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Report No.: SZEM180200142301

Page: 1 of 19

TEST REPORT

Application No.: SZEM1802001423HS(SHEM1801000628HS)
Applicant: LG Electronics USA
Address of Applicant: 1000 Sylvan Avenue
Englewood Cliffs, New Jersey
United States
Manufacturer: LG Electronic Tianjin Appliances Co., Ltd.
Address of Manufacturer: No. 9 Jinwei Road, Beichen District, Tianjin, China
Factory: LG Electronic Tianjin Appliances Co., Ltd.
Address of Factory: No. 9 Jinwei Road, Beichen District, Tianjin, China
Equipment Under Test (EUT):
EUT Name: Microwave oven
Model No.: LMV1763ST
FCC ID: BEJV174NAA
Standard(s) : 47 CFR Part 18
Date of Receipt: 2018-01-23
Date of Test: 2018-01-23 to 2018-03-05
Date of Issue: 2018-03-07

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu

E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2018-03-07		Original

Authorized for issue by:				
				
		Foray Chen /Project Engineer		
				
		Eric Fu /Reviewer		



2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	Class B	Pass
Input Power	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
RF Power Output Measurement according to MP-5	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Frequency measurements	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Power Density Safety Check	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass

N/A: Not applicable



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 DETAILS OF E.U.T.	5
4.2 DESCRIPTION OF SUPPORT UNITS	5
4.3 MEASUREMENT UNCERTAINTY	5
4.4 TEST LOCATION.....	6
4.5 TEST FACILITY.....	6
4.6 DEVIATION FROM STANDARDS.....	6
4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5 EQUIPMENT LIST.....	7
6 EMISSION TEST RESULTS	8
6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz)	8
6.1.1 E.U.T. Operation	8
6.1.2 Test Setup Diagram.....	8
6.1.3 Measurement Data	8
6.2 RADIATED EMISSIONS (30MHz-1GHz)	11
6.2.1 E.U.T. Operation	11
6.2.2 Test Setup Diagram.....	11
6.2.3 Measurement Data	11
6.3 RADIATED EMISSIONS (ABOVE 1GHz).....	14
6.3.1 E.U.T. Operation	14
6.3.2 Test Setup Diagram.....	14
6.3.3 Measurement Data	14
6.4 INPUT POWER	17
6.4.1 Result.....	17
6.5 RF POWER OUTPUT MEASUREMENT ACCORDING TO MP-5	17
6.5.1 Result.....	17
6.6 FREQUENCY MEASUREMENTS.....	18
6.6.1 Result.....	18
6.7 POWER DENSITY SAFETY CHECK	18
6.7.1 Result.....	18



4 General Information

4.1 Details of E.U.T.

Power supply:	AC120V 60Hz 1500W
Test voltage:	AC120V 60Hz
Cable:	AC input cable 1.5m(un-shielding)
Rated output power:	900W
Operation frequency:	2450±50MHz
Mode of stirrer:	Turntable

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

EMC

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	3.2dB (9kHz to 150kHz)
		3.0dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.9 dB(9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	2.4 dB(150kHz to 30MHz)
4	Radiated Power	3.5dB
5	Radiated emission	4.4dB (30MHz-1GHz)
		4.6dB (1GHz-6GHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC

Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21
Low Amplifier	CLAVIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2017-12-20	2018-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 18
Test Method:	FCC OST/MP-5:1986
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

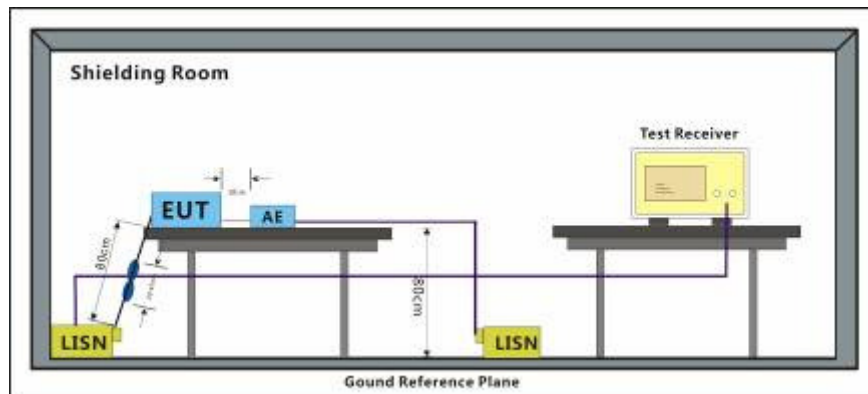
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Keep EUT running & heating. (1000mL water with glass beaker and heating under max RF output power)

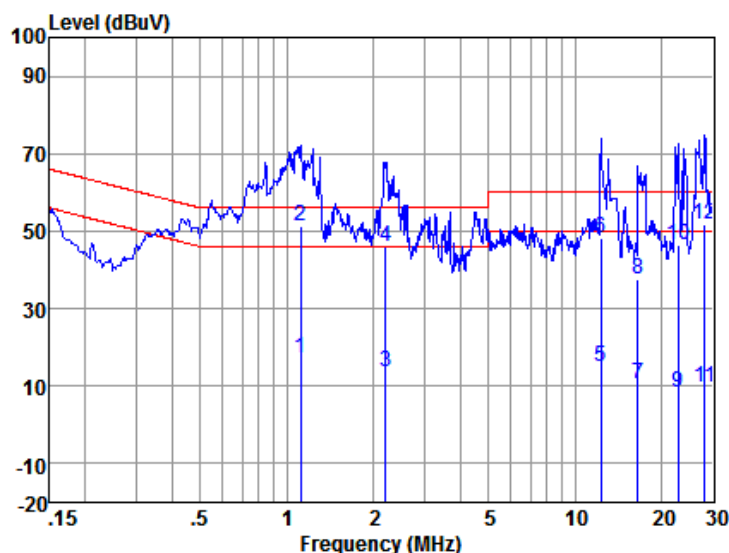
6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Mode:a; Line:Live Line



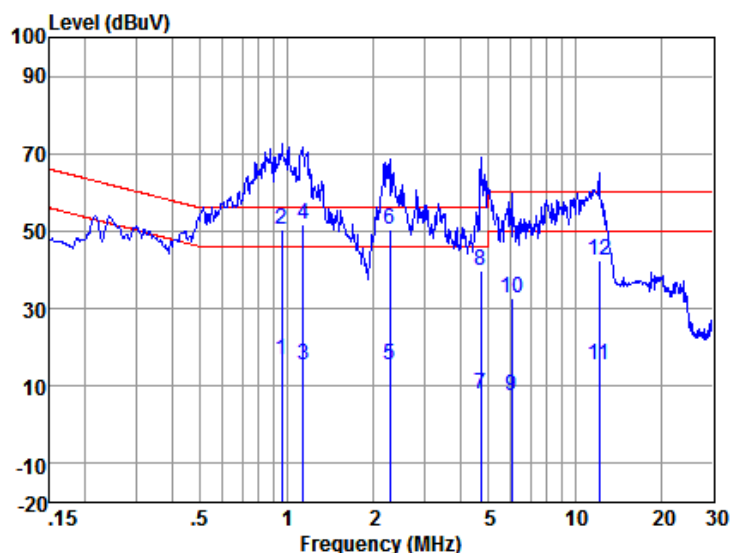
LISN : LINE
 EUT/Project No : 0628HS
 Test Mode : a

	Freq (MHz)	Read level (dBUV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBUV)	Limit (dBUV)	Over Limit (dB)	Remark
1	1.12	7.15	0.11	9.84	17.10	46.00	-28.90	Average
2	1.12	41.15	0.11	9.84	51.10	56.00	-4.90	QP
3	2.20	3.88	0.12	9.85	13.85	46.00	-32.15	Average
4	2.20	35.88	0.12	9.85	45.85	56.00	-10.15	QP
5	12.32	5.06	0.12	9.91	15.09	50.00	-34.91	Average
6	12.32	38.06	0.12	9.91	48.09	60.00	-11.91	QP
7	16.57	0.43	0.16	10.02	10.61	50.00	-39.39	Average
8	16.57	27.43	0.16	10.02	37.61	60.00	-22.39	QP
9	22.90	-1.75	0.20	10.04	8.49	50.00	-41.51	Average
10	22.90	36.25	0.20	10.04	46.49	60.00	-13.51	QP
11	28.30	-0.43	0.22	10.08	9.87	50.00	-40.13	Average
12	28.30	41.57	0.22	10.08	51.87	60.00	-8.13	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



Mode:a; Line:Neutral Line



LISN : NEUTRAL
EUT/Project No : 0628HS
Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.96	6.63	0.11	9.84	16.58	46.00	-29.42	Average
2	0.96	40.63	0.11	9.84	50.58	56.00	-5.42	QP
3	1.14	5.65	0.11	9.84	15.60	46.00	-30.40	Average
4	1.14	41.65	0.11	9.84	51.60	56.00	-4.40	QP
5	2.27	5.39	0.12	9.85	15.36	46.00	-30.64	Average
6	2.27	40.39	0.12	9.85	50.36	56.00	-5.64	QP
7	4.72	-2.17	0.13	9.86	7.82	46.00	-38.18	Average
8	4.72	29.83	0.13	9.86	39.82	56.00	-16.18	QP
9	6.06	-2.41	0.13	9.86	7.58	50.00	-42.42	Average
10	6.06	22.59	0.13	9.86	32.58	60.00	-27.42	QP
11	12.12	5.18	0.15	9.90	15.23	50.00	-34.77	Average
12	12.12	32.18	0.15	9.90	42.23	60.00	-17.77	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

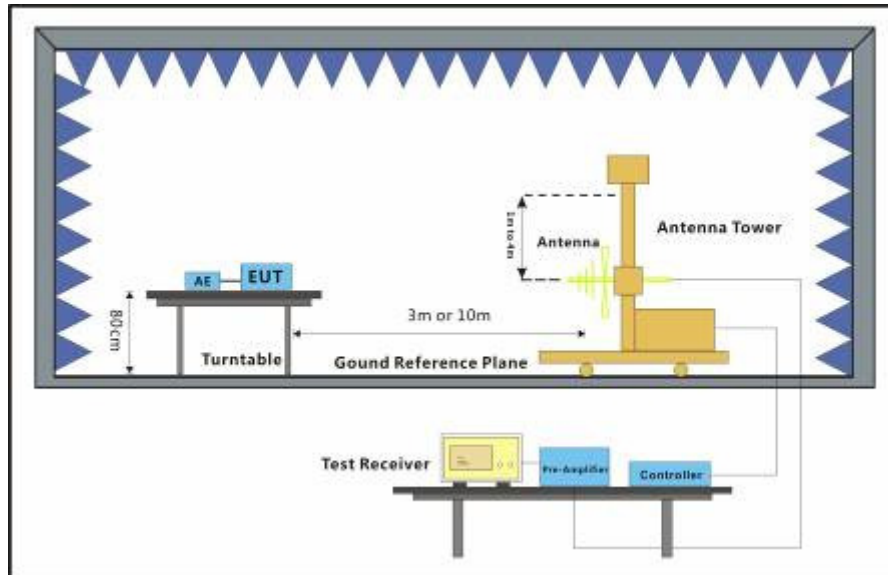
6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 18
 Test Method: FCC OST/MP-5:1986
 Frequency Range: 30MHz to 1GHz
 Measurement Distance: 3m

6.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1005 mbar
 Test mode a: Keep EUT running & heating. (1000mL water with glass beaker and heating under max RF output power)

6.2.2 Test Setup Diagram

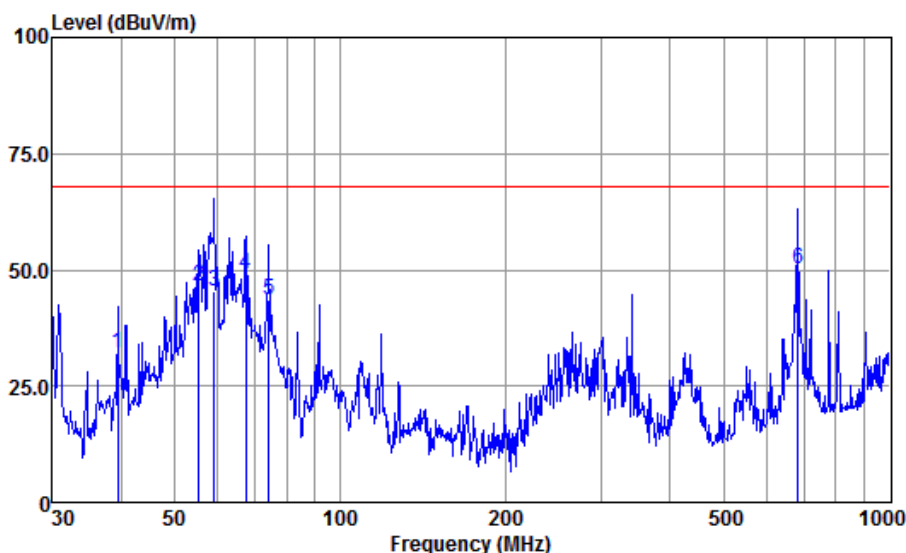


6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL

EUT/Project :0628HS

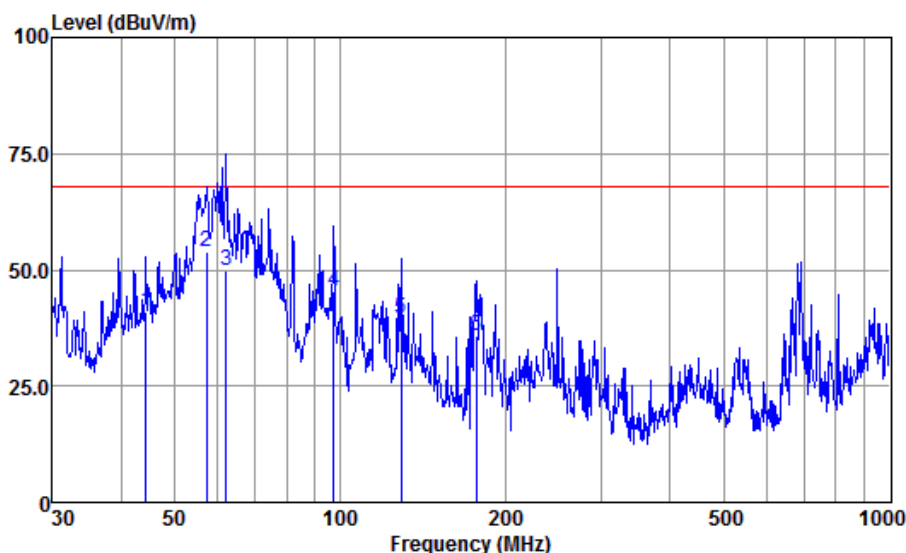
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	39.44	58.2	16.3	0.2	42.6	32.1	68.0	-35.9	Average
2	55.41	77.0	11.7	0.3	42.6	46.4	68.0	-21.6	Average
3	59.03	75.3	12.4	0.3	42.7	45.3	68.0	-22.7	Average
4	67.44	79.9	11.7	0.3	42.7	49.2	68.0	-18.8	Average
5	74.40	75.9	9.9	0.4	42.7	43.5	68.0	-24.5	Average
6	682.35	70.8	20.1	1.6	42.4	50.1	68.0	-17.9	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL

EUT/Project :0628HS

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	44.43	69.7	13.6	0.2	42.6	40.9	68.0	-27.1	Average
2	57.19	84.1	12.1	0.3	42.6	53.9	68.0	-14.1	Average
3	62.21	79.8	12.3	0.3	42.7	49.7	68.0	-18.3	Average
4	97.46	78.6	9.2	0.4	42.7	45.5	68.0	-22.5	Average
5	129.47	68.7	12.7	0.6	42.7	39.3	68.0	-28.7	Average
6	177.51	65.7	11.8	0.7	42.6	35.6	68.0	-32.4	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

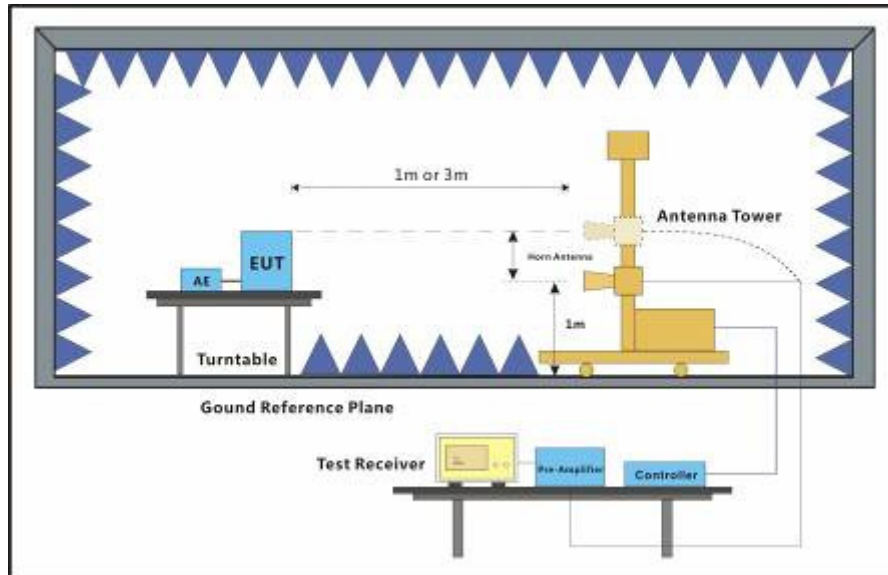
6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 18
 Test Method: FCC OST/MP-5:1986
 Frequency Range: Above 1GHz
 Measurement Distance: 3m

6.3.1 E.U.T. Operation

Operating Environment:
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1005 mbar
 Test mode a: Keep EUT running & heating. (300mL & 700mL water with glass beaker and heating under max RF output power)

6.3.2 Test Setup Diagram

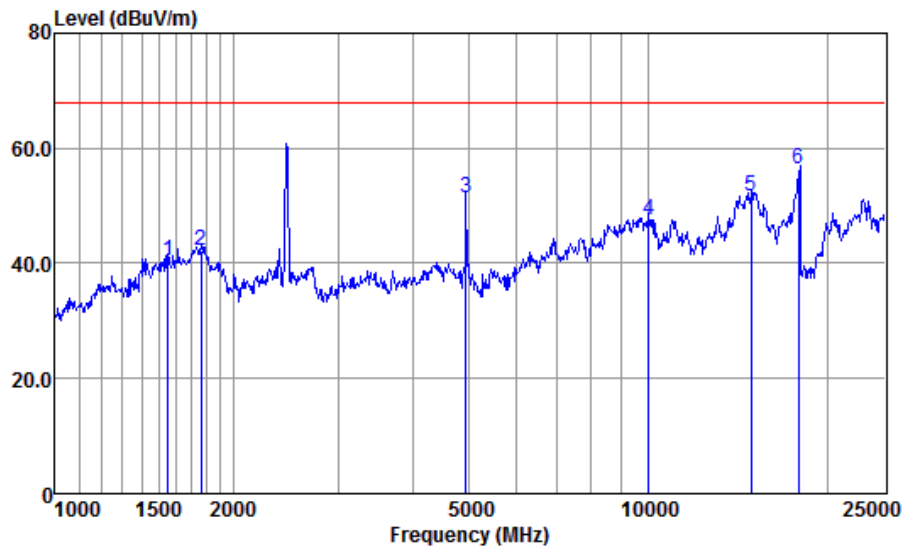


6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Mode:a; Polarization:Horizontal



Antenna Polarity :HORIZONTAL

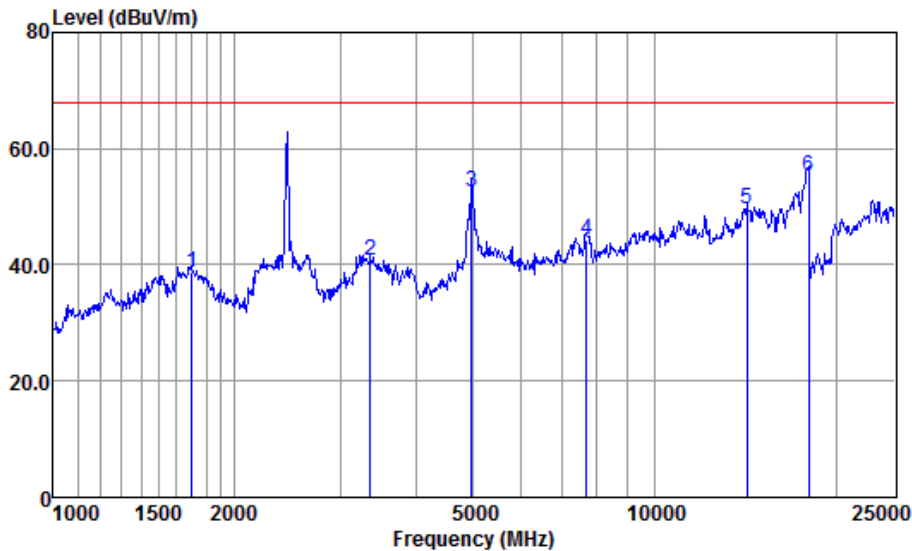
EUT/Project :0628HS

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1551.12	53.3	25.3	3.9	42.0	40.5	68.0	-27.5	Average
2	1764.89	54.4	25.7	4.2	42.1	42.2	68.0	-25.8	Average
3	4921.41	53.3	31.4	8.2	41.6	51.3	68.0	-16.7	Average
4	10029.69	41.3	38.9	9.6	42.2	47.6	68.0	-20.4	Average
5	14883.60	41.3	41.5	10.2	41.4	51.6	68.0	-16.4	Average
6	17898.26	36.0	49.3	12.8	41.7	56.4	68.0	-11.6	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

Mode:a; Polarization:Vertical



Antenna Polarity :VERTICAL

EUT/Project :0628HS

Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	1700.97	51.1	25.6	4.1	42.1	38.7	68.0	-29.3	Average
2	3365.72	47.7	28.7	6.1	41.8	40.7	68.0	-27.3	Average
3	4957.86	54.6	31.5	8.2	41.6	52.7	68.0	-15.3	Average
4	7690.23	41.1	36.9	8.8	42.4	44.4	68.0	-23.6	Average
5	14239.12	39.2	41.5	10.3	41.5	49.5	68.0	-18.5	Average
6	18000.00	33.3	50.9	12.8	41.9	55.1	68.0	-12.9	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



6.4 Input Power

The input power was measured using Wattmeter. A 275 ml water load in a polypropylene beaker is placed in the centre of the oven. The 275 ml water was chosen for its compatibility with UL procedure to determine input ratings. The oven was operated at the rated input and full output power for 6 minutes.

6.4.1 Result

Mode: Microwave

Input Voltage: AC 119.8V 60Hz

Current [A]: 12.8

Power Consumption[W]: 1533.44

Manufacturer Rating [A]: 12.5

6.5 RF Power Output Measurement according to MP-5

The Calorimetric Method was used to determine maximum output power. A 1,000 ml water load was placed in the center of the oven. A mercury thermometer was used to measure temperature rise. The test method was described in MP-5.

6.5.1 Result

Power[W]=(4.187 Joules/Cal)*(Volume in ml)*(Temperature Rise)/Time in Seconds

Water 1000mL

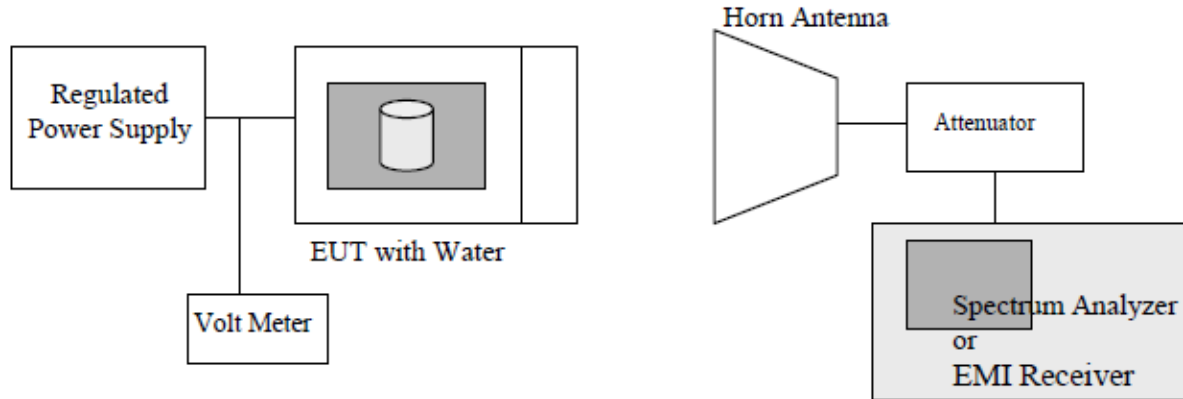
Start Temperature: 10 0C

Final Temperature: 35.1 0C

Elapsed Time:120s

Power[W]=4.187*1000*25.1/120=875.78

6.6 Frequency measurements



6.6.1 Result

(1) Frequency vs Line Voltage Variation Test

Variation of line voltage from 80 % (96 V) to 125 % (150 V)

Load: 1,000 ml

Fundamental Frequency: 2,450 MHz

Limit: $2.4 \text{ GHz} < f < 2.5 \text{ GHz}$

Maximum Frequency Observed: 2,468 MHz

Minimum Frequency Observed: 2,442 MHz

(2) Frequency vs Load Variation Test

Frequency was measured at the rated input voltage (AC 120 V).

Initial Load: 1,000 ml

Final Load: 200 ml

Fundamental Frequency: 2,450 MHz

Limit: $2.4 \text{ GHz} < f < 2.5 \text{ GHz}$

Maximum Frequency Observed: 2,470 MHz

Minimum Frequency Observed: 2,445 MHz

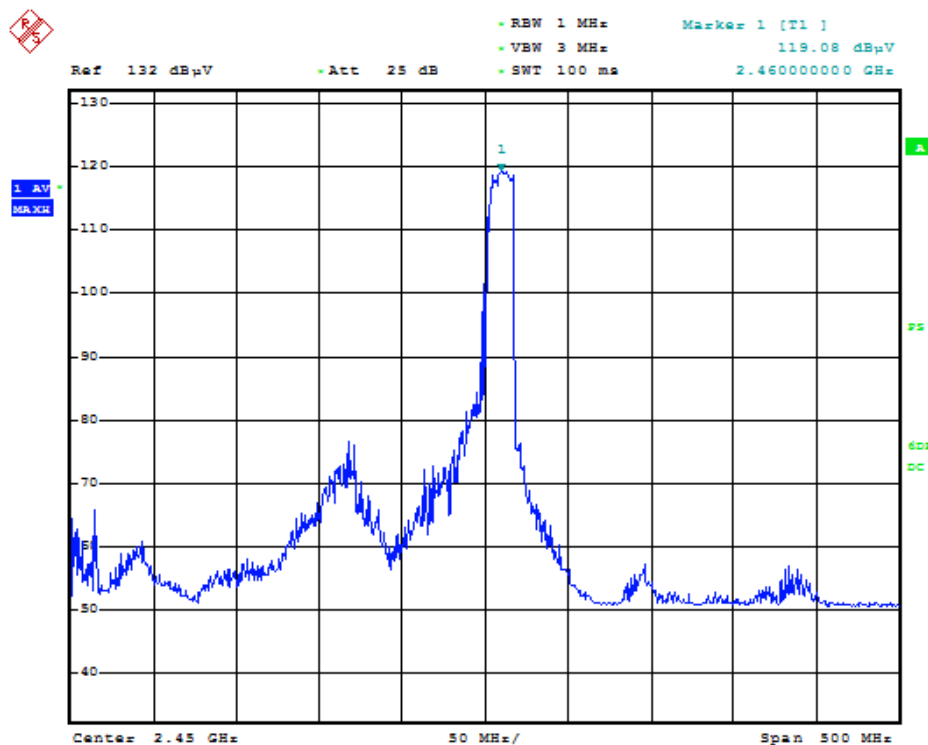
6.7 Power Density Safety Check

The power density was checked to ensure that the power is not greater than 1.0 mW/cm^2 at any location of the oven. The 1.0 mW/cm^2 is in accordance with CDRH and UL923 standard.

A microwave survey meter was placed on all sides, door and viewing, bottom, top and rear. The leakage microwave did not exceed the specified limits.

6.7.1 Result

Maximum Leakage Microwave Observed: 0.43 mW/cm^2



- End of the Report -