

HAWS CORPORATION TEST REPORT

SCOPE OF WORK

EMC TESTING – Haws Electronic Water Cooler, Model: 1202SFH & 1212SFH;
Model(s) Not Tested but declared equivalent by the client: 1201SFH, 1211SH, 1211SFH, 1212SH

REPORT NUMBER

103770502MPK-004

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August 14, 2020

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TEST REPORT

(FULL COMPLIANCE)

Report Number: 103770502MPK-004

Project Number: G103770502

Report Issue Date: August 14, 2020

Model(s) Tested: 1202SFH & 1212SFH

Model(s) Not Tested but declared equivalent by the client: 1201SFH, 1211SH, 1211SFH, 1212SH

Standards: FCC Part 15, Subpart B
Industry Canada ICES-003

Class A

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

Report prepared by

A handwritten signature in black ink, appearing to read "Aaron Chang".

Aaron Chang / EMC Project Engineer

Report reviewed by

A handwritten signature in blue ink, appearing to read "Krishna Vemuri".

Krishna Vemuri / EMC Manager

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1. Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

2. Executive Test Plan and Test Summary

Tests were performed to the following standards per FCC Part 15 Subpart B and Industry Canada ICES-003 Issue 6:

Radiated Emissions

ANSI C63.4: 2014, Class A

AC Mains Conducted Emissions

ANSI C63.4: 2014, Class A

Test Plan

The EUT shall be tested according to the table below:

FCC Part 15 Subpart B, ICES-003 Emissions Test Requirements Proposed Tests			
Basic Standard	Test Specifications	Applicable Ports	Test Mode and Configuration
ANSI C63.4	Radiated Emission	-	120 Vac 60 Hz, Normal Mode
ANSI C63.4	Conducted Emission	-	120 Vac 60 Hz, Normal Mode

EXECUTIVE SUMMARY

FCC Part 15 Subpart B, ICES-003 Emissions Test Requirements Summary of Test Results			
Basic Standard	Test Specifications	Applicable Ports	Pass/Fail Comments
ANSI C63.4	Radiated Emission	-	Complies
ANSI C63.4	Conducted Emission	-	Complies

3. Client Information, Environmental Conditions, Performance Level**This EUT was tested at the request of:**

Client: HAWS CORPORATION
1455 Kleppe Lnue
Sparks, NV 89432

Contact: Sam Hong
Telephone: (775) 772-9235
Email: Samh@hawSCO.com

4. Description of Equipment Under Test and Variant Models**Legal Manufacturer:** Not provided

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Electric water cooler	Haws Corporation.	1202SFH	MPK2008050858-003
Electric water cooler	Haws Corporation.	1212SFH	MPK2008050858-001

Receive Date:	August 4, 2020	Test Started:	August 4, 2020
Received Condition:	Good	Test Completed:	August 6, 2020
Type:	Production		

Description of Equipment Under Test (provided by client)

The Equipment Under Test is a wall mounted, ADA, stainless steel electric water cooler with filtration, hi-low, and bottle filler options.

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	The Equipment Under Test is a wall mounted, ADA, stainless steel electric water cooler with filtration, hi-low, and bottle filler options. The 1202SFH and 1212SFH are hands free versions of 1202SF and 1212SF. The added sensors are Banner S18SP6FF50 and Q20PFF100Q7. The model can have either a front sensor or bottom sensor. With models with a Push Bar, it can have either a front sensor with Push Bar or bottom sensor with Push Bar.

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	The EUT exercise program used during testing was provided by Haws Corporation.

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

Haws Electronic Water Cooler, Models: 1202SFH & 1212SFH were used for testing. Per manufacture, the following depopulated models were covered.

1/ Model Tested: 1202SFH
Model Covered: 1201SFH

2/ Model Tested: 1212SFH
Model Covered: 1211SH, 1211SFH, 1212SH.

5. System Setup and Method

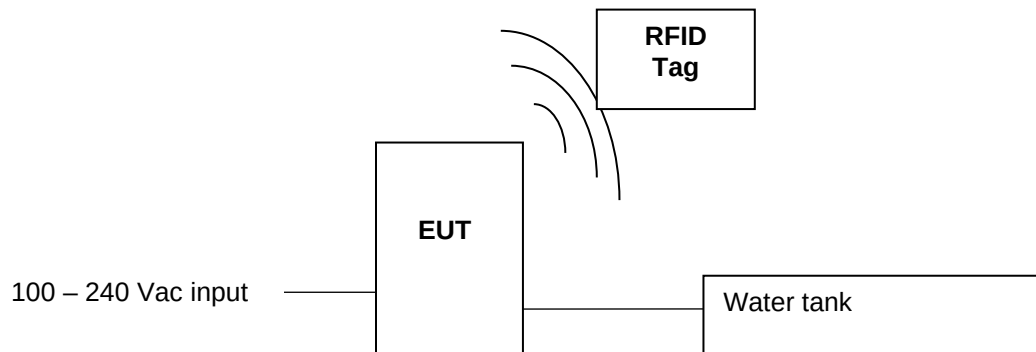
Equipment Under Test			
Description	Manufacturer	Model	Serial Number
Electric water cooler	Haws Corporation.	1202SFH	MPK2008050858-003
Electric water cooler	Haws Corporation.	1212SFH	MPK2008050858-001

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

5.1 Method

Configuration as required by ANSI C63.4.

5.2 EUT Block Diagram



5.3 EUT Pictures



Model: 1202SFH



Model: 1212SFH

5.4 EUT Labels

Assembled in USA by: Haws Corporation 1455 Kleppe Lane Sparks, NV USA	Model: 1202SFH Volts 115VAC PH 1 Hz 60 Amps 5A Refrig. 4.09 oz (116g) R-134a Design Pressure - PS1: 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. FCC ID: 2AUAH-12008FH IC: 2535B-12008FH CAN ICES - 3(A)/NMB-3(A)
 NSF/ANSI 61 NSF/ANSI 372		
CAUTION - SEE INSTALLATION INSTRUCTIONS. ATTENTION - CONSULTEZ LES INSTRUCTIONS D'INSTALLATION.		0510001051 Rev 1

Assembled in USA by: Haws Corporation 1455 Kleppe Lane Sparks, NV USA	Model: 1212SFH Volts 115VAC PH 1 Hz 60 Amps 5A Refrig. 4.09 oz (116g) R-134a Design Pressure - PS1: 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. FCC ID: 2AUAH-12008FH IC: 2535B-12008FH CAN ICES - 3(A)/NMB-3(A)
 NSF/ANSI 61 NSF/ANSI 372		
CAUTION - SEE INSTALLATION INSTRUCTIONS. ATTENTION - CONSULTEZ LES INSTRUCTIONS D'INSTALLATION.		0510001055 Rev 1

5.5 Justification

The EUT was configured in table-top configuration for testing, as specified by Haws Corporation. The highest clock frequency used was 48MHz as specified by Haws Corporation so Radiated Emissions were performed up to 1GHz for FCC Part 15B.

During testing/evaluation, the front sensor was installed on the LO unit and the bottom sensor on the HI unit by the manufacturer. The sensors were Banner S18SP6FF50 and Q20PFF100Q7.

5.6 Modifications Required for Compliance

No modifications were installed by Intertek to achieve compliance.

5.7 EUT Performance Criteria and Monitoring

Not applicable.

6. Radiated Emissions (ANSI C63.4)

6.1 Method

Tests are performed in accordance with ANSI C63.4.

TEST SITE: 10 m ALSE

10 m ALSE: The test facility is located at 1365 Adams Court, Menlo Park, California. The test site is a 10-meter semi-anechoic chamber. The site meets the characteristics of ANSI C63.4:2014. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote-controlled non-conductive antenna mast is used to scan the antenna height from one to four meters.

The A2LA certificate number for this site is 1755-01.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisprr
Radiated Emissions, 10m	30-200 MHz	4.7 dB	6.3 dB
Radiated Emissions, 10m	200-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	1-18 GHz	5.1 dB	5.2 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation:

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

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

Where: FS = Field Strength in dB μ V/m
RA = Receiver Amplitude (including preamplifier) in dB μ V
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV, the following was used:

$$UF = 10^{(NF/20)}$$

Where: UF = Net Reading in μ V
NF = Net Reading in dB μ V

Example:

FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0
UF = $10^{(32 \text{ dB}\mu\text{V}/20)} = 39.8 \mu\text{V/m}$

6.2 Test Equipment Used

See Section 8.0 for specific equipment used for this test.

Software Utilized:

Name	Manufacturer	Version
BAT-EMC	NEXIO	3.19.1.19

6.3 Result

The sample tested was found to **comply**.

6.4 Setup Photograph

Model: 1202SFH



6.4 Setup Photograph (Continued)

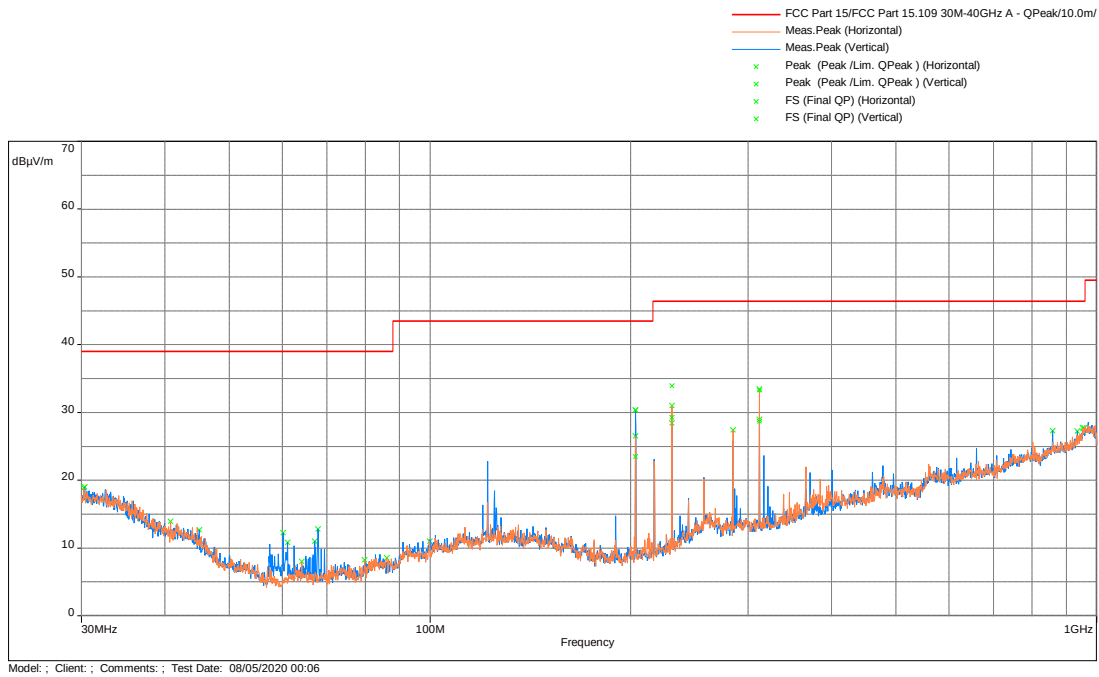
Model: 1212SFH



6.5 Plot/Data

The EUT met the radiated disturbance requirements of FCC Part 15 Subpart B and ICES-003 for a Class A Device.

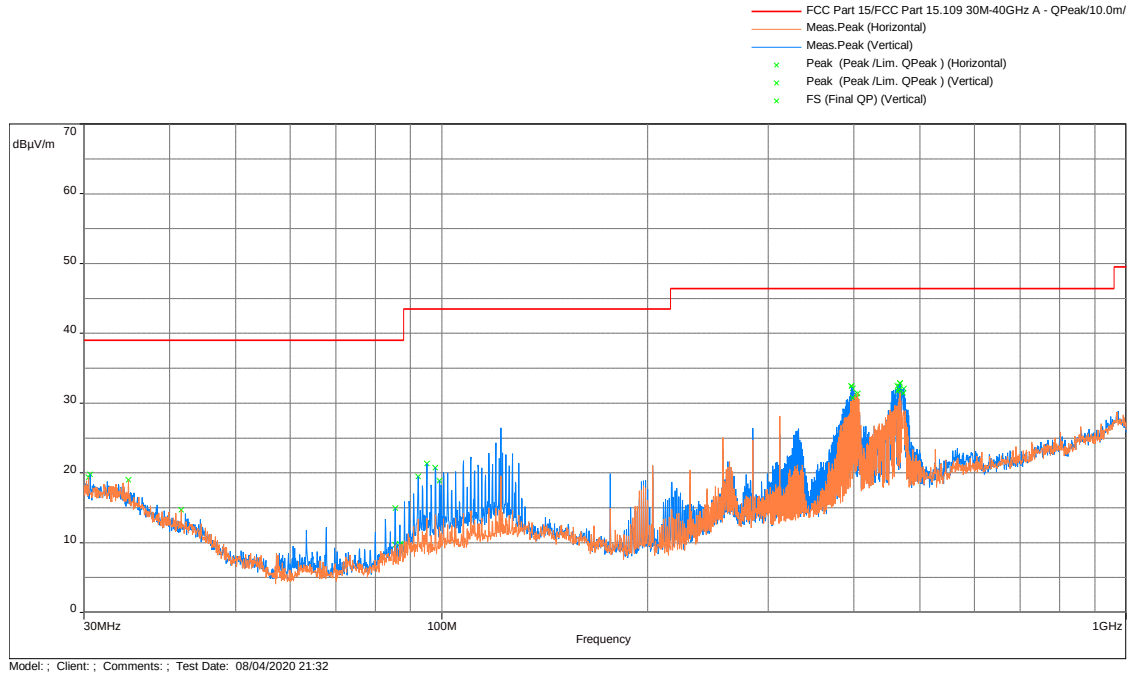
FCC Part 15 Subpart B and ICES-003 Radiated Disturbance 30MHz to 1GHz @ 120 Vac 60 Hz Model: 1202SFH



Frequency (MHz)	QP FS dB(μV/m)	Limit dB(μV/m)	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
203.392	30.33	43.5	-13.17	13	3.9	Horizontal	47.92	-17.58
230.510	33.93	46.4	-12.47	77.5	3.43	Horizontal	50.26	-16.34
311.870	33.27	46.4	-13.13	31.5	3.37	Horizontal	46.18	-12.92
203.395	23.47	43.5	-20.03	133.75	1.32	Vertical	41.06	-17.58
230.513	29.24	46.4	-17.16	197	1.09	Vertical	45.58	-16.34
311.868	28.66	46.4	-17.74	53.5	1	Vertical	41.58	-12.92

Result:	Complies by 12.47 dB
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FCC Part 15 Subpart B and ICES-003 Radiated Disturbance
30MHz to 1GHz @ 120 Vac 60 Hz
Model: 1212SFH



Frequency (MHz)	QP FS dB(µV/m)	Limit dB(µV/m)	Margin (dB)	Azimuth (deg)	Height (m)	Polarity	RA (dBuV)	Correction (dB)
396.912	32.46	46.4	-13.94	188	3.8	Vertical	42.73	-10.27
398.336	30.76	46.4	-15.64	119.5	3.89	Vertical	40.93	-10.17
463.070	31.73	46.4	-14.67	159.5	1	Vertical	40.54	-8.84
465.786	31.99	46.4	-14.41	159.5	1	Vertical	40.72	-8.73
467.235	32.87	46.4	-13.53	158.5	1	Vertical	41.6	-8.73
472.742	31.4	46.4	-15.0	162.75	1	Vertical	40.01	-8.61

Result: **Complies by 13.53 dB**

Intertek

REPORT NUMBER: 103770502MPK-004

Issued: August 14, 2020

Test Personnel:	<u>Aaron Chang</u>	Test Date:	<u>August 4, 2020</u>
Supervising/ Reviewing Engineer:		Limit Applied:	<u>Class A</u>
(Where Applicable)			
Product Standard:	<u>FCC Part 15 Subpart B, ICES-003</u>		
Input Voltage:	<u>120Vac 60Hz</u>		
Pretest Verification w/ Ambient Signals or BB Source:	<u>BB Source</u>	Ambient Temperature:	<u>23 °C</u>
		Relative Humidity:	<u>50 %</u>
		Atmospheric Pressure:	<u>30 in Hg</u>

Deviations, Additions, or Exclusions: None

7. Conducted Emissions (ANSI C63.4)

7.1 Method

Tests are performed in accordance with ANSI C63.4.

TEST SITE: 10 m ALSE

10 m ALSE: The test facility is located at 1365 Adams Court, Menlo Park, California. The test site is a 10-meter semi-anechoic chamber. The site meets the characteristics of ANSI C63.4:2014.

The A2LA certificate number for this site is 1755-01.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	U _{CISPR}
AC Line Conducted Emissions	150 kHz – 30 MHz	2.1 dB	3.4 dB

As shown in the table above our conducted emissions U_{lab} is less than the corresponding U_{CISPR} reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation:

The following is how net line-conducted readings were determined:

$$NF = RF + LF + CF + AF$$

Where:

- NF = Net Reading in dBμV
- RF = Reading from receiver in dBμV
- LF = LISN or ISN Correction Factor in dB
- CF = Cable Correction Factor in dB
- AF = Attenuator Loss Factor in dB

To convert from dBμV to μV or mV, the following was used:

$$UF = 10^{(NF/20)}$$

Where:

- UF = Net Reading in μV
- NF = Net Reading in dBμV

Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V}/20)} = 285.1 \text{ }\mu\text{V/m}$$

7.2 Test Equipment Used

See Section 8.0 for specific equipment used for this test.

Software Utilized:

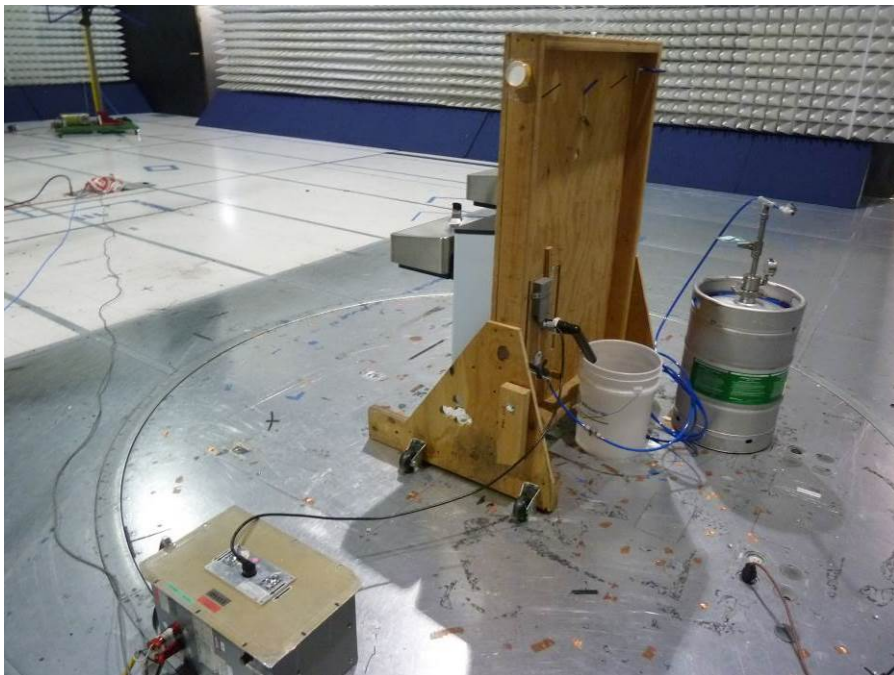
Name	Manufacturer	Version
BAT-EMC	NEXIO	3.19.1.19

7.3 Result

The sample tested was found to **comply**.

7.4 Setup Photograph

Model: 1202SFH



7.4 Setup Photograph (Continued)

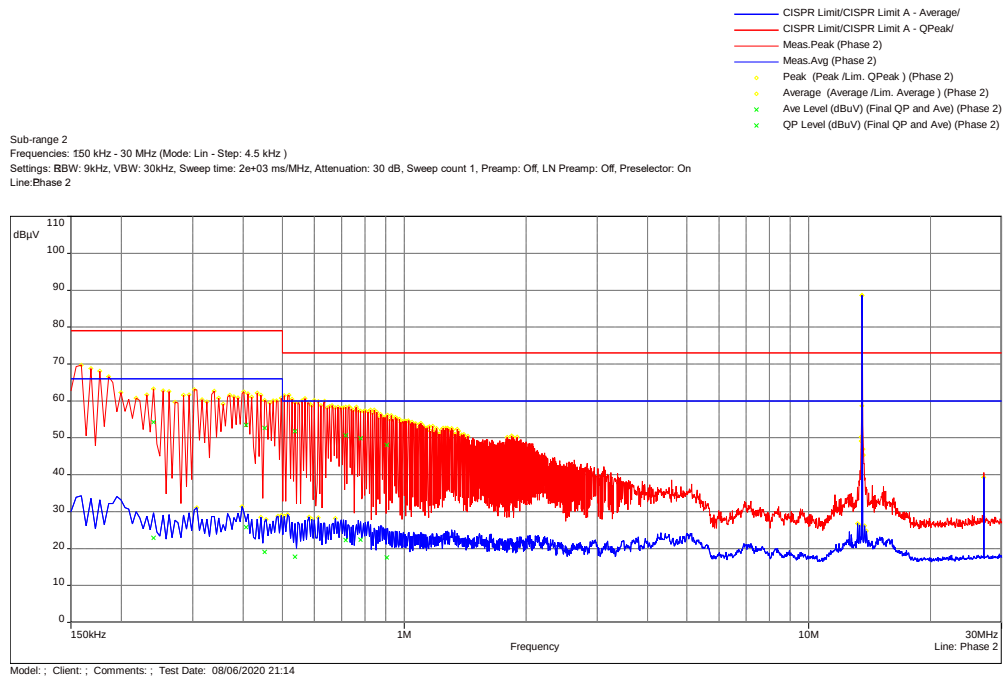
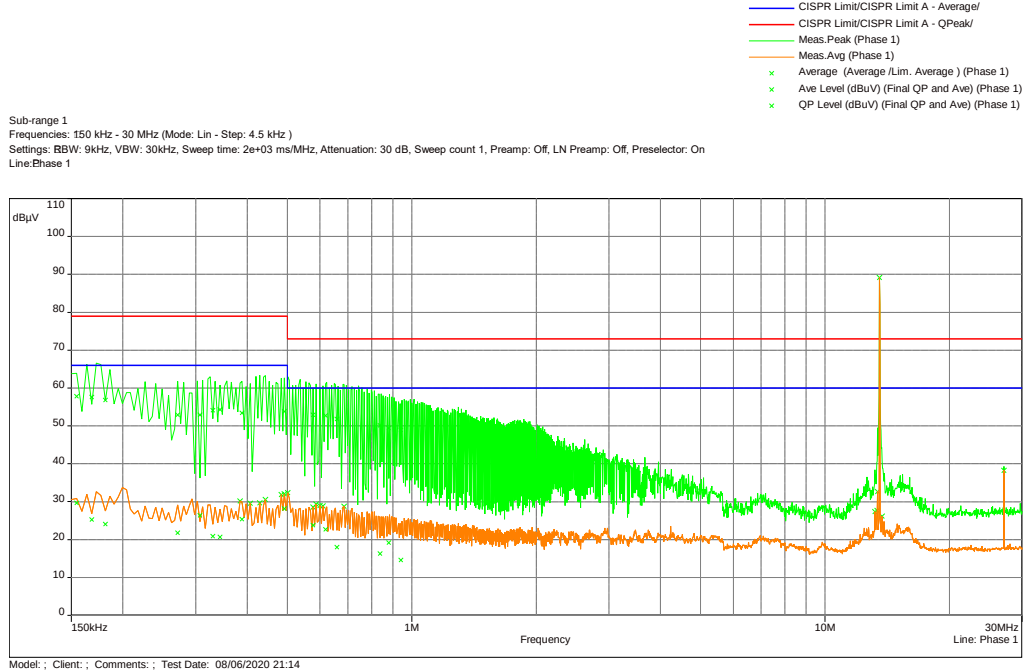
Model: 1212SFH



7.5 Plot/Data

The EUT met the conducted disturbance requirements for FCC Part 15 Subpart B and ICES-003 for a Class A Device.

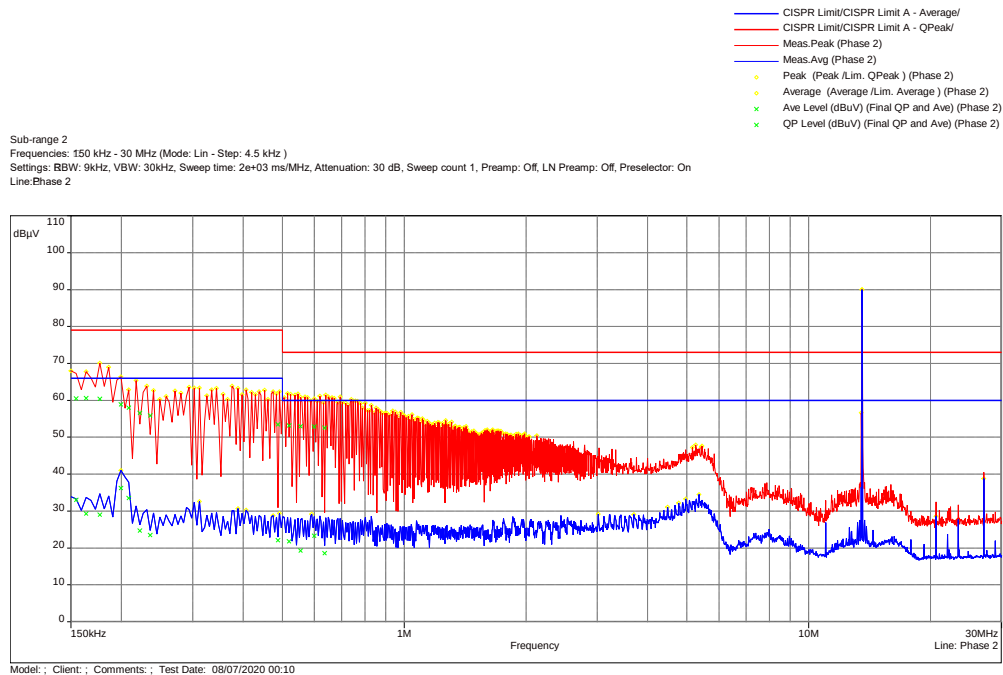
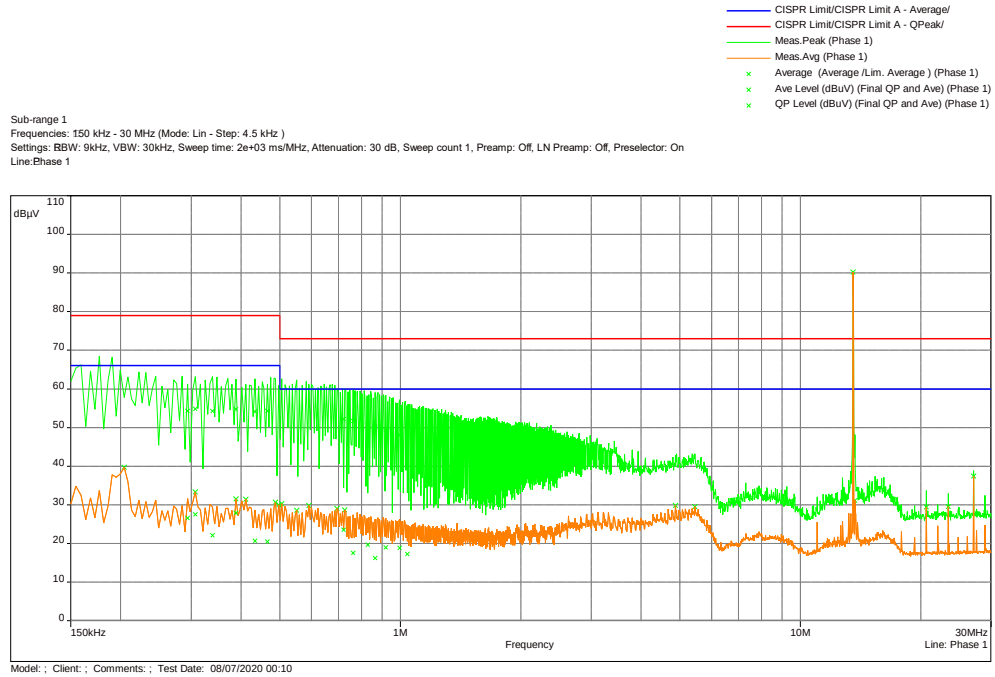
FCC Part 15 Subpart B and ICES-003 Conducted Disturbance @ 120 Vac 60 Hz Model: 1202SFH



Frequency (MHz)	Ave Level (dBuV) (dBμV)	QP Level (dBuV) (dBμV)	Ave Limit (dBuV)	QP Limit (dBuV)	Ave Margin (dB)	QP Margin (dB)	Line	Correction (dB)
0.156	29.64	57.76	66	69	-36.36	-11.24	Phase 1	1.31
0.166	25.24	57.62	66	69	-40.76	-11.38	Phase 1	1.2
0.183	24.1	56.84	66	69	-41.9	-12.16	Phase 1	1.06
0.271	21.74	52.94	66	69	-44.26	-16.06	Phase 1	0.68
0.306	26.4	52.88	66	69	-39.6	-16.12	Phase 1	0.61
0.330	20.88	54.1	66	69	-45.12	-14.9	Phase 1	0.58
0.343	20.7	54.31	66	69	-45.3	-14.69	Phase 1	0.56
0.387	25.4	53.44	66	69	-40.6	-15.56	Phase 1	0.51
0.492	28.19	53.76	66	69	-37.81	-15.24	Phase 1	0.46
0.578	23.78	52.94	60	73	-36.22	-20.06	Phase 1	0.44
0.617	22.67	52.68	60	73	-37.33	-20.32	Phase 1	0.44
0.660	17.94	51.85	60	73	-42.06	-21.15	Phase 1	0.44
0.837	16.29	50.13	60	73	-43.71	-22.87	Phase 1	0.4
0.880	19.13	49.45	60	73	-40.87	-23.55	Phase 1	0.4
0.942	14.59	48.92	60	73	-45.41	-24.08	Phase 1	0.4
0.240	22.87	54.24	60	73	-37.13	-18.76	Phase 2	0.8
0.408	25.79	53.47	60	73	-34.21	-19.53	Phase 2	0.51
0.451	19.09	52.67	60	73	-40.91	-20.33	Phase 2	0.48
0.539	17.77	51.77	60	73	-42.23	-21.23	Phase 2	0.46
0.719	22.32	50.68	60	73	-37.68	-22.32	Phase 2	0.44
0.778	22.37	49.85	60	73	-37.63	-23.15	Phase 2	0.42
0.905	17.61	48.07	60	73	-42.39	-24.93	Phase 2	0.41

Note. The EUT consists of 13.56MHz intentional transmitter and it was turned on during testing. The signals observed from intentional transmitter were exempted from the scope of FCC Part 15 Subpart B and ICES-003.

**FCC Part 15 Subpart B and ICES-003 Conducted Disturbance @ 120 Vac 60 Hz
Model: 1212SFH**



Intertek

REPORT NUMBER: 103770502MPK-004

Issued: August 14, 2020

Frequency (MHz)	Ave Level (dBuV) (dBμV)	QP Level (dBuV) (dBμV)	Ave Limit (dBuV)	QP Limit (dBuV)	Ave Margin (dB)	QP Margin (dB)	Line	Correction (dB)
0.293	26.52	54.2	66	79	-39.48	-24.8	Phase 1	0.64
0.307	27.47	54.77	66	79	-38.53	-24.23	Phase 1	0.61
0.338	22.09	54.22	66	79	-43.91	-24.78	Phase 1	0.57
0.390	27.91	54.73	66	79	-38.09	-24.27	Phase 1	0.51
0.435	20.65	54.12	66	79	-45.35	-24.88	Phase 1	0.48
0.465	20.47	54.2	66	79	-45.53	-24.8	Phase 1	0.47
0.724	23.51	52.13	60	73	-36.49	-20.87	Phase 1	0.44
0.762	17.48	51.68	60	73	-42.52	-21.32	Phase 1	0.42
0.829	19.63	50.67	60	73	-40.37	-22.33	Phase 1	0.4
0.863	16.17	50.08	60	73	-43.83	-22.92	Phase 1	0.4
0.917	18.96	49.26	60	73	-41.04	-23.74	Phase 1	0.4
0.994	18.87	48.09	60	73	-41.13	-24.91	Phase 1	0.39
1.042	17.26	47.63	60	73	-42.74	-25.37	Phase 1	0.39
0.156	32.99	60.49	60	73	-27.01	-12.51	Phase 2	1.36
0.163	29.32	60.59	60	73	-30.68	-12.41	Phase 2	1.28
0.175	28.98	60.39	60	73	-31.02	-12.61	Phase 2	1.17
0.199	36.17	58.9	60	73	-23.83	-14.1	Phase 2	0.99
0.207	33.46	57.97	60	73	-26.54	-15.03	Phase 2	0.94
0.224	24.72	56.59	60	73	-35.28	-16.41	Phase 2	0.86
0.235	23.51	55.87	60	73	-36.49	-17.13	Phase 2	0.82
0.487	22.06	53.43	60	73	-37.94	-19.57	Phase 2	0.46
0.520	21.73	53.11	60	73	-38.27	-19.89	Phase 2	0.45
0.556	19.25	52.94	60	73	-40.75	-20.06	Phase 2	0.46
0.601	23.26	52.87	60	73	-36.74	-20.13	Phase 2	0.45
0.635	18.52	52.55	60	73	-41.48	-20.45	Phase 2	0.45

Note. The EUT consists of 13.56MHz intentional transmitter and it was turned on during testing. The signals observed from intentional transmitter were exempted from the scope of FCC Part 15 Subpart B and ICES-003.

Intertek

REPORT NUMBER: 103770502MPK-004

Issued: August 14, 2020

Test Personnel: Aaron Chang
Supervising/
Reviewing Engineer:
(Where Applicable) _____
Product Standard: FCC Part 15 Subpart B, ICES-003
Input Voltage: 120Vac 60Hz
Pretest Verification w/
Ambient Signals or
BB Source: BB Source

Test Date: August 6, 2020
Limit Applied: Class A
Ambient Temperature: 22 °C
Relative Humidity: 50 %
Atmospheric Pressure: 30 in Hg

Deviations, Additions, or Exclusions: None

8. List of Test Equipment**Emissions Test Equipment List**

Equipment	Manufacturer	Model/Type	Asset No.	Calibration Interval	Cal Due
BI-Log Antenna	Antenna Research	LPB-2513	ITS 00355	12	04/28/21
Pre-Amplifier	Sonoma Instrument	310N	ITS 01493	12	02/07/21
EMI Receiver	Rohde and Schwarz	ESU40	ITS 01375	12	06/16/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01330	12	06/11/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 00465	12	06/11/21
RF Cable	TRU Corporation	TRU CORE 300	ITS 01470	12	06/11/21
LISN	FCC	FCC-LISN-50-50-M-H	ITS 00551	12	11/13/20
10m Semi-anechoic chamber	Panashield	10m Chamber	ITS 00984	36	9/11/21

9. Revision History

Revision Level	Date	Report Number	Prepared by	Reviewed by	Notes
1	August 14, 2020	103770502MPK-004	AC	KV	Original Issue

END OF REPORT