

FCC Test Report

FCC ID: 2ADXY59508

Original Grant

Report No. : TB-FCC154930
Applicant : The Vollrath Company, LLC
Equipment Under Test (EUT)
EUT Name : Induction Buffet Warmer
Model No. : 5950875
Series Model No. : 5950880, 59508DW
Brand Name : VOLLRATH
Receipt Date : 2017-06-26
Test Date : 2017-06-27 to 2015-07-03
Issue Date : 2017-07-04
Standards : FCC Part 18 : 2016
Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC requirements

Test/Witness Engineer

: *WANG SU*

Approved& Authorized

: *Long Li*



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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1. General Information about EUT

1.1 Client Information

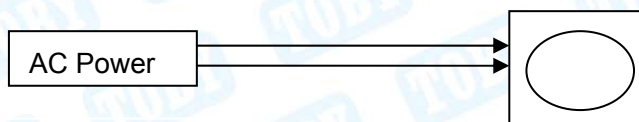
Applicant : The Vollrath Company, LLC
Address : 1236 North 18th Street, Sheboygan, WI 53081
Manufacturer : Luxine (Xi'an) Electronics Co., Ltd.
Address : 4th Floor, Building B, Seeker Industrial Park, 2nd Jin Ye Rd, Hi-tech Development Zone, Xi'an Shaanxi, China 710075

1.2 General Description of EUT (Equipment Under Test)

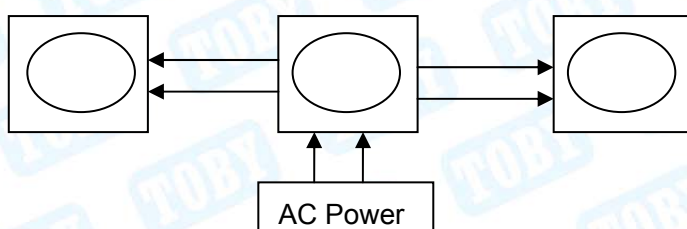
EUT Name	:	Induction Buffet Warmer
Models No.	:	5950875, 5950880, 59508DW
Model difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is the color of the appearance and installation: 5950875: Countertop, Black; 5950880: Countertop, Natural; 59508DW: Drop-in, added a remote control box, connected by a USB cable.
Power Supply	:	AC 120V, 60Hz
Power	:	One unit maximum power: 375W Three units maximum power: 3*375W
Connecting I/O Port(s)	:	Please refer to the User's Manual
Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3 Block Diagram Showing the Configuration of System Tested

One Unit Working



Three Units Working



1.4 Description of Support Units

The EUT has been tested with water up to 80% of the maximum capacity of the boiler.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of the EUT operation mode, and the worst Case is when the EUT is operation with the maximum power, so the conducted and radiated emission data of below only showed the worst case.

1.6 Test Location

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at: 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

2. Test Summary

FCC Part 18: 2016			
Standard Section	Test Item	Test Method	Judgment
18.305	Radiated Emission (9KHz to 30MHz)	FCC OST/MP-5:1986	PASS
18.307(a)	Conducted Emission (9KHz to 30MHz)	FCC OST/MP-5:1986	PASS
Note: N/A is an abbreviation for Not Applicable.			

3. Conducted Emission Test

3.1 Test Standard and Limit

3.1.1 Test Standard

FCC Part 18.307(a)

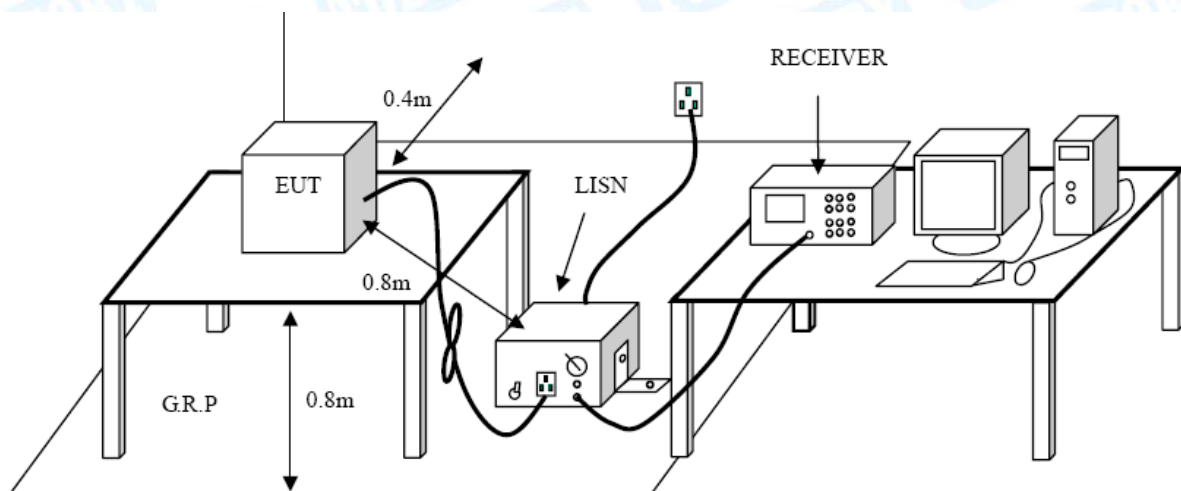
3.1.2 Test Limit

Conducted Emission Test Limit

Frequency (MHz)	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
0.009 ~ 0.05	110	--
0.05 ~ 0.15	90 ~ 80	--
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

Notes: (1) *Decreasing linearly with logarithm of the frequency.
 (2) The lower limit shall apply at the transition frequencies.

3.2 Test Setup



3.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from the nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

3.4 Deviation

The test is no deviation from the standard.

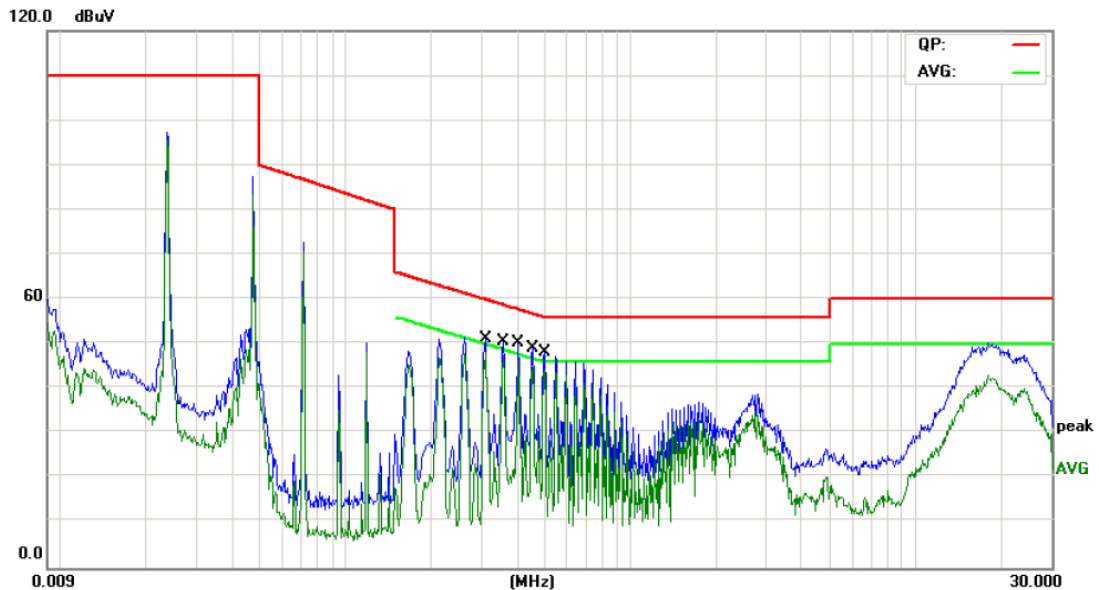
3.5 Test Equipment Used

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100321	Jul. 22, 2016	Jul. 21, 2017
50ΩCoaxial Switch	Anritsu	MP59B	X10321	Jul. 22, 2016	Jul. 21, 2017
L.I.S.N	Rohde & Schwarz	ENV216	101131	Jul. 22, 2016	Jul. 21, 2017
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 22, 2016	Jul. 21, 2017

3.6 Test Data

Please see the next page.

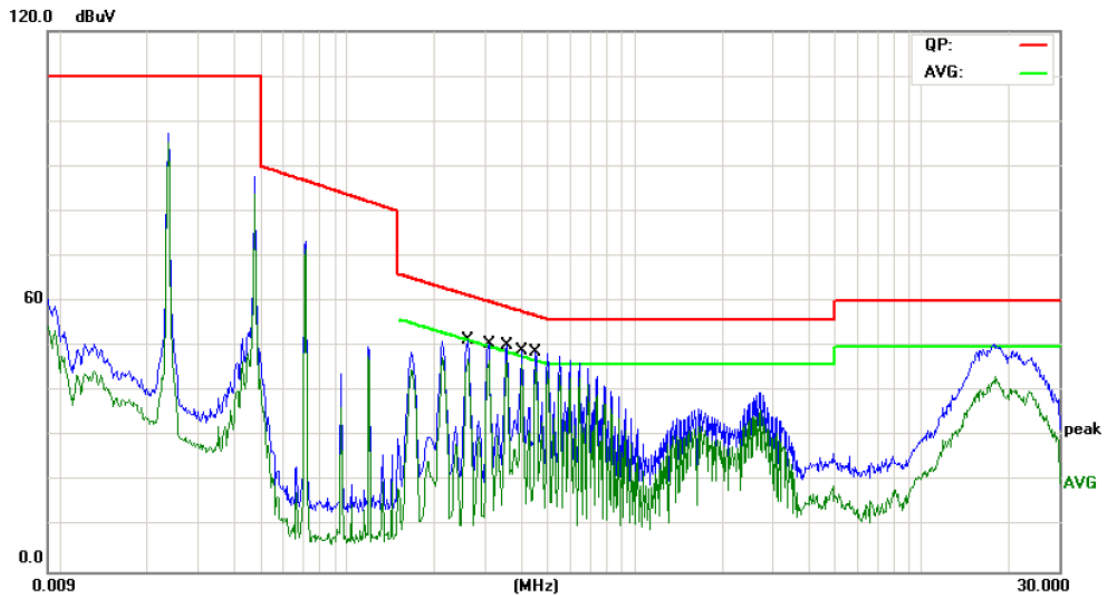
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	One Unit working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.3100	40.42	10.08	50.50	59.97	-9.47	QP
2		0.3100	37.63	10.08	47.71	49.97	-2.26	AVG
3		0.3580	39.70	10.07	49.77	58.77	-9.00	QP
4		0.3580	36.88	10.07	46.95	48.77	-1.82	AVG
5		0.4060	39.01	10.05	49.06	57.73	-8.67	QP
6	*	0.4060	36.11	10.05	46.16	47.73	-1.57	AVG
7		0.4540	37.96	10.04	48.00	56.80	-8.80	QP
8		0.4540	35.06	10.04	45.10	46.80	-1.70	AVG
9		0.5020	36.99	10.02	47.01	56.00	-8.99	QP
10		0.5020	34.15	10.02	44.17	46.00	-1.83	AVG

Emission Level= Read Level+ Correct Factor

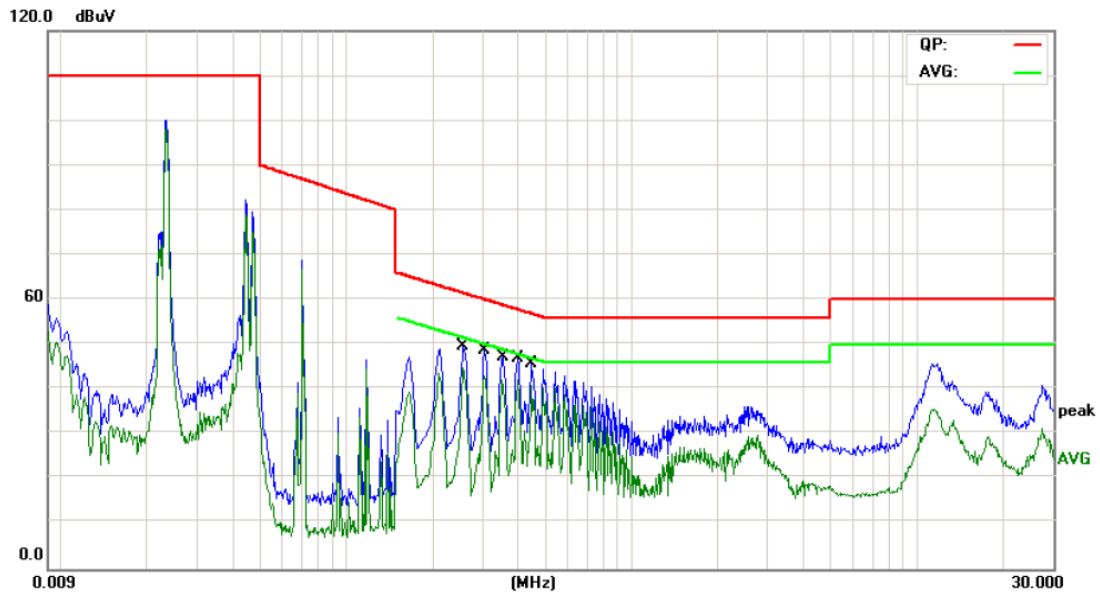
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Neutral		
Test Mode:	One Unit working		
Remark:	Only worse case is reported		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2620	40.01	10.02	50.03	61.36	-11.33	QP
2		0.2620	37.16	10.02	47.18	51.36	-4.18	AVG
3		0.3100	38.94	10.02	48.96	59.97	-11.01	QP
4		0.3100	36.14	10.02	46.16	49.97	-3.81	AVG
5		0.3580	37.31	10.02	47.33	58.77	-11.44	QP
6		0.3580	34.50	10.02	44.52	48.77	-4.25	AVG
7		0.4060	35.54	10.02	45.56	57.73	-12.17	QP
8		0.4060	32.65	10.02	42.67	47.73	-5.06	AVG
9		0.4500	38.73	10.02	48.75	56.87	-8.12	QP
10	*	0.4500	35.83	10.02	45.85	46.87	-1.02	AVG

Emission Level= Read Level+ Correct Factor

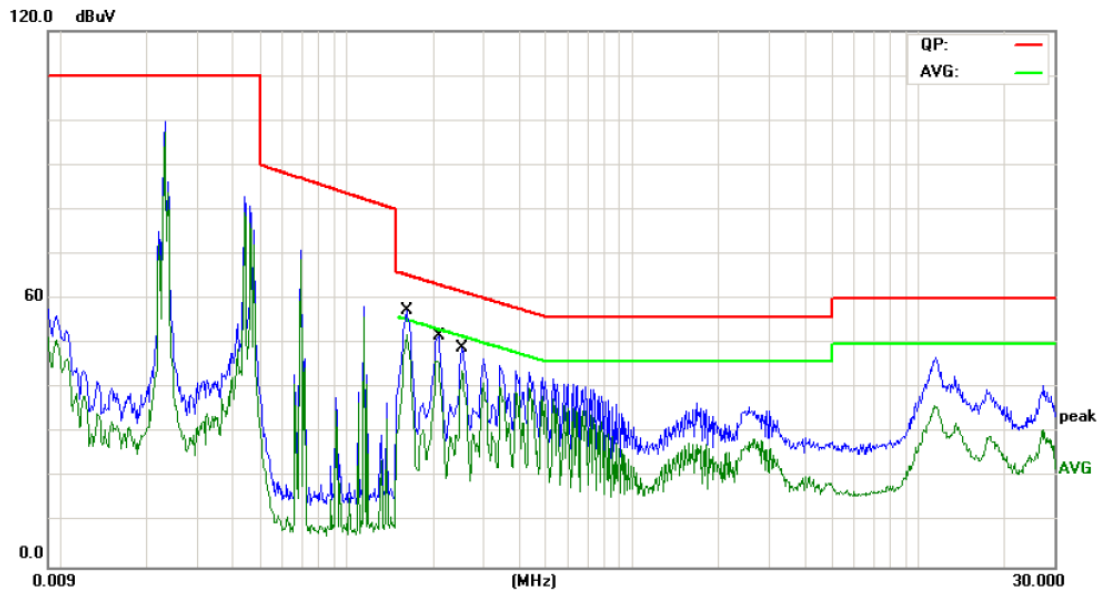
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	Three Units working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2580	36.07	10.02	46.09	61.49	-15.40	QP
2	*	0.2580	32.77	10.02	42.79	51.49	-8.70	AVG
3		0.3060	32.44	10.02	42.46	60.08	-17.62	QP
4		0.3060	29.21	10.02	39.23	50.08	-10.85	AVG
5		0.3540	29.03	10.02	39.05	58.87	-19.82	QP
6		0.3540	26.01	10.02	36.03	48.87	-12.84	AVG
7		0.3980	32.10	10.02	42.12	57.89	-15.77	QP
8		0.3980	29.00	10.02	39.02	47.89	-8.87	AVG
9		0.4460	26.70	10.02	36.72	56.95	-20.23	QP
10		0.4460	23.64	10.02	33.66	46.95	-13.29	AVG

Emission Level= Read Level+ Correct Factor

EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Neutral		
Test Mode:	Three Units working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1620	45.84	9.94	55.78	65.36	-9.58	QP
2	*	0.1620	42.37	9.94	52.31	55.36	-3.05	AVG
3		0.2100	37.44	10.02	47.46	63.20	-15.74	QP
4		0.2100	33.92	10.02	43.94	53.20	-9.26	AVG
5		0.2540	36.76	10.02	46.78	61.62	-14.84	QP
6		0.2540	33.41	10.02	43.43	51.62	-8.19	AVG

Emission Level= Read Level+ Correct Factor

4. Radiated Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard

FCC Part 18.305

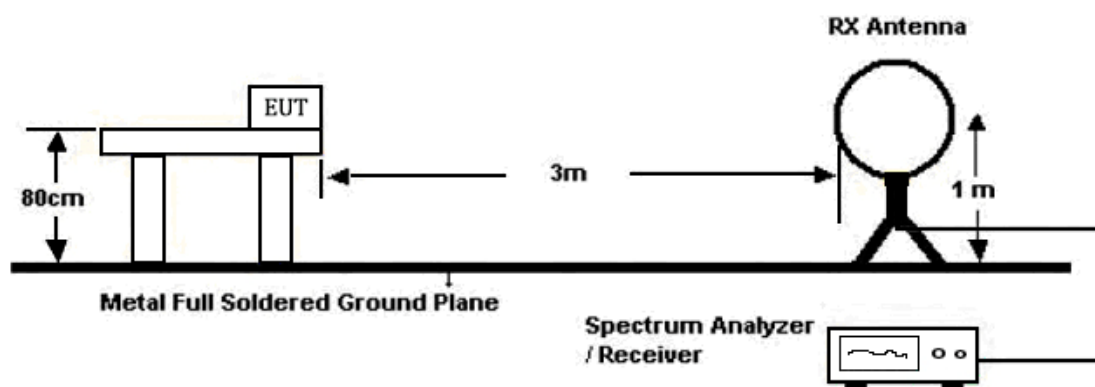
4.1.2 Test Limit

Radiated Emission Limit (9kHz~30MHz)

Frequency (MHz)	Field Strength Limit (microvolt/meter)	Measurement Distance (meters)
0.009~30	1500	30

Note: Emission Level(dBuV/m)=20log Emission Level(uV/m)

4.2 Test Setup



4.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 30MHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) An initial scan was performed in the 3m chamber using the spectrum analyzer in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by a loop antenna.
- (3) For the actual test configuration, please see the test setup photo.

4.4 Deviation

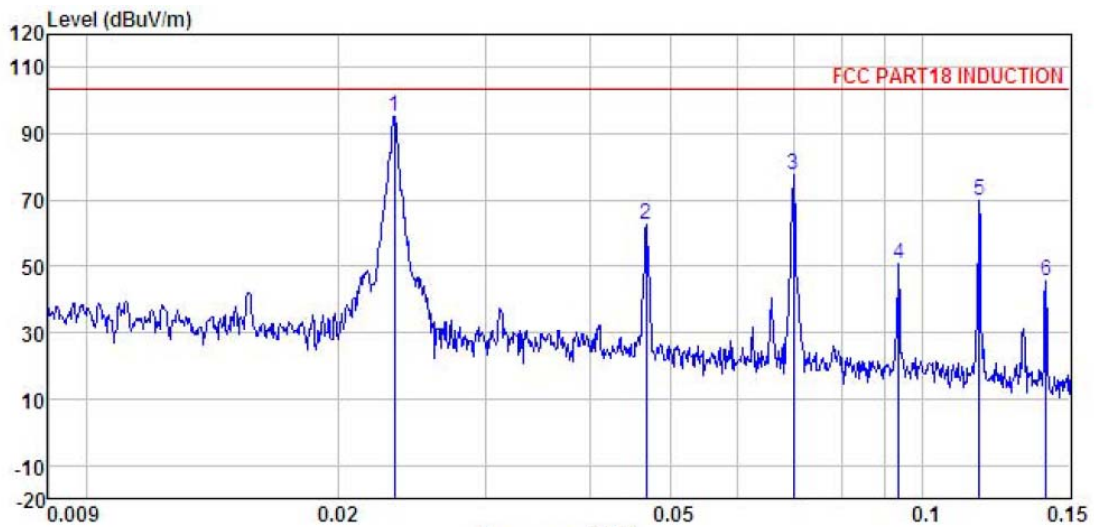
For Radiated Emission, test at 3m distance instead of 30m distance. 40dB was plus to the limit of 30m measurement limit. More details refer to FCC part 15.31(f)(2).

4.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Jul. 22, 2016	Jul. 21, 2017
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Jul. 22, 2016	Jul. 21, 2017
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.25, 2017	Mar. 24, 2018
Pre-amplifier	HP	11909A	185903	Mar.25, 2017	Mar. 24, 2018
Pre-amplifier	HP	8447B	3008A00849	Mar.24, 2017	Mar. 23, 2018
Cable	HUBERSUHNER	100	SUCOFLEX	Mar.24, 2017	Mar. 23, 2018
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Loop Antenna	Laplace Instrument	RF300	100020	Mar.24, 2017	Mar. 23, 2018

4.6 Test Data

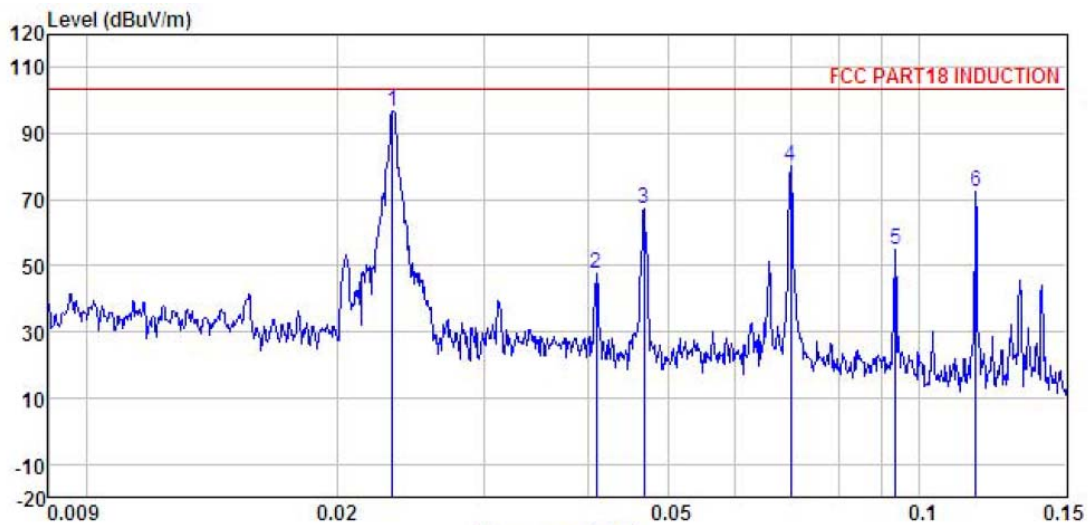
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.023	81.10	14.02	0.08	0.00	95.20	103.50	-8.30	
2	0.047	48.68	13.81	0.17	0.00	62.66	103.50	-40.84	
3	0.070	63.86	13.80	0.19	0.00	77.85	103.50	-25.65	
4	0.094	36.90	13.75	0.18	0.00	50.83	103.50	-52.67	
5	0.117	56.45	13.35	0.21	0.00	70.01	103.50	-33.49	
6	0.140	32.60	12.57	0.25	0.00	45.42	103.50	-58.08	

Emission Level= Read Level+ Correct Factor

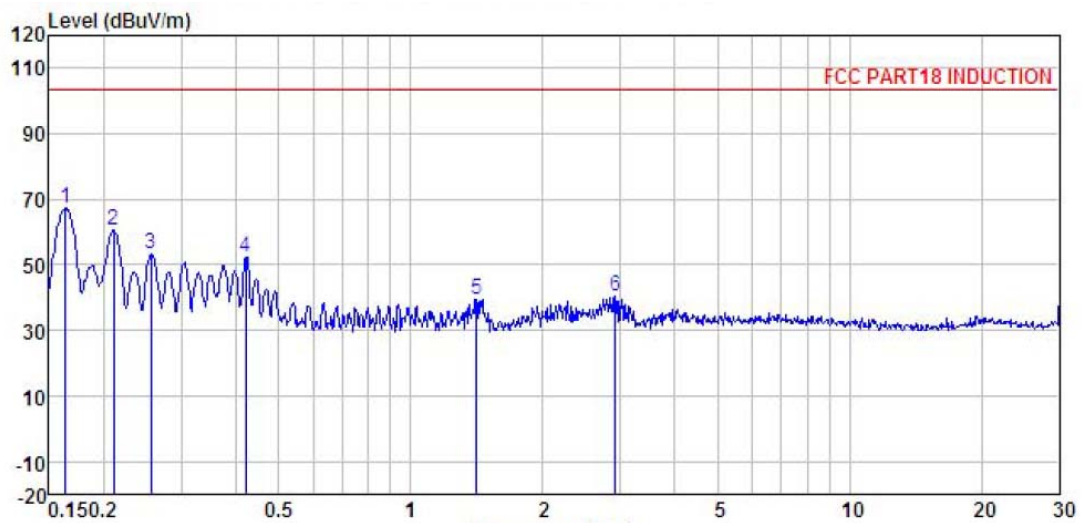
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.023	82.71	13.98	0.08	0.00	96.77	103.50	-6.73	
2	0.041	33.06	14.64	0.15	0.00	47.85	103.50	-55.65	
3	0.047	53.17	13.81	0.17	0.00	67.15	103.50	-36.35	
4	0.070	66.44	13.80	0.19	0.00	80.43	103.50	-23.07	
5	0.094	41.09	13.75	0.18	0.00	55.02	103.50	-48.48	
6	0.117	58.91	13.35	0.21	0.00	72.47	103.50	-31.03	

Emission Level= Read Level+ Correct Factor

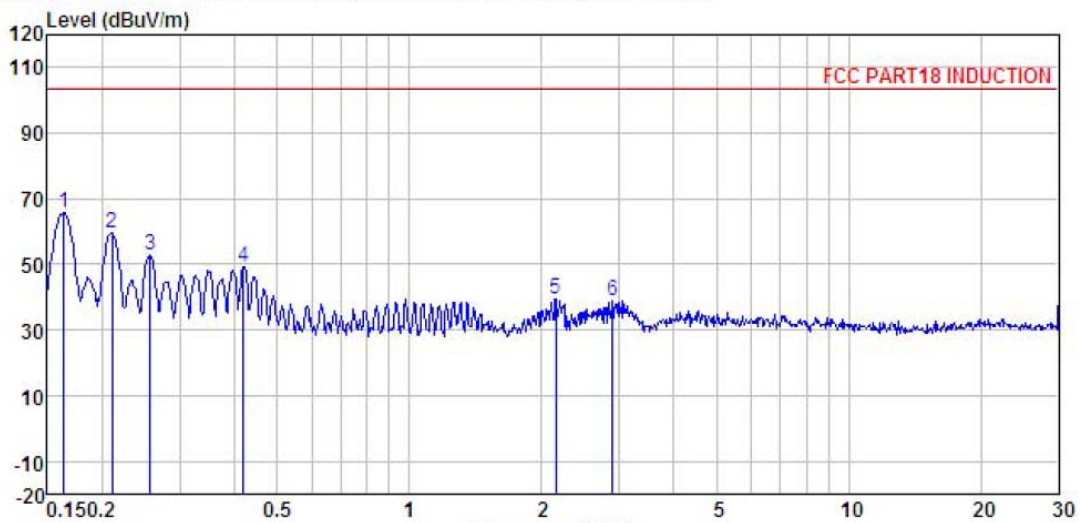
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.163	54.99	11.95	0.29	0.00	67.23	103.50	-36.27	
2	0.211	48.69	11.49	0.33	0.00	60.51	103.50	-42.99	
3	0.256	40.12	12.84	0.34	0.00	53.30	103.50	-50.20	
4	0.421	38.02	13.72	0.39	0.00	52.13	103.50	-51.37	
5	1.411	24.10	14.74	0.63	0.00	39.47	103.50	-64.03	
6	2.931	24.86	14.73	0.66	0.00	40.25	103.50	-63.25	

Emission Level= Read Level+ Correct Factor

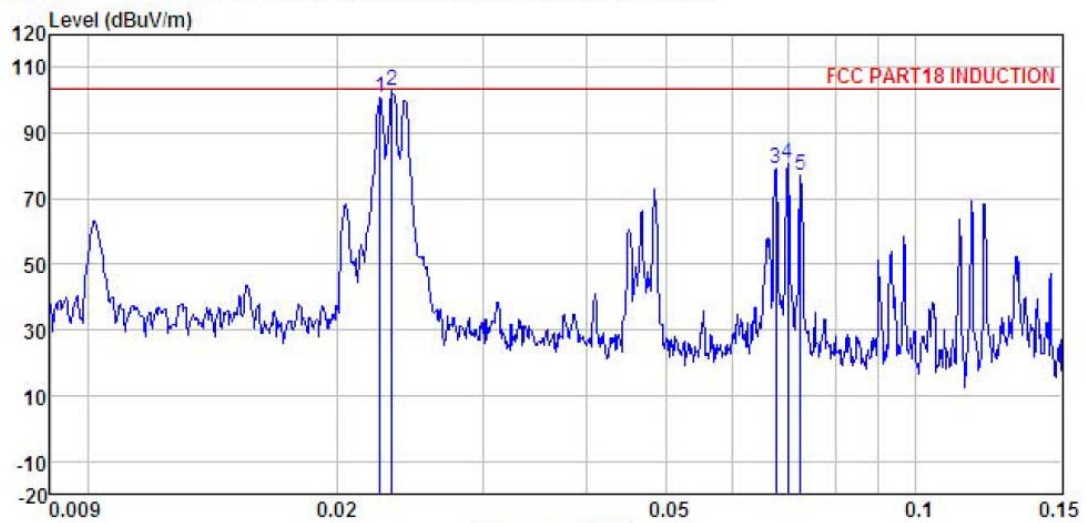
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.163	53.43	11.95	0.29	0.00	65.67	103.50	-37.83	
2	0.211	47.77	11.49	0.33	0.00	59.59	103.50	-43.91	
3	0.258	39.42	12.84	0.34	0.00	52.60	103.50	-50.90	
4	0.419	35.01	13.72	0.39	0.00	49.12	103.50	-54.38	
5	2.155	23.59	15.11	0.65	0.00	39.35	103.50	-64.15	
6	2.900	23.48	14.74	0.66	0.00	38.88	103.50	-64.62	

Emission Level= Read Level+ Correct Factor

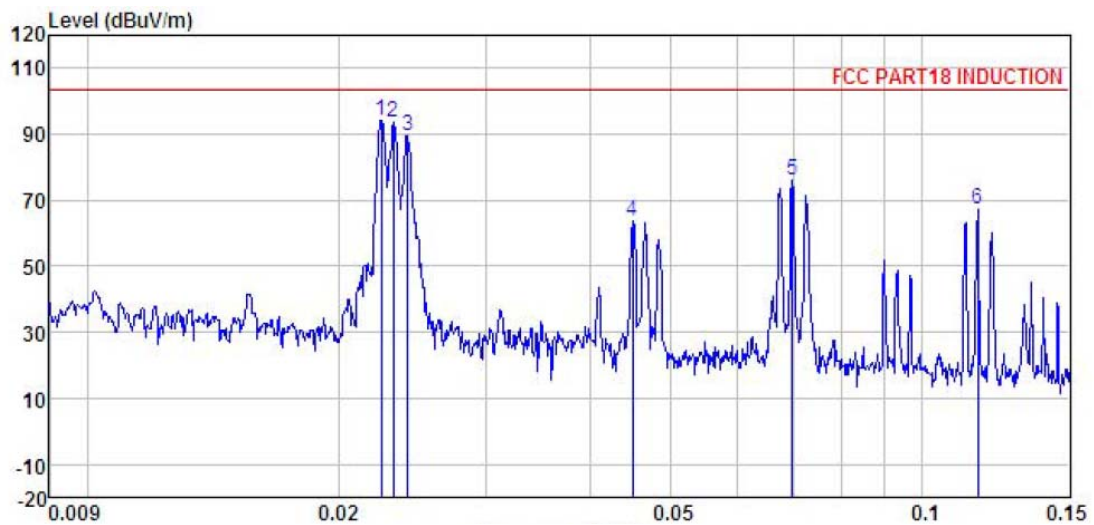
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.023	86.81	13.84	0.08	0.00	100.73	103.50	-2.77	
2	0.023	88.78	13.98	0.08	0.00	102.84	103.50	-0.66	
3	0.068	65.15	13.82	0.19	0.00	79.16	103.50	-24.34	
4	0.070	66.85	13.80	0.19	0.00	80.84	103.50	-22.66	
5	0.073	63.14	13.73	0.19	0.00	77.06	103.50	-26.44	

Emission Level= Read Level+ Correct Factor

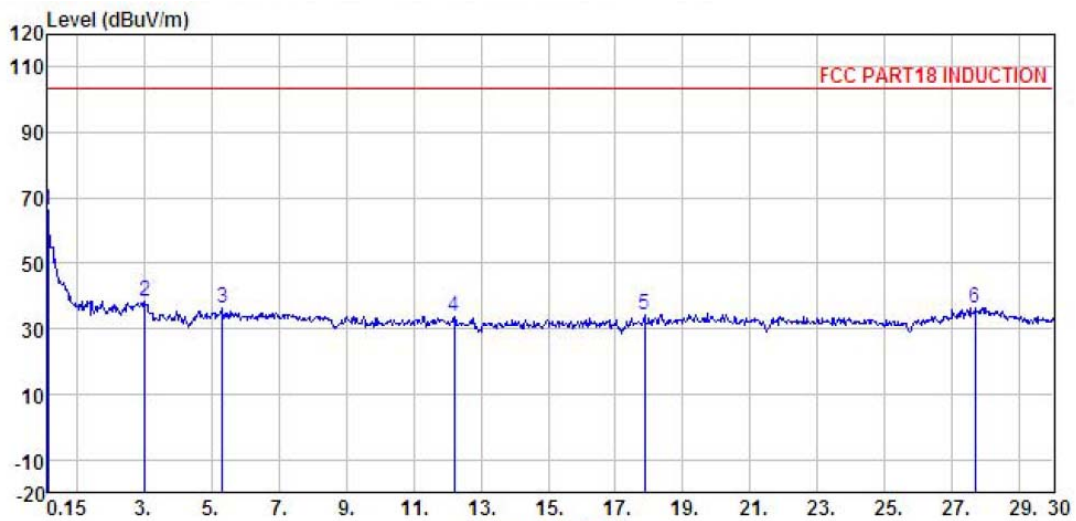
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.022	80.50	13.84	0.08	0.00	94.42	103.50	-9.08	
2	0.023	79.80	13.98	0.08	0.00	93.86	103.50	-9.64	
3	0.024	75.26	14.16	0.09	0.00	89.51	103.50	-13.99	
4	0.045	49.46	14.07	0.16	0.00	63.69	103.50	-39.81	
5	0.070	62.28	13.81	0.19	0.00	76.28	103.50	-27.22	
6	0.116	53.73	13.35	0.21	0.00	67.29	103.50	-36.21	

Emission Level= Read Level+ Correct Factor

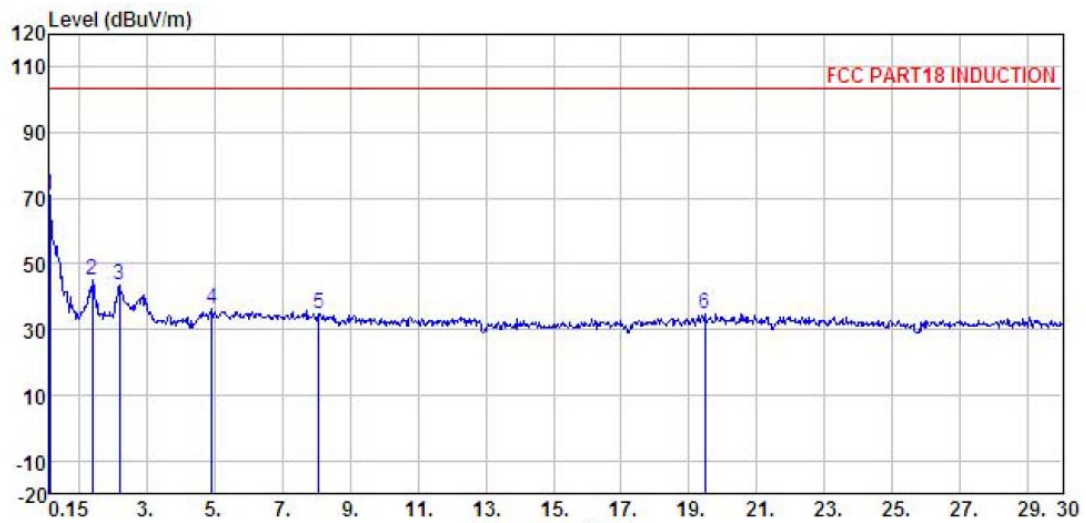
EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.150	53.73	12.29	0.27	0.00	66.29	103.50	-37.21	
2	3.045	23.19	14.70	0.66	0.00	38.55	103.50	-64.95	
3	5.344	20.51	15.23	0.56	0.00	36.30	103.50	-67.20	
4	12.209	19.69	13.62	0.60	0.00	33.91	103.50	-69.59	
5	17.851	20.10	13.52	0.67	0.00	34.29	103.50	-69.21	
6	27.672	24.21	11.60	0.74	0.00	36.55	103.50	-66.95	

Emission Level= Read Level+ Correct Factor

EUT:	Induction Buffet Warmer	Model Name :	5950875
Temperature:	22 °C	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.150	58.27	12.29	0.27	0.00	70.83	103.50	-32.67	
2	1.404	29.56	14.74	0.63	0.00	44.93	103.50	-58.57	
3	2.210	27.80	15.08	0.65	0.00	43.53	103.50	-59.97	
4	4.926	20.54	15.26	0.59	0.00	36.39	103.50	-67.11	
5	8.090	19.66	14.61	0.50	0.00	34.77	103.50	-68.73	
6	19.463	20.23	13.74	0.66	0.00	34.63	103.50	-68.87	

Emission Level= Read Level+ Correct Factor

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