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ATTACHMENTS:

- .RADIATED EMISSION DATA
- .VARIATION IN OPERATING FREQUENCY WITH TIME PLOTS
- .VARIATION IN OPERATING FREQUENCY WITH VOLTAGE PLOTS
- .USER MANUAL AND SCHEMATICS
- .PROPOSED FCC ID LABEL
- .EUT PHOTOGRAPHS

2. PRODUCT DESCRIPTION

The equipment under test is a microwave oven sold for consumer use. Models: WP750A is a 750W microwave oven with digital controls and WP750 is a 750W microwave oven with mechanical controls.

Megnetron: Panasonic, Model: 2M210-M1.

3. TEST FACILITY

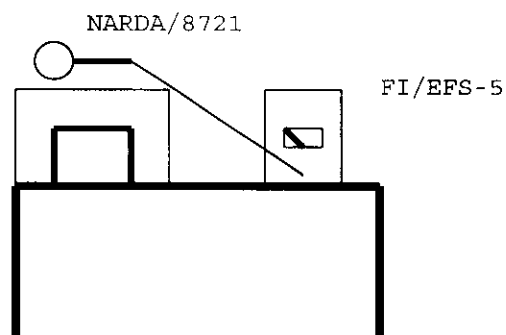
The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

4. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT(1300F2))

5. RADIO NOISE EMISSION MEASUREMENTS PROCEDURES/RESULTS

5.1 RADIATION HAZARD MEASUREMENT



Radiation Hazard Measurements

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.

LOCATION	MAXIMUM LEAKAGE (mw/cm2)	LIMIT (mw/cm2)
LEFT CENTER DOOR SEAM	0.004	1.0
LEFT WALL OPENING	0.0166	1.0
All others	0.003	1.0

5.2 INPUT POWER

Input power and current were measured using a wattmeter and an ammeter. A 275 ml water load was placed in the center of the oven and the oven was set to 10(100%) maximum power. A 275-ml water load was chosen for its compatibility. Manufacturers to determine their input ratings commonly use this procedure.

	Input Voltage (Vac)	Input Current (amps)	Measured Input power (watts)
750W:	120	12.7	1365

Based on the measured input power, the EUT was found to be operating within the intended specifications.

5.3 RF OUTPUT POWER MEASUREMENT

The Caloric Method was used to determine maximum output power. The initial temperature of a 1000-ml water load was measured.

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.

Quantity of water (ml)	Starting Temperature (C°)	Final Temperature (C°)	Elapsed Time (seconds)	RF Power (watts)
1000	21.11	38.0	120	591.15
1000	21.11	38.0	120	591.15
1000	21.12	38.0	120	608.30

Average of 3 Trials: 596.86 W

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

The measured output was found to be OVER 500Watts. Therefore, in accordance with section 18.305 of Subpart B, the measured out-of-band emissions were compared to the $25 \sqrt{\text{Power}/500}$ @ 300M limit= 28.72 dBuV/m.

5.4 OPERATING FREQUENCY MEASUREMENTS

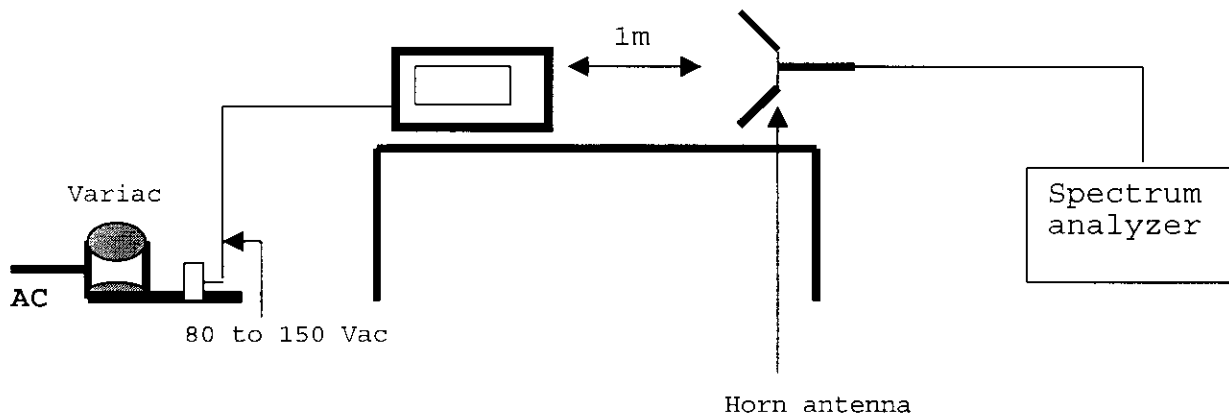


Figure 1. Operating Frequency Measurement Set-up

5.5 VARIATION IN OPERATING FREQUENCY WITH TIME

The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1000-ml water load was placed in the center of the oven and the oven was operated at maximum output power.

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

The results of this test are as follows.

Initial load: 1000 ml
Load at completion of test: 200 ml

Maximum frequency observed: 2460 MHz
Maximum frequency allowed: 2500 MHz

Minimum frequency observed: 2440 MHz
Minimum frequency allowed: 2400 MHz

Refer to spectrum analyzer plot under ATTACHMENTS: **VARIATION IN OPERATING FREQUENCY WITH TIME PLOTS** for details of Frequency variation with operating time.

5.6 VARIATION IN OPERATING FREQUENCY WITH VOLTAGE

Following the above test, after operating the oven long enough to assure that stable operating temperature were obtained, the operating frequency was monitored as the input voltage was varied between 80 to 125 percent of the nominal rating.

The water load was maintained at 200 ml for the duration of the test.

The results of this test are as follows:

Line voltage varied from 96Vac to 150Vac.

150Vac	Maximum frequency observed: 2460 MHz
	Maximum frequency allowed: 2500 MHz
	Minimum frequency observed: 2440 MHz
	Minimum frequency allowed: 2400 MHz
120Vac	Maximum frequency observed: 2470 MHz
	Maximum frequency allowed: 2500 MHz
	Minimum frequency observed: 2415 MHz
	Minimum frequency allowed: 2400 MHz
96Vac	Maximum frequency observed: 2466 MHz
	Maximum frequency allowed: 2500 MHz
	Minimum frequency observed: 2440 MHz
	Minimum frequency allowed: 2400 MHz

Refer to spectrum analyzer plots under ATTACHMENTS: **VARIATION IN OPERATING FREQUENCY WITH VOLTAGE PLOTS** for details of Frequency variation with operating voltage.

5.7 RADIATED EMISSIONS

Radiated emissions were measured over an inclusive frequency range to 100MHz through the sixth harmonic of the operating frequency. For this test, a 1-meter high wooden table in an open laboratory area supported the device under test. The table was placed on a turntable.

The measurement antenna was placed 10 meters for measurements from 100 - 1000MHz and 1 meter for measurements from 1000 - 14,000MHz, respectively, for the device under test. The indicated frequency range was swept as the device under test was rotated along its vertical axis in 90° increments.

During the preliminary tests, the load consisted of 700-ml tap water placed in the center of the oven. The emissions were observed while the device under test was operated at maximum output power.

The level of the emissions near the edge of the designated ISM frequency band was measured. For this test, the load consisted of 700-ml water load located in the center of the oven.

The levels of the second and third harmonic were measured inclusively with a 300 ml and 700 ml water load alternately placed in the center and right front corner of the oven. Harmonics beyond the third were measured with a 700-ml load placed in the center of the oven. The data obtained during these tests is contained on the attached spreadsheet.

The maximum of all other out-of-band emissions were measured while a 700-ml load was placed in the center of the oven. Maximum readings were recorded after variations in antenna polarizations, height, device orientation, load position, and size. For frequencies above 1 GHz, the video bandwidth of the spectrum analyzer was set to simulate a linear average detection mode (10Hz).

For all emissions the equivalent 300 meters intensity was calculated assuming a linear decrease in the intensity of the RFI field with increased distance. In the operating modes and conditions described, there were no over-limit emissions discovered.

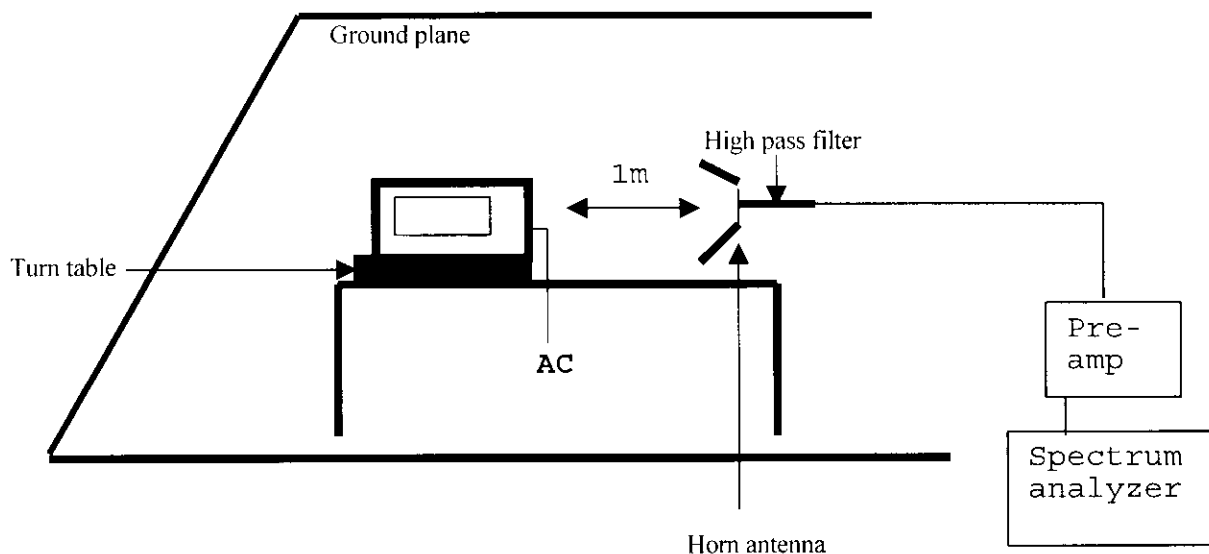


Figure 2. Radiated Emissions Configuration

There were no emissions detected from the EUT in the 100 - 1000MHz region. Emissions detected in the 1000 - 14,000 MHz region are reported in a spreadsheet under ATTACHMENTS: **RADIATION EMISSION DATA.**

Compliance Certification Services									
RADITATION TEST DATA SHEET									
PETE KREBILL (1Meter)									
10/22/98									
GUANGDONG GALANZ ENTERPRISE CO.									
750WATT MICROWAVE OVEN WP750/WP750A									
F(MHz)	READING	AF	CL	AMP	DIST	OTHER	TOTAL	LIMIT	MARGIN
	dBuV	(dB)	(dB)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)
4900PK	59.7	34.3	4.8	-34	-49.5	1	16.3	49.7	-33.400
4900AV	42.8	34.3	4.8	-34	-49.5	1	-0.6	29.7	-30.300
7376PK	52.2	36.7	5.76	-34	-49.5	1	12.16	49.7	-37.540
7376AV	31.2	36.7	5.76	-34	-49.5	1	-8.84	29.7	-38.540
9835PK	56.9	38.3	7	-34	-49.5	1	19.7	49.7	-30.000
9835AV	39.3	38.3	7	-34	-49.5	1	2.1	29.7	-27.600
12290PK	52.4	39.1	7.52	-34	-49.5	1	16.52	49.7	-33.180
12290AV	34.6	39.1	7.52	-34	-49.5	1	-1.28	29.7	-30.980
14750PK	50.7	41.8	8.48	-34	-49.5	1	18.48	49.7	-31.220
14750AV	35.6	41.8	8.48	-34	-49.5	1	3.38	29.7	-26.320
NOTE: ALL MEASUREMENTS ARE VERTICAL.									
AF: Antenna Factor	DIST: Distance Correction (-49.5dB, 1M)					SPECTRUM RES			
AMP: Pre-amp gain	20*LOG(d/300M)					VBW			
CL: Cable loss	OTHER: High pass filter insertion loss					PEAK: 1MHz 1MHz			
	*FSY Microwave high pass filter (fo=1.082GHz)					AVG: 1MHz 10Hz			
	#FSY Microwave high pass filter (fo=4GHz)								

7. MEASUREMENT EQUIPMENT LIST

Equipment	Manufacturer	Model No.	Serial No.	Site	Cal Date	Due Date
Receiver	H.P.	8546A	3520A00259	A	03/98	03/99
RF Filter Section	H.P.	85460A	3448A00232	A	03/98	03/99
Antenna	Chase	CBL6112	2049	A/F	05/98	05/99
Spectrum Analyzer	H.P.	8566B	3014A06685	F	08/98	08/99
Spectrum Display	H.P.	85662A	3026A19146	F	08/98	08/99
Quasi-peak Detector	H.P.	85650A	3145A01654	F	07/98	07/99
Pre-Amp	H.P. (1-26.5GHz)	8449B	3008A00369	A	04/98	04/99
Horn Antenna	EMCO	3115	9001-3245	A	12/97	12/00
Digital Multimeter	Fluke	87	4035173	A	11/98	11/99
Wattmeter	Valhalla	2111A	33-386	A	10/98	10/99
Variac(0 - 280Vac)	Powerstat	N/A	N/A	A	N/A	N/A

13:01:04 JUN 10, 1998

* GALANZ 750W MICROWAVE HP750A FREQ OVER TIME

ACTV DET: PEAK

MEAS DET: PEAK QP AVG

LOG REF 137.0 dBμV

10

dB/

ATN

40 dB

DL

108.4

dBμV

VA SB

SC FCM

CORR

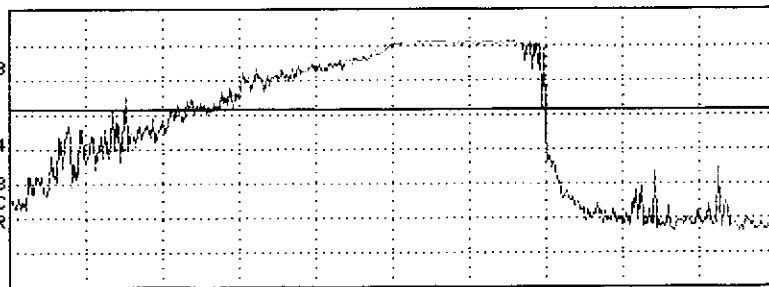
START 2.4000 GHz

IF BW 120 kHz

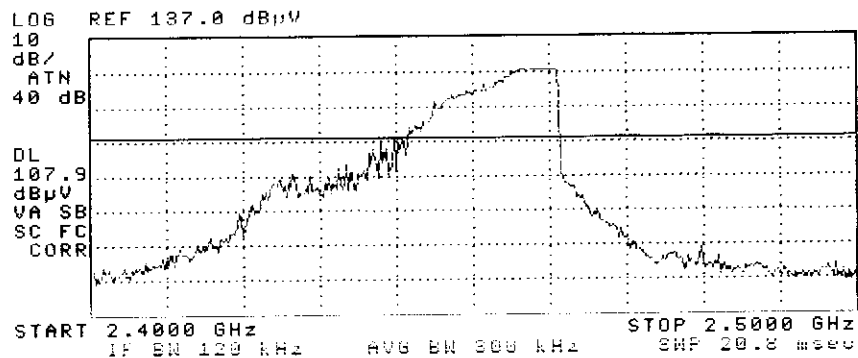
AVG BW 300 kHz

STOP 2.5000 GHz

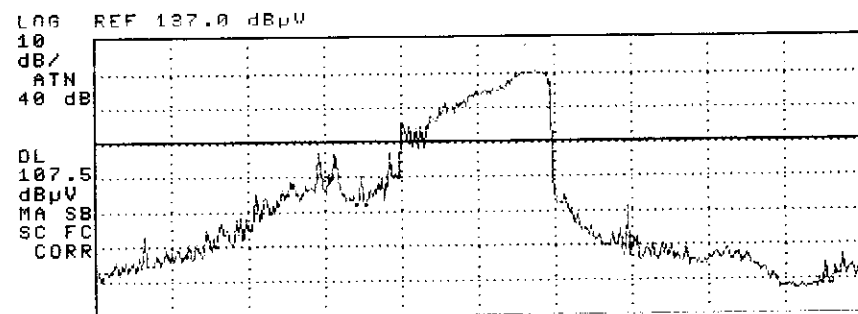
SWP 20.8 msec



15:11:24 JUN 10, 1998
 GALANZ 750WATT MICROWAVE HP750A FREQ OVER VOLTS 150V
 ACTV DET: PEAK
 MEAS DET: PEAK OR AVG



15:27:27 JUN 10, 1998
 ACTV DET: PEAK
 MEAS DET: PEAK OR AVG



15:29:59 JUN 10, 1998

60LHZ 750WATT MICROWAVE HP750A FRQ OVER VOLTS 96V

ACTV DET: PEAK

MEAS DET: PEAK QP AVG

LOG REF 137.0 dBμV

10

dB/

ATN

40 dB

DL

107.5

dBμV

MA SB

SC FC

CORR

START 2.4000 GHz

IF BW 120 kHz

AVG BW 300 kHz

STOP 2.5000 GHz

SWP 20.8 msec

15:29:59 JUN 10, 1998

60LHZ 750WATT MICROWAVE HP750A FRQ OVER VOLTS 96V

ACTV DET: PEAK

MEAS DET: PEAK QP AVG

LOG REF 137.0 dBμV

10

dB/

ATN

40 dB

DL

107.5

dBμV

MA SB

SC FC

CORR

START 2.4000 GHz

IF BW 120 kHz

AVG BW 300 kHz

STOP 2.5000 GHz

SWP 20.8 msec

FCC 18.305
GUANGDONG GALANZ ENTERPRISE
750WATT MICROWAVE
MODEL # WP750/WP750A

PETE KREBILL
6/12/98
SITE F

ALL READINGS ARE PEAK

F(MHz)	Level (dBuV)	AF (dB)	CL (dB)	AMP (dB)	FILTER (dB)	DIST (dB)	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)
<u>VERTICAL</u>									
4900H	61.5	34.2	5.4	-35.5	1	-49	17.6	28.7	-11.1
7350H	53.2	36.8	6.66	-35.5	1	-49	13.16	28.7	-15.54
9800H	53.5	38.2	7.92	-35.5	1	-49	16.12	28.7	-12.58
12250H	48.8	39.3	8.64	-35.5	1	-49	13.24	28.7	-15.46

ANTENNA FACTOR

CL=CABLE LOSS

AMP=AMPLIFIER GAIN

FILTER=HPF INSERTION LOSS

DIST=DISTANCE CORRECTION FROM 1 TO 300METERS

FREQUENCIES WERE SCANNED HORIZONTAL AND VERTICAL TO THE TENTH HARMONIC. ONLY PEAK
POLARIZATION IS REPORTED. NO EMISSIONS WERE MEASUREABLE ABOVE FIFTH HARMONIC.