



**SGS-CSTC Standards
Technical Services Ltd.**

1/F., Building No. 1 Building, Agriculture Machinery Materials Co. Wushan
Road, Shipai, Tianhe District, Guangzhou, China
Telephone: +86 (0) 20 3848 1001 Fax: +86 (0) 20 3848 1006
Email: kent.hsu@sgs.com

FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

Report No.: GLEMO040801313HSF
Page: 1 of 11
FCC ID: **RSFED8525X-Y**

FCC TEST REPORT

Application No. : GLEMO040801313HS
Applicant: Guangdong MD Microwave Oven Manufacturing Co., Ltd.
FCC ID: RSFED8525X-Y
Fundamental Carrier Frequency : 2.450GHz

Equipment Under Test (EUT):

Name: Microwave Oven

Model: ED8525X-Y ♣



(X=P, S; Y=A, B, F, F-1, CB, C, SA, HSA, SB, HSB, SA-1, SA-2, SB-1, SB-2, SB-3, CSA, CSB, SBC, SBD, H, AL, AL-1, or SAB)

Standards: FCC PART 18
EUT Type: 8CC (Part 18 Consumer Device)
Date of Receipt: 24 August 2004
Date of Test: 26 August 2004 to 04 September 2004
Date of Issue: 07 September 2004

Test Result :	PASS *
----------------------	---------------

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kent Hsu
Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. 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.



2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS	2
3 GENERAL INFORMATION.....	3
3.1 CLIENT INFORMATION	3
3.2 DETAILS OF E.U.T.	3
3.3 DESCRIPTION OF SUPPORT UNITS.....	3
3.4 TEST LOCATION	3
3.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	3
3.6 TEST FACILITY	4
4 TEST RESULTS.....	5
4.1 TEST INSTRUMENTS	5
4.2 E.U.T. OPERATION	5
4.3 TEST PROCEDURE & MEASUREMENT DATA.....	6
4.4 INPUT POWER.....	6
4.5 RF OUTPUT POWER	6
4.6 CONDUCTED EMISSION TEST :	7
4.6.1 E.U.T. Operation.....	7
4.6.2 Measurement Data	7
4.7 RADIATED EMISSION TEST :	8
4.7.1 E.U.T. Operation.....	8
4.7.2 Limit Calculation:	8
4.7.3 Measurement Data	8
4.8 OCCUPIED BANDWIDTH	10-11

3 General Information

3.1 Client Information

Applicant Name: Guangdong MD Microwave Oven Manufacturing Co., Ltd.
Applicant Address: Penglai Road, Beijiao, Shunde, Foshan, Guangdong Province,
P.R. China.

3.2 Details of E.U.T.

Name: Microwave Oven
Model: ED8525X-Y ♣
♣ (X=P, S; Y=A, B, F, F-1, CB, C, SA, HSA, SB, HSB, SA-1, SA-2, SB-1, SB-2, SB-3, CSA, CSB, SBC, SBD, H, AL, AL-1, or SAB)
Power Supply: 120V 60Hz
Power Cord: 1.2 m x 3 wires unscreened AC mains cable.
Rated Power input: 1450W
Rated Microwave output: 850W

3.3 Description of Support Units

The EUT was tested as an independent unit with pure water as load.

3.4 Test Location

All tests were performed at:-

SGS-CSTC Standards Technical Services Ltd., Guangzhou Safety & EMC Laboratory,
1/F, Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd.,
Wushan Road Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001

Fax: +86 20 3848 1006

3.5 Other Information Requested by the Customer

None.

3.6 Test Facility

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

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0. Effective through December 31, 2004.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
Date of Registration: February 28, 2003. Valid until May 30, 2005
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorised test laboratory for the DoC process.
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **Industry Canada (IC)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5169.

4 Test Results

4.1 Test Instruments

Test Equipment	Manufacturer	Model	Asset No.	Cal. Due Date
3m Semi- Anechoic Chamber	Frankonia	3m method	EMC0501	15-02-2005
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	15-02-2005
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0518	18-08-2005
Spectrum Analysor	Rohde & Schwarz	FSP30	EMC0519	18-08-2005
Horn antenna	TDK	HRN0118	EMC0520	18-08-2005
Pre-amplifier	TDK	JCA218-504	EMC0521	18-08-2005
Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0003	24-07-2004

4.2 E.U.T. Operation

Input voltage: 120V / 60Hz

EUT Operation: Test the EUT in microwave cooking mode with maximum power output.

Load conditions:

Power Output Test: 1 liter of water in the beaker located in the center of the oven.

Frequency Test: 1 liter of water in the beaker located in the center of the oven.

Radiation test on second /third harmonic: 1 beaker with 0.7 liter water and 1 beaker with 0.3 liter water, each load is tested both with the beaker located in the center of the oven and with it in the right front corner.

All other tests: 0.7 liter of water in beaker located in the center of the oven.

4.3 Test Procedure & Measurement Data

4.4 Input Power

Test Requirement: FCC Part18
Test Method: FCC / OST MP-5
Test Date: 26 August 2004

The EUT was connected to the harmonic current test equipment and running in microwave cooking mode with 0.7 liter pure water contained in beaker which was required in FCC / OST MP-5.

Please refer to the following test data:

Urms = 119.6V	Freq = 50.000	Range: 50 A
Irms = 14.18A	Ipk = 24.05A	cf = 1.695
P = 1239W	S = 1696VA	pf = 0.731
THDi = 43.9 %	THDu = 2.00 %	
Test - Time : 1min	(100 %)	

4.5 RF Output Power

Test Requirement: FCC Part18
Test Method: FCC / OST MP-5
Test Date: 27 August 2004

The calorimetric method was used in determining the maximum output power. The test method described in MP-5 and IEC Publication 705/1988. A 1liter. of water in a beaker was placed in the center of the oven. The oven was operated in microwave cooking mode maximum power. Measure the water temperature before and after 2 minutes cooking.

$$P(W) = 4.187(\text{joules/calorie}) \times Q \times DT \text{ [DT = Temperature Rise in } ^\circ\text{C}] / t$$

Q = Quantity of Water in ml = 1000ml.

Starting Temp. = 25.0 °C

Time = 120 sec.

Final Temp. = 49.5 °C

Power (W) = $4.187 \times 1000 \times 24.5 / 120 = 854.8$ (W)

4.6 Conducted Emission Test :

Test Requirement: FCC Part18
Test Method: FCC / OST MP-5
Test Date: 04 September 2004
Frequency Range: 150KHz to 30MHz
Limit: 18.307(b)
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

4.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 56% RH Atmospheric Pressure: 1006 mbar

EUT Operation: Test the EUT in microwave cooking mode with maximum power.

4.6.2 Measurement Data

Measure the maximised peak emissions from the EUT for both the Live and Neutral Lines. Perform quasi-peak & average measurement if peak emissions are recorded within 6dB of the average limit line.

The following Quasi-peak and average measurements were performed on the EUT on 28 August 2004.

Frequencies (MHz)	Line	Quasi-Peak (dBuV)	Limit (dBuV)	Margin (dB)	Average (dBuV)	Limit (dBuV)	Margin (dB)
0.449	Line	25.3	56.9	31.6	7.8	46.9	39.1
0.747	Line	46.2	56.0	9.8	21.4	46.0	24.6
0.820	Line	43.6	56.0	12.4	20.8	46.0	25.2
0.867	Line	52.3	56.0	3.7	25.2	46.0	20.8
2.837	Line	31.7	56.0	24.3	11.9	46.0	34.1
12.986	Line	33.4	60.0	26.6	12.0	50.0	38.0
0.269	Neutral	36.8	61.1	24.3	16.7	51.1	34.4
0.389	Neutral	36.5	58.1	21.6	16.4	48.1	31.7
0.866	Neutral	42.3	56.0	13.7	18.1	46.0	27.9
0.956	Neutral	45.3	56.0	10.7	18.9	46.0	27.1
2.837	Neutral	26.9	56.0	29.1	9.5	46.0	36.5
13.045	Neutral	21.0	60.0	39.0	3.4	50.0	46.6

4.7 Radiated Emission Test :

Test Requirement: FCC Rules 18.305
Test Method: FCC / OST MP-5
Test Date: 28 August 2004
Frequency Range: 1GHz to 24.5GHz
Measurement Distance: 3m
Limit: 25 x SQRT(power / 500) uV/m at 300 meters for ISM band
15 x SQRT(power / 500) uV/m at 300 meters for Non-ISM band
Detector: Average

4.7.1 E.U.T. Operation

Operating Environment:
Temperature: 25.0°C 56 % RH Atmospheric Pressure: 1006 mbar
Humidity
:

EUT Operation: Test the EUT in microwave cooking mode with maximum power.

4.7.2 Limit Calculation:

Field strength at 300m = $25 \sqrt{854.8 / 500} = 32.7 \mu\text{V/m} = 30.3 \text{dBuV/m}$ (ISM band)
Field strength at 3 m = 70.3dBuV/m (ISM band)
Field strength at 300m = $15 \sqrt{854.8 / 500} = 19.6 \mu\text{V/m} = 25.8 \text{dBuV/m}$ (ISM band)
Field strength at 3 m = 65.8dBuV/m (ISM band)

4.7.3 Measurement Data

Peak sweep with maximum hold was performed with turntable rotating and antenna was moved up and down. Further average measurements were performed at the frequencies at which maximum peak level was detected. Keep rotating the turntable and move the antenna height up and down in a range of 1m to 4m. The maximum readings were recorded.

For the second and third harmonics measurement, the load was place at the centre / perimeter of the microwave oven, also 0.7L and 0.3L load was used to tested respectively, the worst case and readings were recorded.

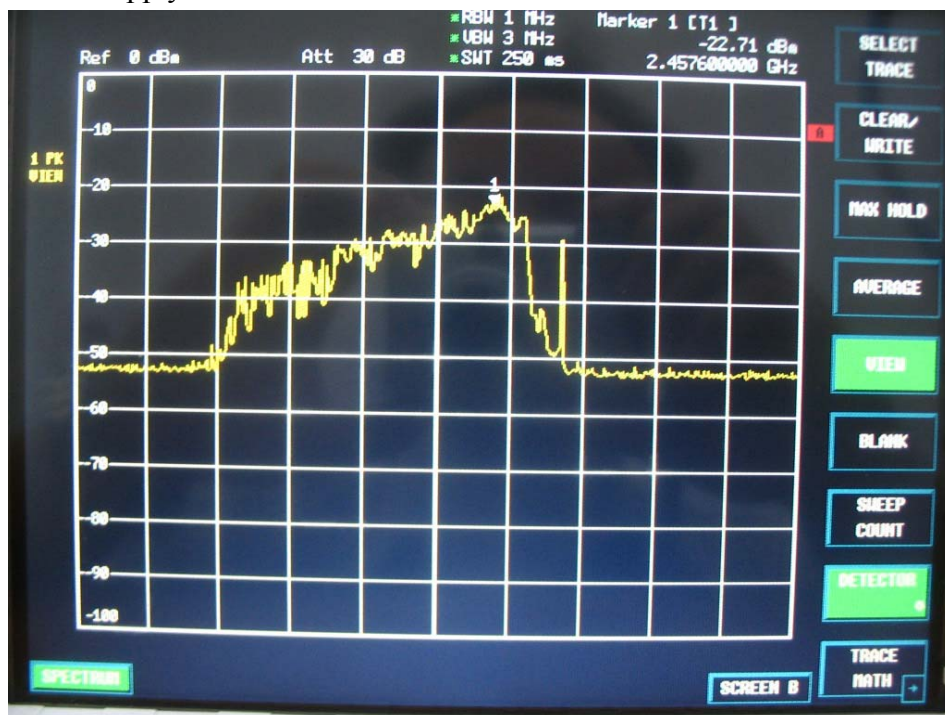
The following average measurements were performed on the EUT on 28 August 2004:

Frequency (GHz)	Antenna Polar.	Average (dBuV/m)	Limit at 3 meters (dBuV/m)	Load (L)	Load position	Margin (dB)
2.428	V	52.3	70.3	0.7	Centre	18.0
4.910	V	42.4	65.8	0.3	Centre	23.4
7.320	V	41.4	65.8	0.7	Perimeter	24.4
9.718	V	38.2	65.8	0.7	Centre	27.6
12.150	V	39.6	65.8	0.7	Centre	26.2
14.575	V	34.5	65.8	0.7	Centre	31.3
2.430	H	50.8	70.3	0.7	Centre	19.5
4.920	H	40.8	65.8	0.7	Perimeter	25.0
7.315	H	43.7	65.8	0.7	Centre	22.1
9.720	H	39.9	65.8	0.7	Centre	25.9
12.151	H	36.2	65.8	0.7	Centre	29.6
14.581	H	33.1	65.8	0.7	Centre	32.7

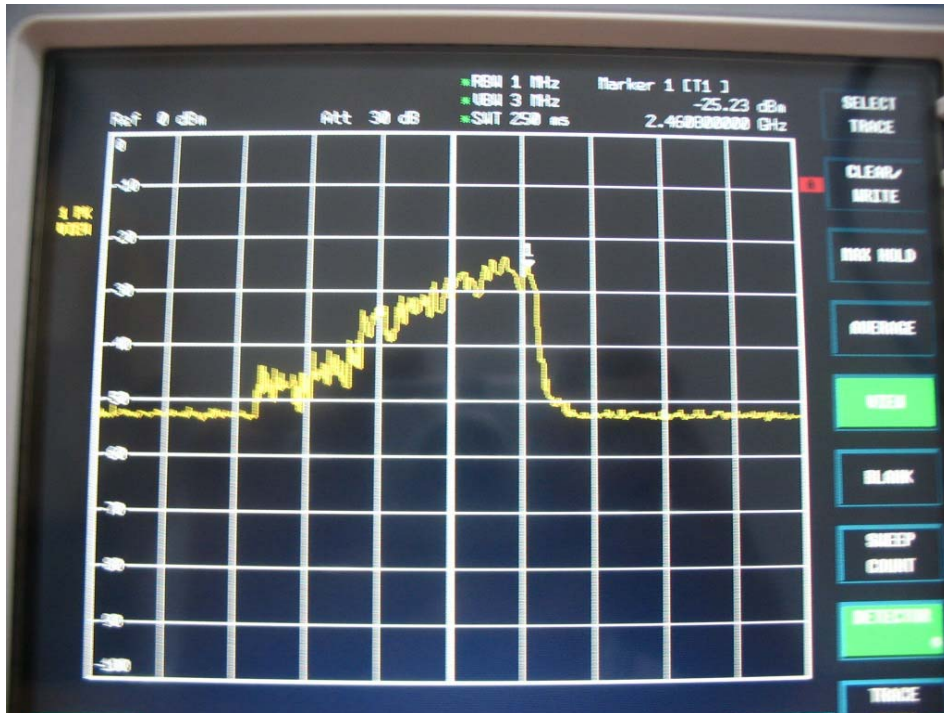
Test Results: The unit does meet the FCC Part 18 requirements.

4.8 Occupied Bandwidth

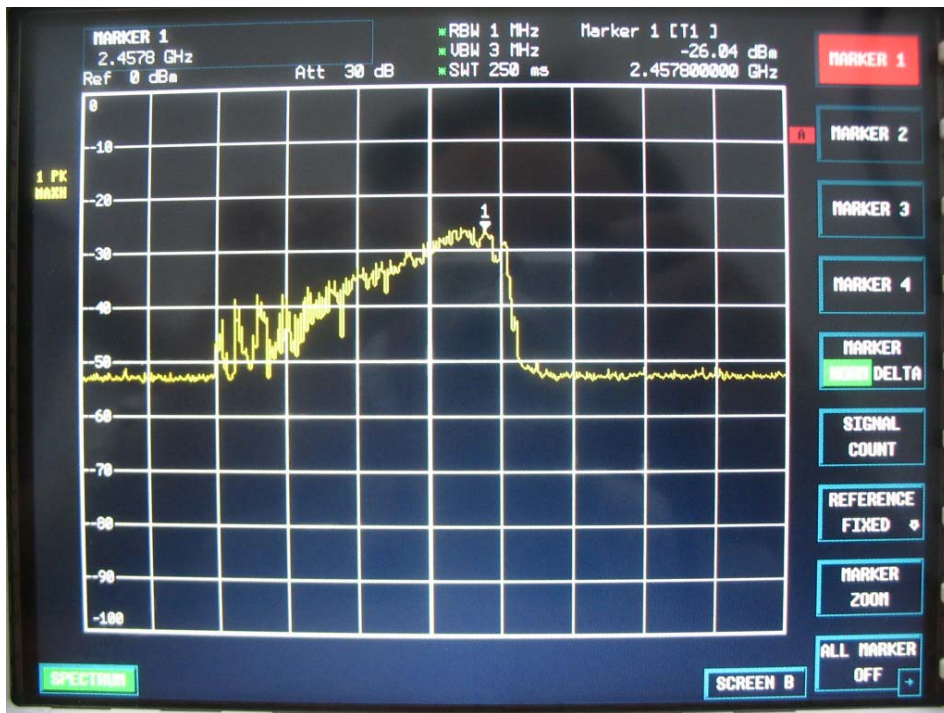
Test Requirement: FCC part 18
Operation Frequency: 2.45GHz $\pm$ 50MHz
Test Date: 29 Augsut 2004
Method of measurement: Test the EUT in microwave oven cooking mode at 96V ac (-20% rated power supply), 125V ac (+25% rated power supply) and 120V ac (rated power supply), detected the emission from EUT with spectrum analyser with maximum hold.
Setting of spectrum Analysor RBW=1MHz, VBW=3MHz
Sweep range: 2.40GHz to 2.50GHz
The graph as below, represents the emissions take for this device.
Power supply: 96V ac



Power supply: 125V ac



Power supply: 96V ac



The results: The unit does meet the FCC Part 18 requirements.