FCC CFR47 PART 18 SUBPART C
ISM EQUIPMENT
CLASS II CHANGE
CERTIFICATION TEST REPORT

MICROWAVE OVEN

MODEL NUMBER: OTX

MAGNETRON MODELS: 2M253J(L) and 2M167B

FCC ID: APYDMR0160

REPORT NUMBER: 06U10760-1

ISSUE DATE: JANUARY 12, 2007

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

Prepared by
COMPLIANCE CERTIFICATION SERVICES
561F MONTEREY ROAD
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	1/12/07	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: OTX

MAGNETRON MODELS: 2M253J (L) and 2M167B

SERIAL NUMBER: CCS1825

DATE TESTED: DECEMBER 11-21, 2006

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 18 SUBPART C & FCC METHEROD 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:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

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 Metherod 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 with Maximum power 1000W.

GENERAL INFORMATION

CHASSIS MATERIAL	METAL
POWER REQUIREMENTS	115VAC / 60 Hz
MAGNETRON MODEL	2M253J(L) and 2M167B

5.2. CLASS II CHANGE DESCRIPTION

Changes made to the subject approved product include the following:

- Add a magetron model: 2M253J(L)
- Retest Magetron 2M167B due to filter box orientation.

5.3. MODE(S) OF OPERATION

Mode	Description
Normal	Boiling water with maximum power

5.4. MODIFICATIONS

No modifications were made during testing.

5.5. DETAILS OF TESTED SYSTEM

SUPPORT EQUIPMENT

The EUT is a stand-alone unit.

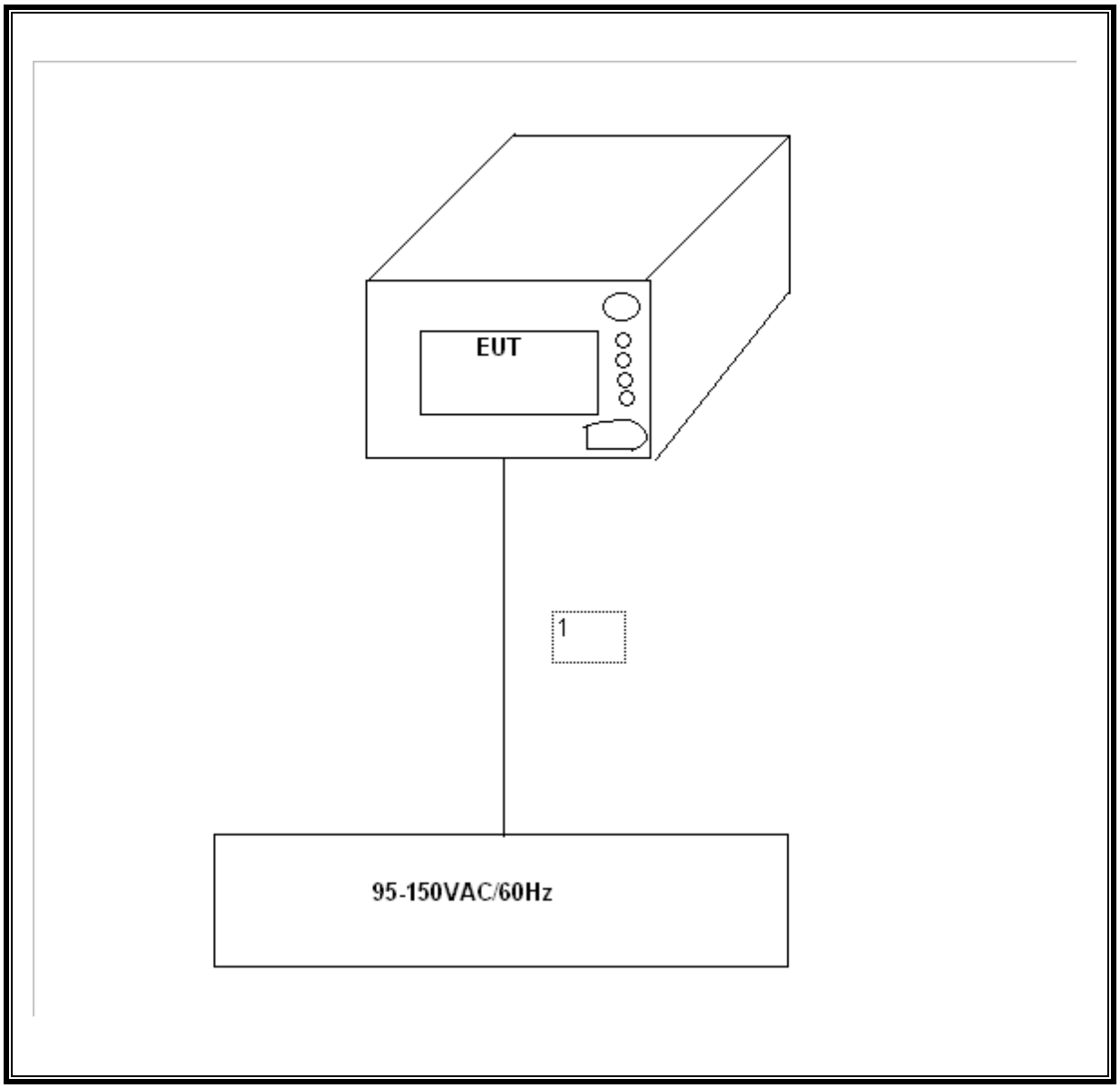
I/O CABLES

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**
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	8/13/2007
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	US42070220	11/26/2007
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/3/2007
Spectrum Analyzer 9KHz ~ 26.5 GHz	Agilent / HP	E4407B	US41444322	8/4/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	9/15/2007
LISN, 10 kHz ~ 30 MHz	Solar	BNC	8379443	9/15/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	1/27/2008
Meter	SIMPSON	380-2	9021	4/26/2008
Temperature Meter	Tektronix	DTM920	2373	2/27/2007
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	9001-3245	4/22/2007

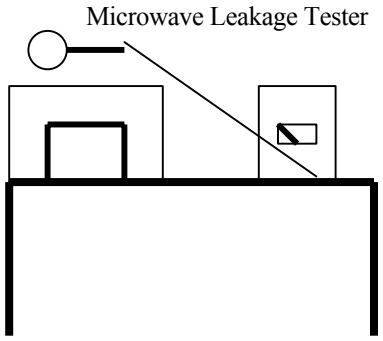
7. APPLICABLE LIMITS AND TEST RESULTS

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 to10 (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 (< 1.0mW/cm2)

RESULTS

No non-compliance noted:

Maximum
leakage 0.03

	Maximum Leakage (mW/cm2)	Limit (mW/cm2)
Figure shown above for the location of maximum leakage	0.03	1.00
All Others	0.01	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 to10 (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:

Magnetron 2M253J(L):

Input Power

Input Voltage (Vac)	Input Current (Amps)	Input Power (Watts)
115	12.1	1354.00

Magnetron 2M167B:

Input Power

Input Voltage (Vac)	Input Current (Amps)	Input Power (Watts)
115	12.6	1362.00

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√Power/500 @ 300m.

RESULTS

No non-compliance noted:

2M253J(L) Magnetron:

Output Power

Start Temperature (ºC)	Final Temperature (ºC)	Elapsed Time (120 Sec)	Water Volume (ml)	RF Power (Watts)
15.4	41.20	120.00	1000.00	903.00
14.6	40.60	120.00	1000.00	910.00
15	41.00	120.00	1000.00	910.00

Avrage of 3 Trials: 907.7 Watts

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

2M167B Magnetron:

Output Power

Start Temperature (ºC)	Final Temperature (ºC)	Elapsed Time (120 Sec)	Water Volume (ml)	RF Power (Watts)
21.3	42.67	120.00	1000.00	747.95
20.5	43.20	120.00	1000.00	794.50
18.5	41.56	120.00	1000.00	807.10

Avrage of 3 Trials: 783.2 Watts

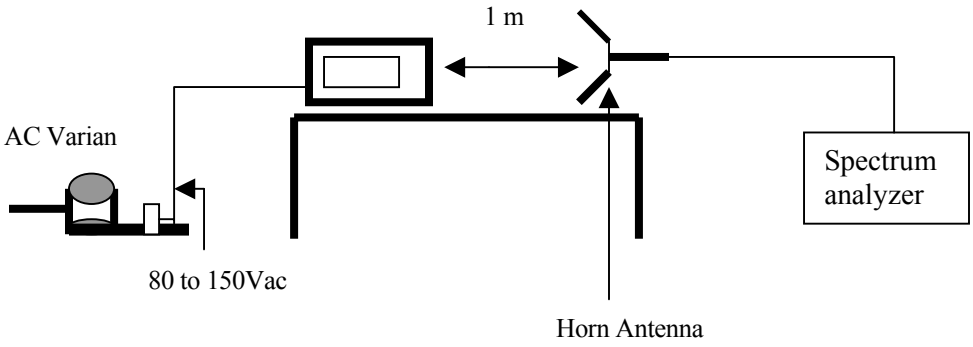
Output Power = ((4.2 Joules/Cal) x (Volume in ml) x (Temp. Rise)) / Time in Seconds

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:

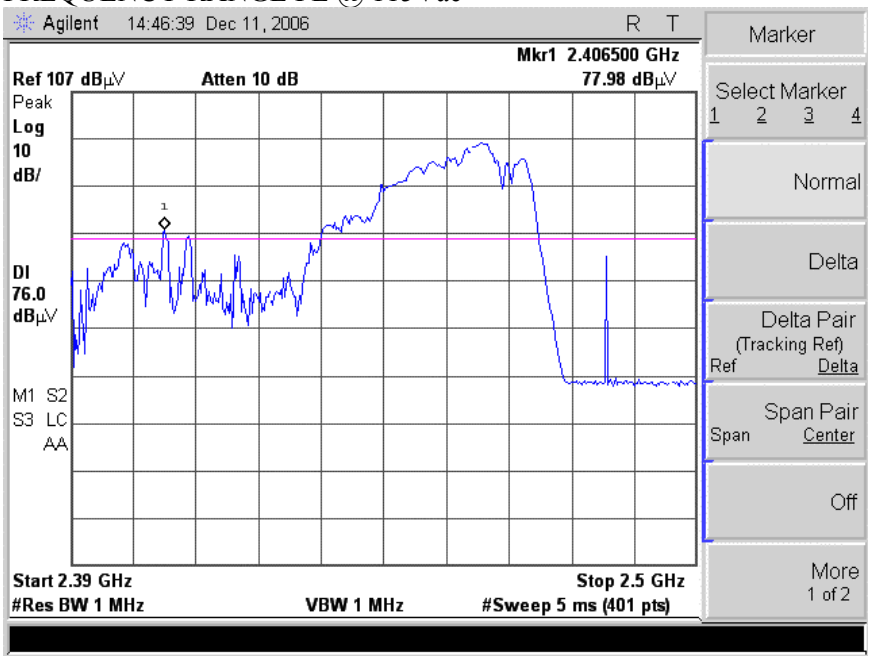
Magnetron 2M253J(L):

Operating Frequency With Time

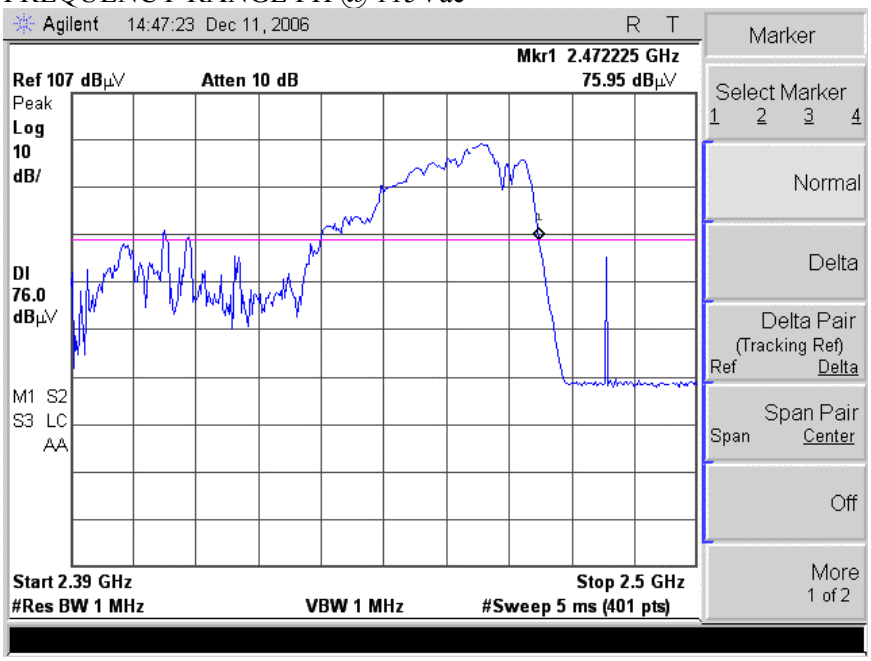
Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2406.5	6.50	2472.22	-27.78

VARIATION IN OPERATING FREQUENCY WITH TIME

FREQUENCY RANGE FL @ 115Vac



FREQUENCY RANGE FH @ 115Vac



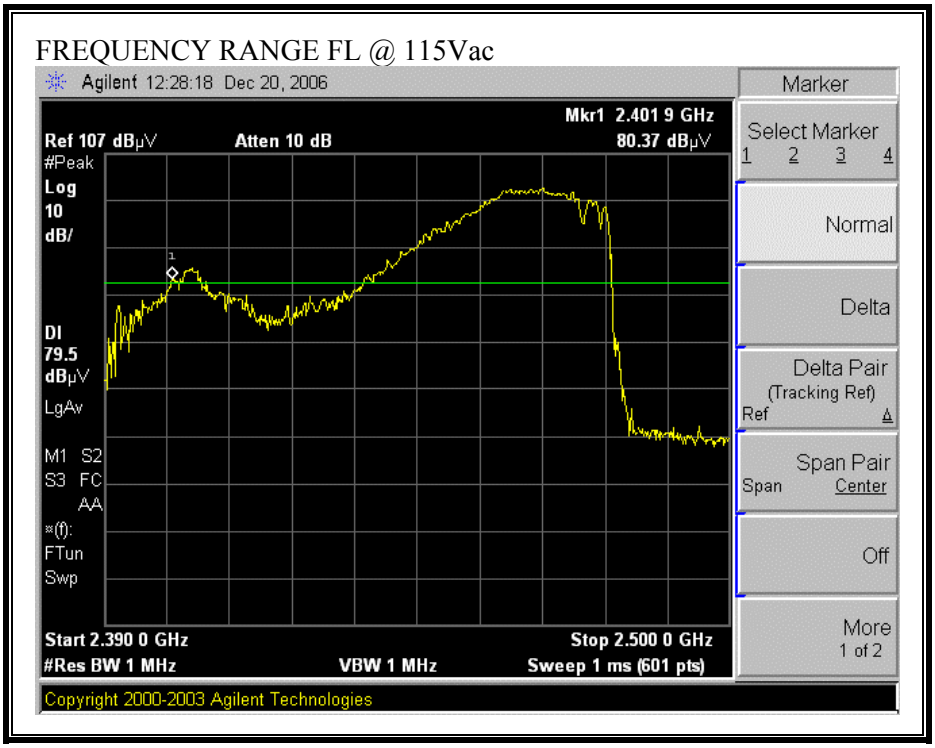
Magnetron 2M167B:

Operating Frequency With Time

Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2401.9	1.90	2479.10	-20.90

VARIATION IN OPERATING FREQUENCY WITH TIME

FREQUENCY RANGE FL @ 115Vac



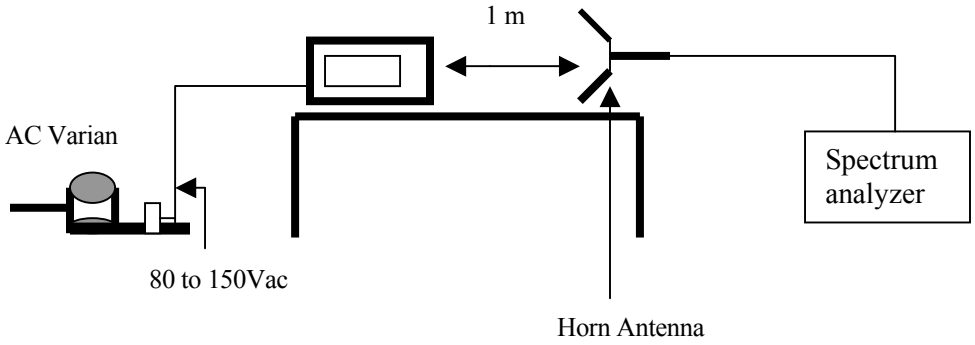
FREQUENCY RANGE FH @ 115Vac

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

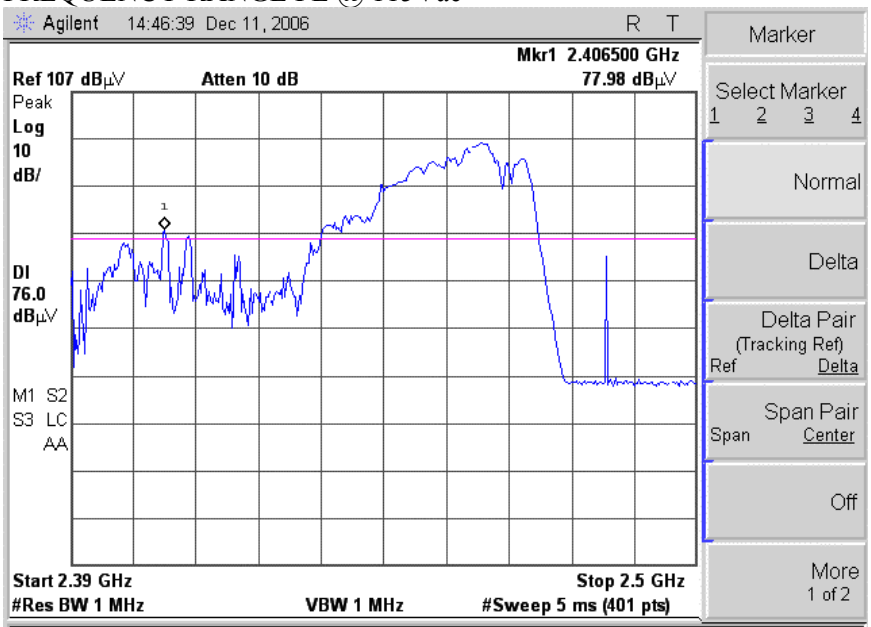
No non-compliance noted:

Magnetron 2M253J(L):

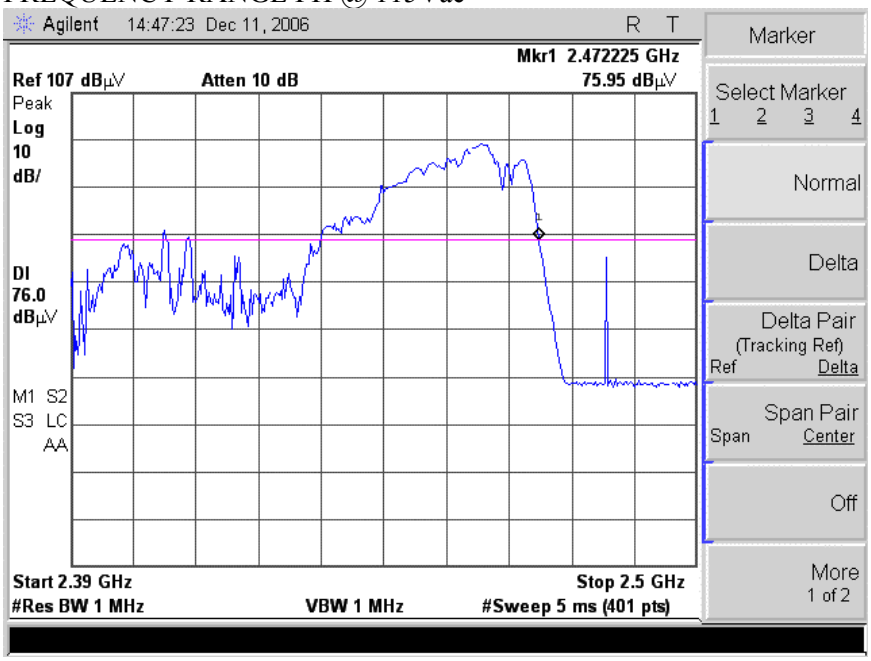
Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2406.50	6.50	2472.22	-27.78
Extreme V low (96Vac)	2406.50	6.50	2472.23	-27.78
Extreme V high (150Vac)	2405.68	5.68	2476.90	-23.10

VARIATION IN OPERATING FREQUENCY WITH VOLTAGE

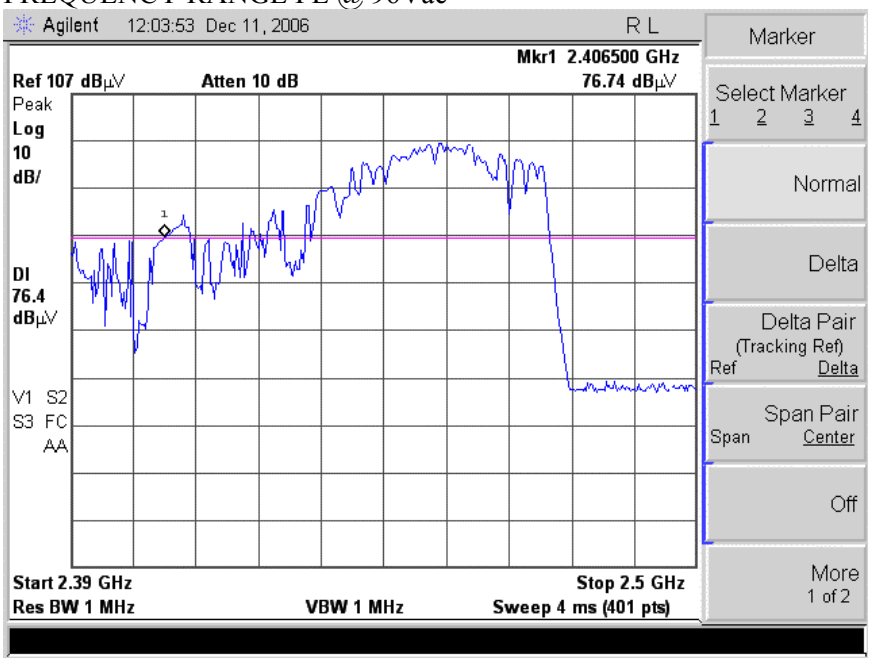
FREQUENCY RANGE FL @ 115Vac



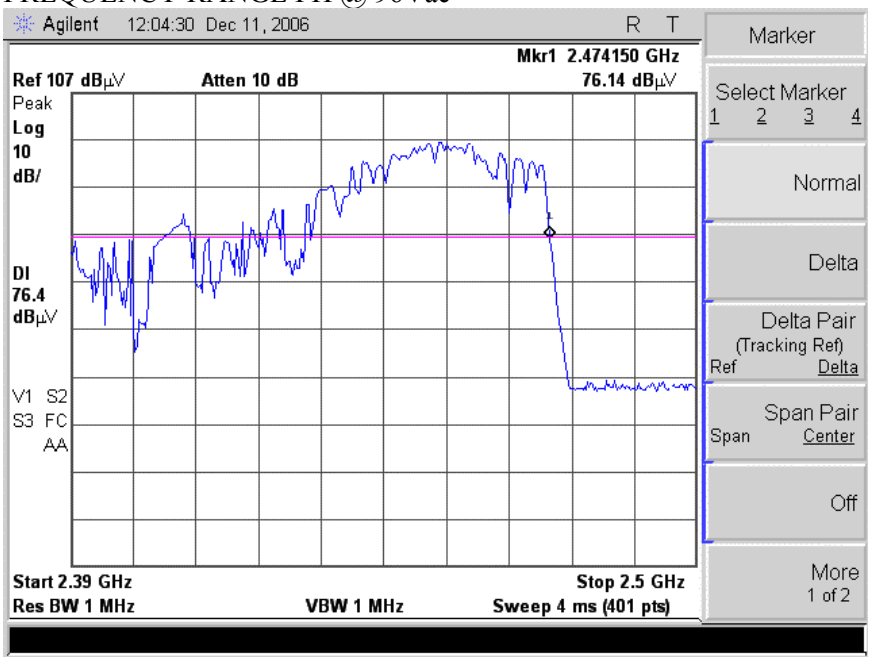
FREQUENCY RANGE FH @ 115Vac



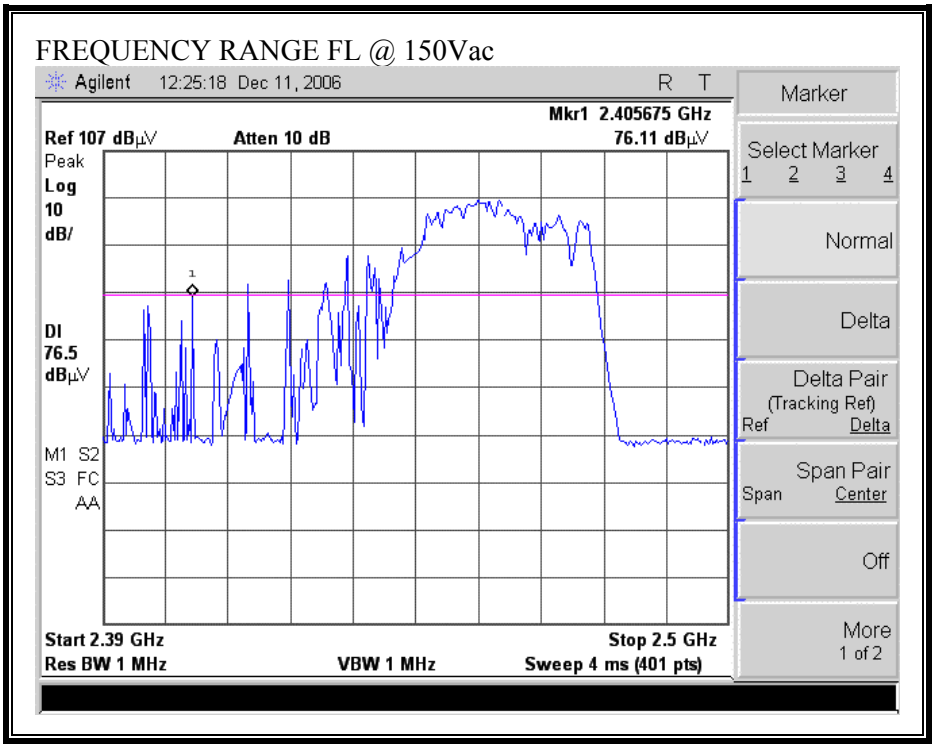
FREQUENCY RANGE FL @ 96Vac



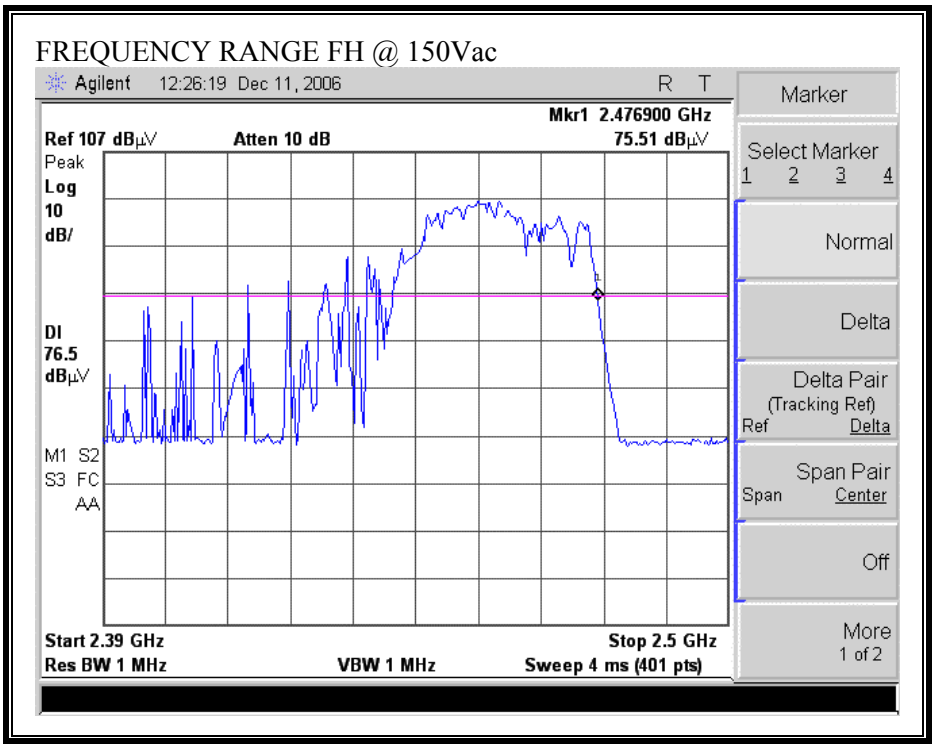
FREQUENCY RANGE FH @ 96Vac



FREQUENCY RANGE FL @ 150Vac



FREQUENCY RANGE FH @ 150Vac



Magnetron 2M167B:

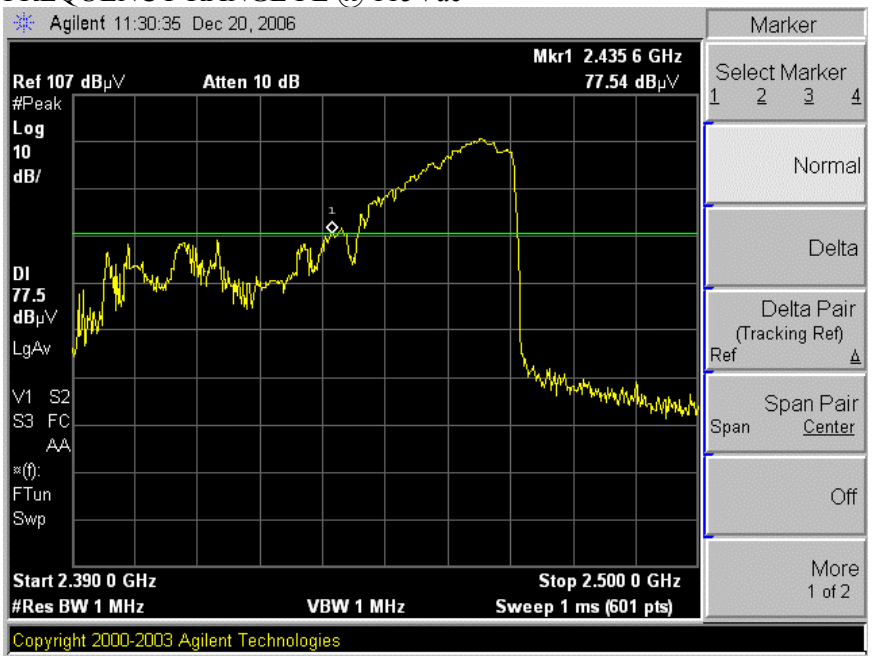
No non-compliance noted:

Operating Frequency With Voltage

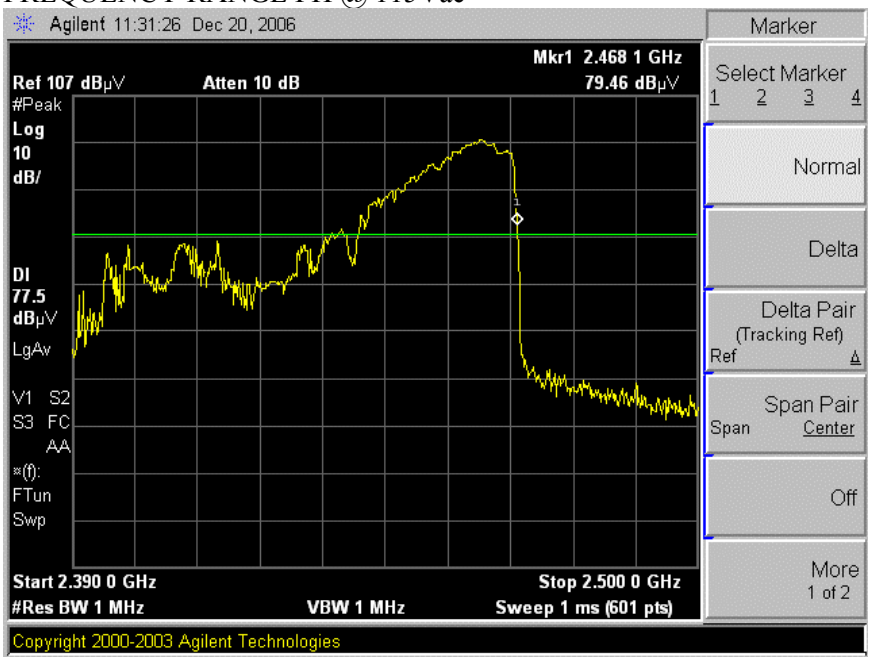
Condition	F low (MHz)	Margin (MHz)	F high (MHz)	Margin (MHz)
Normal	2435.60	35.60	2468.100	-31.90
Extreme V low (96Vac)	2400.40	0.40	2472.70	-27.30
Extreme V high (150Vac)	2400.40	0.40	2472.20	-27.80

VARIATION IN OPERATING FREQUENCY WITH VOLTAGE

FREQUENCY RANGE FL @ 115Vac



FREQUENCY RANGE FH @ 115Vac



FREQUENCY RANGE FL @ 96Vac

FREQUENCY RANGE FH @ 96Vac

FREQUENCY RANGE FL @ 150Vac

FREQUENCY RANGE FH @ 150Vac

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×SQRT (power/500)	300

RESULTS

No non-compliance noted:

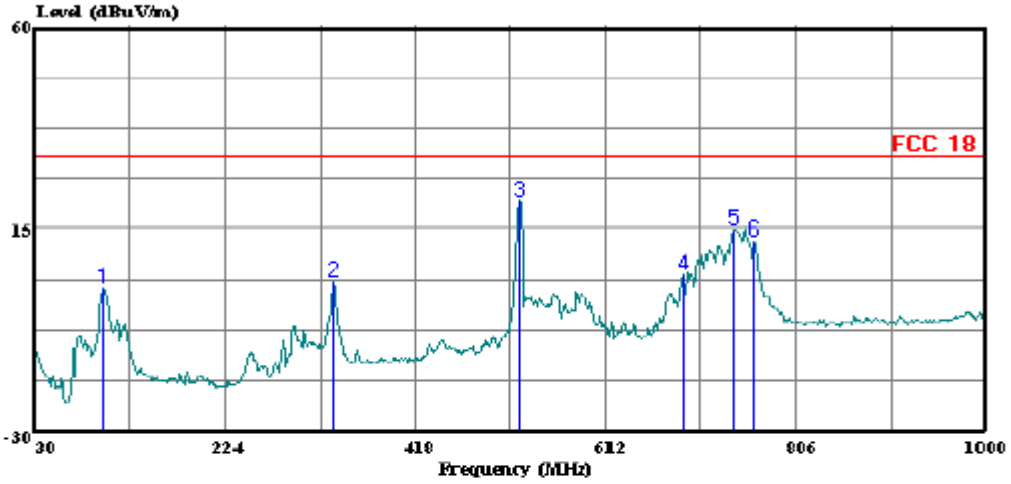
Magnetron 2M253J(L):

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#: 5 File#: Below 1GHz_760.EMI
Date: 12-11-2006 Time: 10:09:50



(Audix ATC)
Trace: 4 Ref Trace:

Condition: FCC 18 VERTICAL
Test Operator:: Thanh Nguyen
Company: : SHARP CORPORATION.
Project #: : 06U10760
Configuration:: EUT StandAlone
Mode of Oper.:: Normal Operation, Boiling Water/Mx.Power
Target: : FCC 18 Class B

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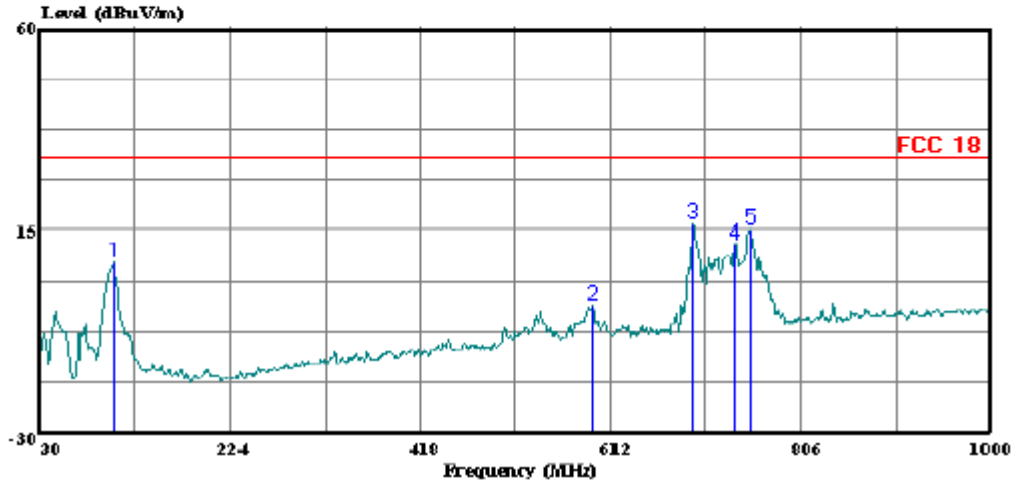
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	99.840	-9.40	11.38	1.98	31.00	-29.02	Peak
2	334.580	-12.89	16.53	3.64	31.00	-27.36	Peak
3	524.700	0.47	20.63	21.10	31.00	-9.90	Peak
4	691.540	-17.96	22.96	5.00	31.00	-26.00	Peak
5	742.950	-8.85	23.76	14.90	31.00	-16.10	Peak
6	764.290	-11.68	24.09	12.41	31.00	-18.59	Peak

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

VERTICAL PLOT & DATA

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 8 File#: Below 1GHz_760.EMI
Date: 12-11-2006 Time: 10:15:29



Trace: 7 Ref Trace:

Condition: FCC 18 VERTICAL
Test Operator:: Thanh Nguyen
Company: : SHARP CORPORATION.
Project #: : 06U10760
Configuration:: EUT StandAlone
Mode of Oper.:: Normal Operation, Boiling Water/Mx.Power
Target: : FCC 18B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	104.690	-4.33	12.38	8.05	31.00	-22.95	Peak
2	594.540	-23.09	21.41	-1.68	31.00	-32.68	Peak
3	696.390	-6.58	23.03	16.45	31.00	-14.55	Peak
4	739.070	-11.79	23.70	11.91	31.00	-19.09	Peak
5	754.590	-8.89	23.90	15.01	31.00	-15.99	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 #: 06U10760
Date: 12/11/2006
Test Engineer: Thanh Nguyen
Configuration: EUT Stand Alone with 2M253J(L) Magnetron.
Mode: Normal Operation, Boiling water with Max Power.

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T87 Miteq 924342			FCC Class B

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Thanh 177079008		Thanh 208946003		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.362	3.0	67.91	44.78	25.4	1.5	-44.9	-40.0	0.0	9.9	-13.3	51.0	31.0	-41.1	-44.3	V
1.474	3.0	69.60	48.36	25.8	1.5	-44.9	-40.0	0.0	12.1	-9.2	51.0	31.0	-38.9	-40.2	V
2.460	3.0	71.17	51.78	28.7	2.1	-44.7	-40.0	0.0	17.1	-2.3	51.0	31.0	-33.9	-33.3	V
4.215	3.0	70.07	50.36	32.6	2.6	-45.0	-40.0	0.0	20.3	0.6	51.0	31.0	-30.7	-30.4	V
4.930	3.0	79.44	54.33	33.3	2.8	-45.4	-40.0	0.0	30.1	5.0	51.0	31.0	-20.9	-26.0	V
7.375	3.0	79.23	56.38	35.3	3.3	-43.1	-40.0	0.0	34.7	11.9	51.0	31.0	-16.3	-19.1	V
4.930	3.0	79.44	54.33	33.3	2.8	-45.4	-40.0	0.0	30.1	5.0	51.0	31.0	-20.9	-26.0	V
8.192	3.0	71.91	52.36	36.0	3.4	-41.9	-40.0	0.0	29.4	9.8	51.0	31.0	-21.6	-21.2	V
9.833	3.0	78.20	57.68	36.7	3.7	-39.5	-40.0	0.0	39.2	18.7	51.0	31.0	-11.8	-12.3	H
1.360	3.0	68.82	46.59	25.3	1.5	-44.9	-40.0	0.0	10.8	-11.5	51.0	31.0	-40.2	-42.5	H
1.583	3.0	77.36	52.44	26.2	1.6	-44.9	-40.0	0.0	20.3	-4.6	51.0	31.0	-30.7	-35.6	H
2.455	3.0	78.24	52.63	28.6	2.1	-44.8	-40.0	0.0	24.2	-1.4	51.0	31.0	-26.8	-32.4	H
4.420	3.0	73.02	45.64	32.8	2.7	-45.1	-40.0	0.0	23.4	-4.0	51.0	31.0	-27.6	-35.0	H
4.910	3.0	80.46	48.82	33.2	2.8	-45.4	-40.0	0.0	31.2	-0.5	51.0	31.0	-19.8	-31.5	H
6.875	3.0	77.96	53.55	34.8	3.3	-43.9	-40.0	0.0	32.1	7.7	51.0	31.0	-18.9	-23.3	H
7.383	3.0	81.91	69.32	35.3	3.3	-43.1	-40.0	0.0	37.4	24.9	51.0	31.0	-13.6	-6.1	H
9.825	3.0	80.40	58.68	36.7	3.7	-39.5	-40.0	0.0	41.4	19.7	51.0	31.0	-9.6	-11.3	H
12.296	3.0	77.45	44.70	37.7	4.4	-40.1	-40.0	0.0	39.4	6.6	51.0	31.0	-11.6	-24.4	H
17.200	3.0	67.31	43.29	42.8	5.2	-40.7	-40.0	0.0	34.6	10.6	51.0	31.0	-16.4	-20.4	H

No other emissions above 17.5GHz.

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		

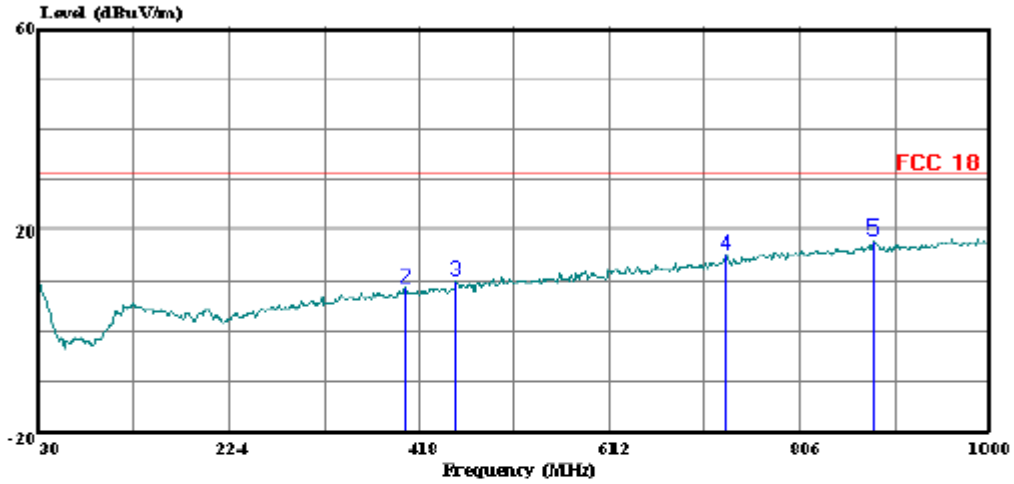
Magnetron 2M167B:

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#: 13 File#: Below 1GHz_760.EMI
Date: 12-19-2006 Time: 18:29:36



Trace: 12 Ref Trace:

Condition: FCC 18 HORIZONTAL
Test Operator:: Thanh Nguyen
Company: : SHARP CORPORATION.
Project #: : 06U10760
Configuration:: EUT StandAlone
Mode of Oper.:: Normal Operation, Boiling Water/Mx.Power
Target: : FCC Class B
: Magnetron 2M167B

Page: 1

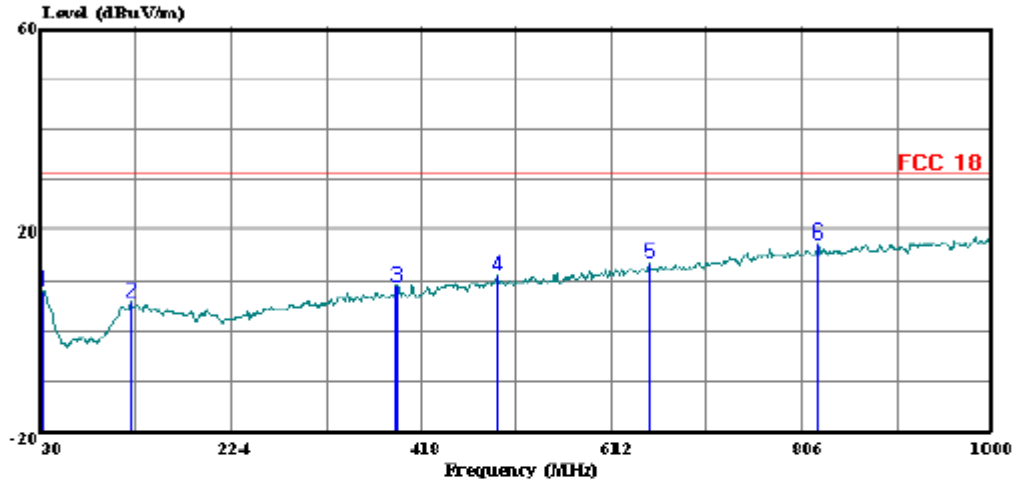
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	-10.55	20.45	9.90	30.00	-20.10	Peak
2	402.480	-9.21	18.11	8.90	30.00	-21.10	Peak
3	455.830	-9.21	19.33	10.12	30.00	-19.88	Peak
4	730.340	-8.32	23.57	15.25	30.00	-14.75	Peak
5	880.690	-7.67	25.71	18.04	30.00	-11.96	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#: 10 File#: Below 1GHz_760.EMI
Date: 12-19-2006 Time: 18:24:20



Trace: 9 Ref Trace:

Condition: FCC 18 VERTICAL
Test Operator:: Thanh Nguyen
Company: : SHARP CORPORATION.
Project #: : 06U10760
Configuration:: EUT StandAlone
Mode of Oper.:: Normal Operation, Boiling Water/Mx.Power
Target: : FCC Class B
: Magnetron 2M167B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	31.940	-11.91	19.94	8.03	30.00	-21.97	Peak
2	121.180	-9.10	15.16	6.06	30.00	-23.94	Peak
3	392.780	-8.67	17.87	9.20	30.00	-20.80	Peak
4	494.630	-8.94	20.14	11.20	30.00	-18.80	Peak
5	649.830	-8.77	22.35	13.58	30.00	-16.42	Peak
6	822.490	-7.66	24.90	17.24	30.00	-12.76	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 #: 06U10760
Date: 12/11/2006
Test Engineer: Thanh Nguyen
Configuration: EUT Stand Alone with 2M167B Magnetron.
Mode: Normal Operation, Boiling water with Max Power.

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T144 Miteq 3008A00931			FCC Class B

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
Thanh 177079008		Thanh 208946003		R_001

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.268	3.0	71.66	62.13	25.0	1.4	-39.1	-40.0	0.0	18.9	9.4	50.0	30.0	-31.1	-20.6	V
1.358	3.0	66.58	40.99	25.3	1.5	-39.0	-40.0	0.0	14.4	-11.2	50.0	30.0	-35.6	-41.2	V
1.542	3.0	73.39	47.30	26.1	1.6	-38.7	-40.0	0.0	22.3	-3.8	50.0	30.0	-27.7	-33.8	V
1.778	3.0	77.64	42.83	27.0	1.7	-38.4	-40.0	0.0	27.9	-6.9	50.0	30.0	-22.1	-36.9	V
2.463	3.0	62.32	42.81	28.7	2.1	-37.5	-40.0	0.0	15.6	-3.9	50.0	30.0	-34.4	-33.9	V
4.925	3.0	70.73	39.35	33.2	2.8	-36.5	-40.0	0.0	30.3	-1.0	50.0	30.0	-19.7	-31.0	V
7.142	3.0	62.03	38.82	35.1	3.3	-36.2	-40.0	0.0	24.2	1.0	50.0	30.0	-25.8	-29.0	V
7.405	3.0	59.07	38.96	35.3	3.3	-36.2	-40.0	0.0	21.5	1.4	50.0	30.0	-28.5	-28.6	V
8.263	3.0	68.67	42.67	36.0	3.4	-36.3	-40.0	0.0	31.8	5.8	50.0	30.0	-18.2	-24.2	V
9.120	3.0	64.08	42.02	36.5	3.6	-36.7	-40.0	0.0	27.4	5.4	50.0	30.0	-22.6	-24.6	V
9.880	3.0	61.03	37.02	36.7	3.8	-37.1	-40.0	0.0	24.4	0.4	50.0	30.0	-25.6	-29.6	V
1.283	3.0	58.68	54.38	25.0	1.4	-39.1	-40.0	0.0	6.1	1.8	50.0	30.0	-43.9	-28.2	H
2.210	3.0	62.01	42.78	28.2	1.9	-37.8	-40.0	0.0	14.4	-4.9	50.0	30.0	-35.6	-34.9	H
4.940	3.0	63.95	44.45	33.3	2.8	-36.5	-40.0	0.0	23.6	4.1	50.0	30.0	-26.4	-25.9	H
7.400	3.0	60.06	43.45	35.3	3.3	-36.2	-40.0	0.0	22.5	5.9	50.0	30.0	-27.5	-24.1	H
8.600	3.0	67.96	48.35	36.2	3.5	-36.5	-40.0	0.0	31.2	11.6	50.0	30.0	-18.8	-18.4	H
9.860	3.0	60.38	44.53	36.7	3.8	-37.1	-40.0	0.0	23.8	7.9	50.0	30.0	-26.2	-22.1	H
14.780	3.0	53.43	42.67	38.7	4.6	-35.3	-40.0	0.0	21.4	10.7	50.0	30.0	-28.6	-19.3	H

No other emissions above 15GHz.

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 μH/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 (dBμV)	
	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:

Magnetron 2M253J(L)

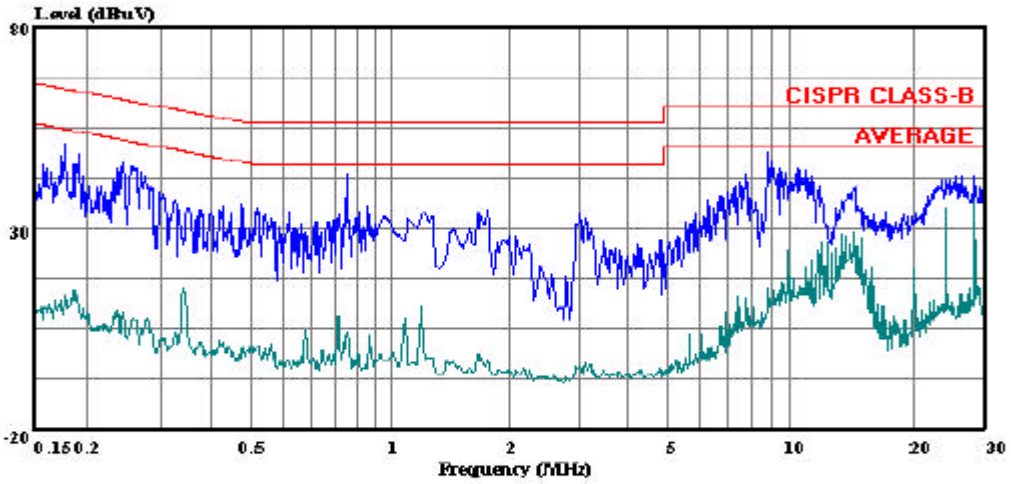
6 WORST EMISSIONS:

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
0.18	51.03	--	13.44	0.00	64.58	54.58	-13.55	-41.14	L1
0.85	43.00	--	4.43	0.00	56.00	46.00	-13.00	-41.57	L1
8.96	48.70	--	15.03	0.00	60.00	50.00	-11.30	-34.97	L1
0.17	51.91	--	17.53	0.00	65.06	55.06	-13.15	-37.53	L2
0.54	45.13	--	15.89	0.00	56.00	46.00	-10.87	-30.11	L2
9.06	48.08	--	14.07	0.00	60.00	50.00	-11.92	-35.93	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#: 14 File#: LC760.EMI Date: 12-11-2006 Time: 15:35:54



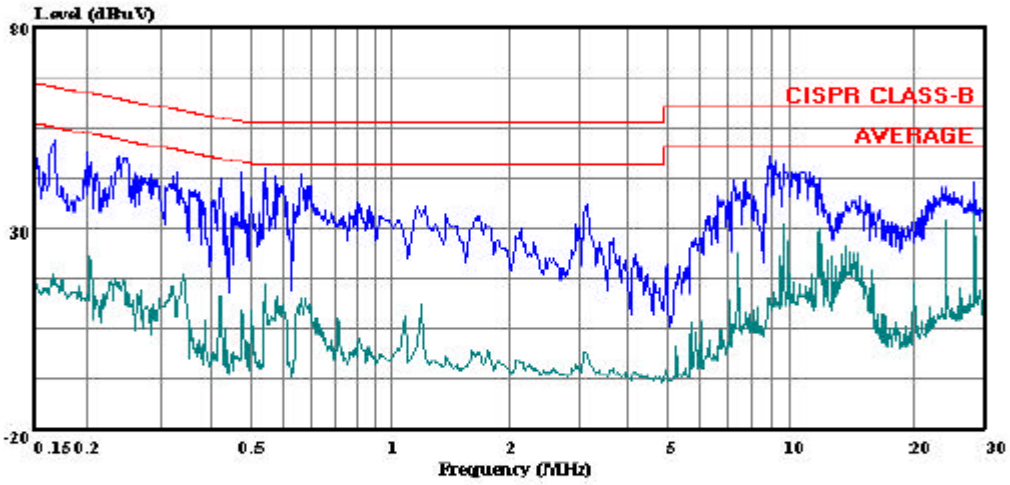
Trace: 12 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10760
Company : SHARP Corporation
EUT configuration: EUT StandAlone
Mode of operation: Normal Operation, Boiling water w/Mx PWR
Power Source : 115VAC / 60Hz
: L1: Peak (Blue), Avg (Green)
: FCC 18, Class B

LINE 2 RESULTS

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

Data#: 21 File#: LC760.EMI Date: 12-11-2006 Time: 15:56:48



Trace: 19 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10760
Company : SHARP Corporation
EUT configuration: EUT StandAlone
Mode of operation: Normal Operation, Boiling water w/Mx PWR
Power Source : 115VAC / 60Hz
: L2: Peak (Blue), Avg (Green)
: FCC 18, Class B

Magnetron 2M167B

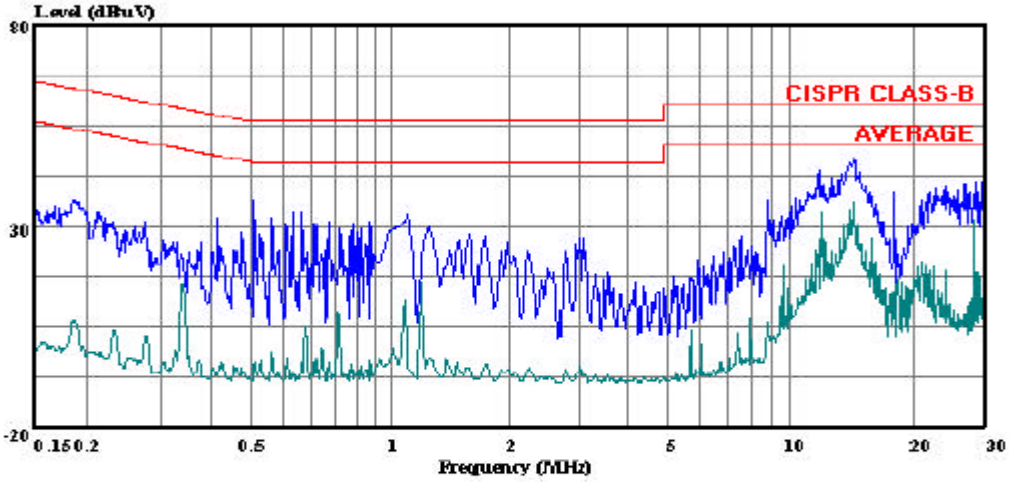
6 WORST EMISSIONS:

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
0.51	36.38	--	--	0.00	56.00	46.00	-19.62	-9.62	L1
1.20	33.00	--	--	0.00	56.00	46.00	-23.00	-13.00	L1
14.36	46.78	--	35.65	0.00	60.00	50.00	-13.22	-14.35	L1
0.42	56.26	--	17.96	0.00	57.55	47.55	-1.29	-29.59	L2
0.86	42.96	--	7.79	0.00	56.00	46.00	-13.04	-38.21	L2
23.39	58.51	--	23.18	0.00	60.00	50.00	-1.49	-26.82	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#: 35 File#: Lc760.emi Date: 12-20-2006 Time: 16:01:19



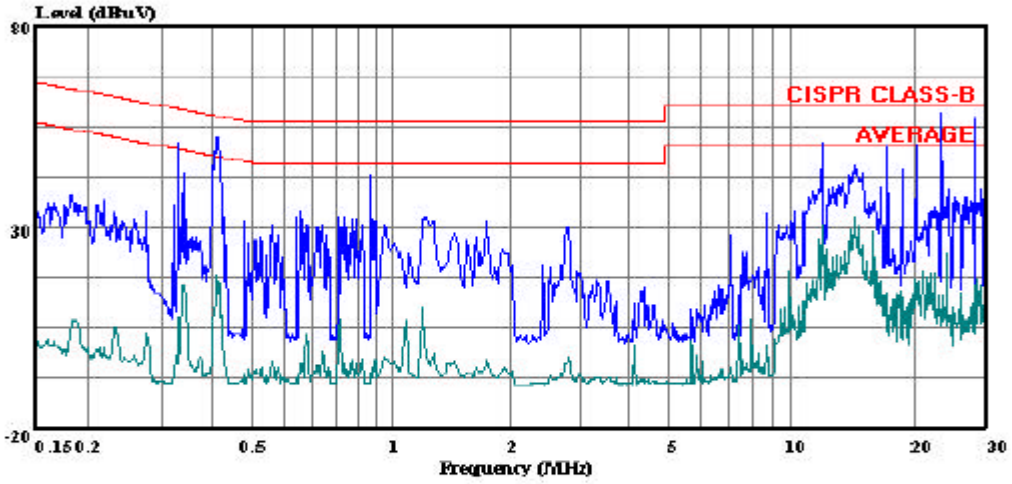
Trace: 33 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10760
Company : SHARP Corporation
EUT configuration: EUT StandAlone
Mode of operation: Normal Operation, Boiling water w/Mx PWR
Power Source : 115VAC / 60Hz
: L1: Peak (Blue), Avg (Green)
: FCC 18, Class B
: Magnetron 2M167B

LINE 2 RESULTS

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

Data#: 42 File#: Lc760.emi Date: 12-20-2006 Time: 16:20:54



Trace: 40 Ref Trace:

Condition: CISPR CLASS-B
Test Operator : Thanh Nguyen
Project # : 06U10760
Company : SHARP Corporation
EUT configuration: EUT StandAlone
Mode of operation: Normal Operation, Boiling water w/Mx PWR
Power Source : 115VAC / 60Hz
: L2: Peak (Blue), Avg (Green)
: FCC 18, Class B
: Magnetron 2M167B

8. SETUP PHOTOS

RADIATED HAZARD EMISSIONS

RADIATED HAZARD EMISSIONS

POWER TESTING

RF POWER

OPERATING FREQUENCY WITH TIME / VOLTAGE

OPERATING FREQUENCY WITH TIME / VOLTAGE

RADIATED EMISSION

RADIATED EMISSIONS (FRONT)

RADIATED EMISSIONS (BACK)

AC MAINS LINE CONDUCTED EMISSION

LINE CONDUCTED EMISSION (FRONT)

LINE CONDUCTED EMISSION (BACK)

END OF REPORT