---	--- Peak
13	10828.00	40.46	-29.08	69.54	62.54	39.50	17.03	68.51	---	--- Peak
14	17923.00	44.18	-25.36	69.54	60.42	42.34	21.89	70.32	---	--- Peak
15	17923.00	27.01	-22.53	49.54	43.25	42.34	21.89	70.32	---	--- Average