



**FCC CFR47 PART 18 SUBPART C
ISM EQUIPMENT
CERTIFICATION TEST REPORT**

MICROWAVE OVEN

MODEL NUMBER: OTR7

MAGNETRON MODEL: 2M254E(L)-AK and 2M254E(L)-B

FCC ID: APYDMR0163

REPORT NUMBER: 06U10738-1

ISSUE DATE: DECEMBER 5, 2006

Prepared for
**SHARP CORPORATION
22-22 NAGAIKE-CHO,
ABENO-KU RELIABILITY CONTROL GROUP
OSAKA, JAPAN, 545-8522**

Prepared by
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NVLAP[®]
LAB CODE:200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	12/05/06	Initial Issue	T.C.

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SHARP ELECTRONIC CORP
22-22 NAGAIKE-CHO,
ABENO-KU RELIABILITY CONTROL GROUP
OSAKA, JAPAN, 545-8522

EUT DESCRIPTION: MICROWAVE OVEN

MODEL NUMBER: OTR7

MAGNETRON MODEL: 2M254E (L)-AK and 2M254E (L)-B

SERIAL NUMBER: TCAUAB048MRR0

DATE TESTED: NOVEMBER 28-30, 2006

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 18 SUBPART C & FCC METHOD OF MEASUREMENTS OF RADIO NOISE EMISSION FROM INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT FCC / OST MP-5	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

THANH NGUYEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC Part 18 Subpart C, ANSI C63.4-2003, and FCC / OST MP-5, "FCC Method of Measurements of Radio Noise Emission From Industrial, Scientific, and Medical Equipment".

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Microwave Oven sold for consumer use which has 1000W for both magnetron models.

GENERAL INFORMATION

CHASSIS MATERIAL	METAL
POWER REQUIREMENTS	115VAC / 60 Hz
MAGNETRON MODEL	2M254E(L)-AK and 2M254E(L)-B

5.2. MODE(S) OF OPERATION

Mode	Description
Normal	Boiling water with maximum power

5.3. MODIFICATIONS

No modifications were made during testing.

5.4. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT

The EUT is a stand-alone unit.

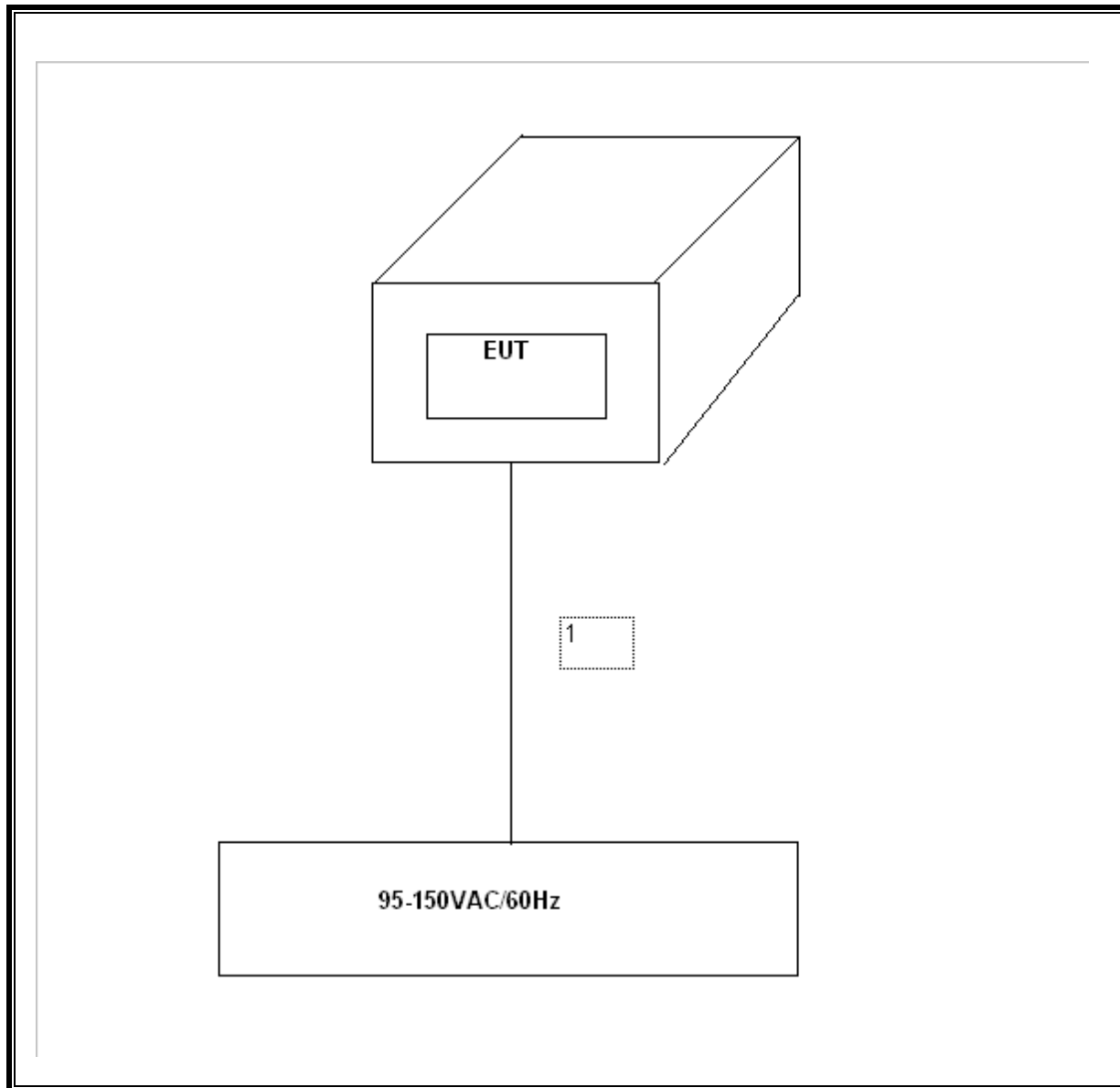
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	UNSHIELDED	1m	

TEST SETUP

The EUT is a stand-alone unit.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/2007
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/2007
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	9/3/2007
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29301	4/22/2007
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	5/3/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	9/13/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	9/13/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	8/20/2008
Microwave Leakage Current Meter	SIMPSON	380-2	9021	4/26/2008
Temperature Meter	Tektronix	DTM920	2373	2/27/2007
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	8/6/2007

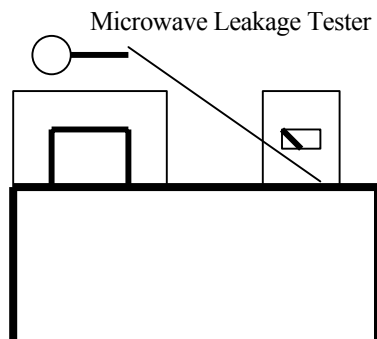
7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIO NOISE EMISSION MEASUREMENTS

7.1.1. RADIATION HAZARD MEASUREMENT

TEST PROCEDURE

A 700-ml water load was placed in the center of the oven. The power setting was set to 10 (100) maximum power. While the oven was operating, the STE probe was moved slowly around the door seams to check for leakage.



LIMIT

FCC / OST MP-5: SECTION 3.1 ($< 1.0\text{mW/cm}^2$)

RESULTS

No non-compliance noted:

Maximum
leakage 0.05



2M254E(L)-AK and 2M254E(L)-B

	Maximum Leakage (mW/cm ²)	Limit (mW/cm ²)
Figure shown above for the location of maximum leakage	0.05	1.00
All Others	0.02	1.00

7.1.2. INPUT POWER

TEST PROCEDURE

Input power and current were measured using a watt-meter and an amp-meter. A 700 ml water load was placed in the center of the oven and the oven was set to 10 (100) maximum power. A 700-ml water load was chosen for its compatibility. Manufacturers to determine their input ratings commonly use this procedure.

LIMIT

FCC / OST MP-5: SECTION 4.3

RESULTS

No non-compliance noted:

2M254(L)-AK Magnetron:

Input Power

Input Voltage (Vac)	Input Current (Amps)	Input Power (Watts)
117.36	13.6	1501.00

2M254(L)-B Magnetron:

Input Power

Input Voltage (Vac)	Input Current (Amps)	Input Power (Watts)
115.8	13.1	1464.00

7.1.3. OUTPUT POWER

TEST PROCEDURE

The Caloric Method was used to determine maximum output power. The initial temperature of a 1000-ml water load was measured for ovens rated at 1000 watts or less power output. For ovens more than 1000 watts output, additional beakers by fraction thereof are used if necessary.

The water load was placed in the center of the oven. The oven was operated at maximum output power for 120 seconds. Then the temperature of the water was re-measured.

LIMIT

FCC / OST MP-5: SECTION 4.3

Reporting: Output power should be applied to the out-of-band emissions limit with the formula of $25\sqrt{\text{Power}/500}$ @ 300m.

RESULTS

No non-compliance noted:

2M254(L)-AK Magnetron:

Output Power

Start Temperature (°C)	Final Temperature (°C)	Elapsed Time (120 Sec)	Water Volume (ml)	RF Power (Watts)
20.2	42.50	120.00	1000.00	780.50
19.5	41.30	120.00	1000.00	763.00
19.5	41.60	120.00	1000.00	773.50

Average of 3 Trials: 772.34 Watts

Output Power = $((4.2 \text{ Joules/Cal}) \times (\text{Volume in ml}) \times (\text{Temp. Rise})) / \text{Time in Seconds}$

2M254(L)-B Magnetron:

Output Power

Start Temperature (°C)	Final Temperature (°C)	Elapsed Time (120 Sec)	Water Volume (ml)	RF Power (Watts)
17.6	39.60	120.00	1000.00	770.00
18.7	40.00	120.00	1000.00	745.50
18.3	39.10	120.00	1000.00	728.00

Avrage of 3 Trials: 747.8 Watts

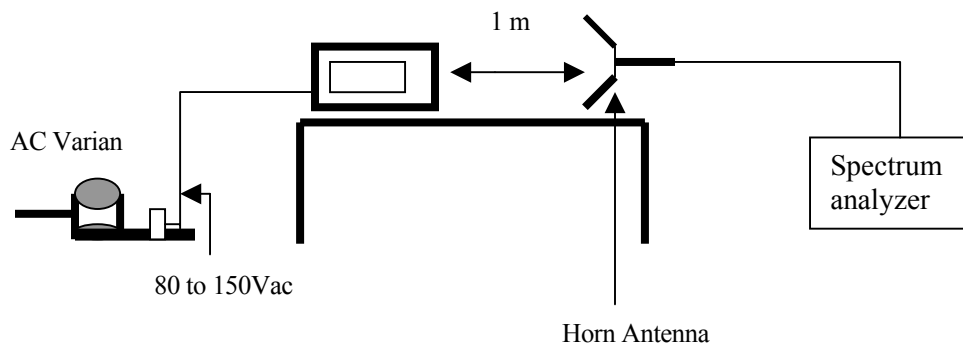
Output Power = ((4.2 Joules/Cal) x (Volume in ml) x (Temp. Rise)) / Time in Seconds

7.1.4. OPERATING FREQUENCY WITH TIME

TEST PROCEDURE

The Caloric Method was used to determine maximum output power. The initial temperature of a 1000-ml water load was measured for ovens rated at 1000 watts or less power output. For ovens more than 1000 watts output, additional beakers by fraction thereof are used if necessary.

The fundamental operating frequency was monitor until the water load was reduced to 20% of the original load.



LIMIT

FCC / OST MP-5: SECTION 4.3

The frequency range shall lie within the band 2.4 GHz to 2.5 GHz of -20dBc from the peak ($f_L > 2.4$ GHz and $f_H < 2.5$ GHz) over Normal condition.

RESULTS

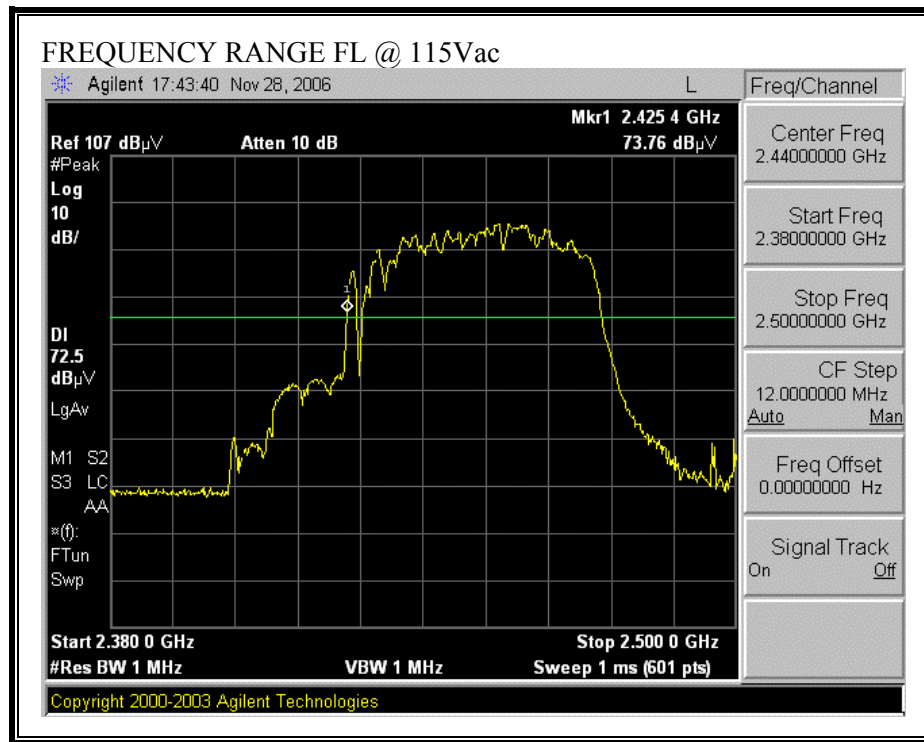
No non-compliance noted:

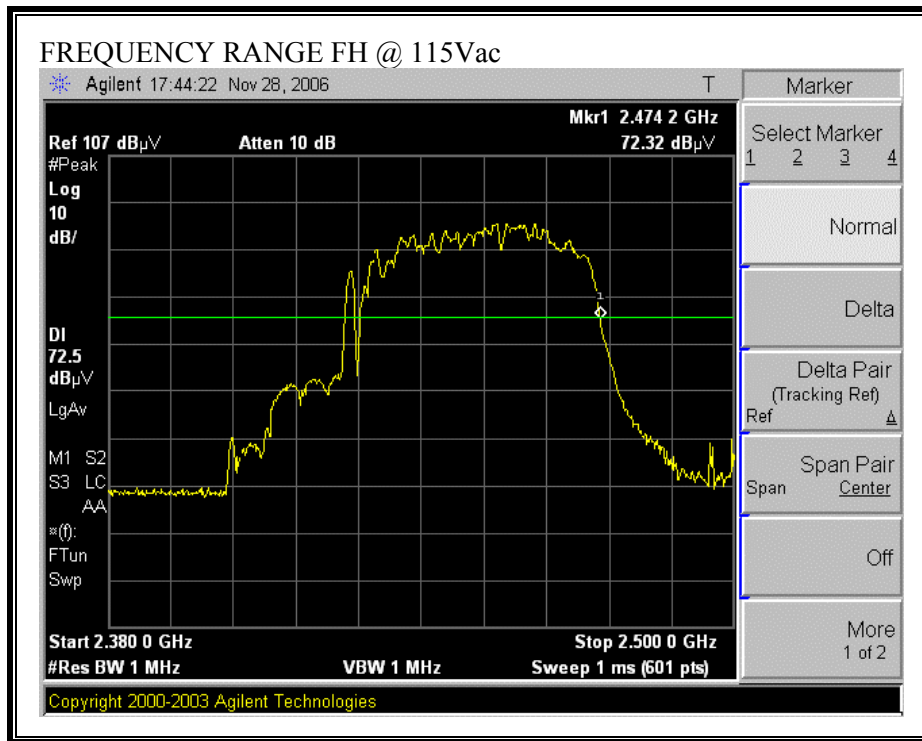
2M254(L)-AK Magnetron:

Operating Frequency With Time

Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2425.4	25.40	2474	-25.80

VARIATION IN OPERATING FREQUENCY WITH TIME



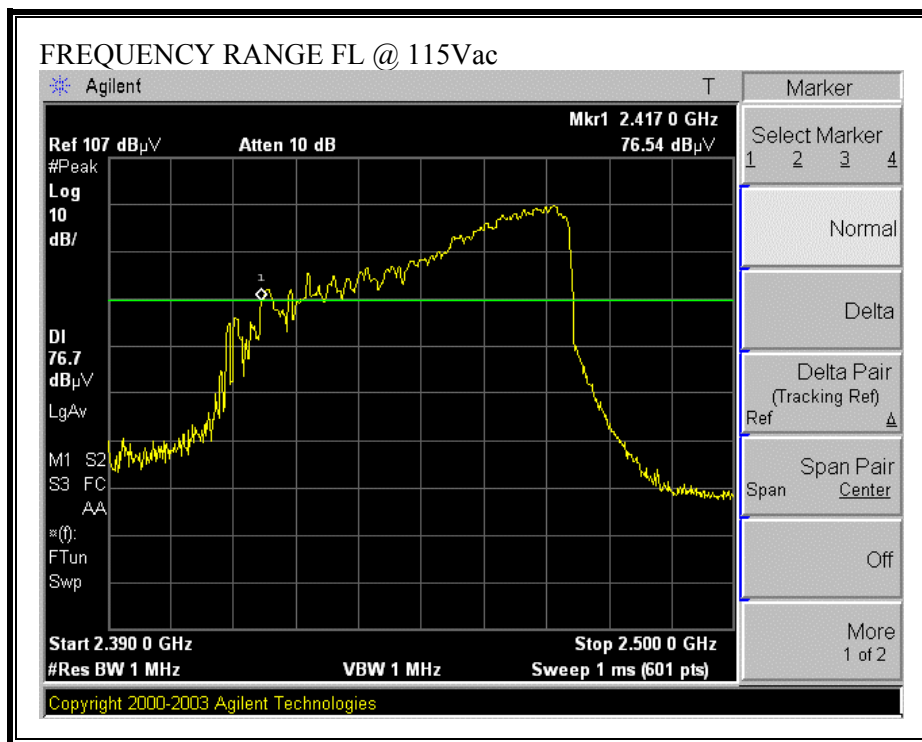


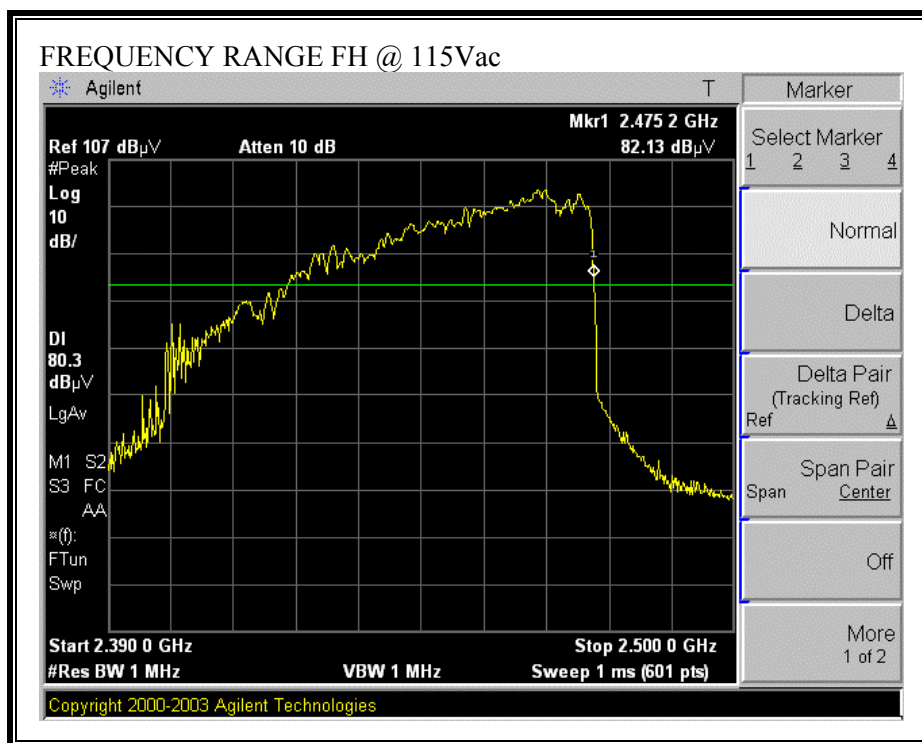
2M254(L)-B Magnetron:

Operating Frequency With Time

Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2417	17.00	2475	-25.00

VARIATION IN OPERATING FREQUENCY WITH TIME



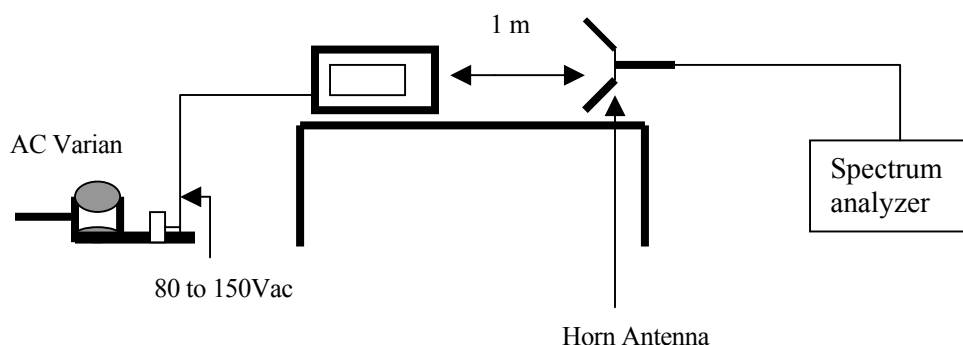


7.1.5. OPERATING FREQUENCY WITH VOLTAGE

TEST PROCEDURE

The Caloric Method was used to determine maximum output power. The initial temperature of a 1000-ml water load was measured for ovens rated at 1000 watts or less power output. For ovens more than 1000 watts output, additional beakers by fraction thereof are used if necessary.

The fundamental operating frequency was monitor until the water load was reduced to 20% of the original load, and the operating frequency was monitored as the input voltage was varied between 80 to 125 percent of the nominal rating.



LIMIT

FCC / OST MP-5: SECTION 4.3

The frequency range shall lie within the band 2.4 GHz to 2.5 GHz of -20dBc from the peak ($f_L > 2.4$ GHz and $f_H < 2.5$ GHz) over Normal and Extreme voltages condition.

RESULTS

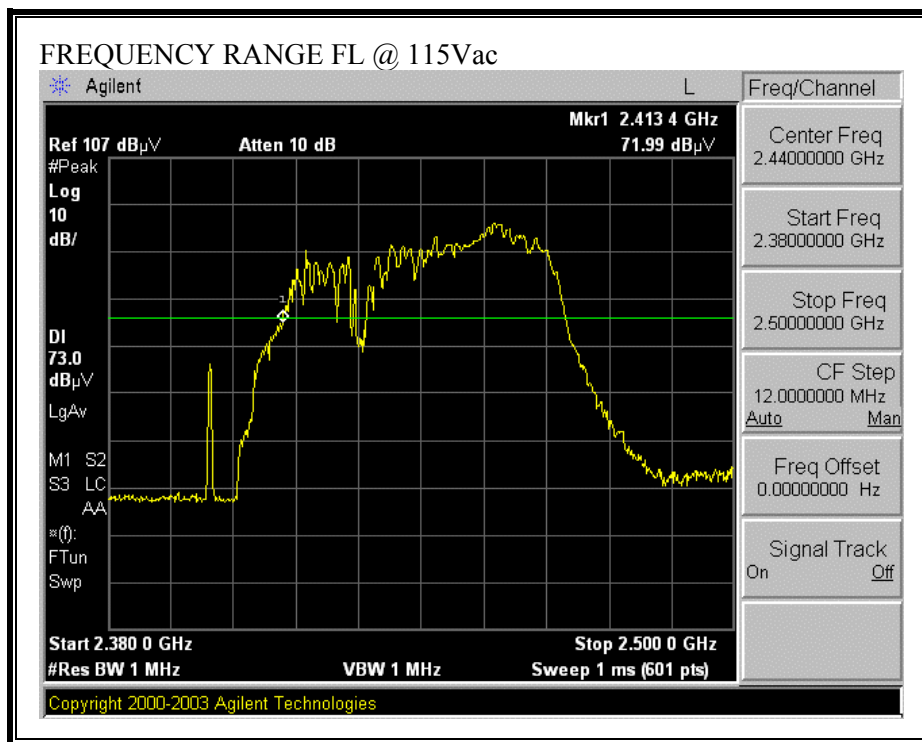
No non-compliance noted:

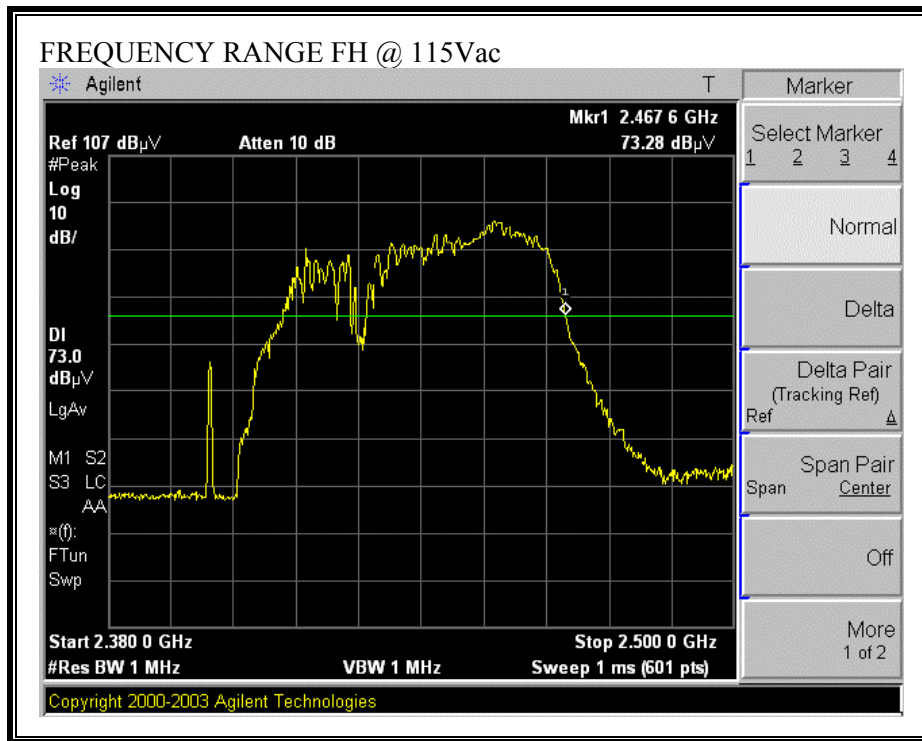
2M254(L)-AK Magnetron:

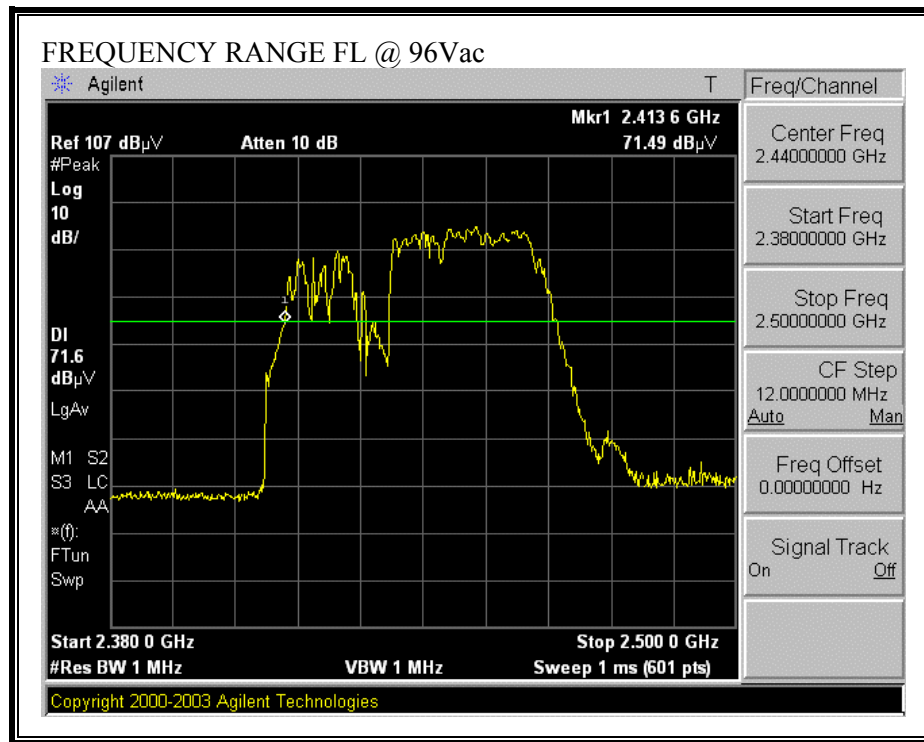
Operating Frequency With Voltage

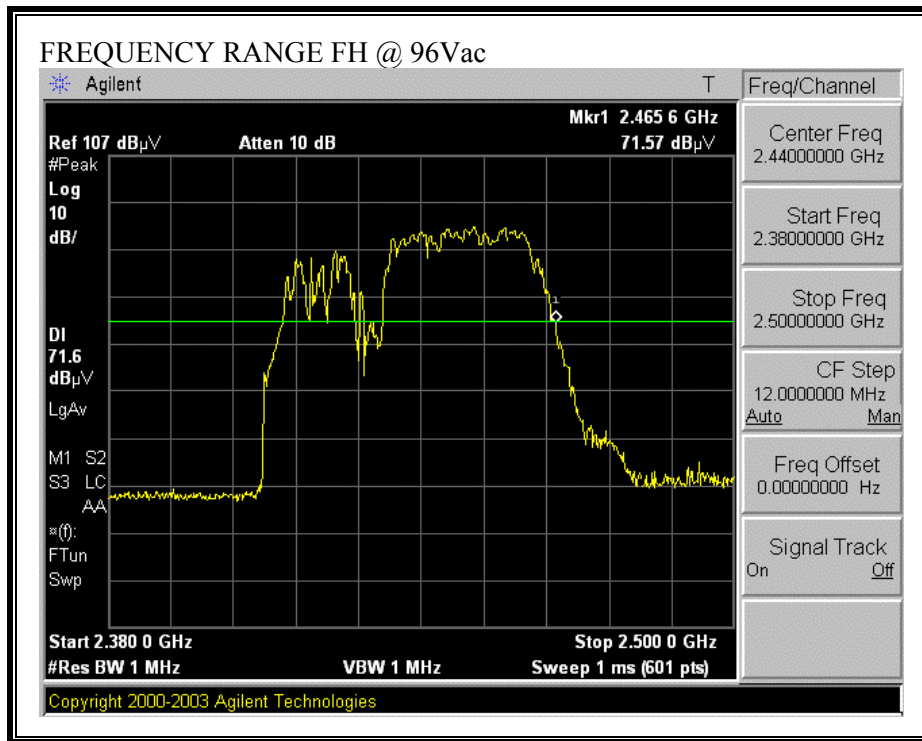
Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2413.4	13.40	2467.6	-32.40
Extreme V low (96Vac)	2413.6	13.60	2465.6	-34.40
Extreme V high (150Vac)	2414.0	14.00	2465.2	-34.80

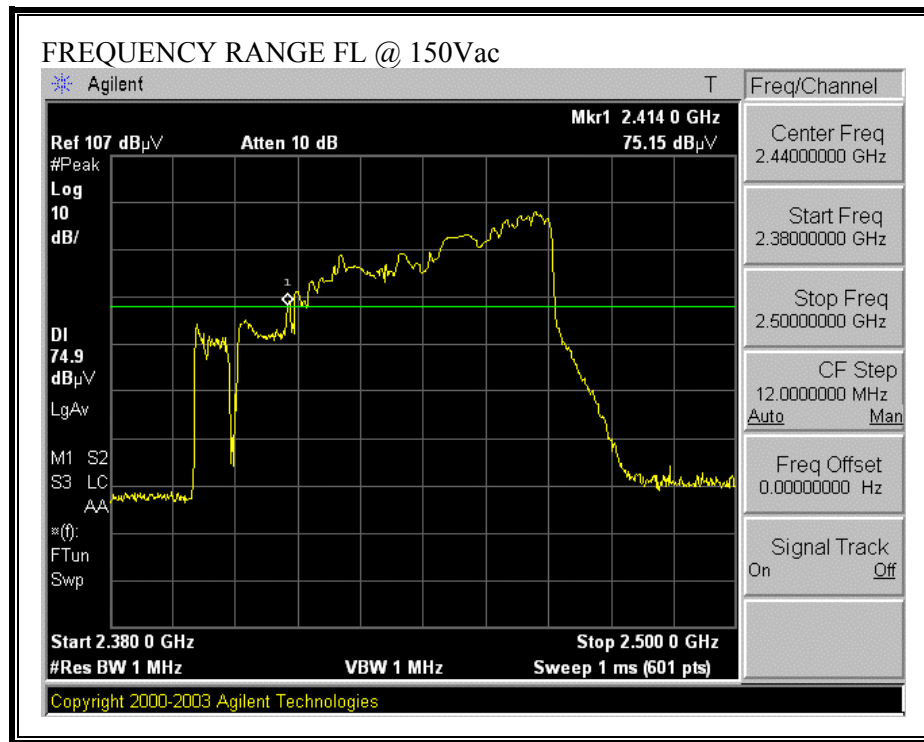
VARIATION IN OPERATING FREQUENCY WITH VOLTAGE

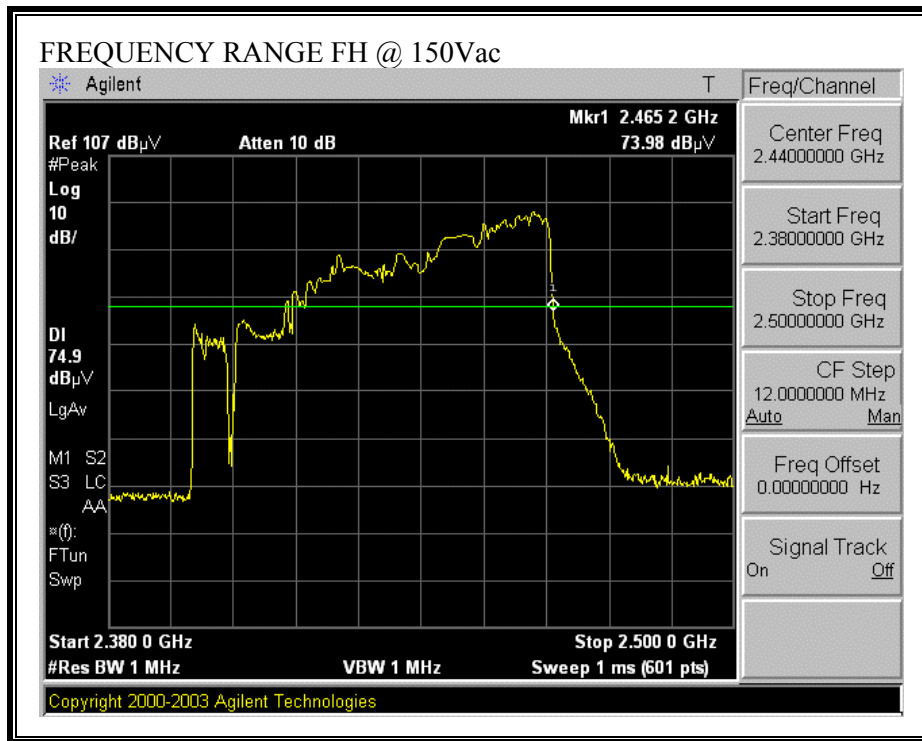










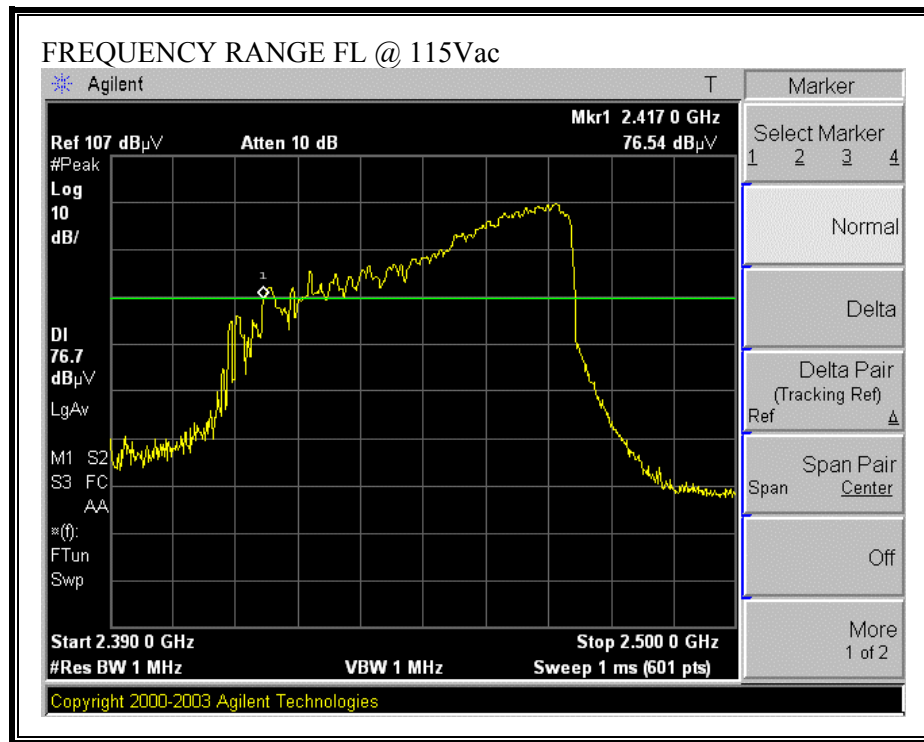


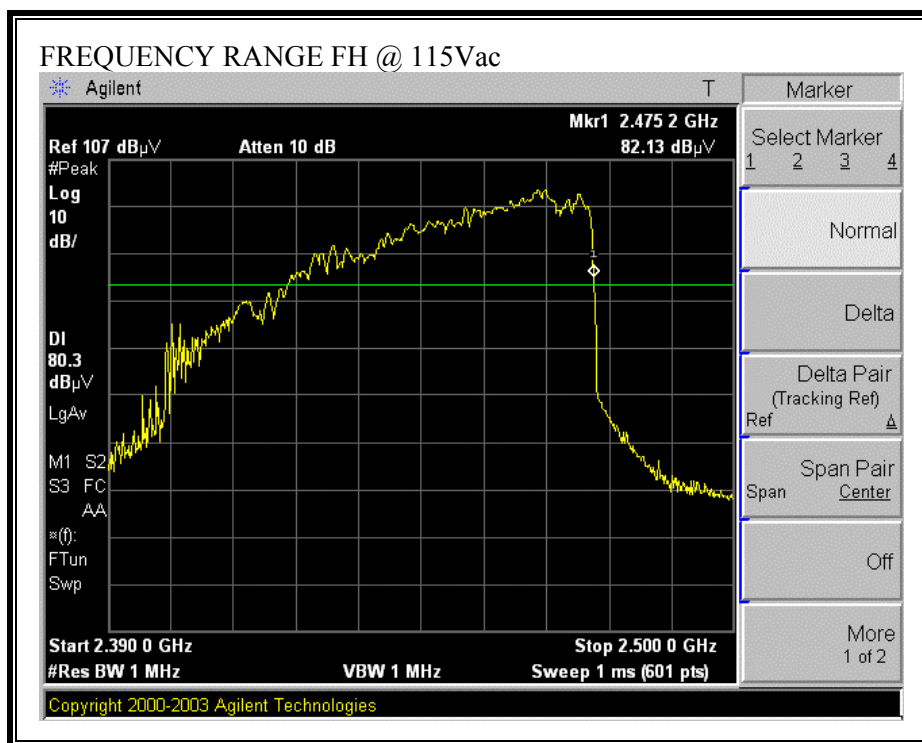
2M254(L)-B Magnetron:

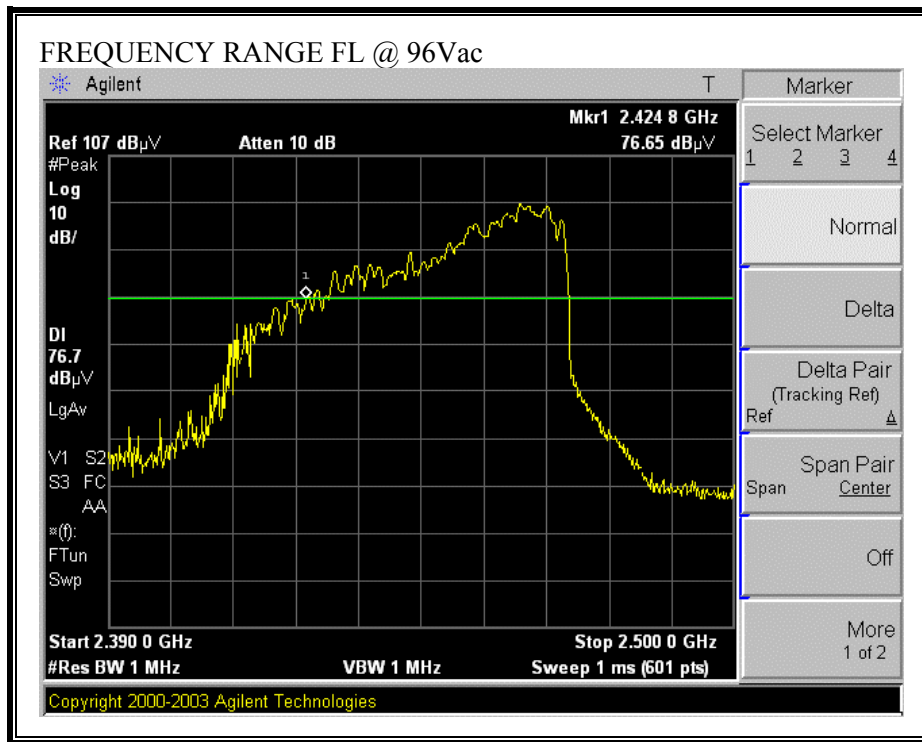
Operating Frequency With Voltage

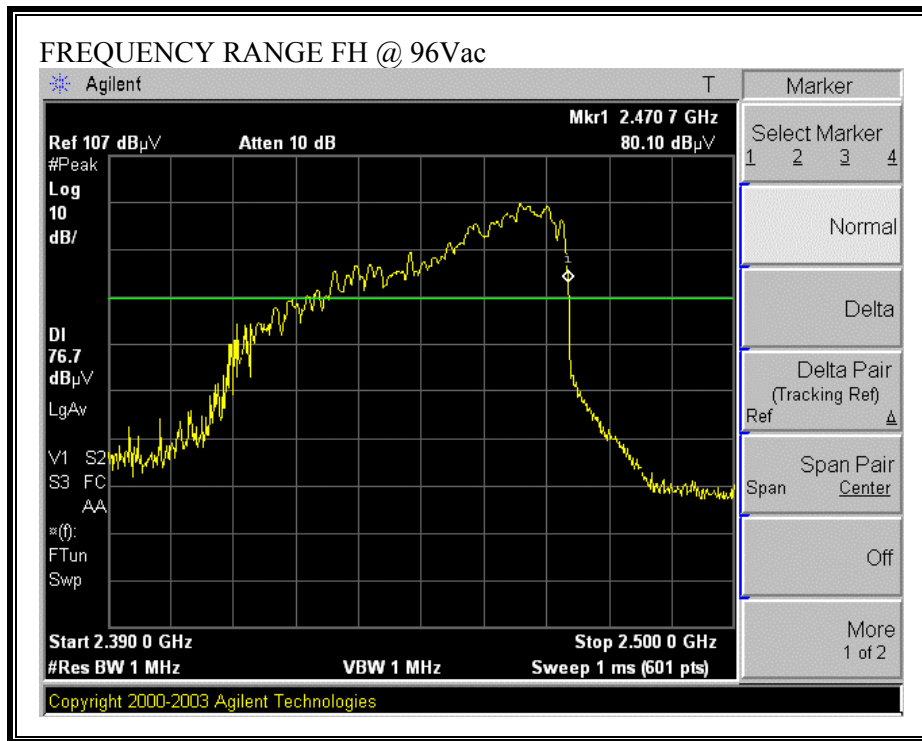
Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2417.0	17.00	2475.0	-25.00
Extreme V low (96Vac)	2424.8	24.80	2470.7	-29.30
Extreme V high (150Vac)	2423.0	23.00	2481.5	-18.50

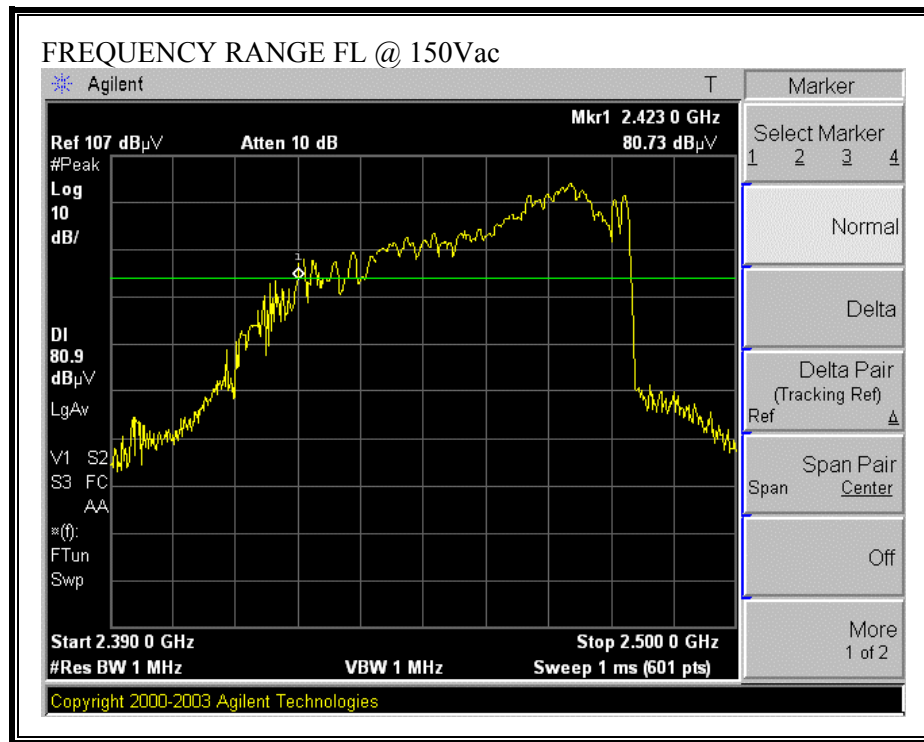
VARIATION IN OPERATING FREQUENCY WITH VOLTAGE

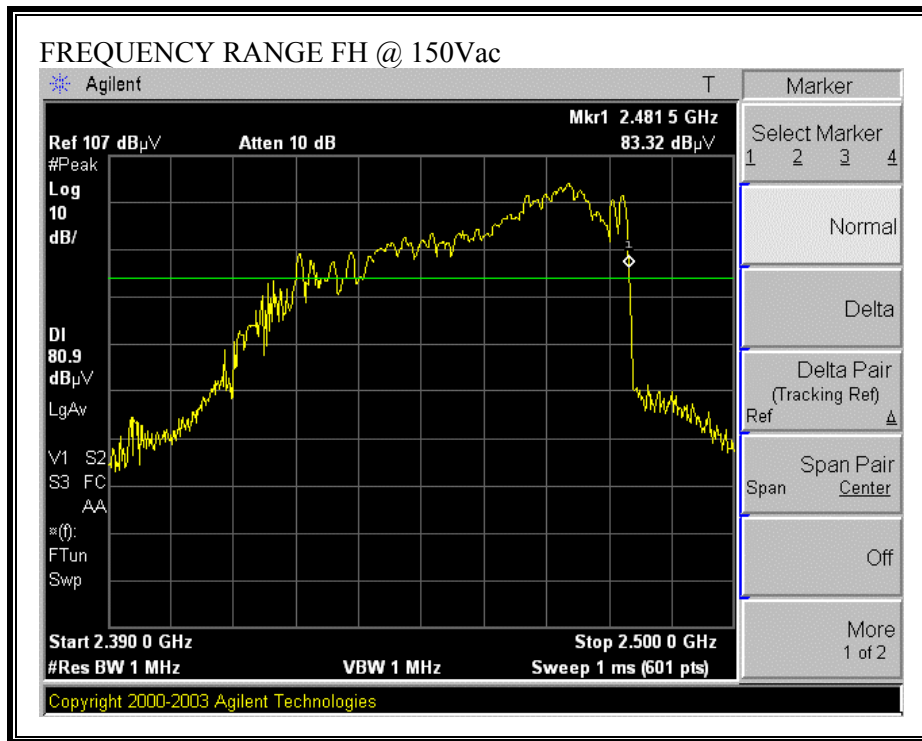












7.2. RADIATED EMISSIONS

TEST PROCEDURE

FCC / OST MP-5

The fundamental clock frequency generated or used in the EUT is 2,450 MHz; therefore the frequency range was investigated from 30 MHz to 10th harmonic.

Load for measurement of radiation on second and third harmonic: Two loads of water, one of 700 and another of 300 milliliters, were used.

LIMIT

§18.305 (b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency Distance	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500	25	300
	Any non-ISM frequency	500 or more	$25 \times \text{SQRT}(\text{power} / 500)$	300

RESULTS

No non-compliance noted:

2M254(L)-AK Magnetron:

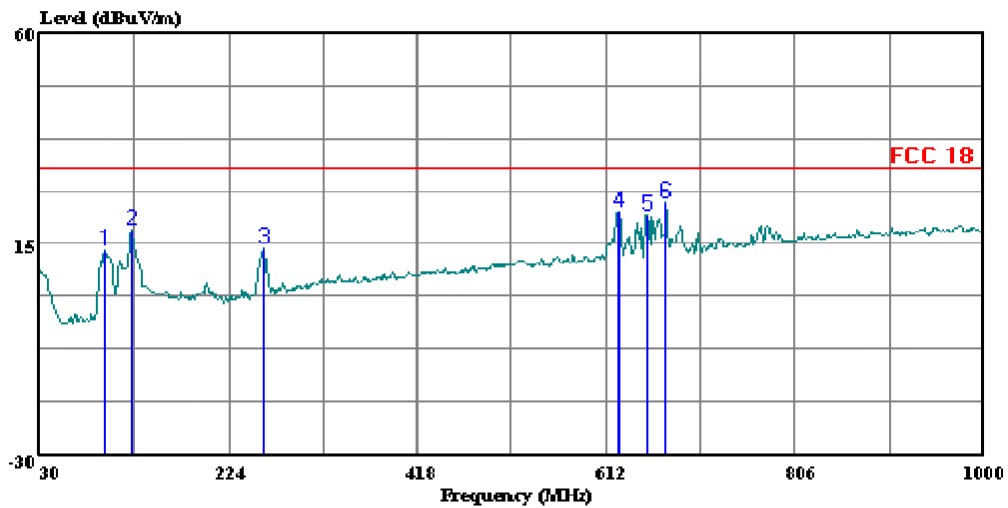
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT & DATA



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 8 File#: EMI_low.EMI Date: 11-28-2006 Time: 19:00:55



(Auxil ATC)

Trace: 7

Ref Trace:

Condition: FCC 18 HORIZONTAL
Test Operator:: Thanh Nguyen
Company: : SHARP Corporation
Project #: : 06U10738
Configuration: EUT with 2M254E(L)-AK Magnetron
Mode of Oper.: Normal ,Boiling Water
Target: : FCC 18B

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	Freq	Read		Limit	Over	
	MHz	Level	Factor	Line	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	96.930	3.09	10.58	13.67	30.00	-16.33 Peak
2	124.090	2.82	15.23	18.05	30.00	-11.95 Peak
3	259.890	-0.19	14.25	14.06	30.00	-15.94 Peak
4	624.610	-0.29	21.92	21.63	30.00	-8.37 Peak
5	654.680	-1.53	22.43	20.90	30.00	-9.10 Peak
6	674.080	0.89	22.71	23.60	30.00	-6.40 Peak

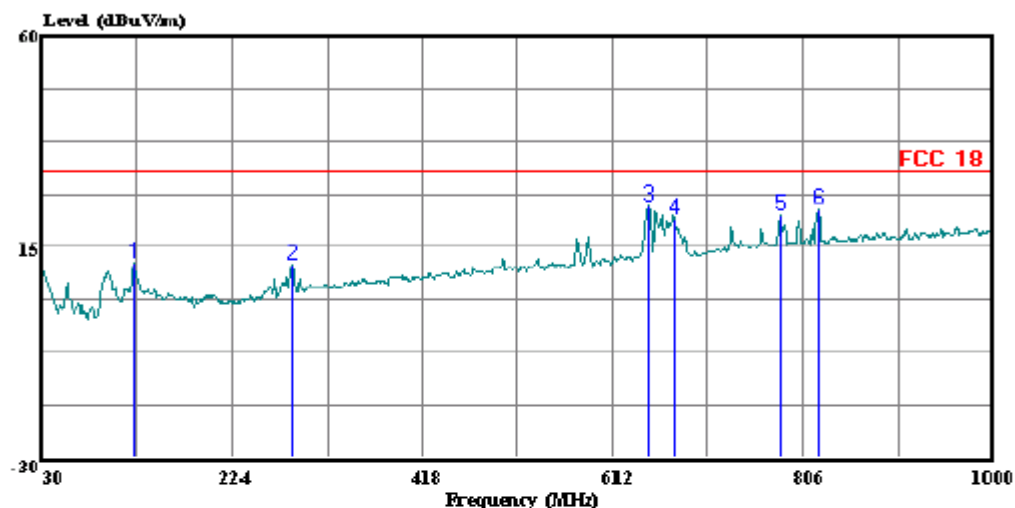
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT & DATA



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 6 File#: EMI low.EMI Date: 11-28-2006 Time: 18:56:26



(Auxil A TC)

Trace: 5

Ref Trace:

Condition: FCC 18 VERTICAL
Test Operator:: Thanh Nguyen
Company: : SHARP Corporation
Project #: : 06U10738
Configuration:: EUT with 2M254E(L) -AK Magnetron
Mode of Oper.: Normal ,Boiling Water
Target: : FCC 18B

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	Freq	Read		Limit	Over	
	MHz	Level	Factor	Level	Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	124.090	-3.39	15.23	11.84	30.00	-18.16 Peak
2	286.080	-3.76	15.16	11.40	30.00	-18.60 Peak
3	647.890	1.45	22.29	23.74	30.00	-6.26 Peak
4	675.050	-1.78	22.72	20.94	30.00	-9.06 Peak
5	783.690	-2.68	24.34	21.66	30.00	-8.34 Peak
6	822.490	-1.75	24.90	23.15	30.00	-6.85 Peak

SPURIOUS EMISSIONS ABOVE 1GHz (WORST-CASE CONFIGURATION)

HIGH FREQUENCY ABOVE 1GHz

High Frequency Measurement																
Compliance Certification Services, Morgan Hill Open Field Site																
Company: SHARP Corporation																
Project #: 06U10738																
Date: 11/28/2006																
Test Engineer: Thanh Nguyen																
Configuration: EUT Stand Alone with 2M254E(L)-AK Magnetron.																
Mode: Normal Operation, Boiling 1000ml water																
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T119; S/N: 29301 @3m			T145 Agilent 3008A0056									FCC Class B				
Hi Frequency Cables																
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz	
Thanh 177079008						Thanh 208946003						R_001				
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fln dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
1.023	3.0	77.61	46.59	27.8	1.3	-36.1	-40.0	0.0	30.5	-0.5	50.0	30.0	-19.5	-30.5	V	
1.475	3.0	76.11	44.93	29.5	1.5	-35.8	-40.0	0.0	31.4	0.2	50.0	30.0	-18.6	-29.8	V	
1.622	3.0	77.85	41.61	30.1	1.6	-35.7	-40.0	0.0	33.9	-2.4	50.0	30.0	-16.1	-32.4	V	
1.810	3.0	75.91	47.57	30.8	1.7	-35.5	-40.0	0.0	32.9	4.6	50.0	30.0	-17.1	-25.4	V	
1.980	3.0	81.78	41.87	31.5	1.8	-35.4	-40.0	0.0	39.7	-0.2	50.0	30.0	-10.3	-30.2	V	
2.187	3.0	61.00	43.12	31.7	1.9	-35.3	-40.0	0.0	19.3	1.5	50.0	30.0	-30.7	-28.5	V	
4.267	3.0	63.54	40.46	33.4	2.6	-34.8	-40.0	0.0	24.8	1.7	50.0	30.0	-25.2	-28.3	V	
4.933	3.0	74.86	51.24	33.8	2.8	-34.9	-40.0	0.0	36.6	13.0	50.0	30.0	-13.4	-17.0	V	
7.360	3.0	85.20	59.74	35.2	3.3	-34.6	-40.0	0.0	49.1	23.6	50.0	30.0	0.9	-6.4	V	
9.813	3.0	72.66	45.49	36.4	3.7	-35.0	-40.0	0.0	37.7	10.6	50.0	30.0	-12.3	-19.4	V	
11.050	3.0	68.50	37.50	37.0	4.1	-33.7	-40.0	0.0	35.9	4.9	50.0	30.0	-14.1	-25.1	V	
14.820	3.0	70.11	34.47	38.4	4.6	-32.4	-40.0	0.0	40.7	5.1	50.0	30.0	9.3	-24.9	V	
17.150	3.0	65.02	37.44	40.2	5.2	-32.0	-40.0	0.0	38.4	10.8	50.0	30.0	-11.6	-19.2	V	
1.202	3.0	74.19	40.02	28.5	1.4	-36.0	-40.0	0.0	28.0	-6.1	50.0	30.0	-22.0	-36.1	H	
1.378	3.0	72.51	41.53	29.1	1.5	-35.9	-40.0	0.0	27.3	-3.7	50.0	30.0	-22.7	-33.7	H	
1.872	3.0	72.05	41.23	31.1	1.7	-35.5	-40.0	0.0	29.4	-1.4	50.0	30.0	-20.6	-31.4	H	
4.880	3.0	75.26	52.54	33.7	2.8	-34.9	-40.0	0.0	36.9	14.2	50.0	30.0	-13.1	-15.8	H	
7.340	3.0	84.30	58.23	35.2	3.3	-34.6	-40.0	0.0	48.2	22.1	50.0	30.0	-1.8	-7.9	H	
9.560	3.0	78.86	44.4	36.2	3.7	-35.0	-40.0	0.0	43.7	9.2	50.0	30.0	-6.3	-20.8	H	
14.060	3.0	67.12	35.5	37.8	4.5	-32.4	-40.0	0.0	37.1	5.4	50.0	30.0	-12.9	-24.6	H	
17.060	3.0	63.55	36.6	40.2	5.1	-32.0	-40.0	0.0	36.9	9.9	50.0	30.0	-13.1	-20.1	H	
No other emissions above 20GHz.																
Rev. 5.1.6																
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit			
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit			
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit			
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit			
CL	Cable Loss					HPF	High Pass Filter									

2M254(L)-B Magnetron:

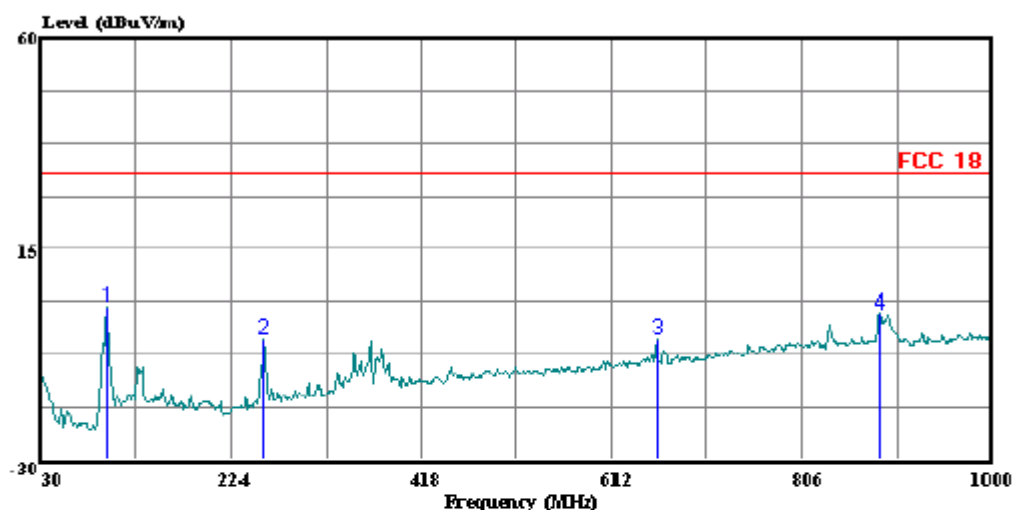
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 10 File#: EMI low.EMI Date: 11-29-2006 Time: 19:01:53



(Auxil: ATC)

Trace: 9

Ref Trace:

Condition: FCC 18 HORIZONTAL
Test Operator:: Thanh Nguyen
Company: : SHARP Corporation
Project #: : 06U10738
Configuration:: BUT with 2M254E(L)-B Magnetron
Mode of Oper.: Normal ,Boiling Water
Target: : FCC 18B

Page: 1

	Read			Limit	Over	
Freq	Level	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	96.930	-7.99	10.58	2.59	30.00	-27.41 Peak
2	256.980	-18.64	14.21	-4.43	30.00	-34.43 Peak
3	657.590	-26.66	22.46	-4.20	30.00	-34.20 Peak
4	884.570	-24.68	25.74	1.06	30.00	-28.94 Peak

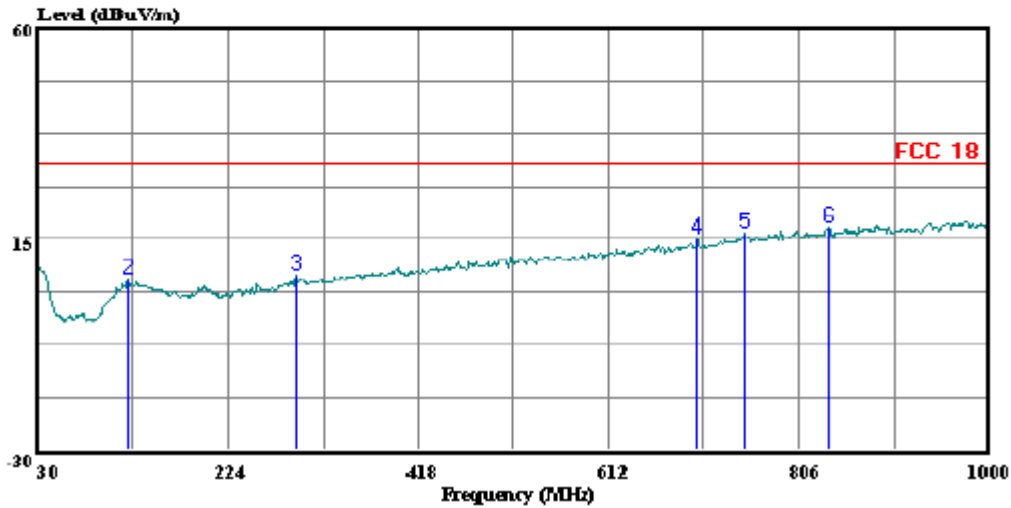
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 13 File#: BMI_low.EMI Date: 11-29-2006 Time: 19:25:23



(Aux: ATC)

Trace: 11

Ref Trace:

Condition: FCC 18 VERTICAL
Test Operator:: Thanh Nguyen
Company: : SHARP Corporation
Project #: : 06U10738
Configuration:: BUT with 2M254E(L)-B Magnetron
Mode of Oper.: Normal ,Boiling Water
Target: : FCC 18B

Page: 1

		Read		Limit	Over	
	Freq	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB
1	30.000	-11.15	20.45	9.30	30.00	-20.70 Peak
2	121.180	-8.64	15.16	6.52	30.00	-23.48 Peak
3	293.840	-8.12	15.42	7.30	30.00	-22.70 Peak
4	703.180	-8.02	23.12	15.10	30.00	-14.90 Peak
5	749.740	-7.54	23.84	16.30	30.00	-13.70 Peak
6	837.040	-7.69	25.10	17.41	30.00	-12.59 Peak

SPURIOUS EMISSIONS ABOVE 1GHz (WORST-CASE CONFIGURATION)

HIGH FREQUENCY ABOVE 1GHz																
High Frequency Measurement																
Compliance Certification Services, Morgan Hill Open Field Site																
Company: SHARP Corporation																
Project #: 06U10738																
Date: 11/29/2006																
Test Engineer: Thanh Nguyen																
Configuration: EUT Stand Alone with 2M254E(L)-B Magnetron.																
Mode: Normal Operation, Boiling 1000ml water																
Test Equipment:																
Horn 1-18GHz		Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz		Horn > 18GHz		Limit								
T119; S/N: 29301 @3m		T145 Agilent 3008A0056						FCC Class B								
Hi Frequency Cables																
2 foot cable		3 foot cable		12 foot cable		HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz						
Thanh 177079008				Thanh 208946003				R_001								
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filt dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
1.288	3.0	74.33	36.34	28.8	1.4	-35.9	-40.0	0.0	28.6	-9.4	50.0	30.0	-21.4	-39.4	V	
2.787	3.0	70.61	44.93	32.2	2.2	-35.2	-40.0	0.0	29.8	4.1	50.0	30.0	-20.2	-25.9	V	
4.920	3.0	87.39	53.74	33.8	2.8	-34.9	-40.0	0.0	49.1	15.5	50.0	30.0	-0.9	-14.5	V	
10.880	3.0	55.09	37.56	36.9	4.0	-33.9	-40.0	0.0	22.1	4.6	50.0	30.0	-27.9	-25.4	V	
12.320	3.0	56.87	33.37	37.4	4.4	-32.4	-40.0	0.0	26.2	2.7	50.0	30.0	-23.8	-27.3	V	
17.070	3.0	59.76	36.75	40.2	5.1	-32.0	-40.0	0.0	33.1	10.1	50.0	30.0	-16.9	-19.9	V	
1.265	3.0	65.19	42.35	28.7	1.4	-35.9	-40.0	0.0	19.3	-3.5	50.0	30.0	-30.7	-33.5	H	
4.920	3.0	86.00	52.36	33.8	2.8	-34.9	-40.0	0.0	47.7	14.1	50.0	30.0	-2.3	-15.9	H	
7.360	3.0	73.50	58.44	35.2	3.3	-34.6	-40.0	0.0	37.4	22.3	50.0	30.0	-12.6	-7.7	H	
9.813	3.0	72.66	45.49	36.4	3.7	-35.0	-40.0	0.0	37.7	10.6	50.0	30.0	-12.3	-19.4	H	
10.870	3.0	62.15	44.35	36.9	4.0	-33.9	-40.0	0.0	29.2	11.4	50.0	30.0	-20.8	-18.6	H	
16.630	3.0	56.27	35.37	39.7	5.0	-32.1	-40.0	0.0	28.9	8.0	50.0	30.0	-21.1	-22.0	H	
No other emissions above 17GHz.																
Rev. 5.1.6																
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit							
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit							
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit							
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit							
CL	Cable Loss			HPF	High Pass Filter											

7.3. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

FCC / OST MP-5

LIMIT

§ FCC 18.307 (a) Except for Class A digital devices, for equipment 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 μ H/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 band edges.

Frequency range (MHz)	Limits (dB μ V)	
	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
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

RESULTS

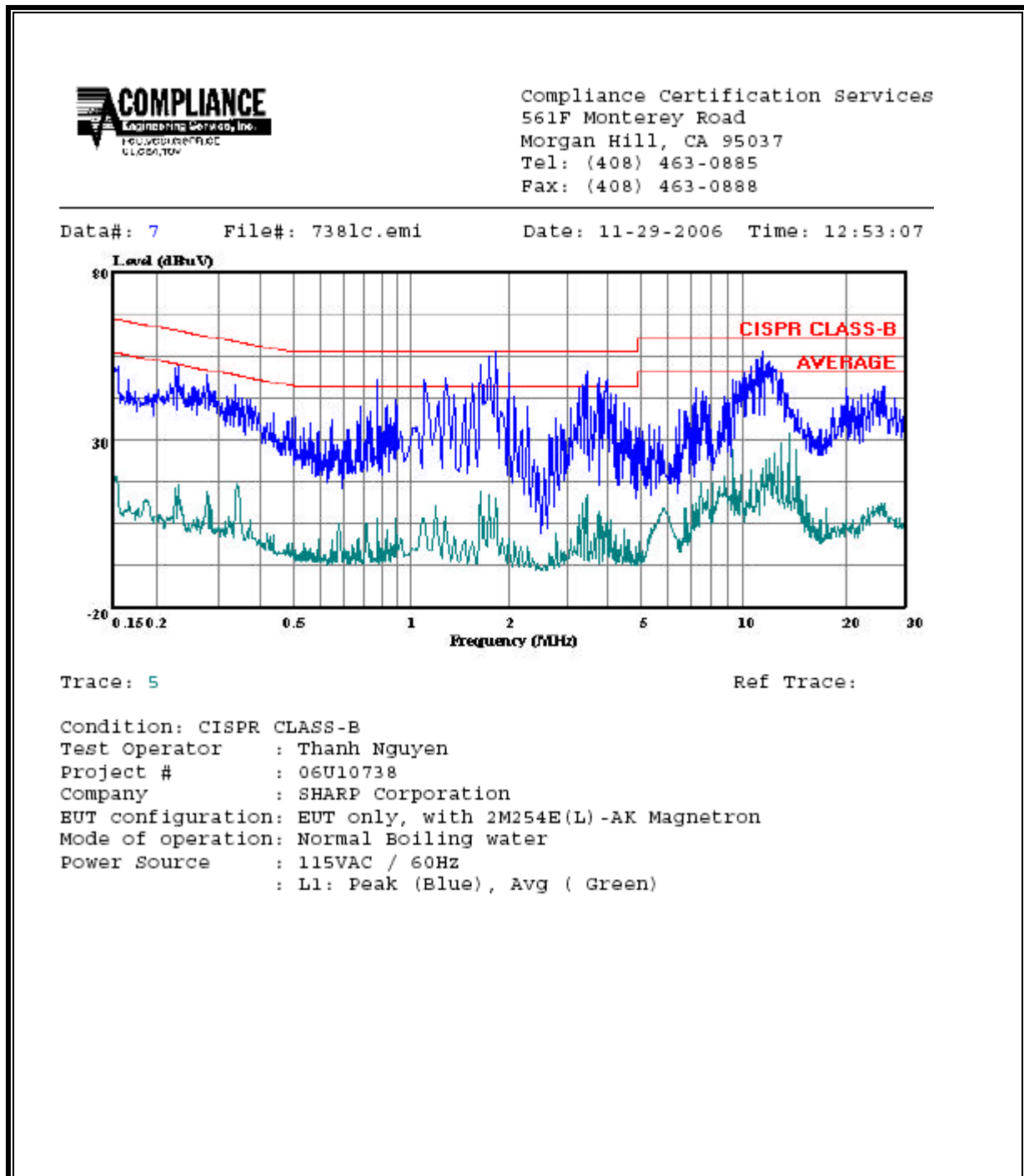
No non-compliance noted:

2M254(L)-AK Magnetron:

6 WORST EMISSIONS:

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.23	51.91	--	16.22	0.00	62.38	52.38	-10.47	-36.16	L1
1.93	56.37	52.80	12.42	0.00	56.00	46.00	-3.20	-33.58	L1
11.50	56.20	--	21.46	0.00	60.00	50.00	-3.80	-28.54	L1
0.88	45.90	--	5.66	0.00	56.00	46.00	-10.10	-40.34	L2
2.08	55.78	--	9.34	0.00	56.00	46.00	-0.22	-36.66	L2
11.20	59.37	--	21.73	0.00	60.00	50.00	-0.63	-28.27	L2
6 Worst Data									

LINE 1 RESULTS

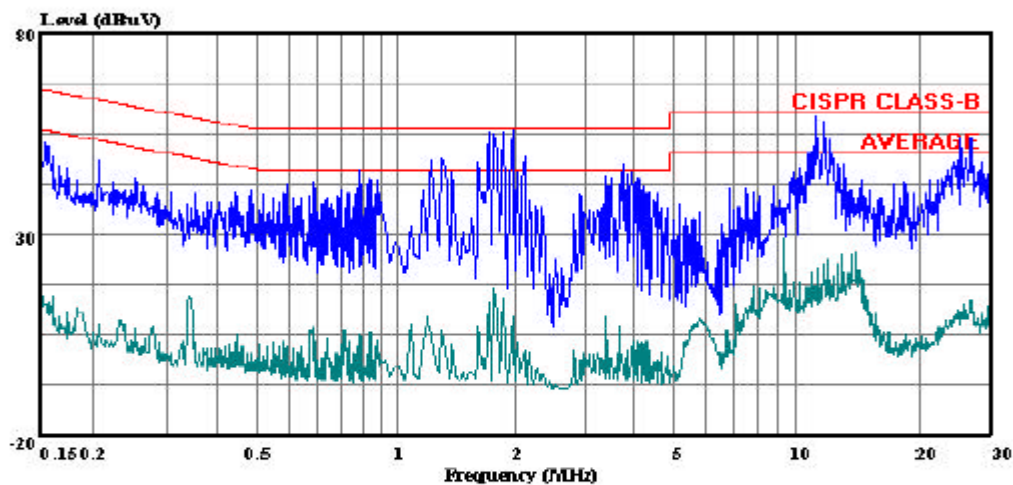


LINE 2 RESULTS



Compliance Certification Services
561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 14 File#: 7381c.emi Date: 11-29-2006 Time: 13:23:56



Trace: 12

Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10738
Company : SHARP Corporation
EUT configuration: EUT only, with 2M254E(L) -AK Magnetron
Mode of operation: Normal Boiling water
Power Source : 115VAC / 60Hz
: L2: Peak (Blue), Avg (Green)

2M254(L)-B Magnetron:

6 WORST EMISSIONS:

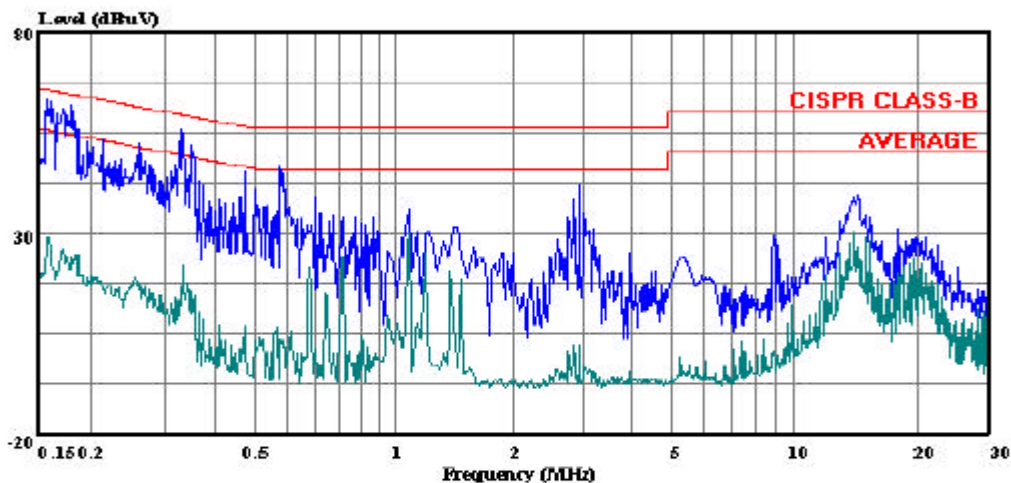
CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	63.05	--	28.90	0.00	65.67	55.67	-2.62	-26.77	L1
0.33	55.73	--	21.80	0.00	59.40	49.40	-3.67	-27.60	L1
0.57	46.72	--	3.89	0.00	56.00	46.00	-9.28	-42.11	L1
0.27	44.83	--	15.50	0.00	61.12	51.12	-16.29	-35.62	L2
0.63	44.01	--	22.43	0.00	56.00	46.00	-11.99	-23.57	L2
3.01	41.35	--	5.94	0.00	56.00	46.00	-14.65	-40.06	L2
6 Worst Data									

LINE 1 RESULTS



Compliance Certification Services
561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 21 File#: 7381c.emi Date: 11-30-2006 Time: 14:16:49



Trace: 19

Ref Trace:

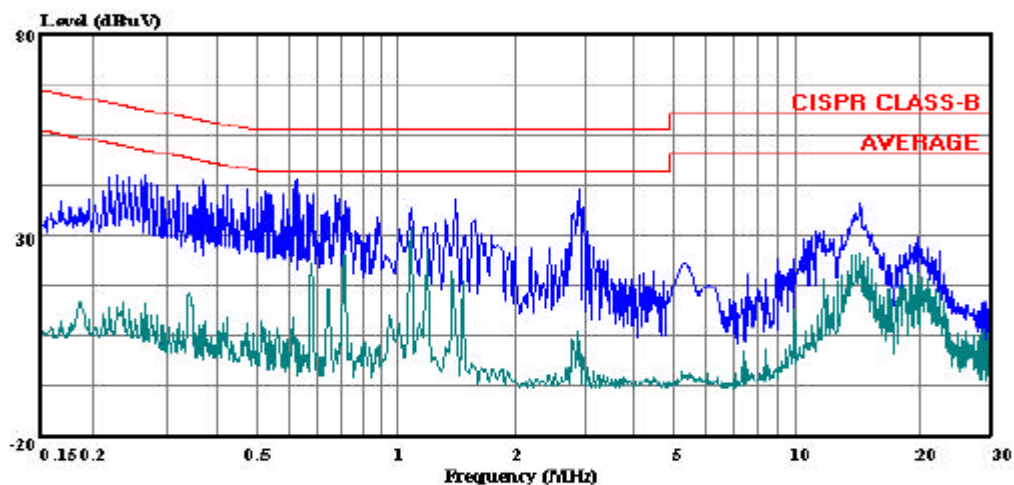
Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10738
Company : SHARP Corporation
EUT configuration: EUT only, with 2M254E(L) -B Magnetron
Mode of operation: Normal Boiling water
Power Source : 115VAC / 60Hz
: L1: Peak (Blue), Avg (Green)

LINE 2 RESULTS



Compliance Certification Services
561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 28 File#: 7381c.emi Date: 11-30-2006 Time: 14:35:57



Trace: 26

Ref Trace:

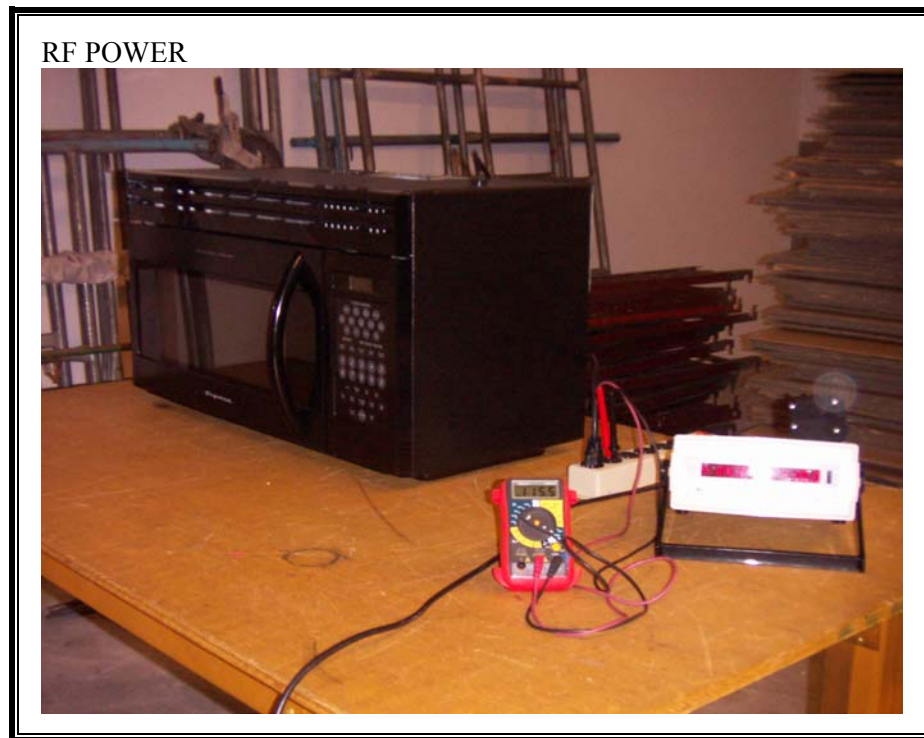
Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10738
Company : SHARP Corporation
EUT configuration: EUT only, with 2M254E(L) -B Magnetron
Mode of operation: Normal Boiling water
Power Source : 115VAC / 60HZ
: L2: Peak (Blue), Avg (Green)

8. SETUP PHOTOS

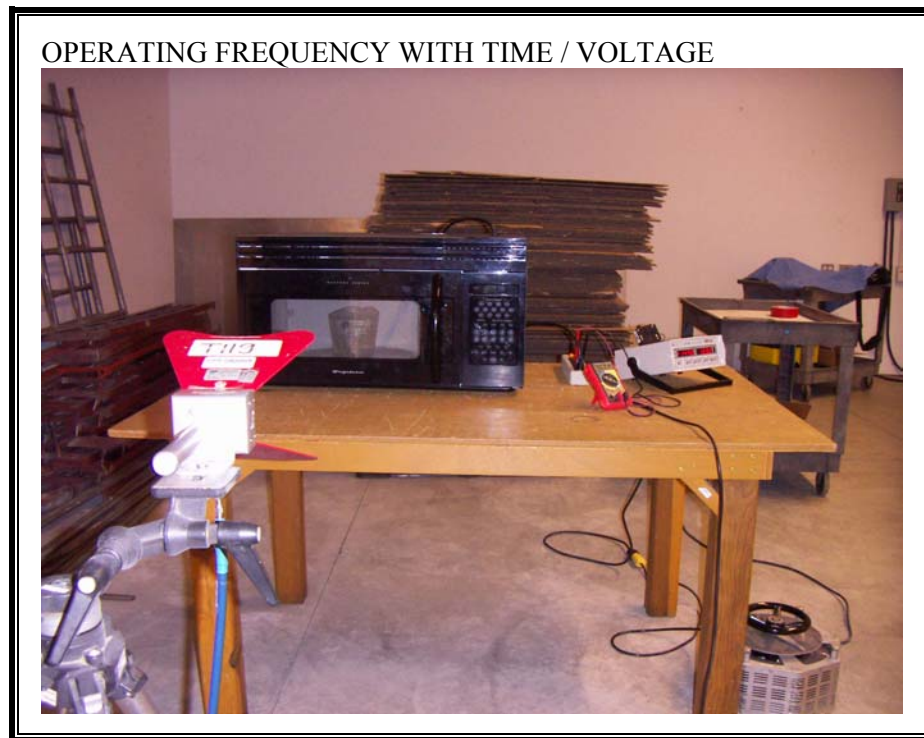
RADIATED HAZARD EMISSIONS



POWER TESTING

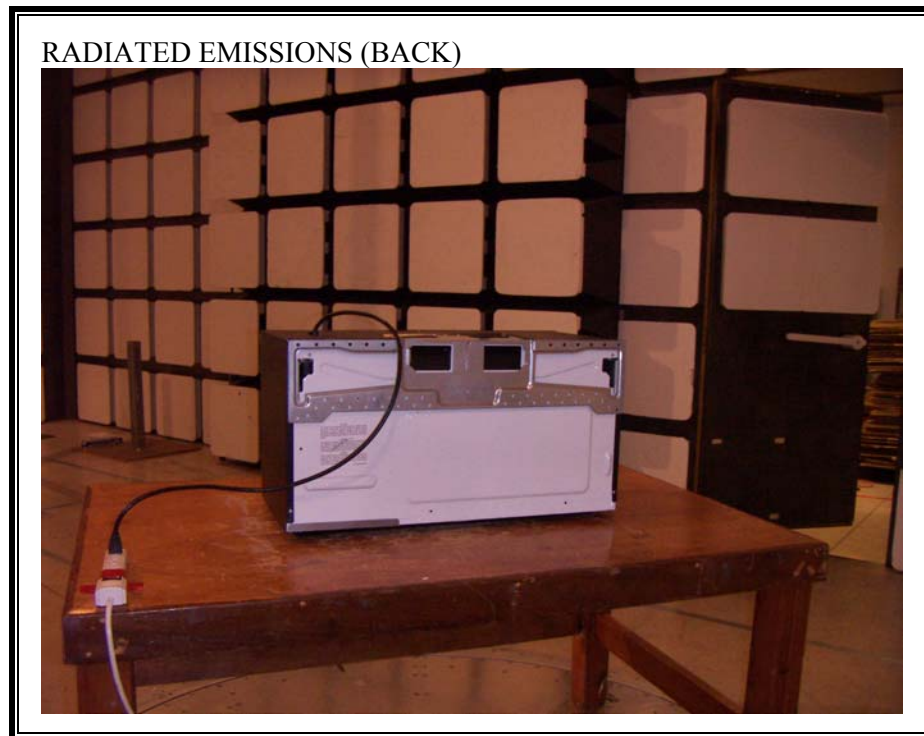


OPERATING FREQUENCY WITH TIME / VOLTAGE



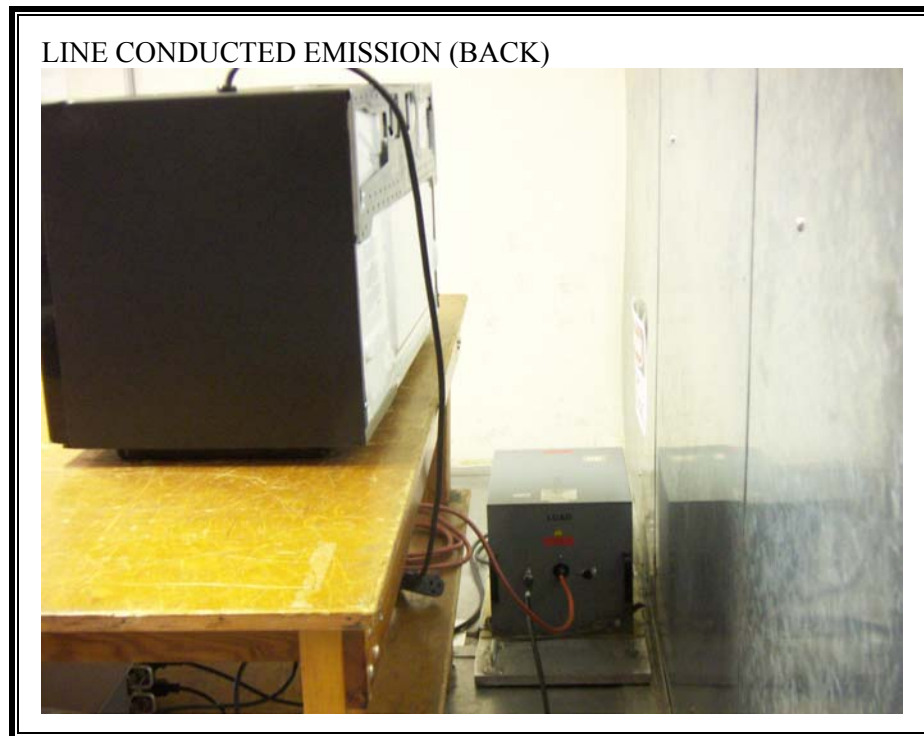
RADIATED EMISSION





AC MAINS LINE CONDUCTED EMISSION





END OF REPORT