

TEST REPORT**Report Number: 104568519MPK-001****Project Number: G104568519****February 09, 2021****Testing performed on the
Haws Electronic Water Cooler
Model Number: 1210SF****FCC ID: 2AUAN-1200SM****IC: 25359-1200SM****to****FCC Part 15 Subpart C (15.225)
ISED RSS-210 Issue 10****For****Haws Corporation****Test Performed by:**Intertek
1365 Adams Court
Menlo Park, CA 94025 USA**Test Authorized by:**Haws Corporation
1455 Kleppe Ln
Sparks, NV 89432 USA

Prepared by:



Aaron Chang

Date: February 09, 2021

Reviewed by:



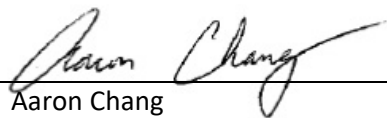
Krishna Vemuri

Date: February 09, 2021

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. This report must not be used to claim product endorsement by A2LA, NIST nor any other agency of the U.S. Government.

Report No. 104568519MPK-001	
Equipment Under Test:	Haws Electronic Water Cooler
Model Number:	1210SF
Applicant:	Haws Corporation
Contact:	Sam Hong
Address:	Haws Corporation 1455 Kleppe Ln Sparks, NV 89432
Country:	USA
Tel. Number:	(775) 772-9235
Email:	Samh@hawsco.com
Applicable Regulation:	FCC Part 15 Subpart C (15.225) ISED RSS-210 Issue 10
Date of Test:	January 27 – 29, 2021

We attest to the accuracy of this report:



Aaron Chang
Project Engineer



Krishna K Vemuri
EMC Manager

TABLE OF CONTENTS

1.0	Summary of Tests.....	4
2.0	General Description	5
2.1	Product Description	5
2.2	Related Submittal(s) Grants.....	6
2.3	Test Methodology.....	6
2.4	Test Facility	6
2.5	Measurement Uncertainty	6
3.0	System Test Configuration	7
3.1	Support Equipment.....	7
3.2	Block Diagram of Test Setup	7
3.3	Justification	9
3.4	Software Exercise Program	9
3.5	Mode of Operation during test.....	9
3.6	Modifications required for Compliance	9
3.7	Additions, deviations and exclusions from standards	9
4.0	Measurement Results	10
4.1	Field Strength of Fundamental and Radiated Emissions Outside the band	10
4.2	Frequency Tolerance	17
4.3	Occupied Bandwidth.....	19
4.4	AC Line Conducted Emission.....	21
5.0	List of test equipment	29
6.0	Document History	30

1.0 Summary of Tests

TEST	REFERENCE FCC 15.225	REFERENCE RSS-210	RESULTS
Field Strength of Fundamental	15.225(a)	B.6	Complies
Radiated Emissions Outside the band	15.225(b), 15.225(c), 15.225(d), 15.209	B.6	Complies
Frequency Tolerance of the Carrier	15.225(e)	B.6	Complies
Line Conducted Emissions	15.207	RSS-GEN	Complies
Occupied Bandwidth	15.215	RSS-GEN	Complies
Antenna requirement	15.203	RSS-GEN	Complies ¹

¹ The EUT utilizes an internal Antenna.

2.0 General Description

2.1 Product Description

Haws Corporation supplied the following description of the EUT:

The Equipment Under Test is a wall mounted, ADA, stainless steel electric water cooler with filtration.

Overview of the EUT

Applicant name & address	Haws Corporation 1455 Kleppe Ln Sparks, NV 89432 USA
Contact info / Email	Sam Hong / Samh@hawsco.com
Model	1210SF
FCC Identifier	2AUAN-1200SM
IC Identifier	25359-1200SM
Operating Frequency	13.56 MHz
Number of Channels	1
Type of Modulation	ASK Modulation
Antenna Type	Internal Antenna

EUT receive date: January 27, 2021

EUT receive condition: The pre-production version of the EUT was received in good condition with no apparent damage. As declared by the Applicant, it is identical to the production units.

Test start date: January 27, 2021

Test completion date: January 29, 2021

2.2 Related Submittal(s) Grants

None

2.3 Test Methodology

Radiated tests were performed at an antenna to EUT distance of 10 meters, unless stated otherwise in this test report. All other measurements were made in accordance with the procedures in part 2 of CFR 47 7, ANSI C63.10: 2013, RSS-210 Issue 10 & RSS-GEN Issue 5.

2.4 Test Facility

The radiated emission test site and conducted measurement facility used to collect the data is 10m semi-anechoic chamber located in Menlo Park, California. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada (Site # 2042L-1).

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and doesn't take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 2.5 GHz	> 2.5 GHz
RF Power and Power Density – antenna conducted	-	0.7 dB	-
Unwanted emissions - antenna conducted	1.1 dB	1.3 dB	1.9 dB
Bandwidth – antenna conducted	-	30 Hz	-

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 30MHz	30 MHz – 1 GHz	1 GHz – 18 GHz
Radiated emissions	-	4.7	5.1 dB
AC mains conducted emissions	2.1 dB	-	-

3.0 System Test Configuration

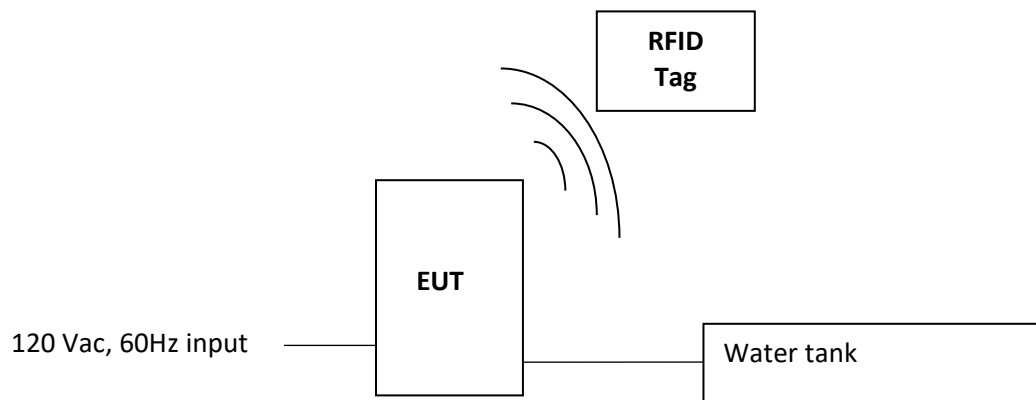
3.1 Support Equipment

Support Equipment		
Description	Manufacturer	Model Number
Water Tank	Not Listed	Not listed

Equipment Under Test			
Description	Manufacturer	Model	Serial Number
Haws Electronic Water Cooler	Haws Corporation	1210SF	MPK2102020849-002

3.2 Block Diagram of Test Setup

The diagram shown below details the interconnection of the EUT and support equipment. For specific layout, refer to the test configuration photograph in the relevant section of this report.



S = Shielded	F = With Ferrite
U = Unshielded	m = Length in Meters

EUT Photo



EUT Labels

Assembled in USA by:
Haws Corporation
1455 Kleppe Lane
Sparks, NV USA

Model: 1210SF
Volts **115VAC** PH **1**
Hz **60**
Amps **5A**
Refrig. **4.09 oz (116g) R-134a**
Design Pressure - PSI:
HS 330 / LS 120



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

HVIN: 12101A
FCC ID: 2AUAN-1200SM
IC: 25359-1200SM
CAN ICES - 3(A)/NMB-3(A)

CAUTION - SEE INSTALLATION INSTRUCTIONS.
ATTENTION - CONSULTEZ LES INSTRUCTIONS D'INSTALLATION.

0510001143 Rev 1

3.3 Justification

For radiated emission measurements the EUT is placed on a non-conductive table. The highest clock frequency used was 48MHz as specified by Haws Corporation. The EUT was configured to continuously transmit.

3.4 Software Exercise Program

None

3.5 Mode of Operation during test

The Haws Electronic Water Cooler s was set up to continuously transmit at 13.56MHz.

3.6 Modifications required for Compliance

No modifications were made by the manufacturer to bring the EUT into compliance.

3.7 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Field Strength of Fundamental and Radiated Emissions Outside the band

4.1.1 Requirements

FCC Rules 15.225

- a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter (84 dBuV) at 30 meters.
- b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

§15.209 Radiated emission limits; general requirements.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	$2400/F(\text{kHz})$	300
0.490-1.705	$24000/F(\text{kHz})$	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

4.1.2 Procedure

Radiated Measurements Below 30 MHz

During the test the EUT is rotated and the measuring antenna angles are varied during the search for maximum signal level.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for below 30 MHz were made at 10 meters. Data results below are corrected for distance back to 30 meters.

Radiated Measurements Above 30 MHz

During the test the EUT is rotated and the measuring antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at ten meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. Measurements for above 30 MHz were made at 10 meters.

Radiated emission measurements were performed from 9kHz to 1 GHz.
Analyzer resolution is:

200Hz or greater for 9kHz to 150kHz
9 kHz or greater for 150kHz to 30 MHz
120 kHz or greater for 30MHz to 1000 MHz
For those frequencies quasi-peak detector applies

Data includes of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation is as follows:

$$FS = RA + AF + CF - AG - DCF$$

Where FS = Field Strength in dB ($\mu V/m$)

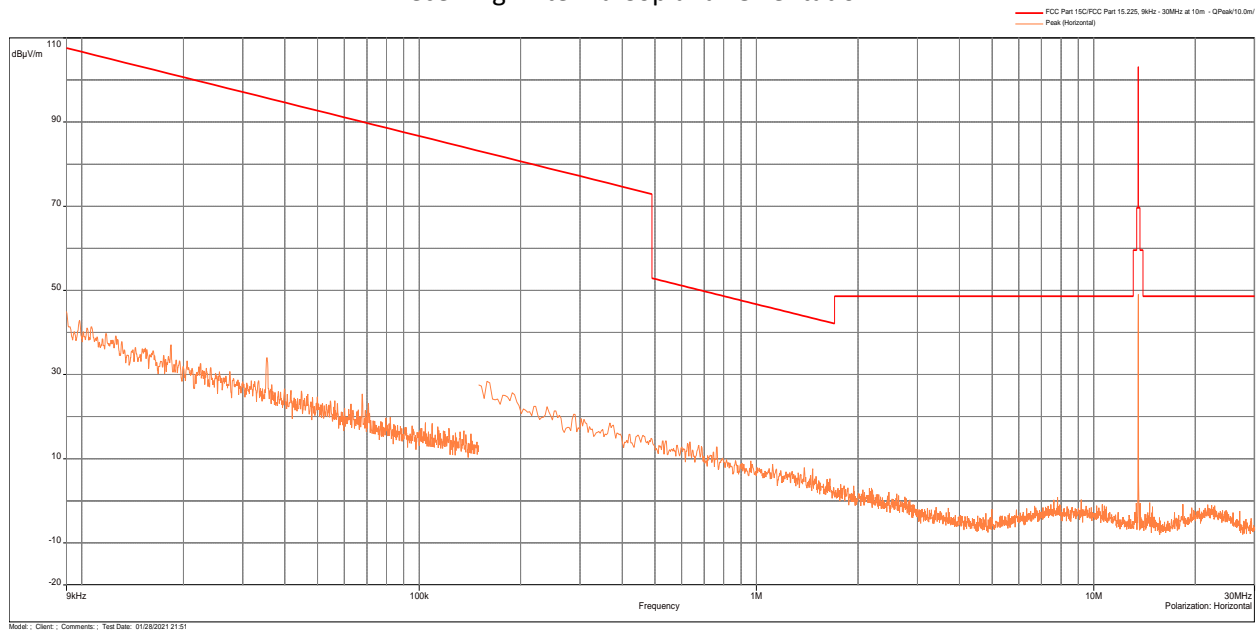
RA = Receiver Amplitude (including preamplifier) in dB (μV)
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB (1/m)
AG = Amplifier Gain in dB
DCF = Distance Correction Factor

Note: FS was measured with loop antenna below 30MHz

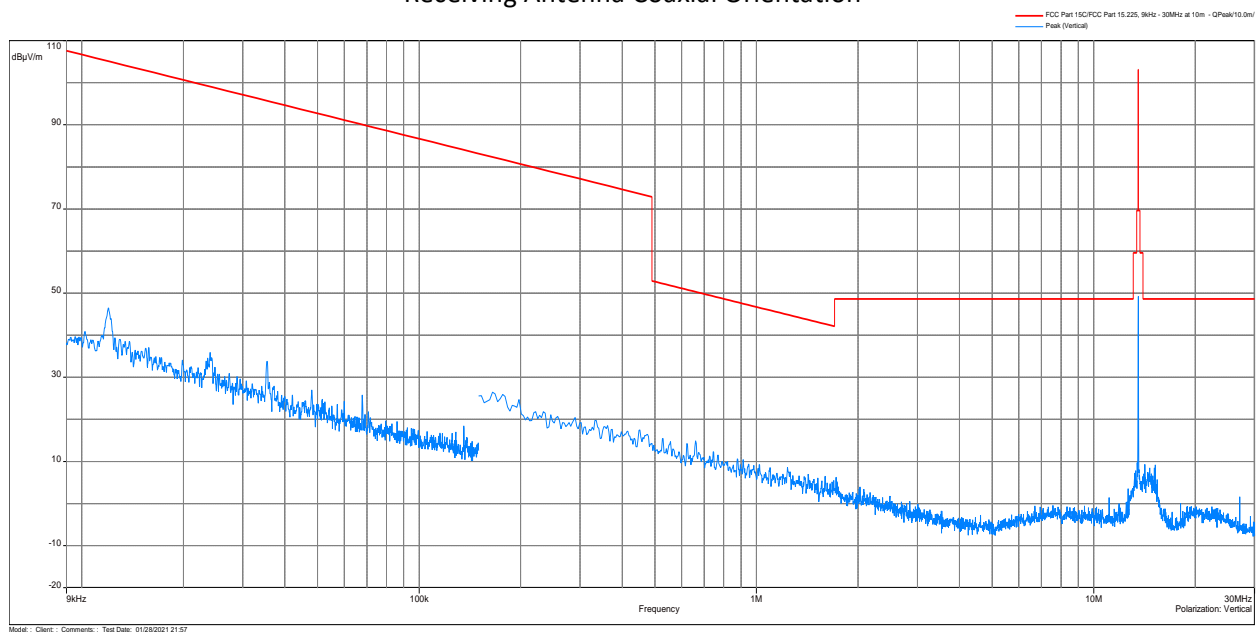
4.1.3 Test Result 15.225 (a) (b) (c) (d) and 15.209

Radiated Spurious Emissions from 9 kHz to 30MHz

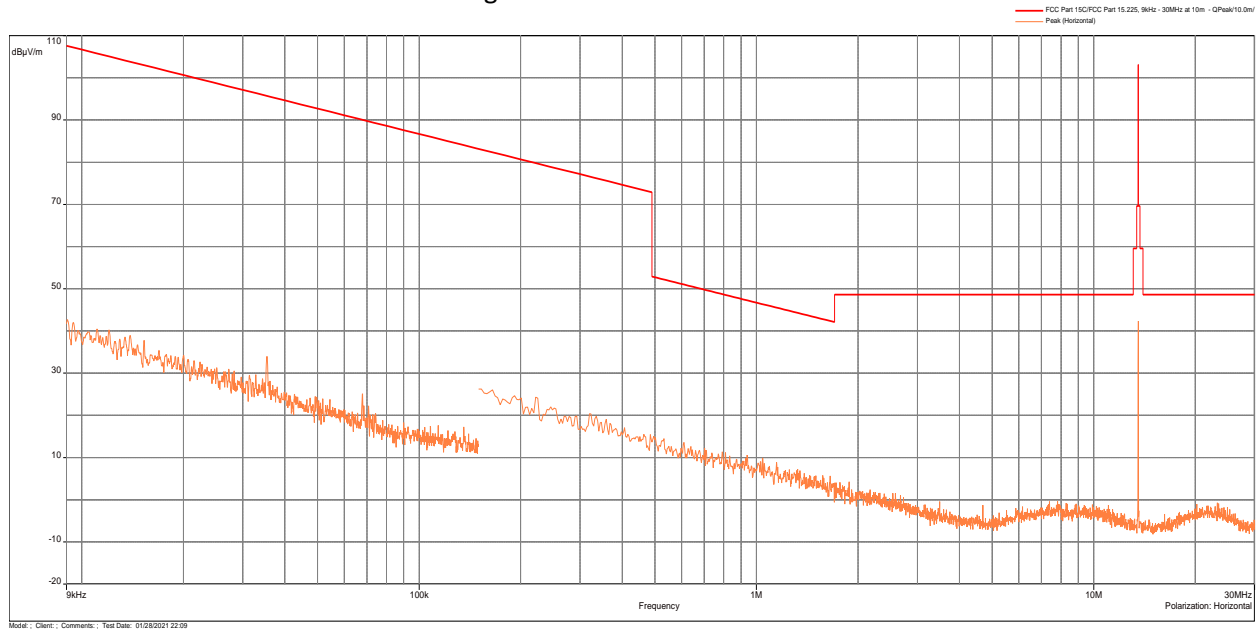
Receiving Antenna Coplanar Orientation



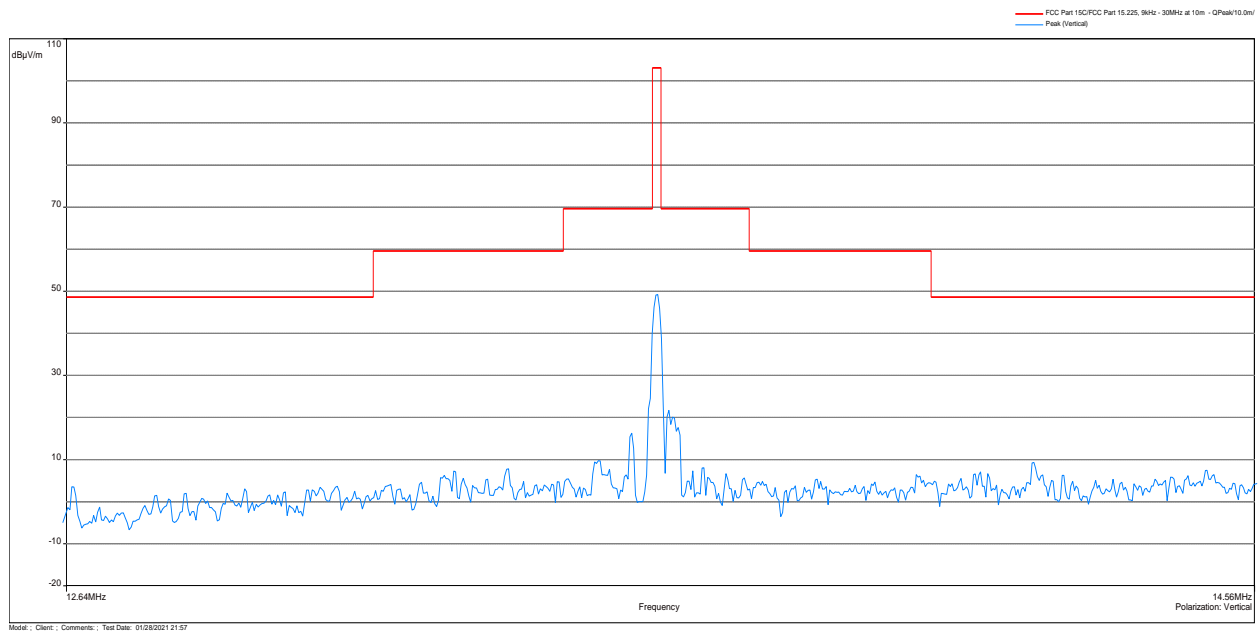
Receiving Antenna Coaxial Orientation



Receiving Antenna Horizontal Orientation



Test Result 15.225 (a)(b)(c) Radiated Spurious Emissions Mask



Frequency (MHz)	Peak FS@10m dB(µV/m)	Limit@10m dB(µV/m)	Margin dB	Comment	Correction dB
13.56	49.19	103.1	-53.91	Coaxial	-18.01

Note: Correction = AF+CF-AG- distance correction factor

Distance correction factor=40*log₁₀(limit distance/measured distance)

Radiated Spurious Emissions from 30 to 1000 MHz

Freq (MHz)	Peak FS @10m dB(uV/m)	Limit @10m dB(uV/m)	Margin (dB)	Height (m)	Azimuth (Deg)	Polarity	Correction (dB)
30.065	19.22	29.5	-10.28	3	284.75	Horizontal	-8.79
50.467	17.06	29.5	-12.44	1.99	0	Horizontal	-19.41
51.146	18.51	29.5	-10.99	1	328.25	Horizontal	-19.79
53.377	16.7	29.5	-12.8	3.99	86.25	Horizontal	-20.76
57.580	16.5	29.5	-13.0	3.99	29.5	Horizontal	-21.73
57.710	18.15	29.5	-11.35	3.99	29.5	Horizontal	-21.75
148.663	19.03	33	-13.97	1.01	0	Vertical	-15.73
203.404	20.41	33	-12.59	1.01	21	Vertical	-17.55
230.499	21.58	35.5	-13.92	1.01	192.75	Vertical	-16.45
257.627	26.22	35.5	-9.28	3.99	0	Vertical	-12.95
257.659	25.85	35.5	-9.65	3.99	280.5	Horizontal	-12.95
339.010	23.38	35.5	-12.12	3.99	152	Horizontal	-12.26
405.778	26.15	35.5	-9.35	3.99	31.75	Vertical	-9.99
445.936	29.51	35.5	-5.99	3.99	208.25	Vertical	-9.22
447.391	29.86	35.5	-5.64	3.99	195	Vertical	-9.21
452.952	29.72	35.5	-5.78	3.99	183	Vertical	-9.09
454.310	30.38	35.5	-5.12	3.99	195	Vertical	-8.98
455.668	30.01	35.5	-5.49	3.99	195	Vertical	-8.98
459.839	29.93	35.5	-5.57	1.99	279.75	Horizontal	-8.87
464.010	29.59	35.5	-5.91	1.99	292.75	Horizontal	-8.75
465.433	29.84	35.5	-5.66	1.99	292.75	Horizontal	-8.75
469.636	29.73	35.5	-5.77	1.99	279.75	Horizontal	-8.64

Notes: FS = RA + Correction

Correction = AF + CF - AG

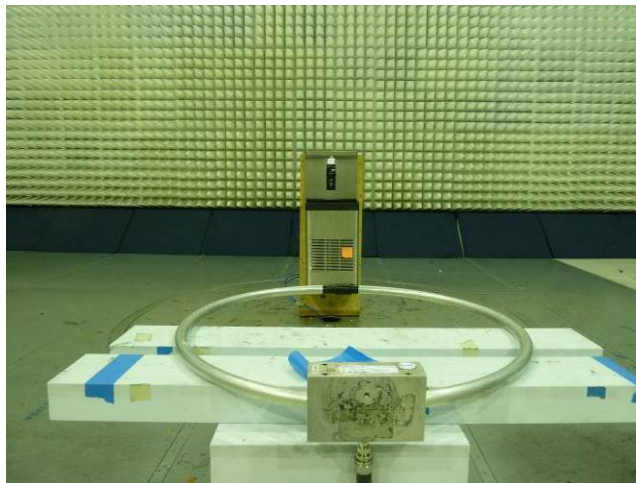
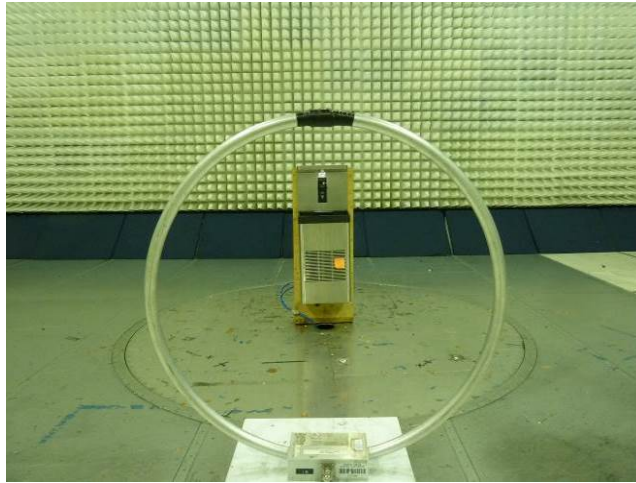
Result	Complies by 5.12 dB
---------------	----------------------------

4.1.4 Test Configuration Photographs

The following photographs show the testing configurations used.



4.1.5 Test Configuration Photographs (Continued)



4.2 Frequency Tolerance

4.2.1 Requirement FCC 15.225 (e)

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.2.2 Procedure

The RFID radio was placed in the temperature chamber. The frequency counter was connected to the transmitter output. For each temperature, the carrier frequency was recorded.

4.2.3 Test Results 15.225 (e)

Nominal Frequency: 13559615 Hz

Voltage (AC)	Temperature (C)	Measured Frequency (Hz)	Deviation from Reference (Hz)	Deviation (%)
120	-20	13559546	69	0.0005
120	-10	13559629	14	0.0001
120	0	13559731	116	0.0008
120	10	13559731	116	0.0008
120	20	13559615	0	0
120	30	13559732	117	0.0008
120	40	13559872	257	0.0018
120	50	13559872	257	0.0018
102	20	13559615	0	0
138	20	13559615	0	0

4.3 Occupied Bandwidth FCC 15.215

4.3.1 Requirements

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257, 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. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

4.3.2 Procedure

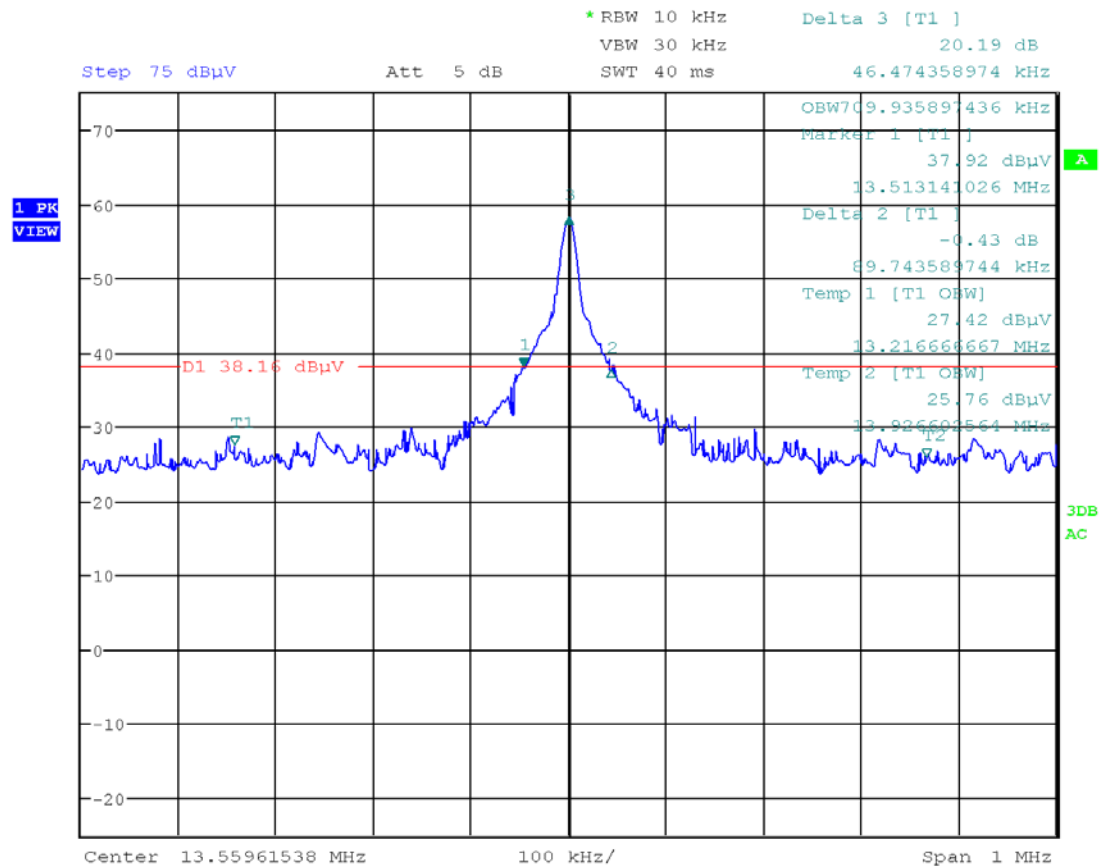
The EUT was setup to transmit in normal operating condition.

Measurements were made with the loop antenna in close proximity of the EUT. Following the procedures of ANSI 63.10: 2013, the 20dB bandwidth measurements were taken. The following plots show Occupied Bandwidth.

4.3.3 Test Results

Frequency (MHz)	-20 dB Channel Bandwidth (kHz)	99% Channel Bandwidth (kHz)
13.56	89.744	709.936

-20dB & 99% Channel Bandwidth Plot



Date: 28.JAN.2021 14:31:59

4.4 AC Line Conducted Emission FCC Rule 15.207

4.4.1 Requirement

Frequency Band MHz	15.207 Limit dB(μV)	
	Quasi-Peak	Average
0.15-0.50	66 to 56 *	56 to 46 *
0.50-5.00	56	46
5.00-30.00	60	50

Note: *Decreases linearly with the logarithm of the frequency. At the transition frequency the lower limit applies.

4.4.2 Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

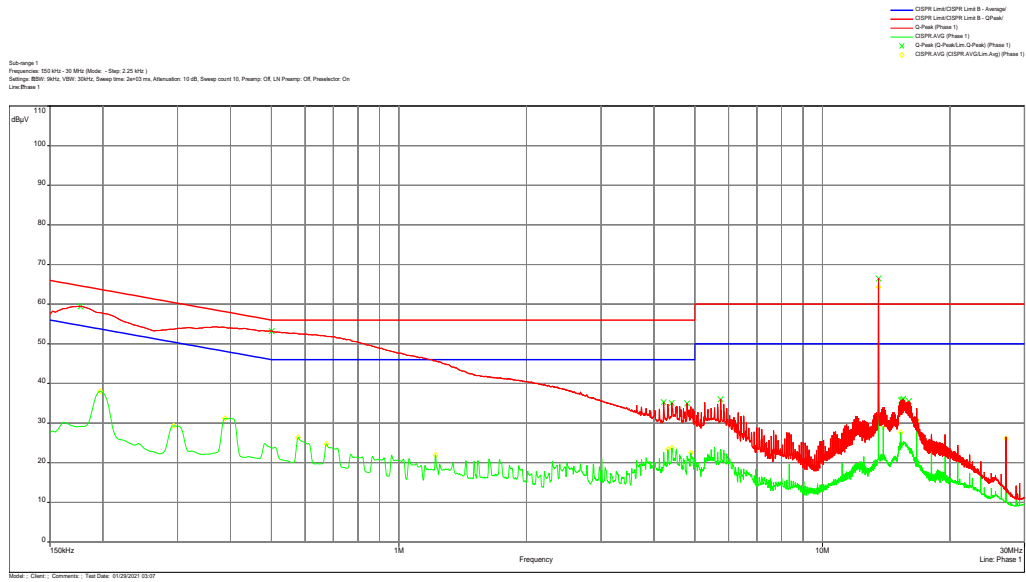
EUT was placed in transmission mode then tested for conducted emissions per 15.207 to ensure the device complies with 15.207 outside the transmitter fundamental emissions band. After, the EUT antenna is removed from the EUT and only the fundamental emission band was measured to show that the fundamental emission band is in compliance with the 15.207 limits.

Equipment setup for conducted disturbance tests followed.

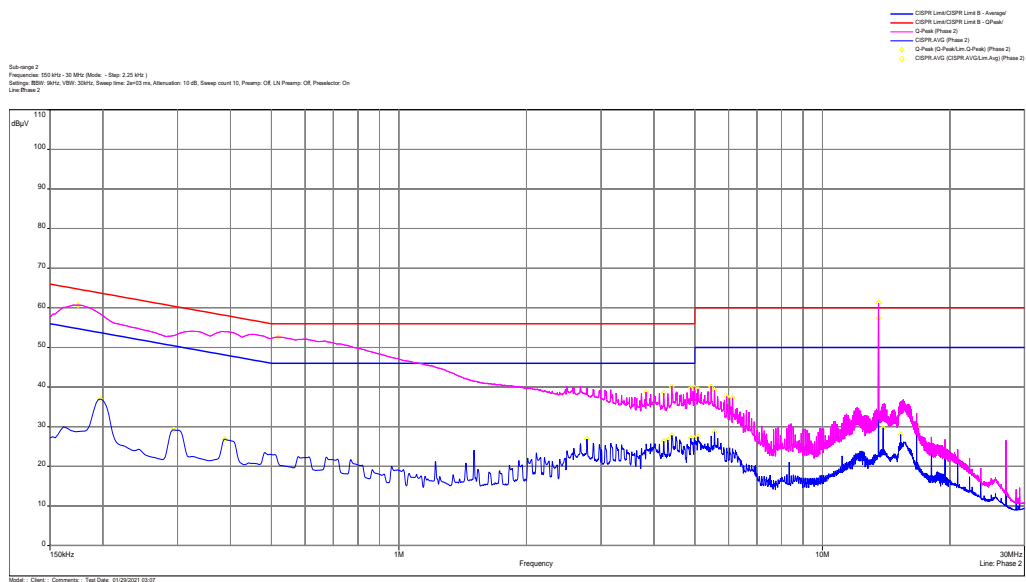
4.4.3 Test Result

AC Line Conducted Emission with RFID Antenna

Line 1



Line 2



4.4.3 Test Result (Continued)

Frequency (MHz)	Q-Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Correction (dB)
0.175	60.69	64.73	-4.04	Phase 2	10.99
0.177	59.46	64.63	-5.16	Phase 1	10.99
0.501	53.19	56	-2.81	Phase 1	10.99
0.519	52.62	56	-3.38	Phase 2	11
3.833	38.73	56	-17.27	Phase 2	11.16
4.216	35.28	56	-20.72	Phase 1	11.17
4.216	38.49	56	-17.51	Phase 2	11.17
4.407	35.08	56	-20.92	Phase 1	11.16
4.407	40.14	56	-15.86	Phase 2	11.16
4.792	34.98	56	-21.02	Phase 1	11.16
4.886	39.68	56	-16.32	Phase 2	11.16
4.983	39.78	56	-16.22	Phase 2	11.16
5.078	39.53	60	-20.47	Phase 2	11.16
5.460	40.13	60	-19.87	Phase 2	11.16
5.557	39.21	60	-20.79	Phase 2	11.16
5.748	36.03	60	-23.97	Phase 1	11.17
5.939	37.58	60	-22.42	Phase 2	11.17
6.133	37.27	60	-22.73	Phase 2	11.17
13.560	61.25	60	1.25	Phase 2	11.24
13.560	66.46	60	6.46	Phase 1	11.24
15.331	35.7	60	-24.3	Phase 1	11.23
15.428	35.85	60	-24.15	Phase 1	11.23
15.522	36.06	60	-23.94	Phase 1	11.23
16.001	35.49	60	-24.51	Phase 1	11.24

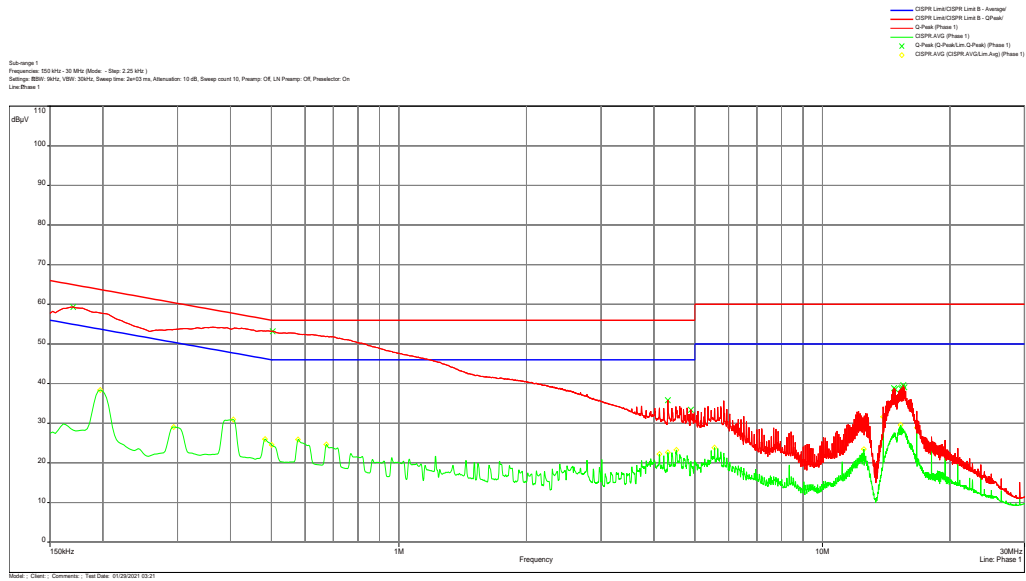
4.4.3 Test Result (Continued)

Frequency (MHz)	CISPR.AVG (dBμV)	Limit (dBμV)	Margin (dB)	Line	Correction (dB)
0.197	38.02	53.73	-15.7	Phase 1	10.97
0.197	36.99	53.73	-16.74	Phase 2	10.97
0.294	29.29	50.41	-21.12	Phase 1	10.97
0.294	29.19	50.41	-21.22	Phase 2	10.97
0.389	31.19	48.1	-16.91	Phase 1	10.98
0.389	26.87	48.1	-21.22	Phase 2	10.98
0.578	26.39	46	-19.61	Phase 1	11.01
0.674	24.71	46	-21.29	Phase 1	11.03
1.221	21.96	46	-24.04	Phase 1	11.01
2.780	26.88	46	-19.12	Phase 2	11.08
4.218	26.34	46	-19.66	Phase 2	11.17
4.313	23.38	46	-22.62	Phase 1	11.17
4.313	26.7	46	-19.3	Phase 2	11.17
4.409	27.81	46	-18.19	Phase 2	11.16
4.409	23.72	46	-22.28	Phase 1	11.16
4.889	22.52	46	-23.48	Phase 1	11.16
4.889	27.08	46	-18.92	Phase 2	11.16
4.983	27.08	46	-18.92	Phase 2	11.16
5.080	27.45	50	-22.55	Phase 2	11.16
5.559	28.73	50	-21.27	Phase 2	11.16
13.560	64.28	50	14.28	Phase 1	11.24
13.560	57.52	50	7.52	Phase 2	11.24
13.907	29.65	50	-20.35	Phase 2	11.24
13.911	29.23	50	-20.77	Phase 1	11.24
15.295	28.07	50	-21.93	Phase 2	11.23
15.299	27.65	50	-22.35	Phase 1	11.23
16.685	30.34	50	-19.66	Phase 2	11.32
16.692	30.7	50	-19.3	Phase 1	11.33
18.083	24.59	50	-25.41	Phase 1	11.37
27.119	26.1	50	-23.9	Phase 1	11.47

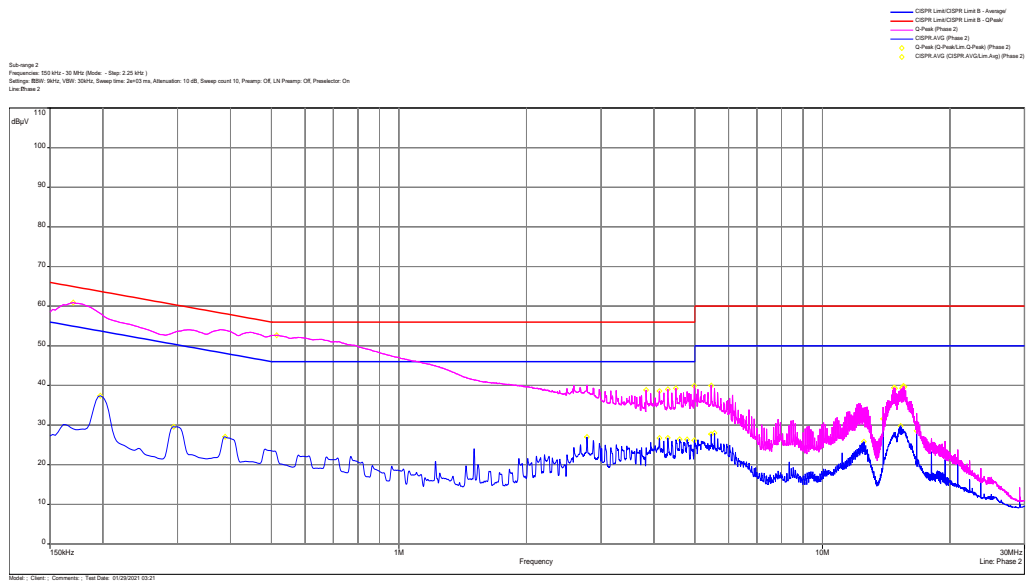
4.4.3 Test Result (Continued)

AC Line Conducted Emission with RFID Antenna Terminated with Load

Line 1



Line 2



4.4.3 Test Result (Continued)

Frequency (MHz)	Q-Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Correction (dB)
0.170	60.9	64.95	-4.05	Phase 2	10.99
0.170	59.35	64.95	-5.6	Phase 1	10.99
0.503	53.2	56	-2.8	Phase 1	10.99
0.515	52.66	56	-3.34	Phase 2	11
3.833	38.85	56	-17.15	Phase 2	11.16
4.121	38.6	56	-17.4	Phase 2	11.17
4.313	39.02	56	-16.98	Phase 2	11.17
4.313	35.79	56	-20.21	Phase 1	11.17
4.504	39.27	56	-16.73	Phase 2	11.16
4.889	33.42	56	-22.58	Phase 1	11.16
4.983	39.91	56	-16.09	Phase 2	11.16
5.462	39.95	60	-20.05	Phase 2	11.16
14.755	39.44	60	-20.56	Phase 2	11.23
14.757	38.87	60	-21.13	Phase 1	11.23
14.852	39.28	60	-20.72	Phase 2	11.22
14.854	38.62	60	-21.38	Phase 1	11.22
15.333	38.7	60	-21.3	Phase 1	11.23
15.425	39.31	60	-20.69	Phase 2	11.23
15.428	39.02	60	-20.98	Phase 1	11.23
15.522	39.88	60	-20.12	Phase 2	11.23
15.524	39.6	60	-20.4	Phase 1	11.23
15.617	39.63	60	-20.37	Phase 2	11.23
15.619	39.07	60	-20.93	Phase 1	11.23

4.4.3 Test Result (Continued)

Frequency (MHz)	CISPR.AVG (dBμV)	Limit (dBμV)	Margin (dB)	Line	Correction (dB)
0.197	37.37	53.73	-16.35	Phase 2	10.97
0.197	38.38	53.73	-15.34	Phase 1	10.97
0.294	29.57	50.41	-20.84	Phase 2	10.97
0.294	29.03	50.41	-21.38	Phase 1	10.97
0.389	27.03	48.1	-21.06	Phase 2	10.98
0.407	30.93	47.72	-16.79	Phase 1	10.99
0.483	26	46.29	-20.29	Phase 1	10.99
0.501	24.54	46	-21.46	Phase 1	10.99
0.578	25.91	46	-20.09	Phase 1	11.01
0.674	24.65	46	-21.35	Phase 1	11.03
2.780	26.99	46	-19.01	Phase 2	11.08
4.121	22.23	46	-23.77	Phase 1	11.17
4.121	26.75	46	-19.25	Phase 2	11.17
4.313	26.77	46	-19.23	Phase 2	11.17
4.315	22.64	46	-23.36	Phase 1	11.17
4.522	23.27	46	-22.73	Phase 1	11.16
4.603	26.39	46	-19.61	Phase 2	11.16
4.792	26.34	46	-19.66	Phase 2	11.16
4.983	26.13	46	-19.87	Phase 2	11.16
5.460	27.75	50	-22.25	Phase 2	11.16
5.559	27.99	50	-22.01	Phase 2	11.16
5.561	23.82	50	-26.18	Phase 1	11.16
12.521	23.48	50	-26.52	Phase 1	11.24
12.521	25.84	50	-24.16	Phase 2	11.24
13.909	31.55	50	-18.45	Phase 2	11.24
13.911	31.59	50	-18.41	Phase 1	11.24
15.299	29.78	50	-20.22	Phase 2	11.23
15.302	29.58	50	-20.42	Phase 1	11.23
16.692	28.58	50	-21.42	Phase 2	11.33
16.697	28.87	50	-21.13	Phase 1	11.33
18.085	23.54	50	-26.46	Phase 1	11.37

Results: Complies by 2.8 dB

4.4.4 Test Configuration Photographs

The following photographs show the testing configurations used.



5.0 List of test equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Asset #	Cal Int	Cal Due
EMI Receiver	Rohde and Schwarz	ESU40	ITS 00961	12	03/09/21
EMI Receiver	Rohde and Schwarz	ESR	ITS 01607	12	11/05/21
Loop Antenna	EMCO	6512	ITS 01598	12	11/03/21
BI-Log Antenna	Teseq	CBL611D	ITS 01058	12	11/12/21
Pre-Amplifier	Sonoma Instrument	310N	ITS 01493	12	02/07/21
LISN	FCC	FCC-LISN-50-50-M-H	ITS 00551	12	11/16/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01462	12	09/01/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01465	12	09/01/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01470	12	09/01/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01342	12	09/01/21
Loop Sensor	Solar Electronics	7334-1	ITS 01608	12	11/10/21
Temperature Test Chamber	ESPEC	BTX-475	ITS 01436	12	10/20/21

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
BAT-EMC	Nexio	3.19.1.19	Haws 1-27-2021.bpp
RS Commander	Rohde Schwarz	1.6.4	Not Applicable (Screen grabber)

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewer Initials	Date	Change
1.0 / G104568519	AC	KV	February 09, 2021	Original document