



3. SYSTEM TEST CONFIGURATION

3.1 Justification

The EUT was used in a system configured for testing in a typical fashion as a customer would normally use it.

3.2 EUT Exercise Software/Equipment

The EUT was operated with the specified dummy load consisting of various quantities of tap water in a beaker per FCC/OET MP-5 (1986) section 4.1.

3.3 Special Accessories

The EUT requires no special accessories to comply with the FCC regulations and limits.

3.4 Equipment Modifications

No modifications and or adjustments were made to the EUT during compliance testing to achieve the required specification limits.



4. TEST PHOTOGRAPHS



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Test Data

5.1 Radiated Emissions Limits

<i>FCC Part 18, Subpart C, Field Strength Limits for Consumer Equipment</i>	
<i>Frequency Range (MHz)</i>	<i>@ 300 Meters Test Limit (dBμV/m)</i>
Any ISM frequency (650 watts)	29

Limit = $25 * (650/500) = 28.5 \text{ uV/m}$

5.2 Summary Table for Highest Radiated Emissions Levels

The test was performed at a 3 meter OATS measurement distance. The RF field strength data was complied with the limits listed above. Please refer to the data sheets in Appendix B for supplemental test data sheets.

Frequency (MHz)	Pol.	Detection Mode	Measured Value (dBuV)	Correction Factor (dB)	Final Value (dBuV)	Final (uV)	Conversion to 300 meters K=.01 >4.575 GHz
2.45	V	Peak	94.2	-5.5	88.7	27227.01	
2.45	H	Peak	94.1	-5.5	88.6	26915.35	
4.9	V	Average	64.3	0.6	64.9	1757.92	17.58
4.9	H	Average	61.4	0.6	62.0	1258.93	12.59
7.35	V	Average	65.1	3.9	69.0	2818.38	28.18
7.35	H	Average	64.4	3.9	68.3	2600.16	26.00
9.8	V	Average	59.1	9.1	68.2	2570.40	25.70
9.8	H	Average	59.7	9.1	68.8	2754.23	27.54
12.25	V	Average	53.6	14.3	67.9	2483.13	24.83
12.25	H	Average	54.1	14.3	68.4	2630.27	26.30
14.7	V	Average	48.3	20.1	20.1	2630.27	26.30
14.7	H	Average	48.8	20.1	68.9	2786.12	27.86
17.15	V	Average	42.0	24.8	66.8	2187.76	21.88
17.15	H	Average	41.5	24.8	66.3	2065.38	20.65



5.3 Field Strength Calculation

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

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

Where: FS = Field strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

AG = Amplifier gain

Example:

Assume a receiver reading of 52.5 dB μ V is obtained. The Antenna Factor of 7.4 and a Cable Factor of 1.1 is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m.

$$FS = 52.5 + 7.4 + 1.1 - 29 = 32 \text{ dB}\mu\text{V/m}$$



APPENDICES



APPENDIX A - TEST EQUIPMENT USED

The absolute performance calibration, of equipment requiring calibration, is performed on an as needed basis in accordance with MIL-STD 45662A. However, calibration periods do not exceed one (1) year. The test equipment is capable of making measurements within tolerances of at least +/- 2 dB amplitude and +/- 2% frequency deviation. Equipment certifications showing traceability to NIST (National Institute of Standards and Technology) are maintained on file at Garwood Laboratories, Inc. in Placentia, CA. All equipment is checked and verified for proper operation before and after each series of tests.

A.1 Specific Equipment Used

<i>Test Instrument</i>	<i>Mfg / Model No.</i>	<i>Serial No.</i>	<i>Cal. Due Date</i>
Radiated Emissions Test			
Spectrum Analyzer	Hewlett Packard / 8566B	2747A05747	04/22/00
Horn Antenna	EMCO / 3115	9511-4575	01/27/00
Preamplifier	Hewlett Packard / 8449B	3008A00357	10/14/99
RF Coax Cable	Times Microwave / LMR-600	030	03/05/00



APPENDIX B – SUPPLEMENTAL TEST DATA

<i>Test Type</i>	<i>Basic Standard</i>	<i>Details</i>	<i>Data Format</i>	<i>Page No.</i>
Radiated Emission	FCC Part 18 Microwave Oven		Tabulated	B1



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GARWOOD LABORATORIES, INC.

WORLD COMPLIANCE DIVISION

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565 Porter Way
Placentia, CA 92870

Results on Thermador microwave oven

Date 5/26/99

Vertical Polarity Measurements at 3 meter distance

Frequency		Measured	Correction	Final	Final	Conversion to 300m
MHz	Detection	dBuV	dB	dBuV	uV	K=.01 > 4.575 GHz
2.45	Peak	94.2	-5.5	88.7	27227.01308	
4.9	Average	64.3	0.6	64.9	1757.923614	17.5792361
7.35	Average	65.1	3.9	69	2818.382931	28.1838293
9.8	Average	59.1	9.1	68.2	2570.395783	25.7039578
12.25	Average	53.6	14.3	67.9	2483.133105	24.8313311
14.7	Average	48.3	20.1	68.4	2630.267992	26.3026799
17.15	Average	42	24.8	66.8	2187.761624	21.8776162

Horizontal Polarity Measurements at 3 meters distance

2.45	Peak	94.1	-5.5	88.6	26915.34804	
4.9	Average	61.4	0.6	62	1258.925412	12.5892541
7.35	Average	64.4	3.9	68.3	2600.159563	26.0015956
9.8	Average	59.7	9.1	68.8	2754.228703	27.542287
12.25	Average	54.1	14.3	68.4	2630.267992	26.3026799
14.7	Average	48.8	20.1	68.9	2786.121169	27.8612117
17.15	Average	41.5	24.8	66.3	2065.380156	20.6538016

Average detection - Spectrum Analyzer bandwidth settings Resolution 1 MHz / Video 100 Hz

Power of oven 650 watts

Conversion=> $E(300m) = k * E(3m)$

limit= $25 * (power/500)$

limit= $25 * (650/500) = 28.5 \text{ uV/m}$ (or 29 dBuV/m)

						Conversion to 300m
2.35	Peak	66.5	5.6	72.1	4027.170343	23.760305 K=.0059
2.53	Peak	66.3	5.4	71.7	3845.91782	24.2292823 k=.0063

Various water levels used -- 1000 mL, 700 mL and 300 mL

Turn table rotated 6 times to maximize signal during average detection

Antenna raised and lowered after turn table maximized



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ATTACHMENTS

INDEX OF ATTACHMENTS

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