FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

SD1700P USB-C Dual 4K Portable Dock w/ Qi Charging

Model: M01539

Trade Name: Kensington

Issued to

ACCO Brands, Inc.
4 Corporate Drive, Lake Zurich, IL 60047, United States

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)
Issued Date: September 15, 2022

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 17, 2022	Initial Issue	ALL	Allison Chen
01	August 23, 2022	See the following Note Rev.(01)	P.9, 13, 41	Allison Chen
02	August 26, 2022	See the following Note Rev.(02)	P.6	Doris Chu
03	September 7, 2022	See the following Note Rev.(03)	ALL	Allison Chen
04	September 15, 2022	See the following Note Rev.(04)	P.18-37	Allison Chen

Note:

Rev.(01)

1. Modify conduction description of test modes in section 4.5.
2. Modify test procedure and test results in section 7.1
3. Modify antenna information in section 7.4.

Rev.(02)

1. Added remark in section 3.

Rev.(03)

1. Modify radiated emission test data and conduction data in section 7.2, 7.3.
2. Modify report format and test setup photo.

Rev.(04)

1. Modify description of remark in section 7.2.

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION

Applicant:	ACCO Brands, Inc. 4 Corporate Drive, Lake Zurich, IL 60047, United States
Manufacturer:	ACCO Brands, Inc. 4 Corporate Drive, Lake Zurich, IL 60047, United States
Equipment Under Test:	SD1700P USB-C Dual 4K Portable Dock w/ Qi Charging
Trade Name:	Kensington
Model:	M01539
Date of Test:	July 8 ~ September 6, 2022

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15.209	Compliance
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

We hereby certify that:

All test results conform to above mentioned standards.

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part15.203, Part15.207, Part15.209. Part15.215.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by:

Shawn Wu
Supervisor
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	SD1700P USB-C Dual 4K Portable Dock w/ Qi Charging
Trade Name	Kensington
Model Number	M01539
Model Discrepancy	N/A
Received Date	June 30, 2022
Power Supply	Power from Adapter. EDAC / EA11037C I/P: 100-240Vac, 2.5A, 50-60Hz O.P: 5Vdc, 3.0A, 15.0W or 9.0Vdc, 3.0A, 27.0W or 12Vdc, 3.0A, 36.0W or 15.0Vdc, 3.0A, 45.0W or 20.0Vdc, 5.0A, 100.0W
Frequency Band	112 ~ 145 kHz
Antenna Designation	Coil Antenna

Remark:
1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

3. TEST SUMMARY

Standard Sec.	Chapter	Test Item	Result
15.215	7.1	20dB Bandwidth	Pass
15.209	7.2	Transmitter Radiated Emission	Pass
15.207	7.3	AC Power-line Conducted Emission	Pass
15.203	7.4	Antenna Requirement	Pass

Remark: Permanent coil antenna and an unique coupler to intentional radiator, meet the 15.203 requirement

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 , ANSI C63.4 2014 and FCC CFR 47 Part 15.203, 15.207.15.209,15.215.

4.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.207.15.209, 15.215 under the FCC Rules Part 15 Subpart C and ANSI C63.10: 2013.

4.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in ANSI C63.10: 2013, Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz was using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. The EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.10: 2013.

4.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in other rules, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided by other rules, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4.5 DESCRIPTION OF TEST MODES

The EUT (model: M01539) had been tested under operating condition.

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Adapter**
Worst Mode	**☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

AC Power Line Conducted Emission	
Test Condition	**AC Power line conducted emission for line and neutral**
Power supply Mode	**Mode 1: EUT power by Adapter (5W)** **Mode 2: EUT power by Adapter (7W)** **Mode 3: EUT power by Adapter (9W)** **Mode 4: EUT power by Adapter (10W)**
Worst Mode	**☐ Mode 1 ☒ Mode 2 ☐ Mode 3 ☐ Mode 4**

Remark:
1. The worst mode was record in this test report.
2. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

5. INSTRUMENT CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Loop Probe	LANGER EMV-TECHNIK	RF-R 50-1	02-2644	01/24/2022	01/23/2023
Software	N/A				

AC Power Line Conducted Test Room					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
CABLE	EMCI	CFD300-NL	CERF	06/27/2022	06/26/2023
EMI Test Receiver	R&S	ESCI	100064	06/17/2022	06/16/2023
LISN	SCHAFFNER	NNB 41	03/10013	02/15/2022	02/14/2023
Software	EZ-EMC(CCS-3A1-CE-wugu)				

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Bilog Antenna	Sunol Sciences	JB1	A052609	02/15/2022	02/14/2023
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
Loop Ant	COM-POWER	AL-130	121051	04/13/2022	04/12/2023
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

Remark:
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.1183
Radiated Emission_9kHz-30MHz	± 3.814
Radiated Emission_30MHz-200MHz	± 4.272
Radiated Emission_200MHz-1GHz	± 4.619
Radiated Emission_1GHz-6GHz	± 5.522
Radiated Emission_6GHz-18GHz	± 5.228
Radiated Emission_18GHz-26GHz	± 4.089
Radiated Emission_26GHz-40GHz	± 4.019
Channel Bandwidth	± 1.8006

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

5.4 Facilities and Test location

All measurement facilities used to collect the measurement data are located at No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)
CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	Tony Chao	-
Radiation	Ray Li, Tony Chao	-
Conducted	David Li	-

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
	N/A				

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use.

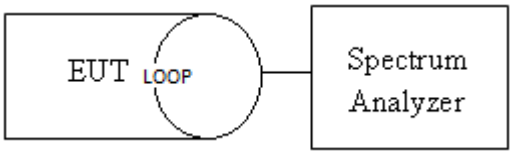
7. TEST REQUIREMENTS

7.1 20dB BANDWIDTH

Definition

According to FCC Part 15.215 (c) ,Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Configuration



TEST PROCEDURE

The Loop antenna connected to the spectrum analyzer, was touching to the transmitter antenna. Set the RBW=1kHz, VBW=3kHz, Detector = Peak, Trace mode = Max hold, Sweep = 500ms.Measure the maximum width of the emission that is constrained by the frequencies associated with the Occupied Bandwidth.

TEST RESULTS

Compliance

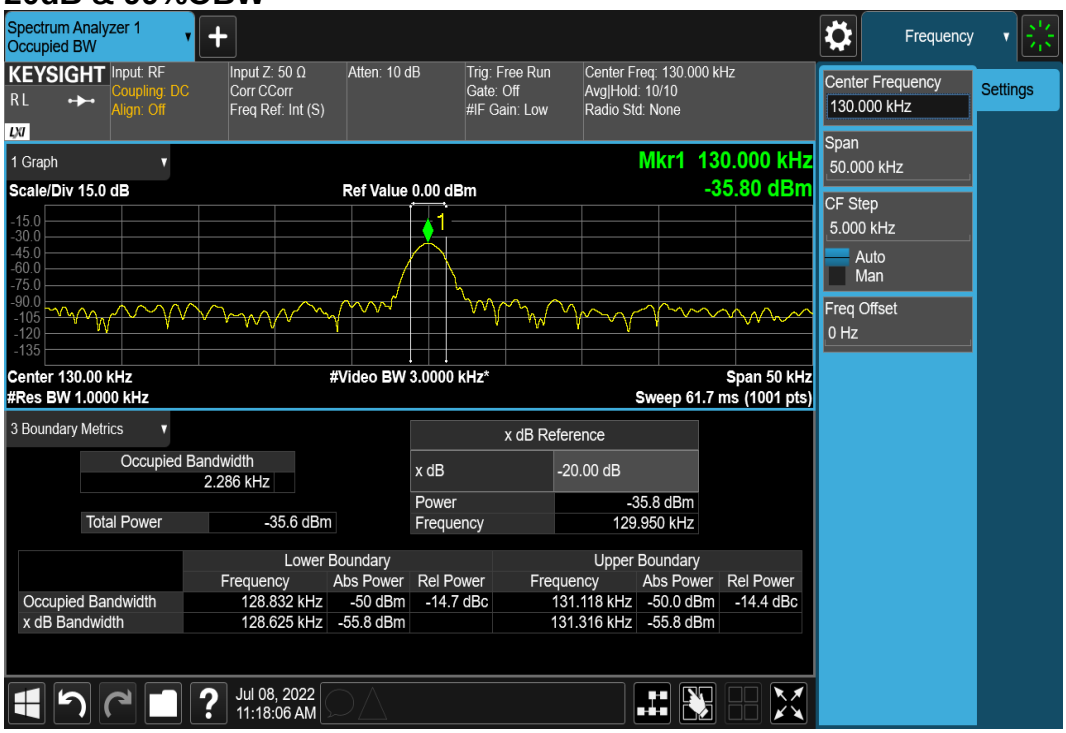
Temperature: 25.1℃ **Test Date:** July 8, 2022

Humidity: 55% RH **Tested by:** David Li

Occupied Channel Bandwidth Result						
Modulation Mode	Frequency (F_C)	99% Bandwidth (kHz)	F_{SL} (kHz)	F_L BW (kHz)	F_H at 20dB BW (kHz)	F_{SH} at 20dB BW (kHz)
Full charging loading	130	128.832	128.625	131.118	131.316	128.832
Limit		N/A	N/A	N/A	N/A	N/A
Result		Complied				

Test Data

20dB & 99%OBW



7.2 TRANSMITTER RADIATED EMISSION

LIMIT

1. According to FCC PART 15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

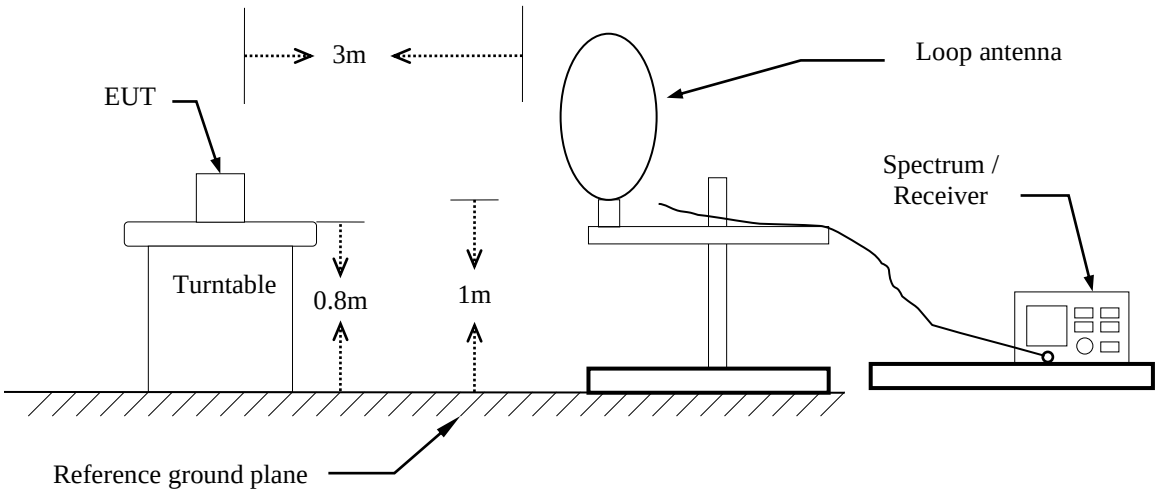
Remark: Except as provided in other rules, fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

Above 30MHz

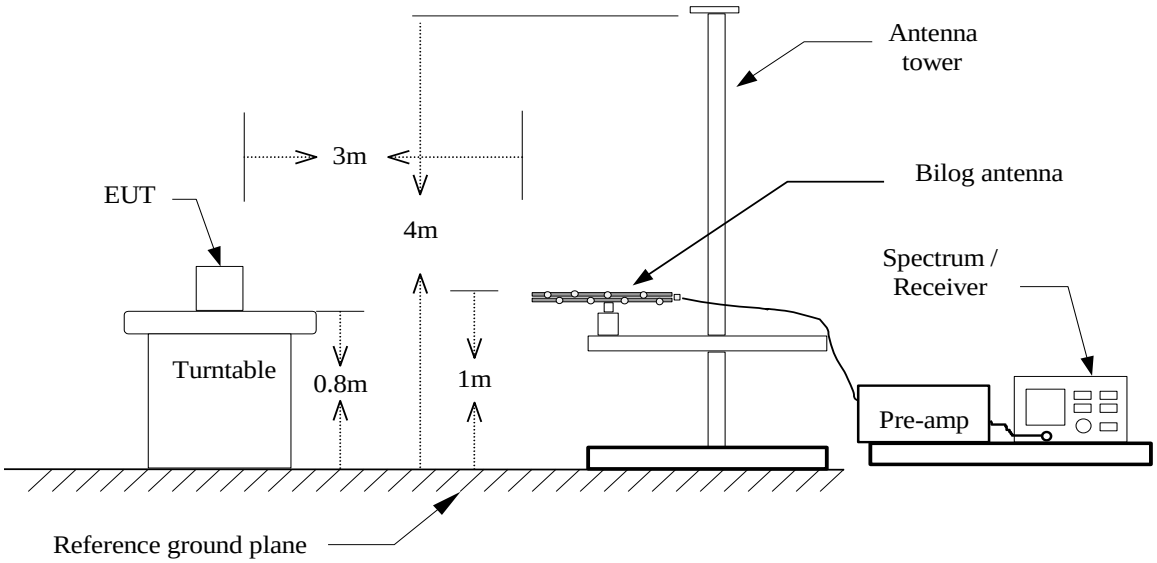
Frequency (MHz)	Field Strength		Measurement Distance (meter)
	(μV/m)	(dBμV/m)	
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Test Configuration

9kHz ~ 30MHz



30MHz ~ 1GHz



TEST PROCEDURE

For 9KHz ~ 30MHz

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
   Below 1GHz:
   RBW=200kHz / VBW=600kHz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.
8. Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

For 30MHz ~ 1GHz

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
   RBW=100kHz / VBW=300kHz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

Main

Operation Mode: Qi **Test Mode:** 5W

Temperature: 24.2℃ **Test Date:** September 5, 2022

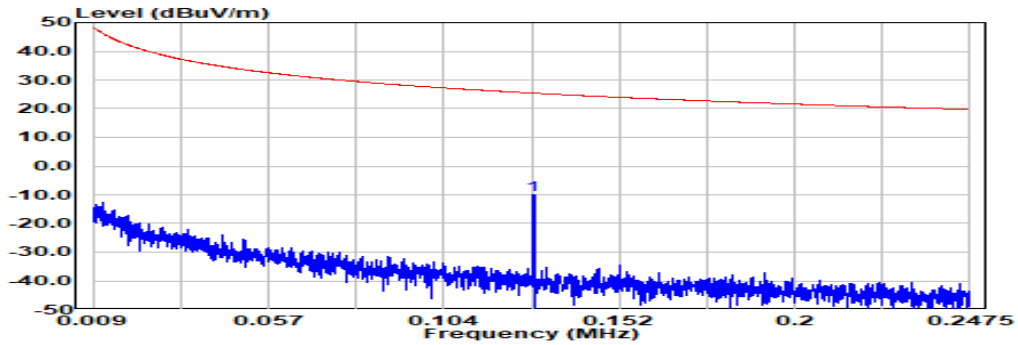
Humidity: 61% RH **Tested by:** Ray Li

Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (V/H/G)
0.13	Peak	56.91	-66.94	-10.03	25.40	-35.43	V
0.13	Peak	58.72	-66.94	-8.22	25.41	-33.62	H
0.13	Peak	57.74	-66.94	-9.20	25.40	-34.60	G

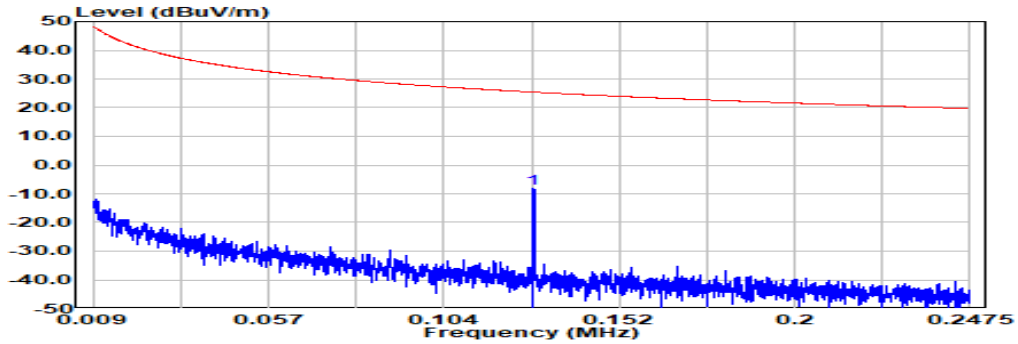
Remark:

1. Factor = Antenna factor + Cable loss – Distance conversion factor

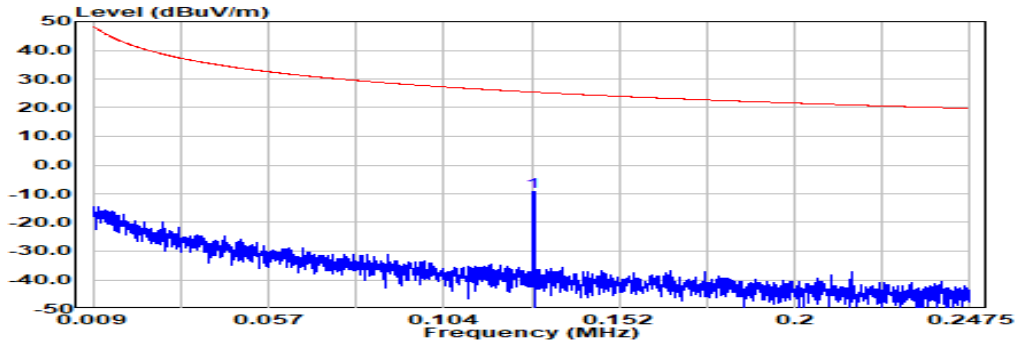
Vertical



Horizontal



Ground

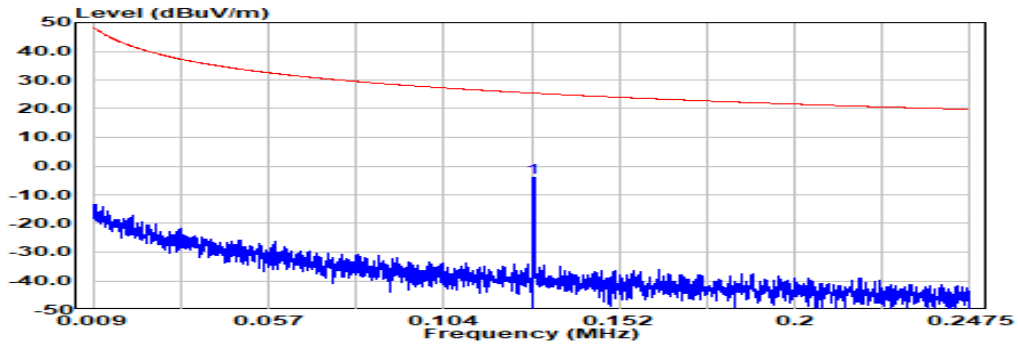


Operation Mode: Qi **Test Mode:** 7W
Temperature: 24.2℃ **Test Date:** September 5, 2022
Humidity: 61% RH **Tested by:** Ray Li

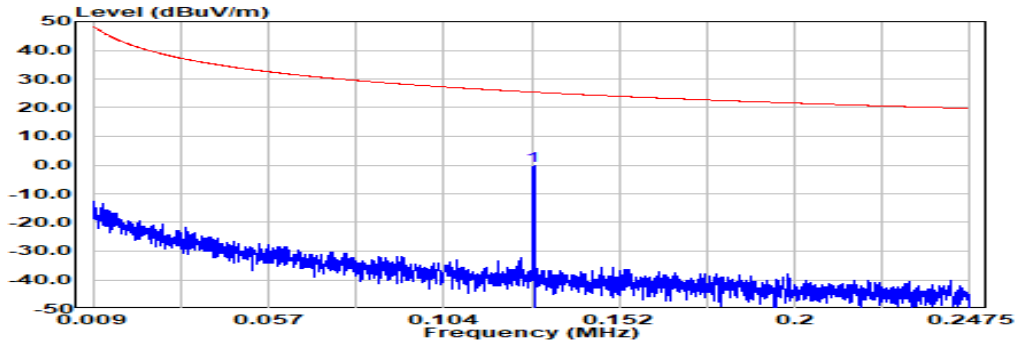
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (V/H/G)
0.13	Peak	62.90	-66.94	-4.04	25.41	-29.45	V
0.13	Peak	66.93	-66.94	-0.01	25.40	-25.41	H
0.13	Peak	61.31	-66.94	-5.63	25.40	-31.03	G

Remark:
1. Factor = Antenna factor + Cable loss – Distance conversion factor

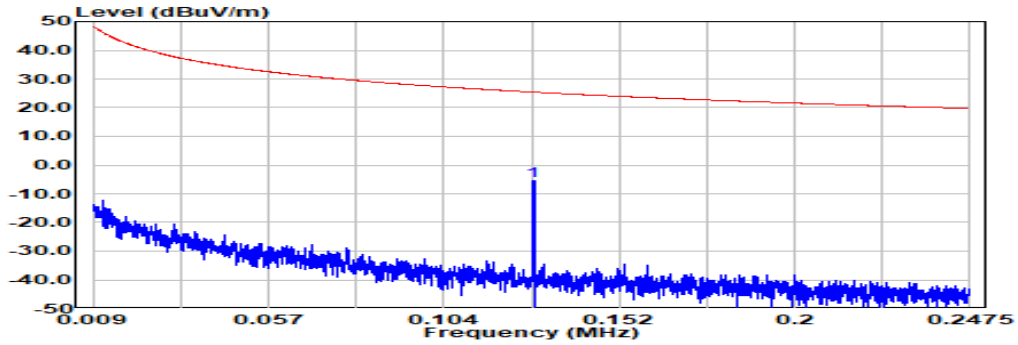
Vertical



Horizontal



Ground

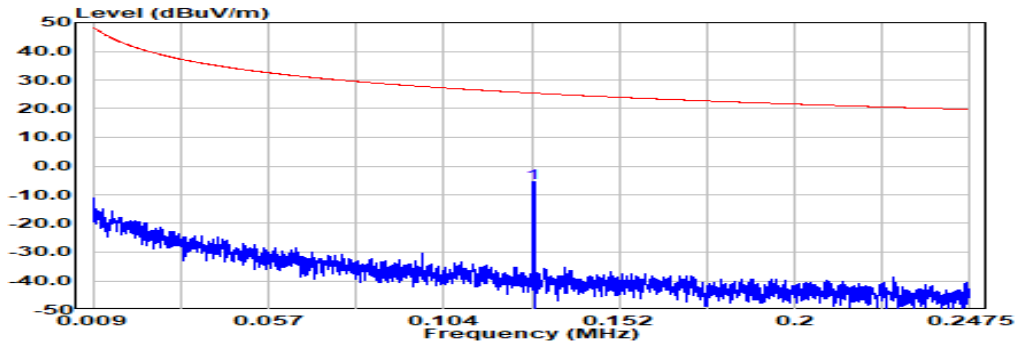


Operation Mode: Qi **Test Mode:** 9W
Temperature: 24.2℃ **Test Date:** September 5, 2022
Humidity: 61% RH **Tested by:** Ray Li

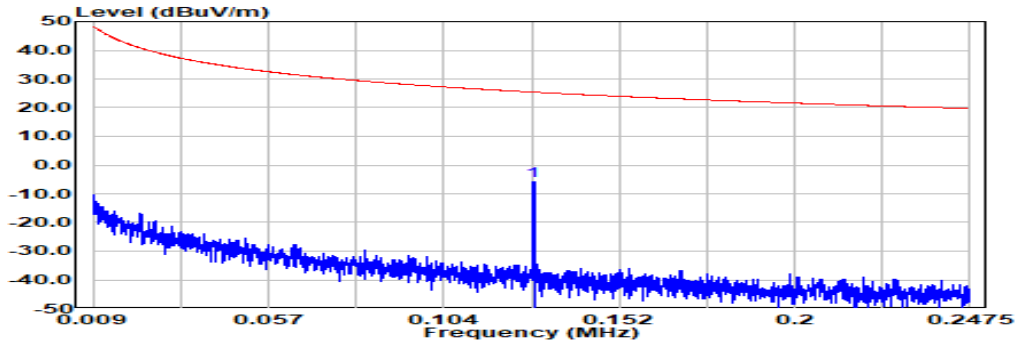
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (V/H/G)
0.13	Peak	61.11	-66.94	-5.83	25.40	-31.23	V
0.13	Peak	61.31	-66.94	-5.63	25.40	-31.03	H
0.13	Peak	59.50	-66.94	-7.44	25.40	-32.84	G

Remark:
1. Factor = Antenna factor + Cable loss – Distance conversion factor

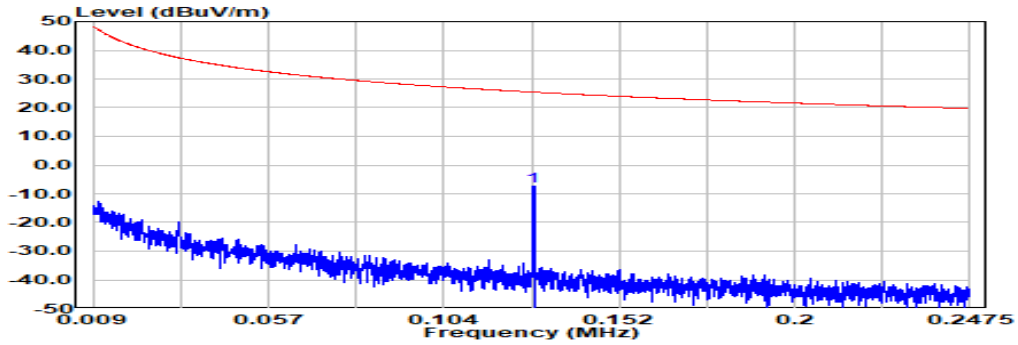
Vertical



Horizontal



Ground

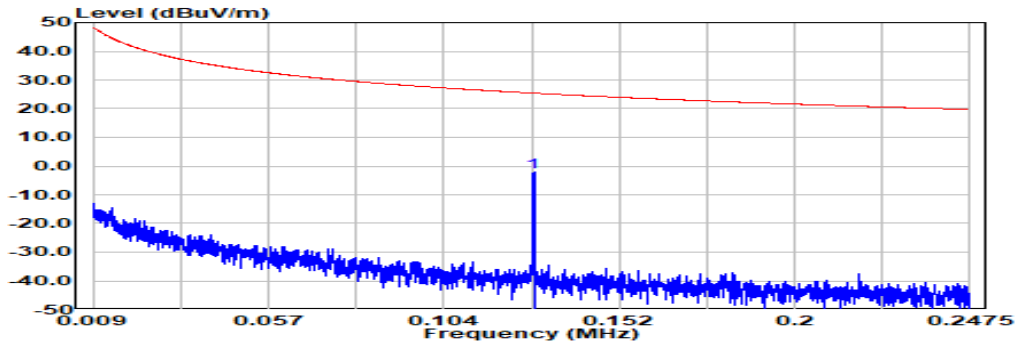


Operation Mode: Qi **Test Mode:** 10W
Temperature: 24.2℃ **Test Date:** September 5, 2022
Humidity: 61% RH **Tested by:** Ray Li

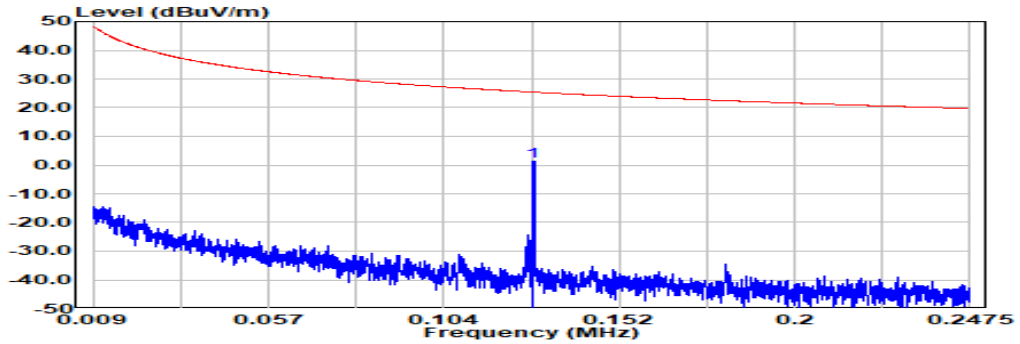
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Antenna Pol. (V/H/G)
0.13	Peak	64.89	-66.94	-2.05	25.40	-27.45	V
0.13	Peak	68.13	-66.94	1.19	25.41	-24.21	H
0.13	Peak	58.91	-66.94	-8.03	25.40	-33.43	G

Remark:
1. Factor = Antenna factor + Cable loss – Distance conversion factor

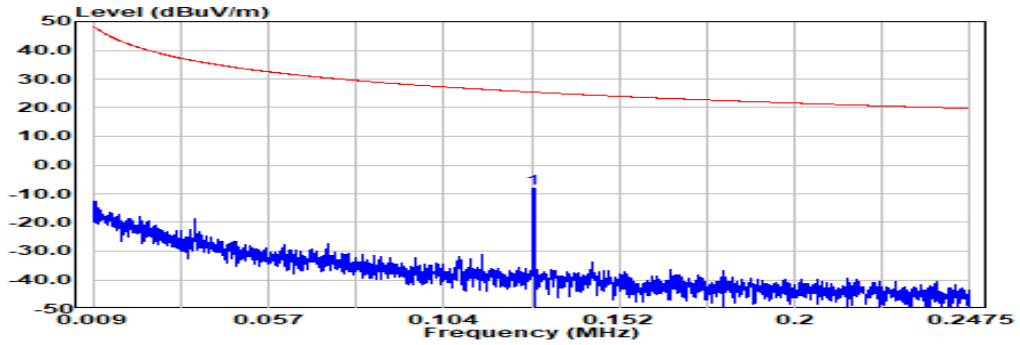
Vertical



Horizontal

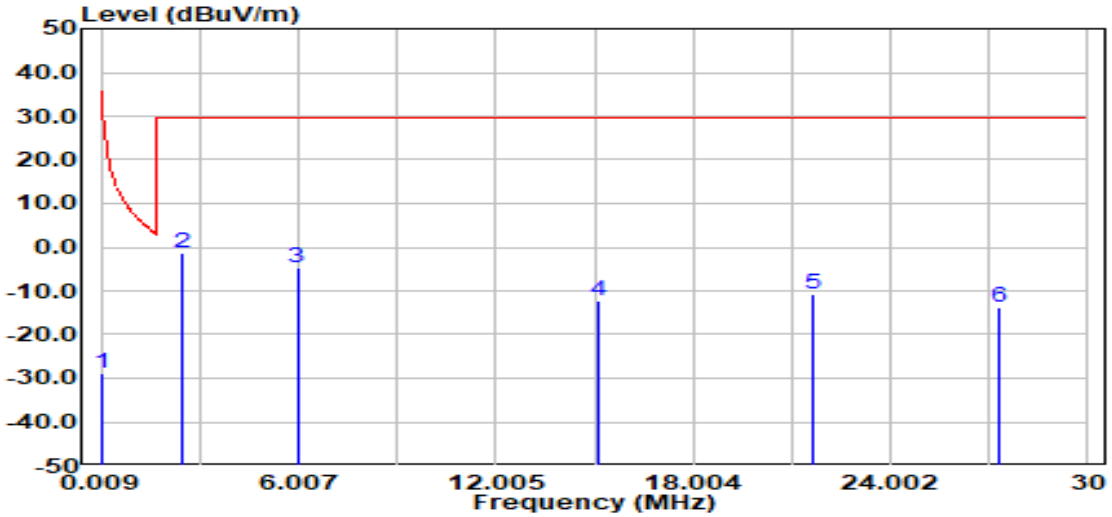


Ground



9 kHz – 30MHz

Operation Mode:	Charge mode	**Antenna Pol.:**	Horizontal
Temperature:	24.2℃	**Test Date:**	September 5, 2022
Humidity:	61% RH	**Tested by:**	Ray Li
Test Mode:	5W		

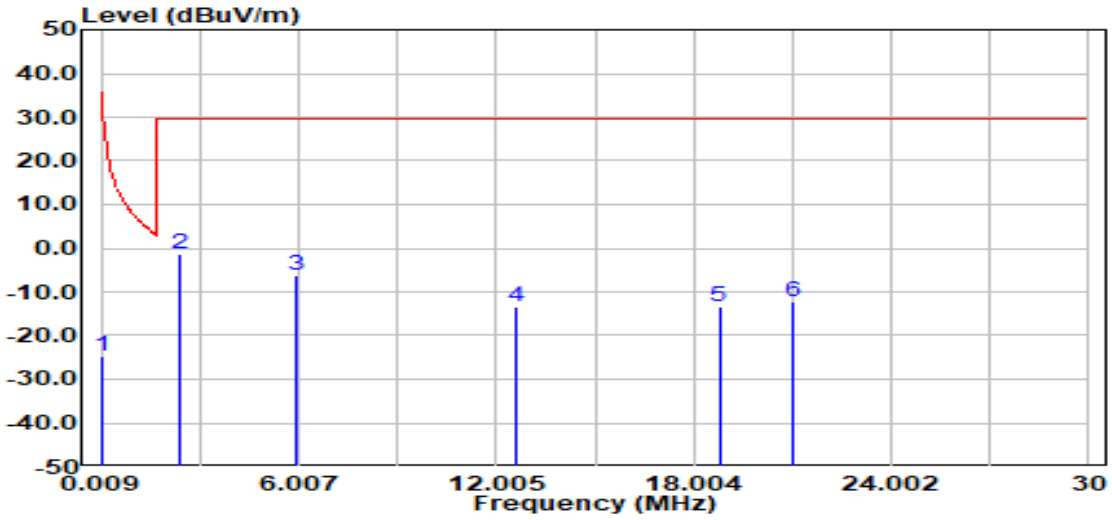


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
0.07	Peak	37.90	-66.64	-28.73	30.63	-59.36
2.48	Peak	24.74	-26.22	-1.48	29.54	-31.02
5.97	Peak	20.79	-25.66	-4.87	29.54	-34.41
15.09	Peak	12.39	-24.82	-12.43	29.54	-41.97
21.66	Peak	14.29	-24.99	-10.70	29.54	-40.24
27.27	Peak	12.34	-25.99	-13.66	29.54	-43.20

Remark:

1. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.
2. For 9-90kHz, 110kHz-490kHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.
   For other frequencies, the Peak value was under the Quasi-peak limit, therefore the Quasi-peak value compliance with the limit. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
3. Factor = Antenna factor + Cable loss – Distance conversion factor

Operation Mode: Charge mode **Antenna Pol.:** Horizontal
Temperature: 24.2℃ **Test Date:** September 5, 2022
Humidity: 61% RH **Tested by:** Ray Li
Test Mode: 7W

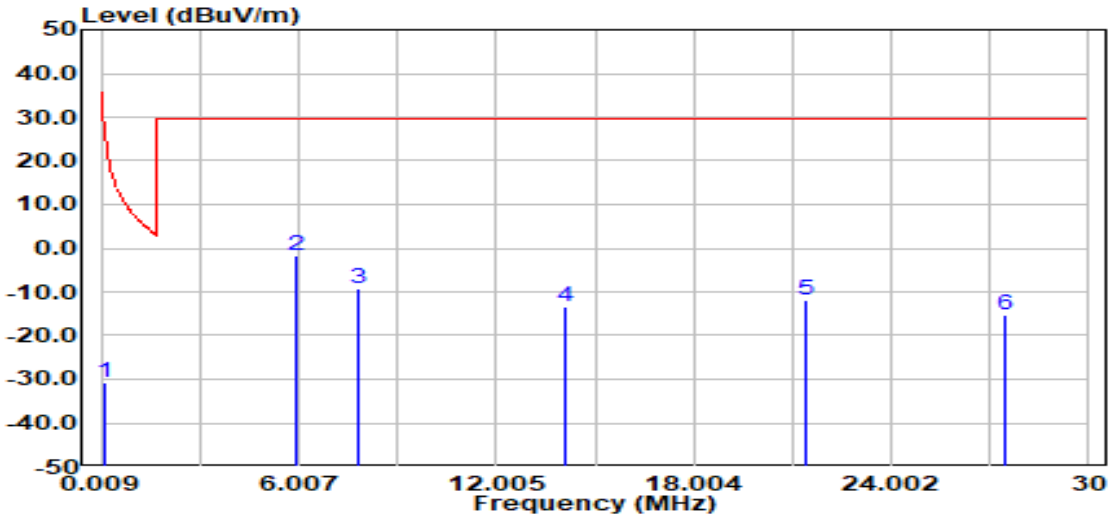


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
0.04	Peak	41.59	-66.36	-24.77	35.29	-60.06
2.42	Peak	24.77	-26.22	-1.46	29.54	-31.00
5.92	Peak	19.61	-25.67	-6.06	29.54	-35.60
12.60	Peak	11.64	-24.87	-13.23	29.54	-42.77
18.78	Peak	11.40	-24.73	-13.32	29.54	-42.86
21.00	Peak	12.78	-24.87	-12.09	29.54	-41.63

Remark:

1. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.
2. For 9-90kHz, 110kHz-490kHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.
   For other frequencies, the Peak value was under the Quasi-peak limit, therefore the Quasi-peak value compliance with the limit. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
3. Factor = Antenna factor + Cable loss – Distance conversion factor

Operation Mode:	Charge mode	**Antenna Pol.:**	Horizontal
Temperature:	24.2℃	**Test Date:**	September 5, 2022
Humidity:	61% RH	**Tested by:**	Ray Li
Test Mode:	9W		



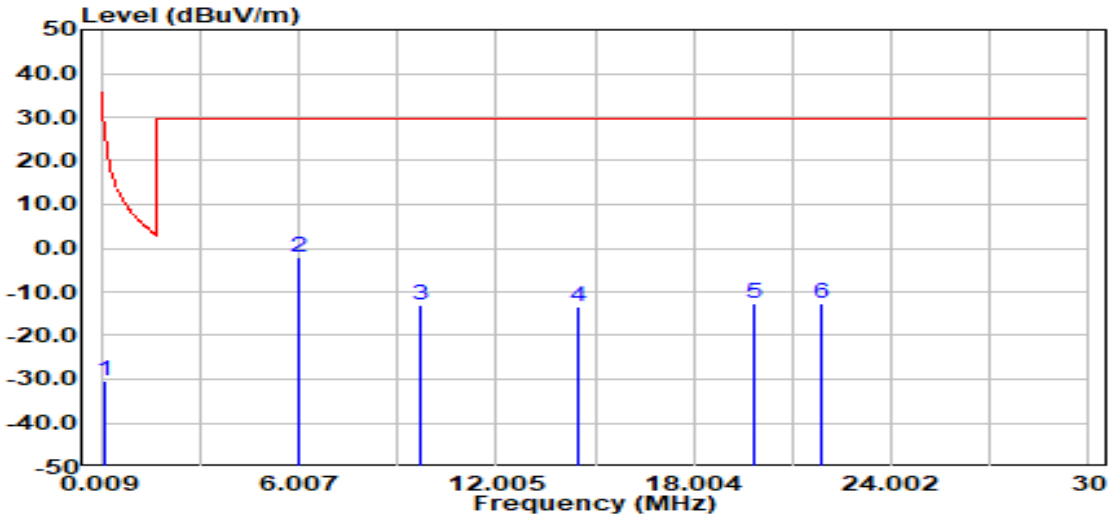
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
0.10	Peak	36.03	-66.94	-30.91	27.88	-58.79
5.95	Peak	24.03	-25.66	-1.63	29.54	-31.17
7.78	Peak	16.15	-25.32	-9.18	29.54	-38.72
14.13	Peak	11.48	-24.84	-13.36	29.54	-42.90
21.38	Peak	13.12	-24.94	-11.82	29.54	-41.36
27.45	Peak	10.89	-26.03	-15.13	29.54	-44.67

Remark:

1. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.
2. For 9-90kHz, 110kHz-490kHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.
   For other frequencies, the Peak value was under the Quasi-peak limit, therefore the Quasi-peak value compliance with the limit. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
3. Factor = Antenna factor + Cable loss – Distance conversion factor

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 10W

Antenna Pol.: Horizontal
Test Date: September 5, 2022
Tested by: Ray Li



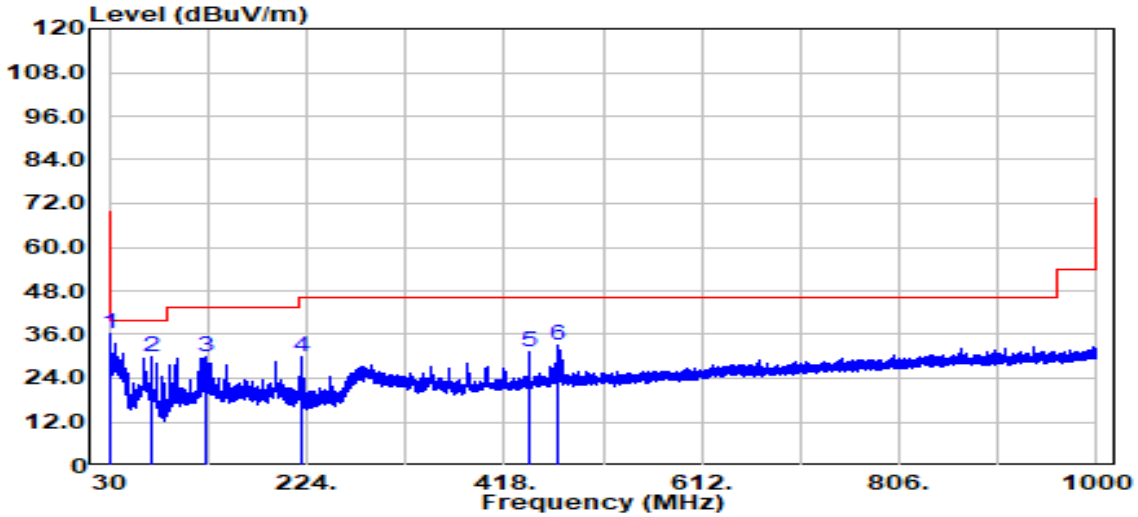
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
0.11	Peak	36.50	-66.96	-30.47	26.88	-57.35
5.98	Peak	23.77	-25.65	-1.89	29.54	-31.43
9.69	Peak	12.14	-24.98	-12.85	29.54	-42.39
14.50	Peak	11.48	-24.83	-13.35	29.54	-42.89
19.83	Peak	12.24	-24.70	-12.47	29.54	-42.01
21.91	Peak	12.53	-25.03	-12.51	29.54	-42.05

Remark:

1. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.
2. For 9-90kHz, 110kHz-490kHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.
   For other frequencies, the Peak value was under the Quasi-peak limit, therefore the Quasi-peak value compliance with the limit. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.
3. Factor = Antenna factor + Cable loss – Distance conversion factor

Below 1 GHz

Operation Mode:	Charge mode	**Antenna Pol.:**	Vertical
Temperature:	24.2℃	**Test Date:**	September 5, 2022
Humidity:	61% RH	**Tested by:**	Tony Chao
Test Mode:	5W		

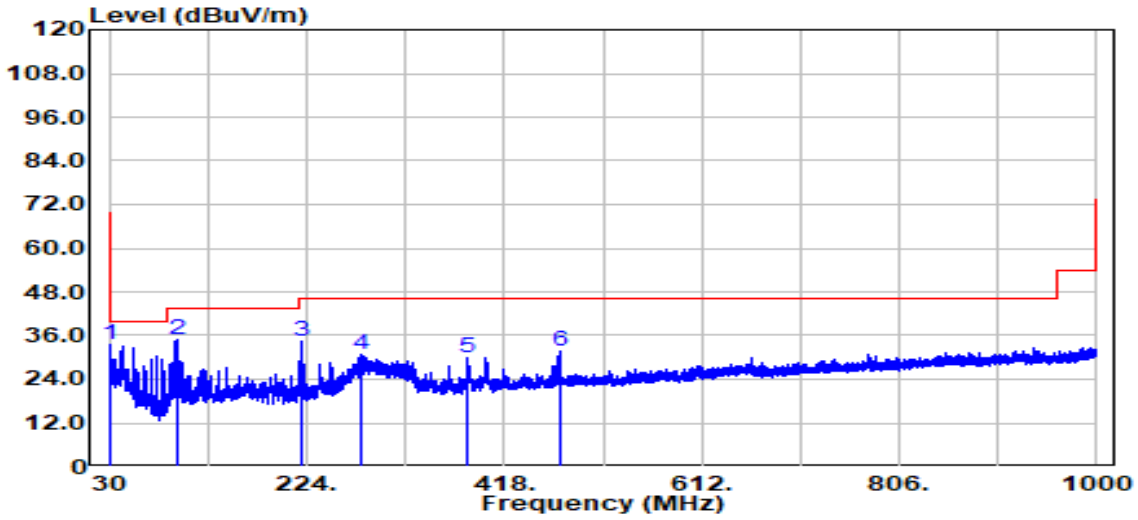


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
31.46	Peak	40.05	-3.83	36.21	40.00	-3.79
71.10	Peak	45.39	-15.43	29.97	40.00	-10.03
123.97	Peak	39.39	-9.49	29.90	43.50	-13.60
218.54	Peak	42.12	-12.01	30.11	46.00	-15.89
443.34	Peak	36.21	-5.00	31.21	46.00	-14.79
471.71	Peak	36.93	-4.09	32.84	46.00	-13.16

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 5W

Antenna Pol.: Horizontal
Test Date: September 5, 2022
Tested by: Tony Chao

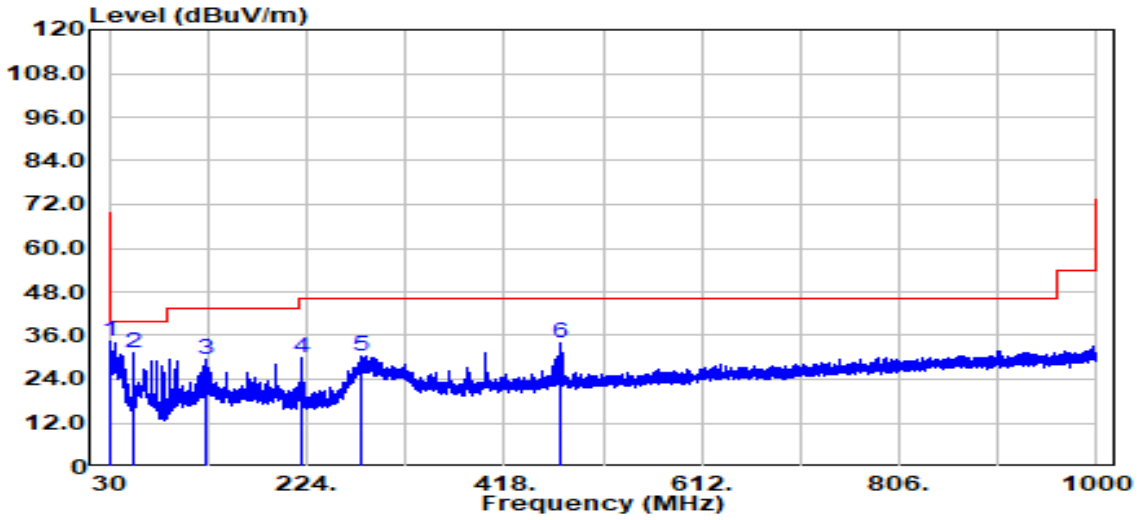


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
31.70	Peak	37.26	-3.78	33.47	40.00	-6.53
95.96	Peak	48.90	-14.19	34.71	43.50	-8.79
218.30	Peak	46.30	-12.01	34.29	46.00	-11.71
276.26	Peak	39.84	-9.07	30.77	46.00	-15.23
382.72	Peak	36.66	-6.73	29.93	46.00	-16.07
472.20	Peak	35.57	-4.07	31.50	46.00	-14.50

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 7W

Antenna Pol.: Vertical
Test Date: September 5, 2022
Tested by: Tony Chao

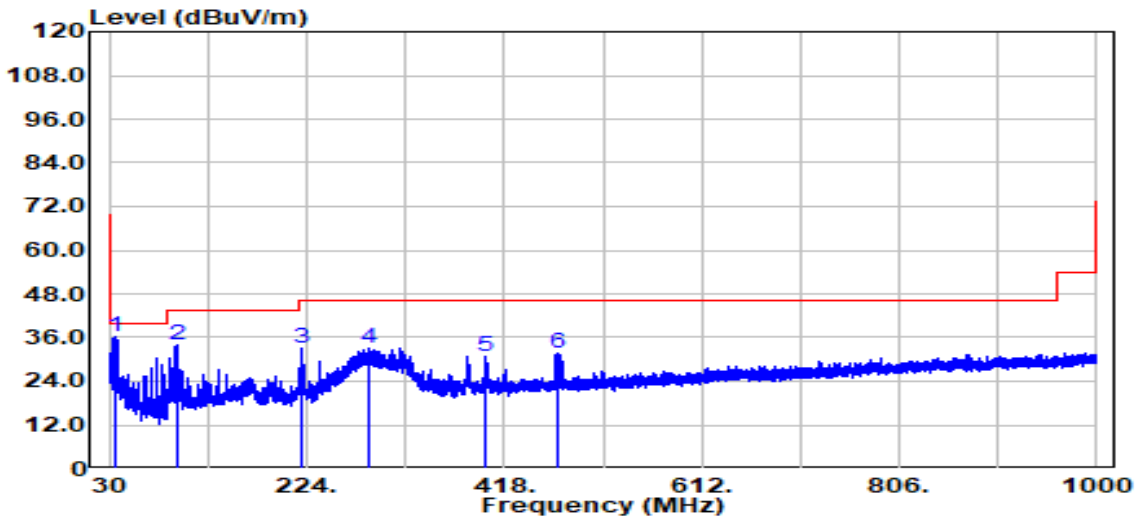


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
31.70	Peak	38.16	-3.78	34.38	40.00	-5.62
54.37	Peak	47.66	-16.37	31.29	40.00	-8.71
125.91	Peak	38.91	-9.28	29.63	43.50	-13.87
218.30	Peak	42.03	-12.01	30.02	46.00	-15.98
277.96	Peak	39.48	-9.09	30.39	46.00	-15.61
473.90	Peak	37.72	-3.99	33.74	46.00	-12.26

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 7W

Antenna Pol.: Horizontal
Test Date: September 5, 2022
Tested by: Tony Chao

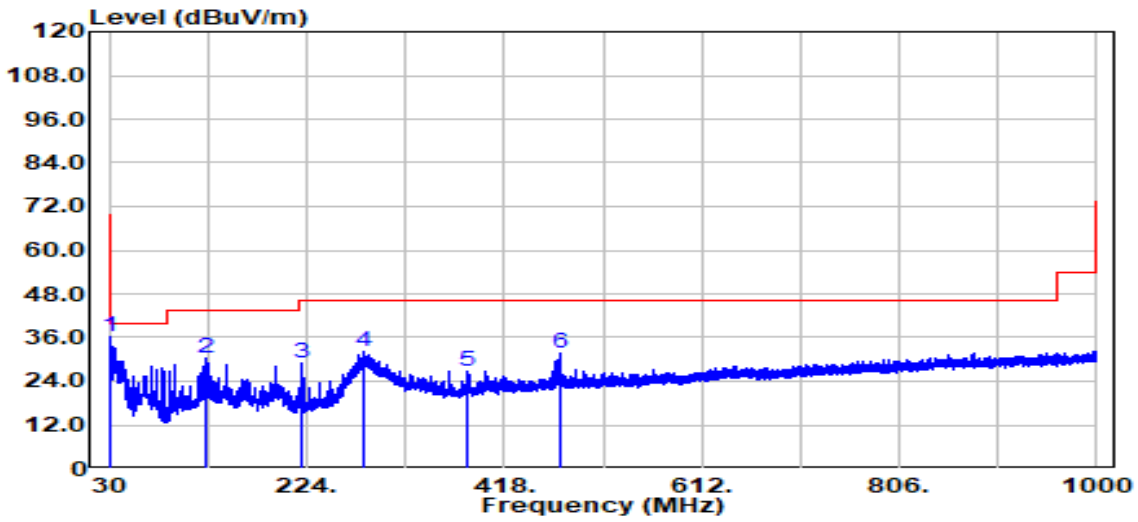


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
37.28	Peak	44.01	-7.83	36.18	40.00	-3.82
95.96	Peak	47.93	-14.19	33.74	43.50	-9.76
218.42	Peak	45.20	-12.01	33.19	46.00	-12.81
285.35	Peak	41.92	-8.96	32.96	46.00	-13.04
400.18	Peak	36.70	-5.96	30.74	46.00	-15.26
471.71	Peak	35.72	-4.09	31.62	46.00	-14.38

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 9W

Antenna Pol.: Vertical
Test Date: September 5, 2022
Tested by: Tony Chao

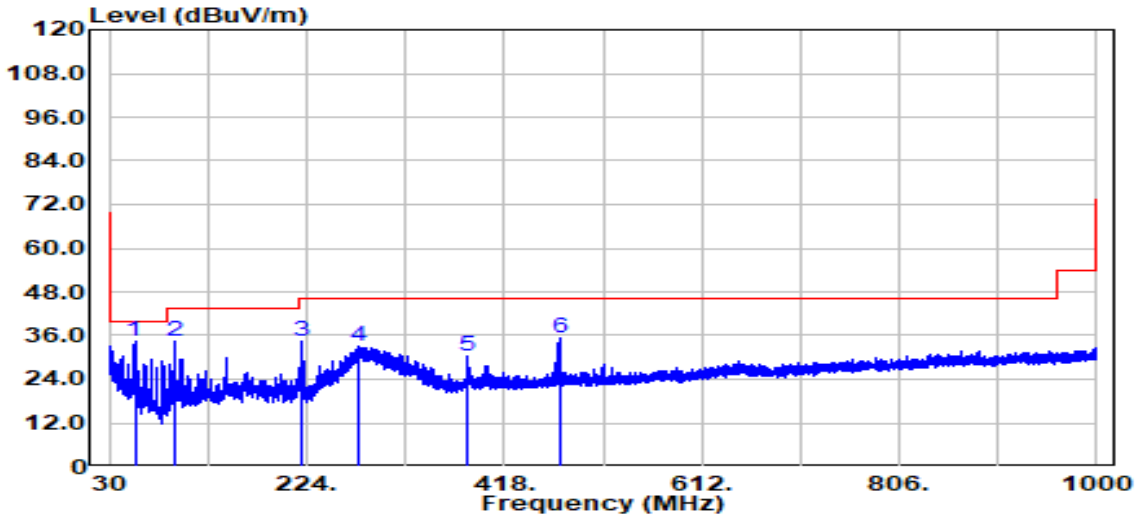


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
31.94	Peak	40.11	-3.73	36.37	40.00	-3.63
124.82	Peak	39.65	-9.33	30.33	43.50	-13.17
218.67	Peak	40.80	-12.01	28.79	46.00	-17.21
278.81	Peak	41.03	-9.10	31.93	46.00	-14.07
382.11	Peak	33.65	-6.76	26.89	46.00	-19.11
474.02	Peak	35.54	-3.98	31.56	46.00	-14.44

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 9W

Antenna Pol.: Horizontal
Test Date: September 5, 2022
Tested by: Tony Chao

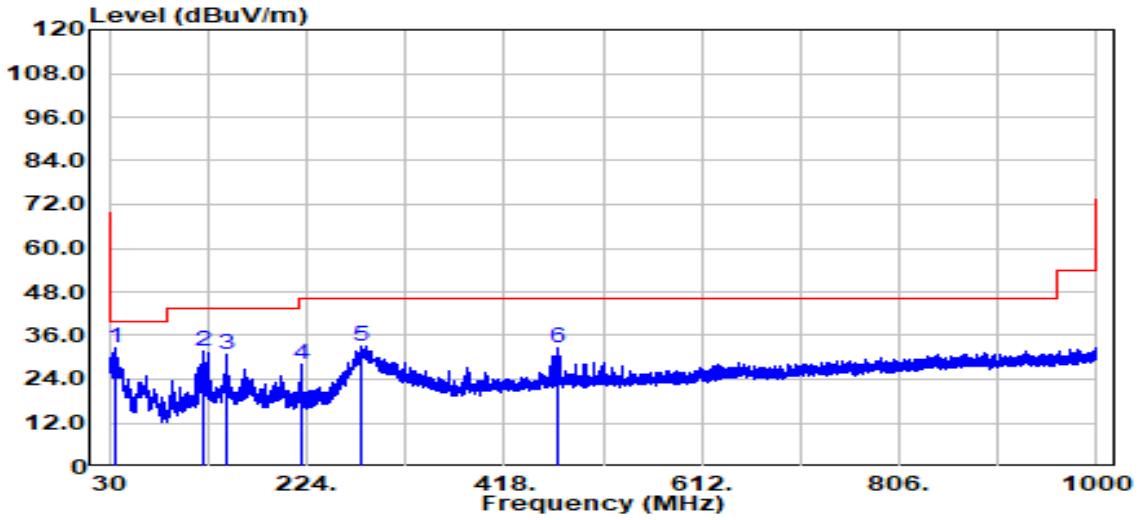


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
55.10	Peak	50.97	-16.54	34.43	40.00	-5.57
94.87	Peak	49.11	-14.69	34.42	43.50	-9.08
218.30	Peak	46.50	-12.01	34.48	46.00	-11.52
273.96	Peak	42.27	-9.06	33.21	46.00	-12.79
382.47	Peak	37.07	-6.74	30.33	46.00	-15.67
472.93	Peak	39.42	-4.03	35.39	46.00	-10.61

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 10W

Antenna Pol.: Vertical
Test Date: September 5, 2022
Tested by: Tony Chao

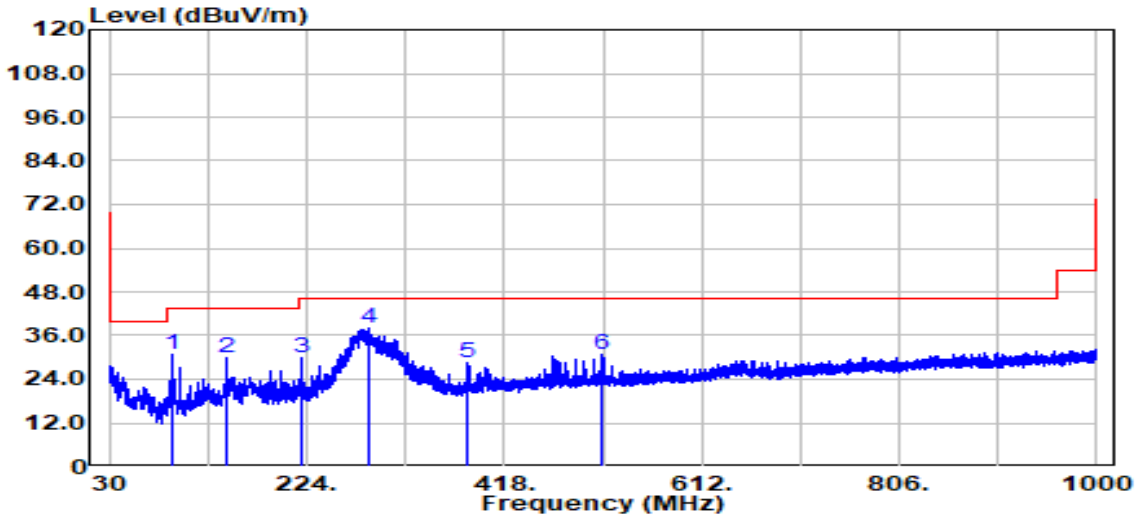


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
36.43	Peak	40.11	-7.45	32.67	40.00	-7.33
122.64	Peak	40.81	-9.28	31.53	43.50	-11.97
145.79	Peak	41.27	-10.45	30.81	43.50	-12.69
218.67	Peak	40.20	-12.01	28.19	46.00	-17.81
276.74	Peak	42.04	-9.07	32.96	46.00	-13.04
469.53	Peak	36.85	-4.19	32.66	46.00	-13.34

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

Operation Mode: Charge mode
Temperature: 24.2℃
Humidity: 61% RH
Test Mode: 10W

Antenna Pol.: Horizontal
Test Date: September 5, 2022
Tested by: Tony Chao



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit (dBµV/m)	Margin (dB)
90.99	Peak	46.30	-15.54	30.76	43.50	-12.74
145.67	Peak	40.56	-10.45	30.11	43.50	-13.39
218.18	Peak	41.93	-12.01	29.92	46.00	-16.08
285.60	Peak	47.17	-8.96	38.20	46.00	-7.80
382.23	Peak	35.45	-6.75	28.70	46.00	-17.30
514.88	Peak	34.46	-3.59	30.88	46.00	-15.12

Remark:
1. Factor = Antenna factor + Cable loss – Amp gain

7.3 AC CONDUCTED EMIISION

LIMIT

According to §15.207(a) , for an intentional radiator 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, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

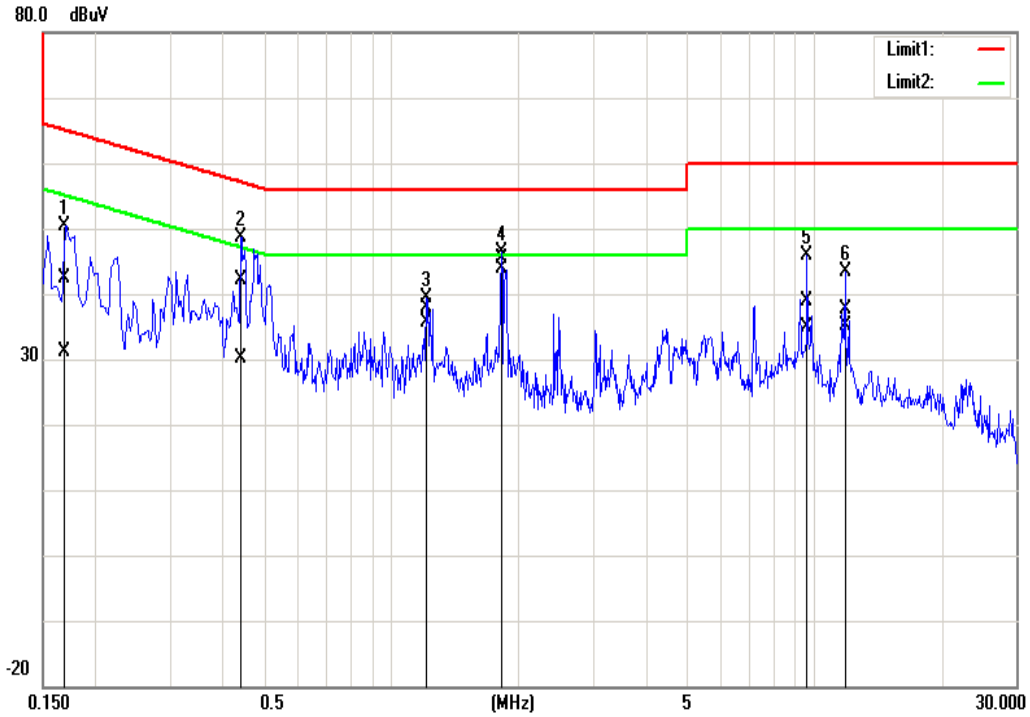
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

Compliance.

Test Data

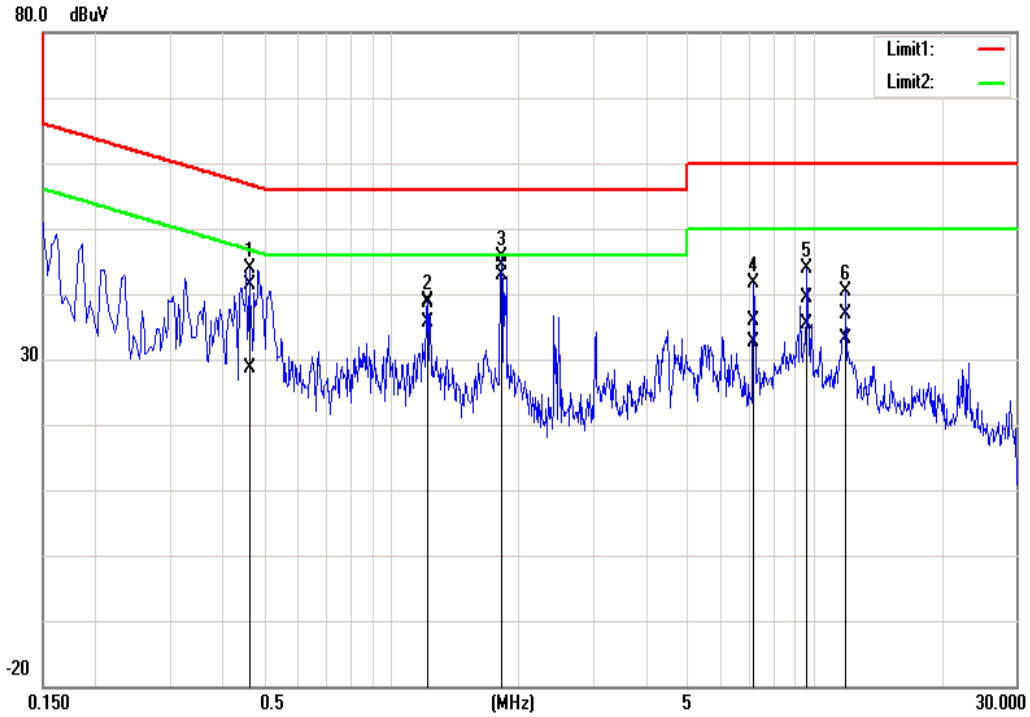
Test Mode:	Mode 2-7W	Temp/Hum	25.3(℃)/ 49%RH
Phase:	Line	Test Date	September 6, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (d uV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1700	32.22	20.94	10.17	42.39	31.11	64.96	54.96	-22.57	-23.85	Pass
0.4420	31.88	19.85	10.19	42.07	30.04	57.02	47.02	-14.95	-16.98	Pass
1.2140	27.78	25.34	10.22	38.00	35.56	56.00	46.00	-18.00	-10.44	Pass
1.8220	35.01	33.68	10.25	45.26	43.93	56.00	46.00	-10.74	-2.07	Pass
9.6100	28.41	24.57	10.36	38.77	34.93	60.00	50.00	-21.23	-15.07	Pass
11.8140	27.36	24.69	10.36	37.72	35.05	60.00	50.00	-22.28	-14.95	Pass

Note: 1. Correction factor = LISN loss + Cable loss.

Test Mode:	Mode 2-7W	Temp/Hum	25.3(℃)/ 49%RH
Phase:	Neutral	Test Date	September 6, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



Frequency (MHz)	Quasi Peak reading dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.4620	31.24	18.37	10.18	41.42	28.55	56.66	46.66	-15.24	-18.11	Pass
1.2180	28.36	25.46	10.21	38.57	35.67	56.00	46.00	-17.43	-10.33	Pass
1.8260	34.26	32.66	10.23	44.49	42.89	56.00	46.00	-11.51	-3.11	Pass
7.2100	25.55	22.28	10.32	35.87	32.60	60.00	50.00	-24.13	-17.40	Pass
9.6100	29.08	25.08	10.35	39.43	35.43	60.00	50.00	-20.57	-14.57	Pass
11.9060	26.57	22.71	10.36	36.93	33.07	60.00	50.00	-23.07	-16.93	Pass

Note: 1. Correction factor = LISN loss + Cable loss.

7.4 ANTENNA REQUIREMENT

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna Specification	☐ PIFA ☐ PCB ☐ Dipole ☒ Coil
Antenna Gain	N/A dBi
Antenna connector	N/A

- End of Test Report -