FCC Test Report

FCC ID: 2ADXY59502

Original Grant

Report No.	:	TB-FCC142966
Applicant	:	The Vollrath Company, LLC
Equipment Under Test (EUT)		
EUT Name	:	Buffet Induction Warmer
Model No.	:	5950275
Series Model No.	:	5950280, 59502DW
Brand Name	:	VOLLRATH
Receipt Date	:	2014-12-29
Test Date	:	2014-12-29 to 2015-01-15
Issue Date	:	2015-01-19
Standards	:	FCC Part 18 : 2014
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	:	Iwan Su
Approved& Authorized	:	

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.

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, China
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Contents

1. General Information about EUT

1.1 Client Information

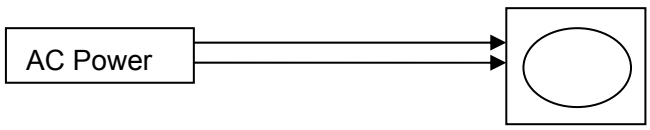
Applicant	:	The Vollrath Company, LLC
Address	:	1236 North 18th Street, Sheboygan, WI 53081
Manufacturer	:	Luxine (Xi'an) Electronics Co., Ltd.
Address	:	4th Floor, Building B, Seeker Industrial Park, 2nd Jin Ye Rd, Hi-tech Development Zone, Xi'an Shaanxi, China 710075

1.2 General Description of EUT (Equipment Under Test)

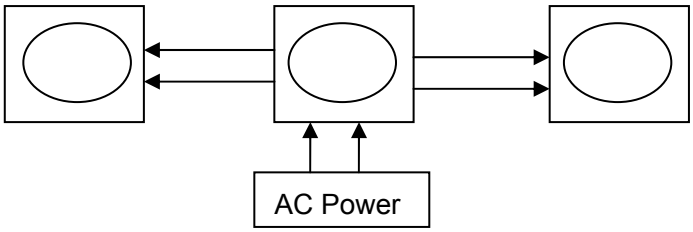
EUT Name	:	Buffet Induction Warmer
Models No.	:	5950275, 5950280, 59502DW
Model difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is the color of the appearance and installation: 5950275: Countertop, Black; 5950280: Countertop, Natural; 59502DW: Drop-in, added a remote control box, connected by a USB cable.
Power Supply	:	AC 120V, 60Hz
Power	:	One unit maximum power: 320W Three units maximum power: 960W
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 generates from EUT, the test system was pre-scanning tested base 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 bellow 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: 2014			
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

3.1.1Test Standard

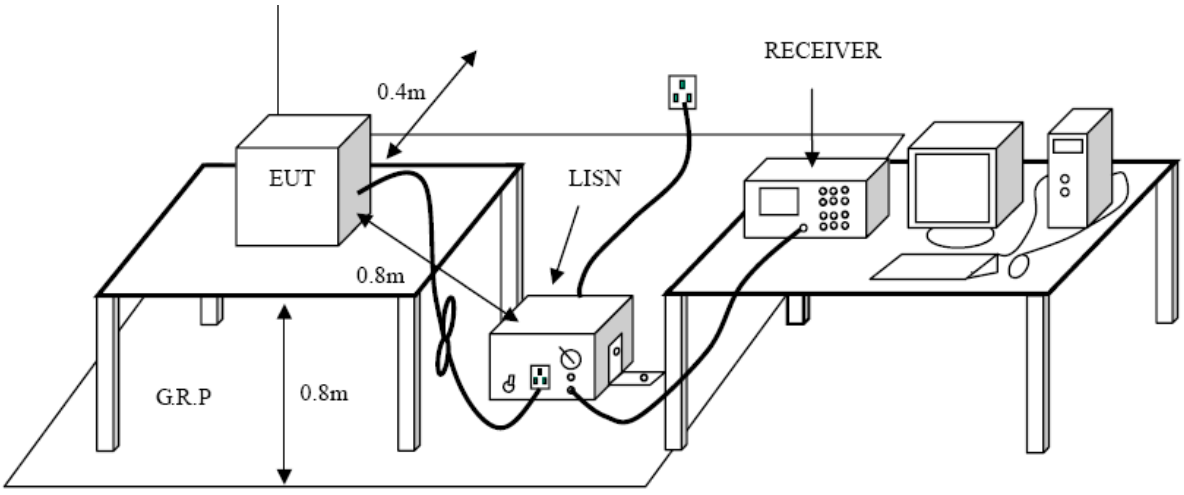
FCC Part 18.307(a)

3.1.2 Test Limit

Conducted Emission Test Limit

Frequency (MHz)	Maximum RF Line Voltage (dBμV)	
	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.

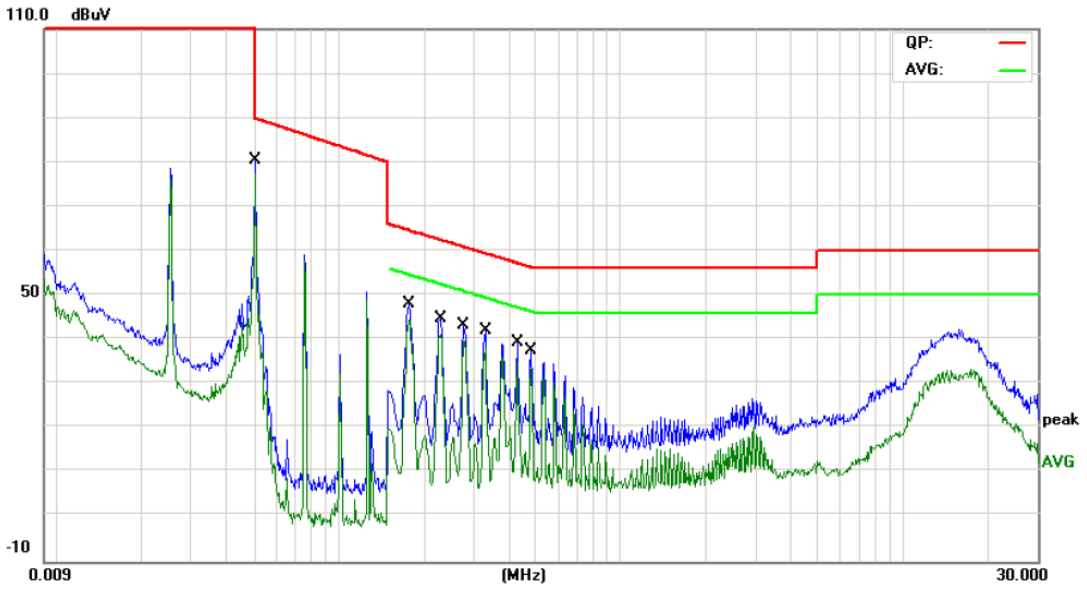
3.5 Test Equipment Used

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100321	Aug. 08, 2014	Aug.07, 2015
50ΩCoaxial Switch	Anritsu	MP59B	X10321	Aug. 08, 2014	Aug.07, 2015
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 08, 2014	Aug.07, 2015
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 08, 2014	Aug.07, 2015

3.6 Test Data

Please see the next page.

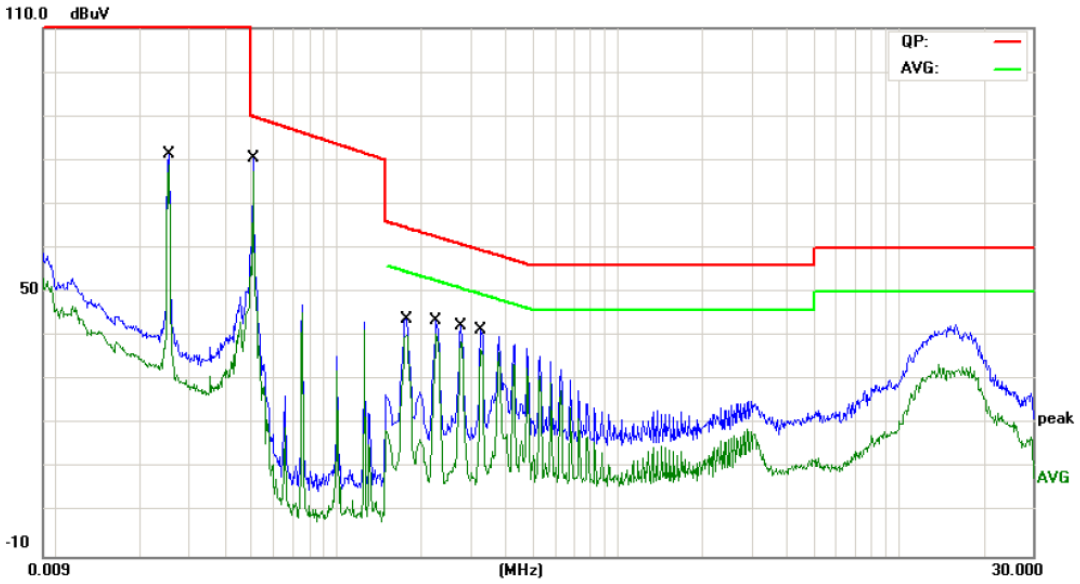
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	One Unit working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.0506	64.96	10.16	75.12	89.89	-14.77	QP	
2		0.1780	37.09	10.21	47.30	64.57	-17.27	QP	
3	*	0.1780	34.54	10.21	44.75	54.57	-9.82	AVG	
4		0.2300	33.19	10.20	43.39	62.45	-19.06	QP	
5		0.2300	30.70	10.20	40.90	52.45	-11.55	AVG	
6		0.2779	32.46	10.19	42.65	60.88	-18.23	QP	
7		0.2779	30.02	10.19	40.21	50.88	-10.67	AVG	
8		0.3300	30.57	10.19	40.76	59.45	-18.69	QP	
9		0.3300	28.07	10.19	38.26	49.45	-11.19	AVG	
10		0.4300	27.67	10.23	37.90	57.25	-19.35	QP	
11		0.4300	25.02	10.23	35.25	47.25	-12.00	AVG	
12		0.4820	25.96	10.23	36.19	56.30	-20.11	QP	
13		0.4820	23.30	10.23	33.53	46.30	-12.77	AVG	

Emission Level= Read Level+ Correct Factor

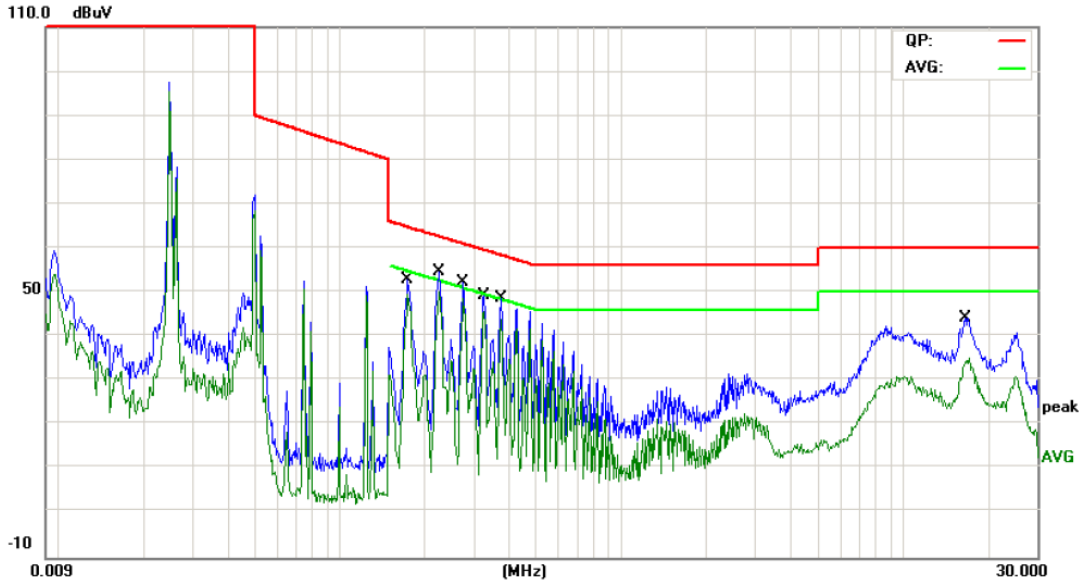
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Neutral		
Test Mode:	One Unit working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.0252	63.74	9.65	73.39	110.0	-36.61	QP	
2		0.0505	47.31	10.16	57.47	89.91	-32.44	QP	
3		0.1780	31.99	10.21	42.20	64.57	-22.37	QP	
4		0.1780	29.56	10.21	39.77	54.57	-14.80	AVG	
5		0.2260	32.80	10.20	43.00	62.59	-19.59	QP	
6		0.2260	30.30	10.20	40.50	52.59	-12.09	AVG	
7		0.2779	31.07	10.19	41.26	60.88	-19.62	QP	
8		0.2779	28.61	10.19	38.80	50.88	-12.08	AVG	
9		0.3260	30.20	10.19	40.39	59.55	-19.16	QP	
10	*	0.3260	27.61	10.19	37.80	49.55	-11.75	AVG	

Emission Level= Read Level+ Correct Factor

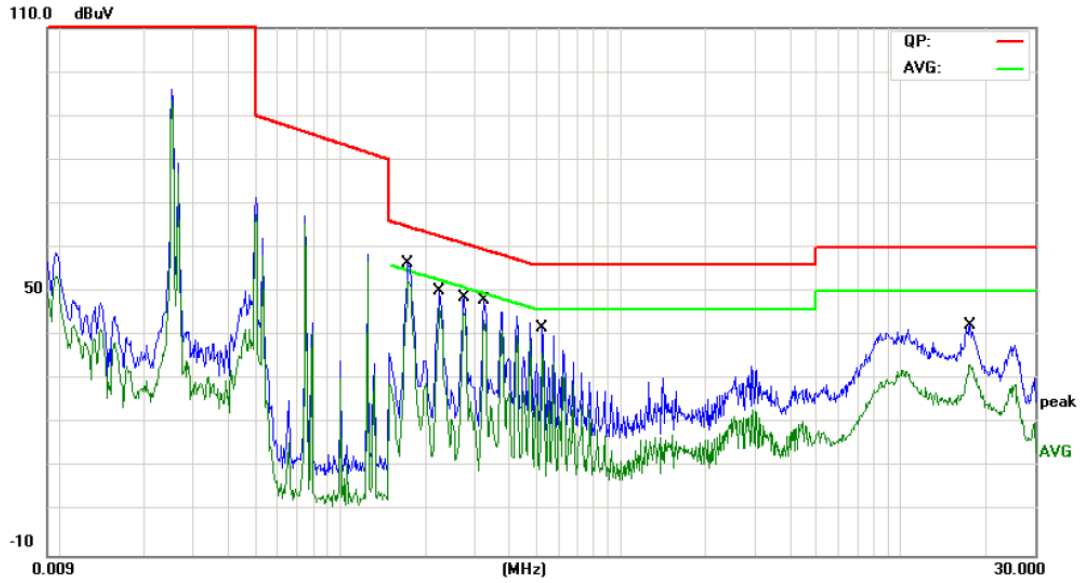
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Terminal:	Line		
Test Mode:	Three Units working		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1740	43.20	9.97	53.17	64.76	-11.59	QP	
2		0.1740	39.98	9.97	49.95	54.76	-4.81	AVG	
3		0.2260	43.19	10.02	53.21	62.59	-9.38	QP	
4		0.2260	39.87	10.02	49.89	52.59	-2.70	AVG	
5		0.2740	42.18	10.02	52.20	60.99	-8.79	QP	
6	*	0.2740	38.97	10.02	48.99	50.99	-2.00	AVG	
7		0.3260	37.49	10.02	47.51	59.55	-12.04	QP	
8		0.3260	34.34	10.02	44.36	49.55	-5.19	AVG	
9		0.3740	38.03	10.02	48.05	58.41	-10.36	QP	
10		0.3740	34.76	10.02	44.78	48.41	-3.63	AVG	
11		16.6460	30.15	10.23	40.38	60.00	-19.62	QP	
12		16.6460	24.06	10.23	34.29	50.00	-15.71	AVG	

Emission Level= Read Level+ Correct Factor

EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	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	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1740	46.27	10.12	56.39	64.76	-8.37	QP	
2	*	0.1740	43.15	10.12	53.27	54.76	-1.49	AVG	
3		0.2260	40.18	10.11	50.29	62.59	-12.30	QP	
4		0.2260	37.30	10.11	47.41	52.59	-5.18	AVG	
5		0.2779	38.20	10.09	48.29	60.88	-12.59	QP	
6		0.2779	35.30	10.09	45.39	50.88	-5.49	AVG	
7		0.3260	38.03	10.08	48.11	59.55	-11.44	QP	
8		0.3260	35.05	10.08	45.13	49.55	-4.42	AVG	
9		0.5260	30.80	10.02	40.82	56.00	-15.18	QP	
10		0.5260	27.62	10.02	37.64	46.00	-8.36	AVG	
11		17.6540	24.82	10.06	34.88	60.00	-25.12	QP	
12		17.6540	19.46	10.06	29.52	50.00	-20.48	AVG	

Emission Level= Read Level+ Correct Factor

4. Radiated Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard

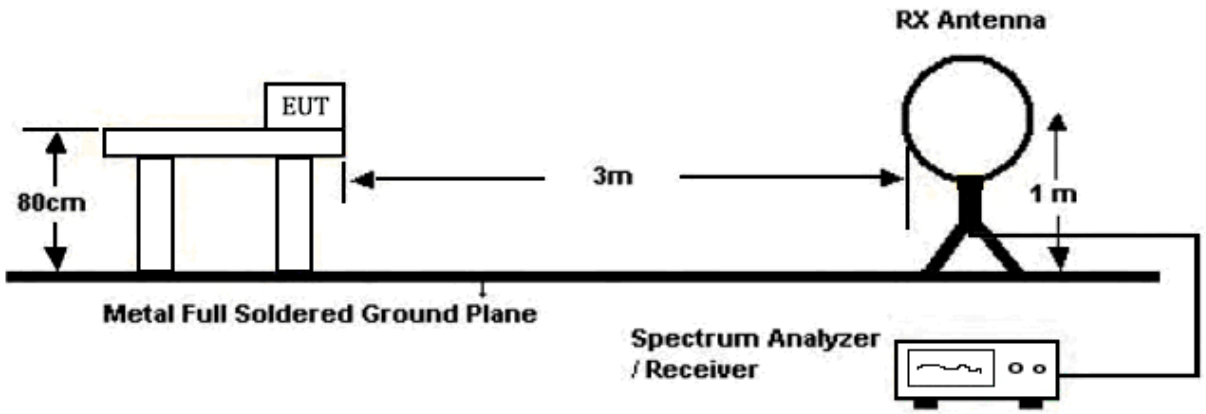
FCC Part 18.305

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

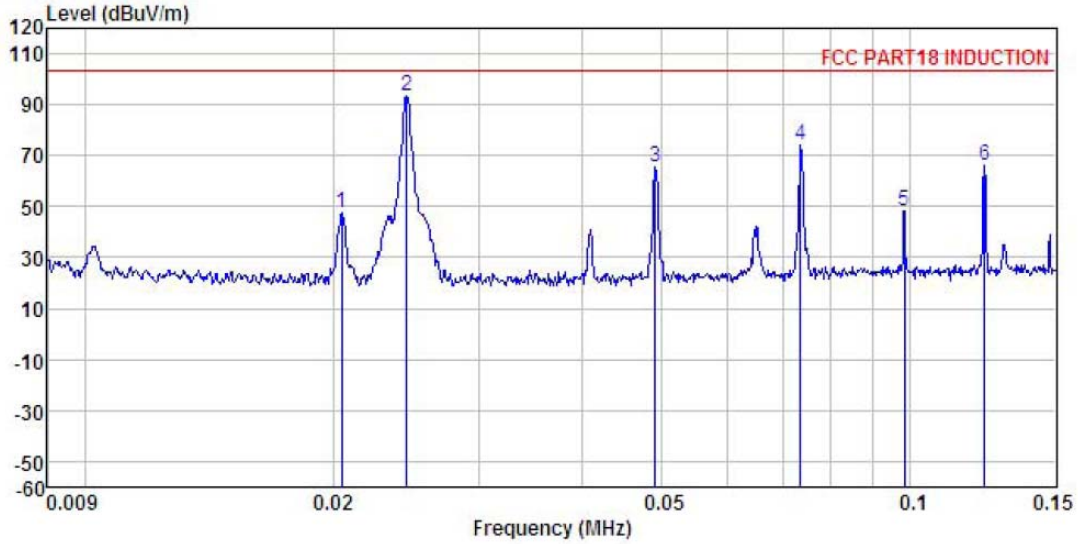
limit of 30m measurement limit. More details refer to FCC part 15.31(f)(2).

4.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 08, 2014	Aug.07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBERSUHNER	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Loop Antenna	Laplace Instrument	RF300	100020	Aug. 11, 2014	Aug. 10, 2015

4.6 Test Data

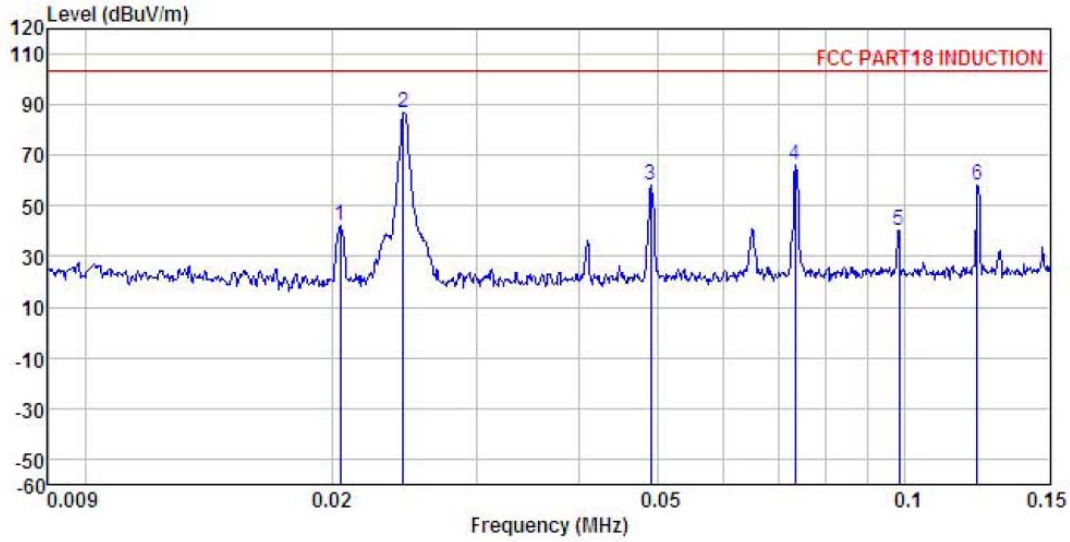
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.020	49.24	16.02	0.06	17.50	47.82	103.50	-55.68	
2	0.025	94.61	16.37	0.09	17.50	93.57	103.50	-9.93	
3	0.049	64.94	17.99	0.17	17.50	65.60	103.50	-37.90	
4	0.074	71.74	19.59	0.19	17.50	74.02	103.50	-29.48	
5	0.098	45.00	20.90	0.18	17.50	48.58	103.50	-54.92	
6	0.123	61.96	21.25	0.22	17.50	65.93	103.50	-37.57	

Emission Level= Read Level+ Correct Factor

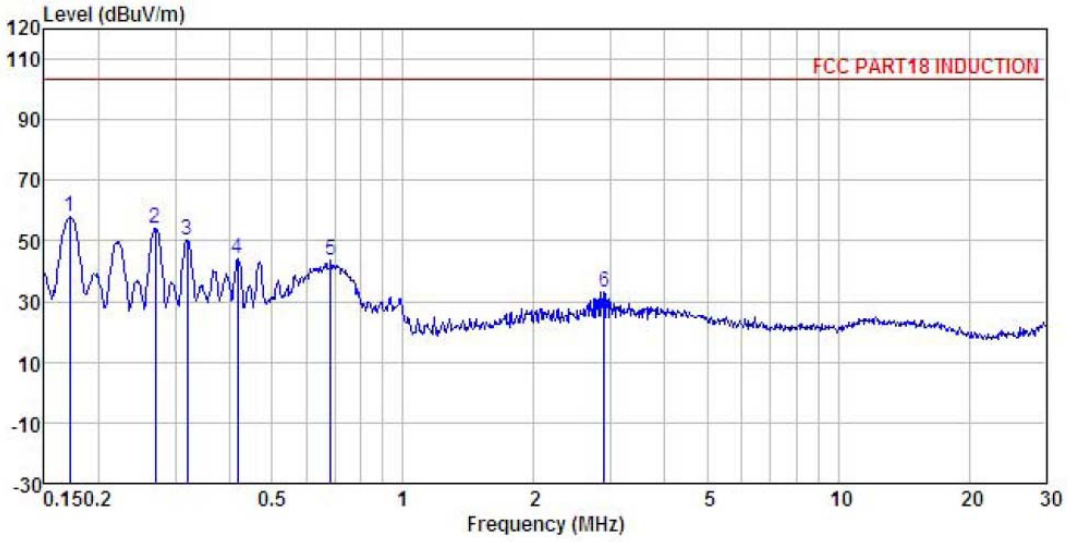
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Level	Factor	Loss Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.020	43.65	16.02	0.06	17.50	42.23	103.50	-61.27	
2	0.024	87.91	16.37	0.09	17.50	86.87	103.50	-16.63	
3	0.049	57.85	17.99	0.17	17.50	58.51	103.50	-44.99	
4	0.073	64.11	19.59	0.19	17.50	66.39	103.50	-37.11	
5	0.098	36.72	20.90	0.18	17.50	40.30	103.50	-63.20	
6	0.122	54.49	21.25	0.22	17.50	58.46	103.50	-45.04	

Emission Level= Read Level+ Correct Factor

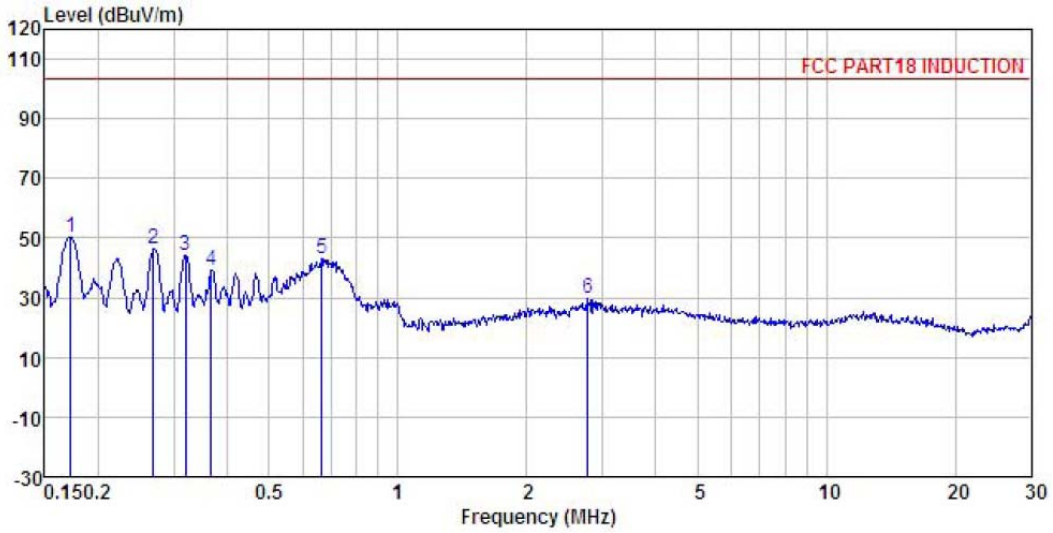
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.171	53.29	21.70	0.30	17.50	57.79	103.50	-45.71	
2	0.270	48.95	22.32	0.35	17.50	54.12	103.50	-49.38	
3	0.320	45.17	22.47	0.36	17.50	50.50	103.50	-53.00	
4	0.417	38.63	22.47	0.38	17.50	43.98	103.50	-59.52	
5	0.683	37.88	22.47	0.55	17.50	43.40	103.50	-60.10	
6	2.900	26.47	23.36	0.66	17.50	32.99	103.50	-70.51	

Emission Level= Read Level+ Correct Factor

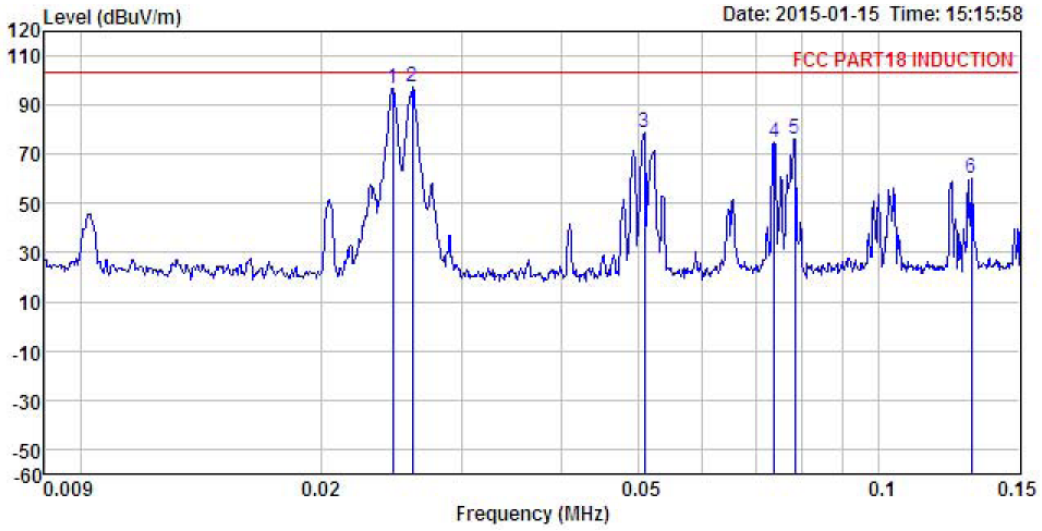
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	One Unit Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Level	Factor	Loss Factor		Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.172	45.90	21.71	0.30	17.50	50.41	103.50	-53.09	
2	0.269	41.30	22.32	0.35	17.50	46.47	103.50	-57.03	
3	0.320	38.92	22.47	0.36	17.50	44.25	103.50	-59.25	
4	0.367	33.93	22.47	0.36	17.50	39.26	103.50	-64.24	
5	0.665	37.49	22.47	0.54	17.50	43.00	103.50	-60.50	
6	2.779	23.17	23.22	0.65	17.50	29.54	103.50	-73.96	

Emission Level= Read Level+ Correct Factor

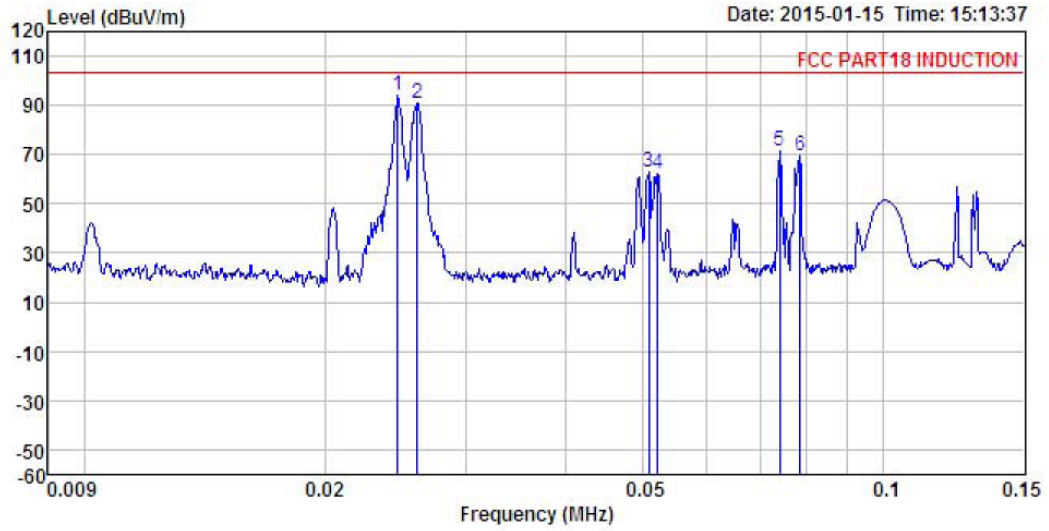
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.025	98.08	16.39	0.09	17.50	97.06	103.50	-6.44	
2	0.026	98.65	16.50	0.09	17.50	97.74	103.50	-5.76	
3	0.051	78.08	18.09	0.17	17.50	78.84	103.50	-24.66	
4	0.074	72.40	19.59	0.19	17.50	74.68	103.50	-28.82	
5	0.078	73.67	19.89	0.19	17.50	76.25	103.50	-27.25	
6	0.130	56.02	21.32	0.24	17.50	60.08	103.50	-43.42	

Emission Level= Read Level+ Correct Factor

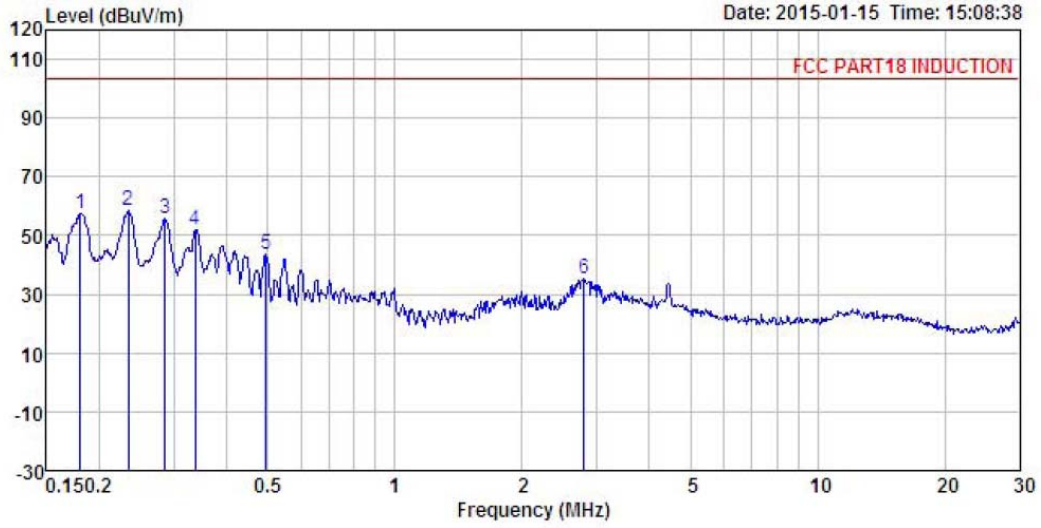
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Vertical to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 9kHz~0.15MHz		



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.025	94.88	16.39	0.09	17.50	93.86	103.50	-9.64	
2	0.026	91.46	16.50	0.09	17.50	90.55	103.50	-12.95	
3	0.051	61.85	18.09	0.17	17.50	62.61	103.50	-40.89	
4	0.052	61.38	18.17	0.18	17.50	62.23	103.50	-41.27	
5	0.074	69.01	19.63	0.19	17.50	71.33	103.50	-32.17	
6	0.079	66.76	19.89	0.19	17.50	69.34	103.50	-34.16	

Emission Level= Read Level+ Correct Factor

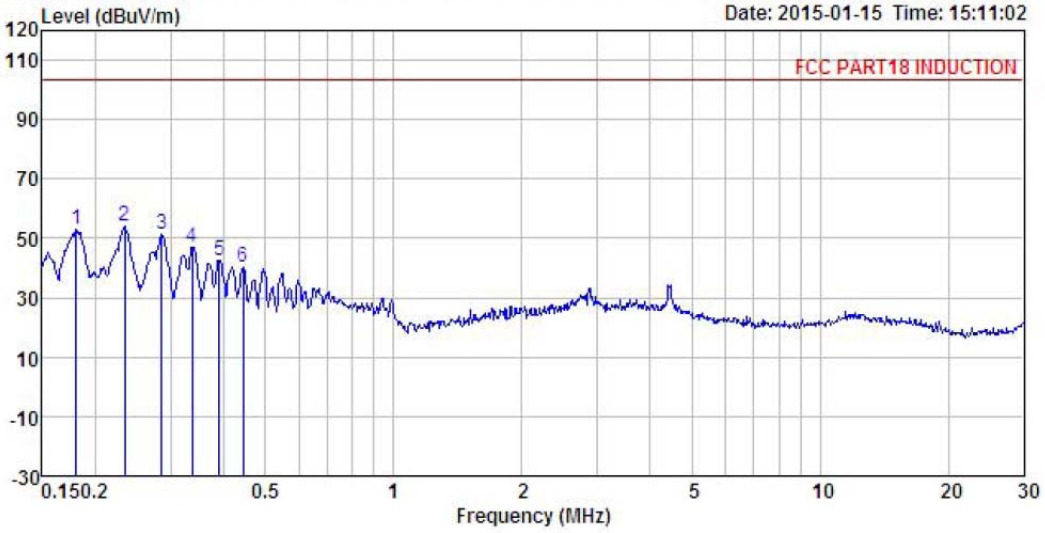
EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 Hz		
Ant. Pol.	Horizontal to EUT		
Test Mode:	Three Units Working		
Remark:	Frequency Range: 0.15MHz~30MHz		



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.181	53.06	21.78	0.31	17.50	57.65	103.50	-45.85	
2	0.234	53.50	22.13	0.34	17.50	58.47	103.50	-45.03	
3	0.286	50.54	22.41	0.35	17.50	55.80	103.50	-47.70	
4	0.337	46.55	22.47	0.36	17.50	51.88	103.50	-51.62	
5	0.497	38.20	22.47	0.45	17.50	43.62	103.50	-59.88	
6	2.794	28.88	23.22	0.65	17.50	35.25	103.50	-68.25	

Emission Level= Read Level+ Correct Factor

EUT:	Buffet Induction Warmer	Model Name :	5950275
Temperature:	22 ℃	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	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.181	48.36	21.78	0.31	17.50	52.95	103.50	-50.55	
2	0.234	49.18	22.13	0.34	17.50	54.15	103.50	-49.35	
3	0.286	45.91	22.41	0.35	17.50	51.17	103.50	-52.33	
4	0.337	41.69	22.47	0.36	17.50	47.02	103.50	-56.48	
5	0.389	37.42	22.47	0.37	17.50	42.76	103.50	-60.74	
6	0.444	34.97	22.47	0.41	17.50	40.35	103.50	-63.15	

Emission Level= Read Level+ Correct Factor