

Test Report

On Behalf of

Guangdong MD Consumer Electric Manufacturing Co., Ltd

Induction Cooker

Model No.: MC-STW1303, NS-IC87BK6

FCC ID: TAPMC-STW1303A

Prepared for : Guangdong MD Consumer Electric Manufacturing Co., Ltd
Address : 19 Sanle Road, Beijiao Shunde, Foshan, Guangdong,
China

Prepared by : SHENZHEN EMTEK CO., LTD.
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Report Number : ES150513110E
Date of Test : May 13, 2015 to June 12, 2015
Date of Report : June 12, 2015

TABLE OF CONTENT

Test Report Description	Page
1. SUMMARY OF TEST RESULT	5
2. GENERAL INFORMATION	6
2.1. DESCRIPTION OF DEVICE (EUT)	6
2.2. DESCRIPTION OF SUPPORT DEVICE	6
2.3. DESCRIPTION OF TEST FACILITY	6
2.4. MEASUREMENT UNCERTAINTY	7
3. MEASURING DEVICE AND TEST EQUIPMENT	8
3.1. FOR POWER LINE CONDUCTED EMISSION MEASUREMENT	8
3.2. FOR RADIATED EMISSION MEASUREMENT	8
4. POWER LINE CONDUCTED EMISSION MEASUREMENT	9
4.1. BLOCK DIAGRAM OF TEST SETUP	9
4.2. MEASURING STANDARD	9
4.3. POWER LINE CONDUCTED EMISSION LIMITS (CLASS B)	9
4.4. EUT CONFIGURATION ON MEASUREMENT	9
4.5. OPERATING CONDITION OF EUT	10
4.6. TEST PROCEDURE	11
4.7. MEASURING RESULTS	11
5. RADIATED EMISSION MEASUREMENT	14
5.1. BLOCK DIAGRAM OF TEST SETUP	14
5.2. MEASURING FREQUENCY RANGE	14
5.3. RADIATED EMISSION LIMITS (CLASS B)	15
5.4. EUT CONFIGURATION ON MEASUREMENT	15
5.5. OPERATING CONDITION OF EUT	15
5.6. TEST PROCEDURE	15
5.7. MEASURING RESULTS	15
6. PHOTOGRAPHS	20
6.1. PHOTOS OF CONDUCTED EMISSION MEASUREMENT	20
6.2. PHOTOS OF RADIATION EMISSION MEASUREMENT	21

APPENDIX (Photos of EUT) (5 Pages)

TEST REPORT DESCRIPTION

Applicant : Guangdong MD Consumer Electric Manufacturing Co., Ltd
Manufacturer : Guangdong MD Consumer Electric Manufacturing Co., Ltd
Trade Mark : N/A
EUT : Induction Cooker
Model No. : MC-STW1303, NS-IC87BK6
(Note: These models are identical in circuitry and electrical, mechanical and physical construction; the only differences is model no. for trading purpose. We prepare MC-STW1303 for test, and the worst result recorded in the report.)
Power Supply : AC 120V, 60Hz 1300W

Measurement Procedure Used:

FCC Rules and Regulations Part 18: 2015 & MP-5: 1986

The device described above is tested by SHENZHEN EMTEK CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and SHENZHEN EMTEK CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of SHENZHEN EMTEK CO., LTD.

Date of Test : May 13, 2015 to June 12, 2015

Test by : 
Tester/King Kong

Prepared by : 
Yaping Shen/Editor

Approved & Authorized Signer : 
Lisa Wang/Manager

Modified Information

Version	Report No.	Revision Data	Summary
Ver.1.0	ES150513110E	/	Original Version

1. SUMMARY OF TEST RESULT

EMISSION		
Description of Test Item	Standard & Limits	Results
Conducted Disturbance at Mains Terminals	FCC Part 18: 2015 FCC OST MP-5: 2015	Pass
Radiated Disturbance	FCC Part 18: 2015 FCC OST MP-5: 2015	Pass
Note: N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Induction Cooker

Model Number : MC-STW1303, NS-IC87BK6
(Note: These models are identical in circuitry and electrical, mechanical and physical construction; the only differences is model no. for trading purpose. We prepare MC-STW1303 for test, and the worst result recorded in the report.)

Test Voltage : AC 120V, 60Hz 1300W

Applicant : Guangdong MD Consumer Electric Manufacturing Co., Ltd

Address : 19 Sanle Road, Beijiao Shunde, Foshan, Guangdong, China

Manufacturer : Guangdong MD Consumer Electric Manufacturing Co., Ltd

Address : 19 Sanle Road, Beijiao Shunde, Foshan, Guangdong, China

Date of Received : May 13, 2015

Date of Test : May 13, 2015 to June 12, 2015

2.2. Description of Support Device

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note

2.3. Description of Test Facility

Site Description
EMC Lab. : Accredited by CNAS, 2013.10.29
The certificate is valid until 2016.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005)
The Certificate Registration Number is L2291.

Name of Firm : SHENZHEN EMTEK CO., LTD.
Site Location : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

2.4.Measurement Uncertainty

Test Item	Uncertainty
Conducted Emission Uncertainty	: 2.96dB(9k~150kHz Conduction 1#) 2.74dB(150k-30MHz Conduction 1#)
Radiated Emission Uncertainty (3m Chamber)	: 3.78dB (30M~1GHz Polarize: H) 4.27dB (30M~1GHz Polarize: V)

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Power Line Conducted Emission Measurement

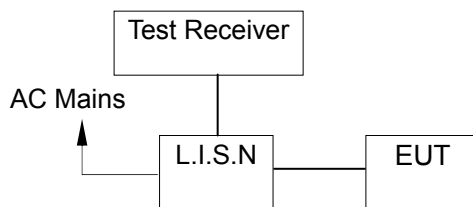
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Cal.
☒	Test Receiver	Rohde & Schwarz	ESCS30	100162	May 16, 2015	May 15, 2016
☒	L.I.S.N.	Rohde & Schwarz	ENV216	101161	May 16, 2015	May 15, 2016
☒	50Ω Coaxial Switch	Anritsu	MP59B	6100214550	N/A	May 15, 2016
☐	Voltage Probe	Rohde & Schwarz	TK9416	N/A	May 16, 2015	May 15, 2016
☐	I.S.N	Teseq GmbH	ISN T800	30327	May 16, 2015	May 15, 2016
☐	I.S.N	Teseq GmbH	T8-CAT6	32186	May 16, 2015	May 15, 2016

3.2. For Radiated Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 16, 2015	May 15, 2016
☒	Pre-Amplifier	HP	8447D	2944A07999	May 16, 2015	May 15, 2016
☐	Bilog Antenna	Schwarzbeck	VULB9163	142	May 16, 2015	May 15, 2016
☒	Loop Antenna	Schwarzbeck	FMZB 1519	012	May 16, 2015	May 15, 2016
☐	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 16, 2015	May 15, 2016
☐	Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 16, 2015	May 15, 2016
☒	Cable	Schwarzbeck	AK9513	ACRX1	May 16, 2015	May 15, 2016
☒	Cable	Rosenberger	SKCR2810BT	FP2RX2	May 16, 2015	May 15, 2016
☒	Cable	Schwarzbeck	AK9513	CRPX1	May 16, 2015	May 15, 2016
☒	Cable	Schwarzbeck	AK9513	CRRX2	May 16, 2015	May 15, 2016
☐	Pre-Amplifier	A.H.	PAM-0126	1415261	May 16, 2015	May 15, 2016

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: Induction Cooker)

4.2. Measuring Standard

FCC Part 18 and MP-5

4.3. Power Line Conducted Emission Limits (Class B)

Frequency	At mains terminals (dB μ V)	
	Quasi-peak Level	Average Level
9kHz ~ 50kHz	110	--
50kHz ~ 150kHz	90 ~ 80*	--
150kHz ~ 0.5MHz	66 ~ 56*	56 ~ 46*
0.5MHz ~ 2.51MHz	56	46
2.51MHz ~ 3.0MHz	73	63
3.0MHz ~ 5.0MHz	56	46
5.0MHz ~ 30MHz	60	50

1. At the transition frequency the lower limit applies.
2. * Decreasing linearly with logarithm of the frequency.
3. The limit decreases linearly with the logarithm of the frequency in the range 0.05MHz to 0.50MHz.

4.4. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet FCC requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

EUT : Induction Cooker
Model Number : MC-STW1303

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown on Section 4.1.

4.5.2. Turn on the power of all equipments.

4.5.3. Let the EUT work in measuring mode (ON) and measure it.

4.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the FCC regulations during conducted emission measurement.

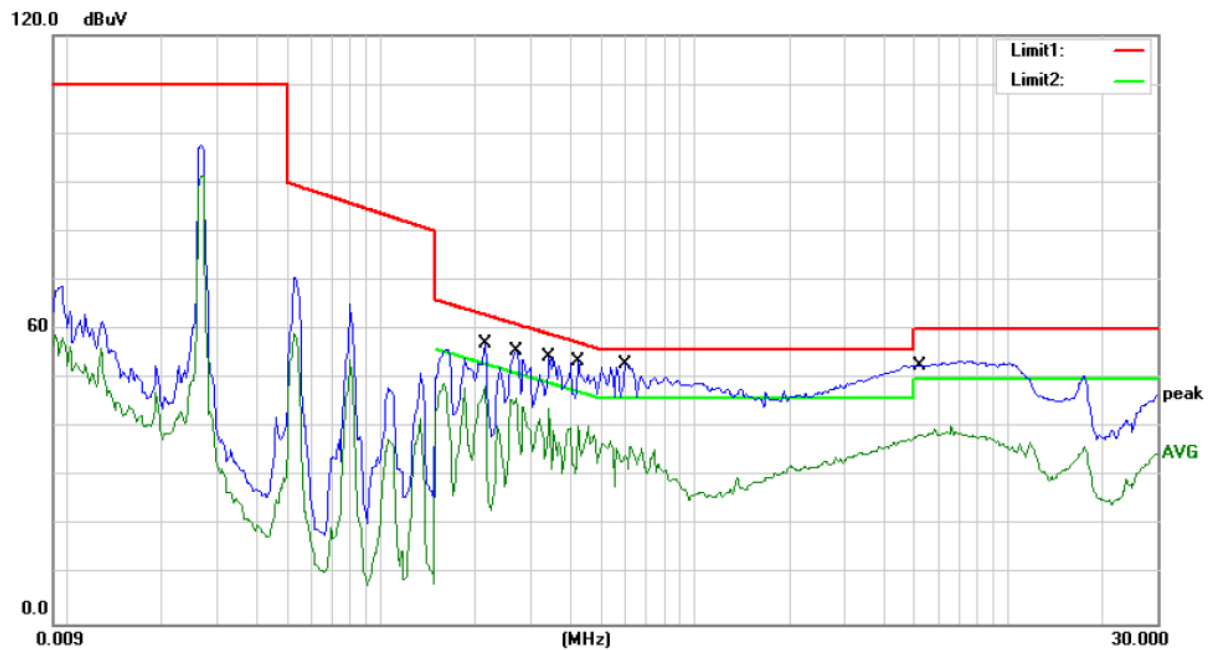
The bandwidth of the field strength meter (R&S Test Receiver ESCS30) is set at 9kHz in 150kHz~30MHz and 200Hz in 9kHz~150kHz.

The frequency range from 9kHz to 30MHz is investigated.
All the scanning waveform is put in the following pages.

4.7. Measuring Results

PASS.

Please refer to following pages.



Site Conduction #1

Phase: **L1**

Temperature: 26

Limit: (CE)FCC Part 18.307

Power: AC 120V/60Hz

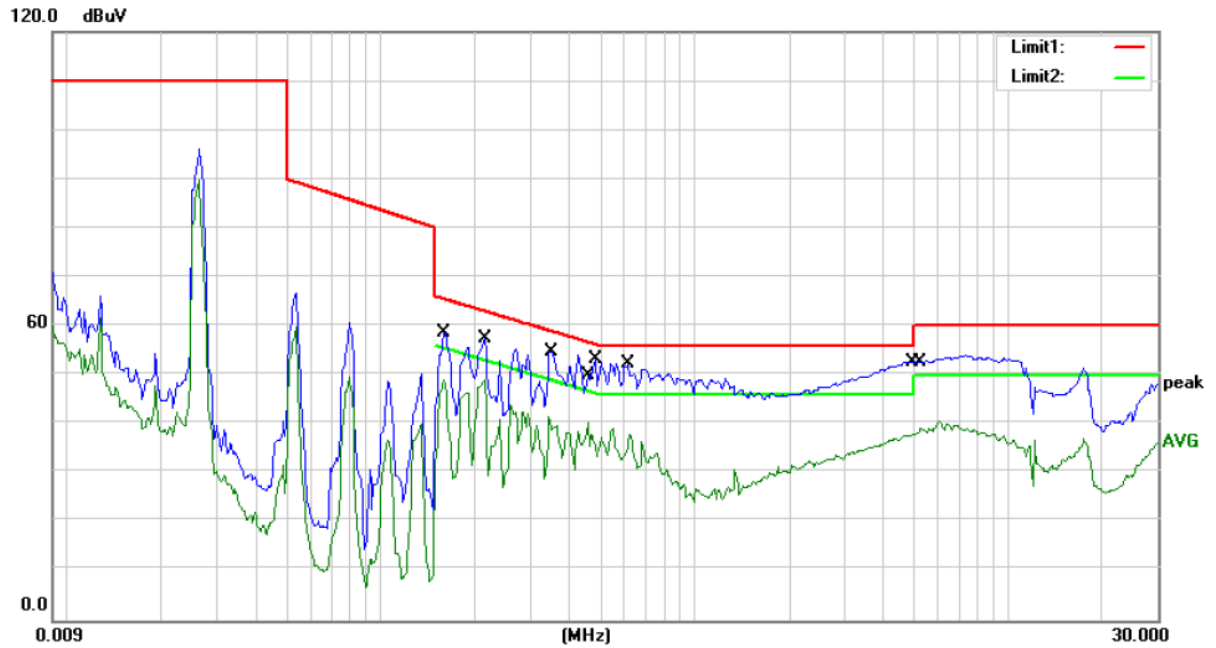
Humidity: 60 %

Mode: ON

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2150	57.30	0.00	57.30	63.01	-5.71	QP	
2		0.2150	48.37	0.00	48.37	53.01	-4.64	AVG	
3		0.2700	55.58	0.00	55.58	61.12	-5.54	QP	
4		0.2700	45.93	0.00	45.93	51.12	-5.19	AVG	
5		0.3450	54.46	0.00	54.46	59.08	-4.62	QP	
6		0.3450	43.82	0.00	43.82	49.08	-5.26	AVG	
7		0.4250	53.45	0.00	53.45	57.35	-3.90	QP	
8		0.4250	35.14	0.00	35.14	47.35	-12.21	AVG	
9	*	0.6050	52.89	0.00	52.89	56.00	-3.11	QP	
10		0.6050	33.98	0.00	33.98	46.00	-12.02	AVG	
11		5.2600	52.80	0.00	52.80	60.00	-7.20	QP	
12		5.2600	38.64	0.00	38.64	50.00	-11.36	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: CSL



Site Conduction #1

Phase: **N**

Temperature: 26

Limit: (CE)FCC Part 18.307

Power: AC 120V/60Hz

Humidity: 60 %

Mode: ON

Note:

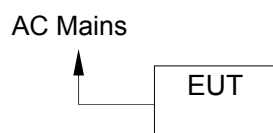
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1600	58.72	0.00	58.72	65.46	-6.74	QP	
2		0.1600	48.96	0.00	48.96	55.46	-6.50	AVG	
3		0.2150	57.55	0.00	57.55	63.01	-5.46	QP	
4		0.2150	49.12	0.00	49.12	53.01	-3.89	AVG	
5		0.3450	41.54	0.00	41.54	49.08	-7.54	AVG	
6		0.3500	54.89	0.00	54.89	58.96	-4.07	QP	
7		0.4600	40.26	0.00	40.26	46.69	-6.43	AVG	
8	*	0.4850	53.20	0.00	53.20	56.25	-3.05	QP	
9		0.6200	52.47	0.00	52.47	56.00	-3.53	QP	
10		0.6250	37.87	0.00	37.87	46.00	-8.13	AVG	
11		4.9300	52.68	0.00	52.68	56.00	-3.32	QP	
12		5.2600	39.05	0.00	39.05	50.00	-10.95	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: CSL

5. RADIATED EMISSION MEASUREMENT

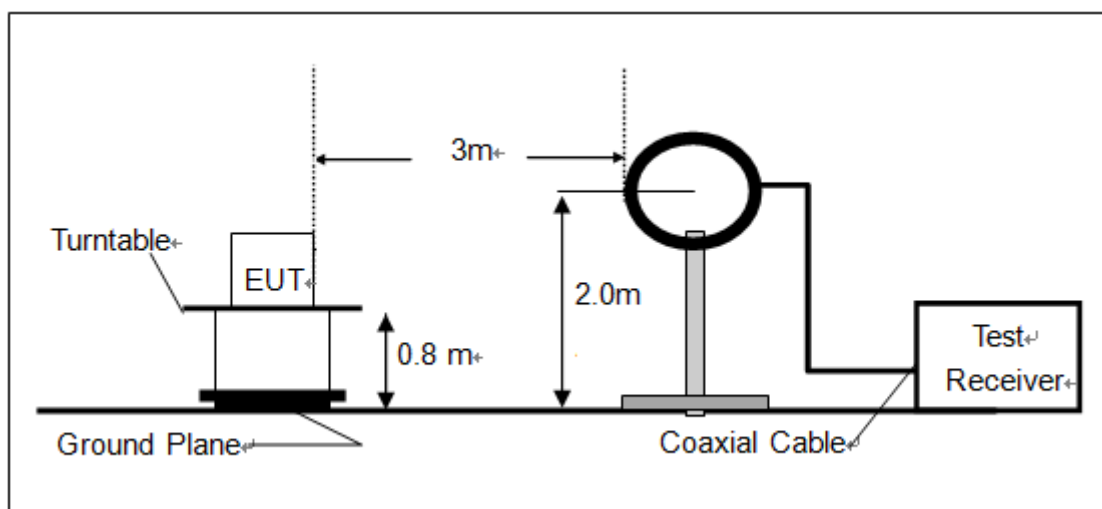
5.1. Block Diagram of Test Setup

5.1.1. Block diagram of EUT System



(EUT: Induction Cooker)

5.1.2. Block diagram of test setup (In chamber)



(EUT: Induction Cooker)

5.2. Measuring frequency range

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz.	30 MHz.
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz.	400 MHz.
30 to 500	Lowest frequency generated in the device or 25 MHz, whichever is lower.	Tenth harmonic or 1,000 MHz, whichever is higher.
500 to 1,000	Lowest frequency generated in the device or 100 MHz, whichever is lower.	Tenth harmonic.
Above 1,000	do	Tenth harmonic or highest detectable emission.

Remark: 1. The operating frequency of Induction Cooker is 20kHz to 30kHz, so the test frequency range is 9kHz to 30MHz.

5.3. Radiated Emission Limits (Class B)

Induction cooking ranges	Below 90 kHz	Any	1,500	430
	On or above 90 kHz	Any	300	430

Remark: 1. The operates frequency of Induction Cooker is 20kHz to 30kHz, so the field strength limit is 1500uV/m@30m.
2. $20\log 1500 + 40\log(30/3) = 63.5 + 40 = 103.5 \text{ dBuV/M @ 3m distance @ below 30MHz}$

5.4. EUT Configuration on Measurement

The FCC Class B regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT : Induction Cooker
Model Number : MC-STW1303

5.5. Operating Condition of EUT

- 5.5.1. Setup the EUT as shown on Section 5.1.
- 5.5.2. Turn on the power of all equipments.
- 5.5.3. Let the EUT work in measuring mode (ON) and measure it.

5.6. Test Procedure

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 2 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.
The bandwidth of the Receiver (ESU26) is set at 120kHz.
The worst scanning curves are attached in following pages.

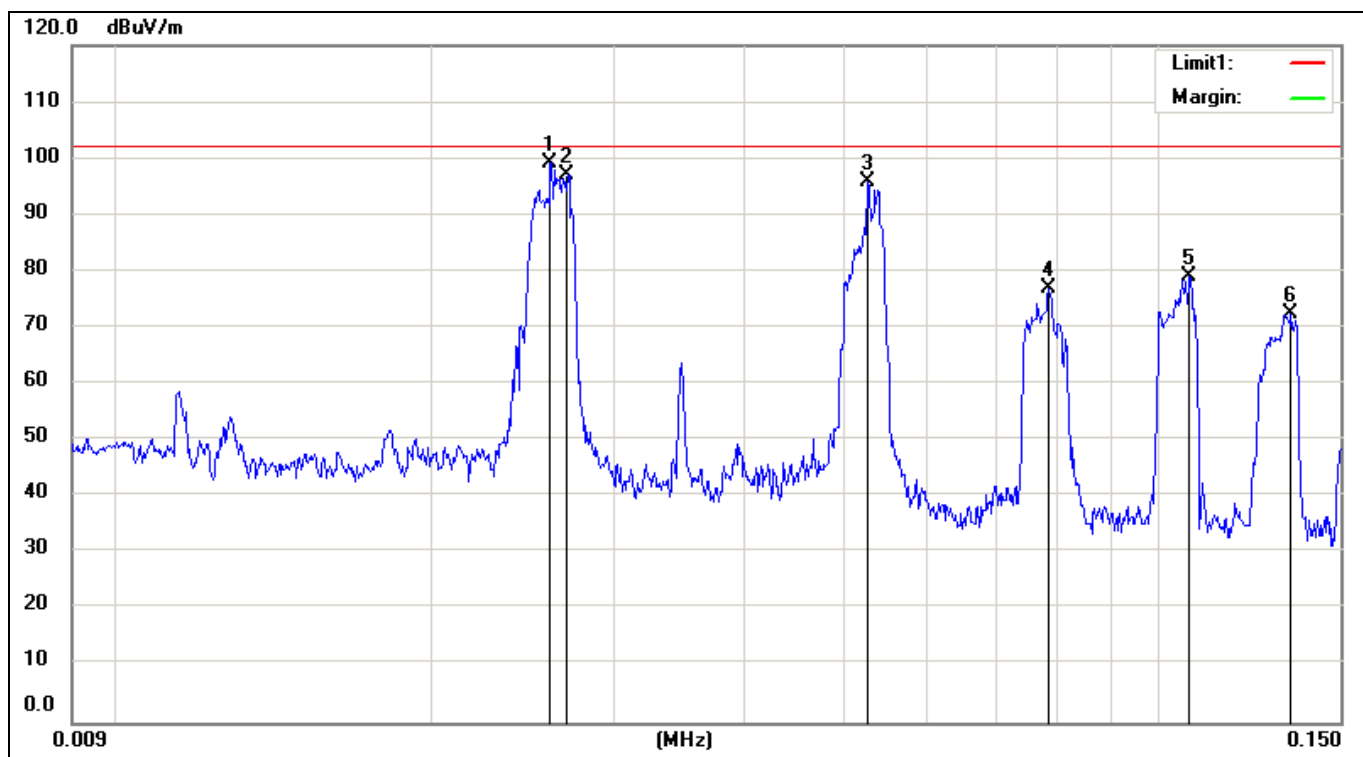
5.7. Measuring Results

PASS.

The frequency range from 9KHz to 30MHz is investigated.

Please refer to following pages.

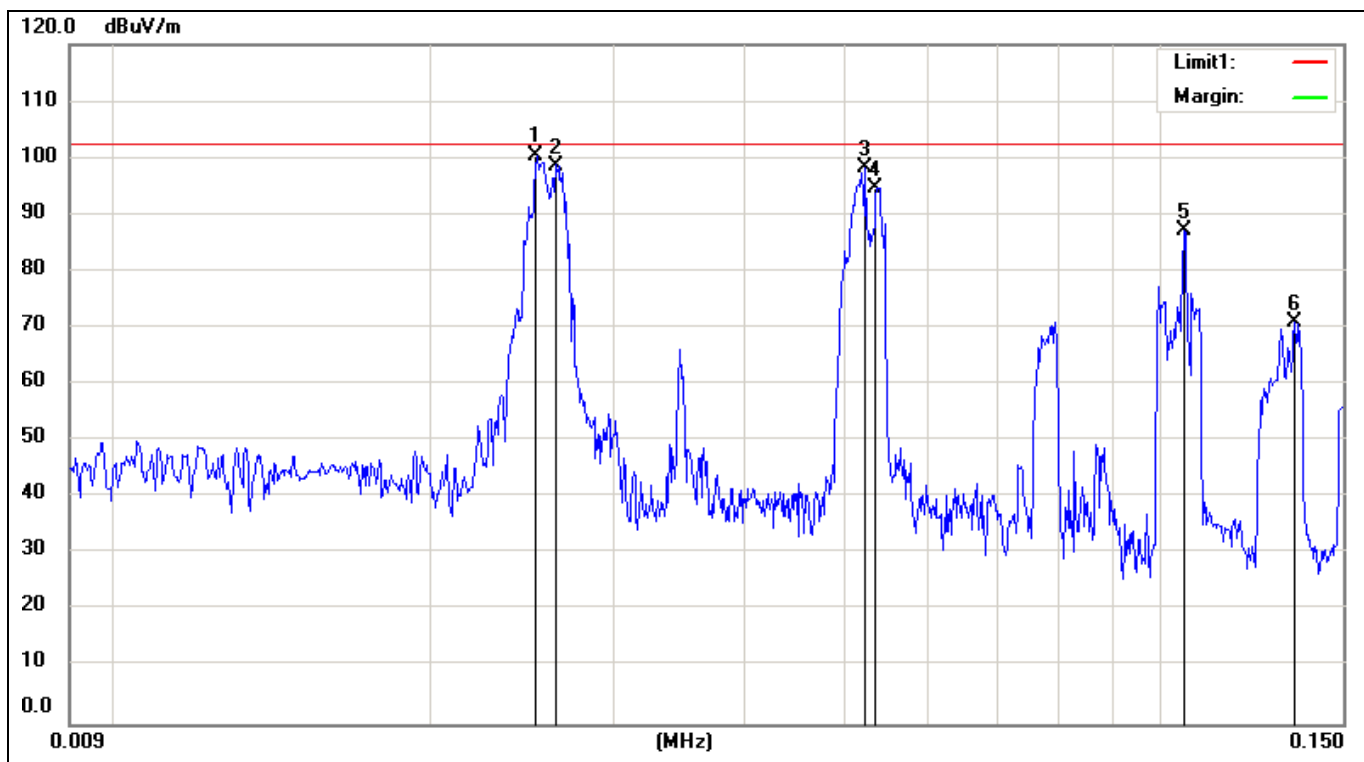
Test Result:	Pass	Polarization:	Horizontal
Standard:	PART18 cooking	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2015/06/12
Temp./Hum.:	20(C)/55%RH	Time:	9:25:27
EUT:	induction cooker	Test Mode:	ON
Model:	MC-STW1303	Tested By:	KK
Note:			



No.	Frequency	Reading	Correct	Result Level	Limit Level	Over Limit	Remark
	(KHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0260	78.68	20.60	99.28	103.5	-4.22	peak
2	0.0270	76.54	20.62	97.16	103.5	-6.34	peak
3	0.0524	74.93	20.94	95.87	103.5	-7.63	peak
4	0.0785	56.39	20.46	76.85	103.5	-26.65	peak
5	0.1073	58.21	20.80	79.01	103.5	-24.49	peak
6	0.1343	51.55	20.80	72.35	103.5	-31.15	peak

Note: Over Limit = Result Level - Limit Level.

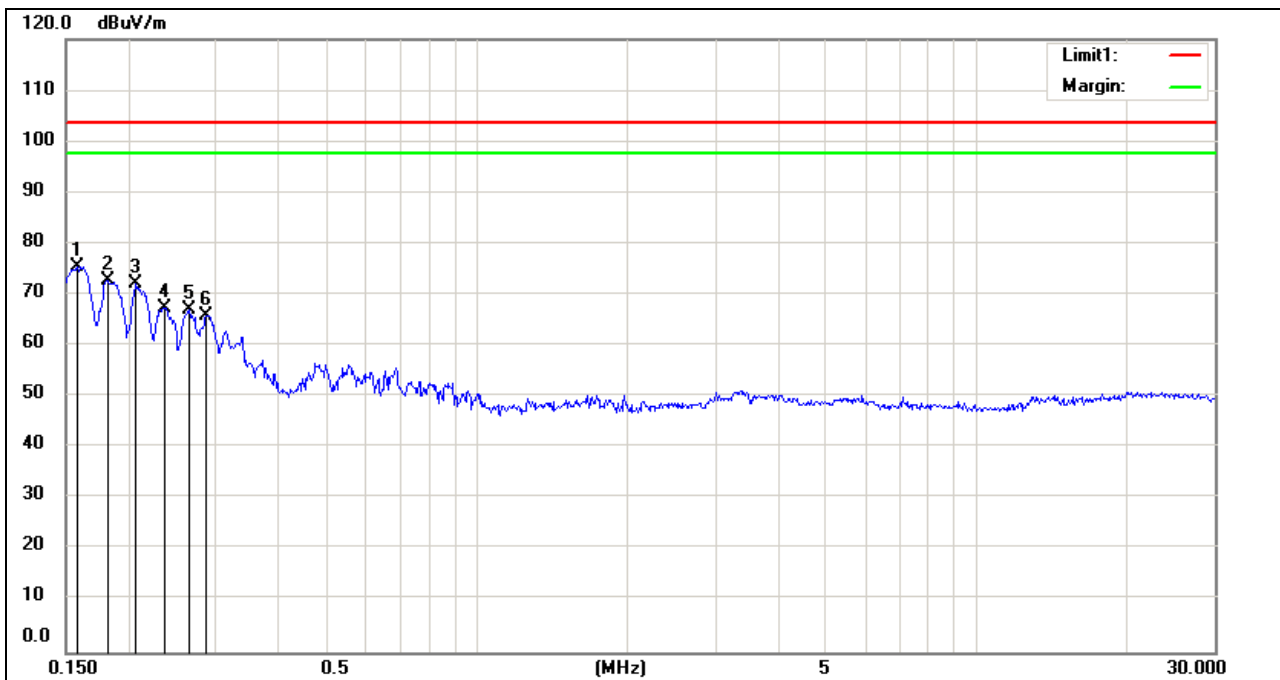
Test Result:	Pass	Polarization:	Vertical
Standard:	PART18 cooking	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2015/06/12
Temp./Hum.:	22(C)/55%RH	Time:	9:31:54
EUT:	induction cooker	Test Mode:	ON
Model:	MC-STW1303	Tested By:	KK
Note:			



No.	Frequency	Reading	Correct	Result Level	Limit Level	Over Limit	Remark
	(KHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0252	79.86	20.59	100.45	103.5	-3.05	peak
2	0.0263	78.10	20.60	98.70	103.5	-4.8	peak
3	0.0522	77.42	20.95	98.37	103.5	-5.13	peak
4	0.0534	73.84	20.92	94.76	103.5	-8.74	peak
5	0.1053	66.36	20.80	87.16	103.5	-16.34	peak
6	0.1345	50.25	20.80	71.05	103.5	-32.45	peak

Note: Over Limit=Result Level-Limit Level.

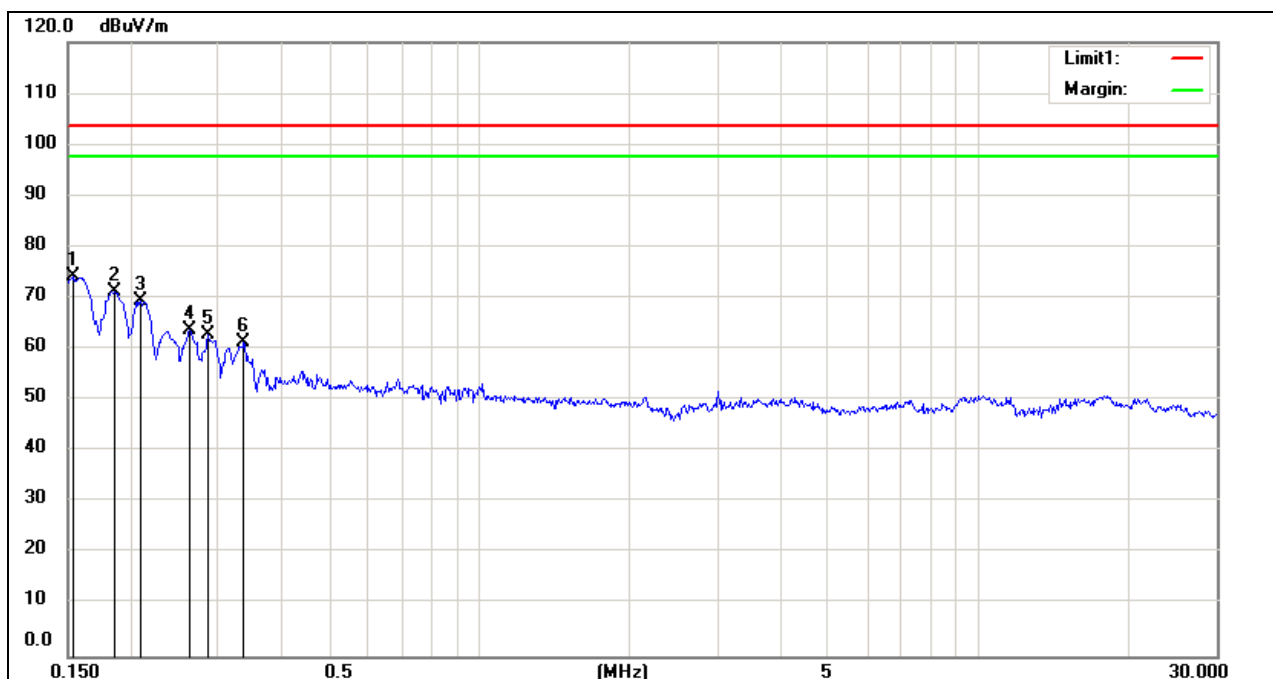
Test Result:	Pass	Polarization:	Horizontal
Standard:	PART18 cooking	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2015/06/12
Temp./Hum.:	22(C)/55%RH	Time:	9:43:41
EUT:	induction cooker	Test Mode:	ON
Model:	MC-STW1303	Tested By:	KK
Note:			



No.	Frequency	Reading	Correct	Result Level	Limit Level	Over Limit	Remark
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1580	54.66	20.82	75.48	103.50	-28.02	peak
2	0.1814	51.97	20.86	72.83	103.50	-30.67	peak
3	0.2071	51.28	20.91	72.19	103.50	-31.31	peak
4	0.2363	46.45	20.97	67.42	103.50	-36.08	peak
5	0.2644	46.01	21.01	67.02	103.50	-36.48	peak
6	0.2862	44.95	21.03	65.98	103.50	-37.52	peak

Note: Over Limit = Result Level - Limit Level.

Test Result:	Pass	Polarization:	Vertical
Standard:	PART18 cooking	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	2015/05/26
Temp./Hum.:	22(C)/55%RH	Time:	9:49:37
EUT:	induction cooker	Test Mode:	ON
Model:	MC-STW1303	Tested By:	KK
Note:			

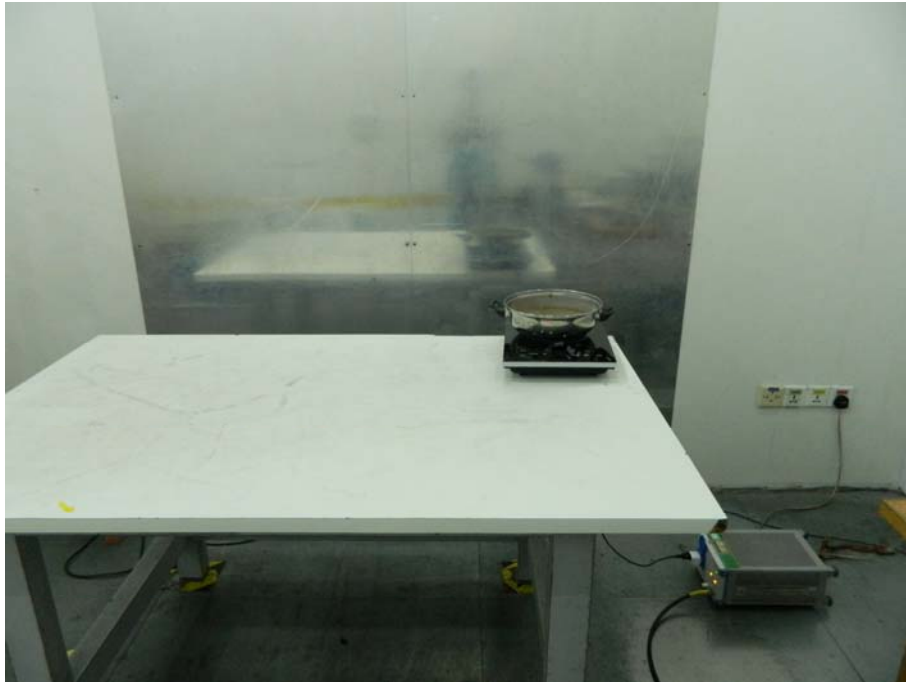


No.	Frequency	Reading	Correct	Result Level	Limit Level	Over Limit	Remark
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.1540	53.48	20.81	74.29	103.50	-29.21	peak
2	0.1853	50.41	20.87	71.28	103.50	-32.22	peak
3	0.2094	48.40	20.92	69.32	103.50	-34.18	peak
4	0.2630	42.82	21.01	63.83	103.50	-39.67	peak
5	0.2862	41.95	21.03	62.98	103.50	-40.52	peak
6	0.3373	40.13	21.07	61.20	103.50	-42.30	peak

Note: Over Limit = Result Level - Limit Level.

6. PHOTOGRAPHS

6.1. Photos of Conducted Emission Measurement



6.2. Photos of Radiation Emission Measurement



APPENDIX (Photos of EUT)

