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FEDERAL COMMUNICATIONS COMMISSION

Registration number: 282399

Report No.: GZEM160600384201

Page: 1 of 18

FCC ID: TAPMC-STW1521

TEST REPORT

The following sample(s) was/were submitted and identified on behalf of the client as:

Application No.:	GZEM1606003842HS
Applicant:	Guangdong Midea Consumer Electric Manufacturing Co., Ltd
Manufacturer:	Same as the applicant.
Factory:	Same as the applicant.
FCC ID:	TAPMC-STW1521
Product Description:	Induction Cooker
Model No.:	MC-STW1521
Standards:	FCC CFR 47 PART 18: 2015
Date of Receipt:	2016-06-13
Date of Test:	2016-06-24 to 2016-08-05
Date of Issue:	2016-08-10
Test Result :	Pass*

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.



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.


The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2016-08-10		Original

Authorized for issue by:			
Tested By	 (Allen Zhou) / Project Engineer	2016-06-24 to 2016-08-05 Date	
Prepared By	 (June Chen) / Clerk	2016-08-10 Date	
Checked By	 (Crystal Wang) / Reviewer	2016-08-10 Date	



3 Test Summary

Electromagnetic Interference (EMI)				
Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (9 kHz to 30 MHz)	FCC CFR 47 PART 18: 2015	FCC OST/ MP-5:1986	18.307(a)	PASS
Radiated Emission (9 kHz to 30 MHz)	FCC CFR 47 PART 18: 2015	FCC OST/ MP-5:1986	18.305(b)	PASS
Remark : EUT: In this whole report EUT means Equipment Under Test.				



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5 General Information

5.1 Client Information

Applicant: Guangdong Midea Consumer Electric Manufacturing Co., Ltd
Address of Applicant: 19 Sanle Road, Beijiao, Shunde, Foshan, Guangdong
Manufacturer: Same as the applicant.
Address of Manufacturer: Same as the applicant.
Factory: Same as the applicant.
Address of Factory: Same as the applicant.

5.2 General Description of E.U.T.

Product Description: Induction Cooker
Model No.: MC-STW1521

5.3 Details of E.U.T.

Rated Supply (Voltage): AC120V, 60Hz
Power Cable: 2 wires about 1.5m unscreened mains cable

5.4 Description of Support Units

The EUT has been tested with water.

5.5 Deviation from Standards

None.

5.6 General Test Climate During Testing

Temperature: 15-30 °C Humidity: 30~70 %RH Atmospheric Pressure: 860-1060 mbar

5.7 Abnormalities from Standard Conditions

None.

5.8 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



5.9 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 accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

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.

- **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.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 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.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

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.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



6 Equipment List

Conducted Emission						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m ³	N/A	N/A	N/A
EMC0118	Two-line v-netwok	R&S	ENV216	100359	2016-01-25	2017-01-24
EMC0102	LISN	SCHAFFNER CHASE	MN2050D/1	1421	2015-09-24	2016-09-23
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	2015-12-19	2016-12-18
EMC0107	Coaxial Cable	SGS	2m	N/A	2016-07-24	2018-07-23
EMC0106	Voltage Probe	SGS	N/A	N/A	2016-04-05	2018-04-04
EMC0120	8 Line ISN	Fischer Custom Communications	FCC-TLISN-T8- 02	20550	2015-09-28	2016-09-27
EMC0121	4 Line ISN	Fischer Custom Communications	FCC-TLISN-T4- 02	20549	2015-09-28	2016-09-27
EMC0122	2 Line ISN	Fischer Custom Communications	FCC-TLISN-T2- 02	20548	2015-09-28	2016-09-27
EMC2047	CDN	Elektronik- Feinmechanik	L-801:AF2	2793	2015-09-19	2018-09-18
EMC2048	CDN	Elektronik- Feinmechanik	L-801:M2/M3	2738	2015-09-25	2018-09-24
EMC2062	6dB Attenuator	HP	8491A	24487	2016-04-05	2018-04-04
EMC0167	Conical metal housing	SGS-EMC	N/A	N/A	2016-04-19	2018-04-18



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RE in Chamber						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	2014-12-05	2016-12-04
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100283	2016-02-01	2017-01-31
EMC0056	EMI Test Receiver	Rohde & Schwarz	ESCI	100236	2016-02-01	2017-01-31
EMC0528	RI High frequency Cable	SGS	20 m	N/A	2016-04-19	2018-04-18
EMC2025	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3372	2014-07-14	2017-07-13
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	2013-08-31	2016-08-30
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	2014-05-04	2017-05-03
EMC2026	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	9120D-841	2013-08-31	2016-08-30
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	2016-01-25	2017-01-24
EMC2065	Amplifier	HP	8447F	N/A	2016-07-04	2017-07-03
EMC2086	PRE AMPLIFIER MH648A	ANRITSU CORP	MH648A	N/A	2015-12-19	2016-12-18
EMC2063	Pre-amplifier 1GHz-26GHz	Compliance Direction Systems Lnc.	PAP-1G26-48	6279.628	2016-01-06	2017-01-05
EMC0523	Active Loop Antenna	EMCO	6502	42963	2016-02-27	2018-02-26
EMC2041	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9170	9170-375	2014-05-26	2017-05-25
EMC2079	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	009	2016-01-25	2017-01-24
EMC2069	2.4GHz Filter	Micro-Tronics	BRM 50702	149	2016-01-25	2017-01-24
EMC0530	10m Semi-Anechoic Chamber	ETS	N/A	N/A	2016-04-30	2018-04-29

General used equipment						
No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. date	Cal.Due date
					(YYYY-MM-DD)	(YYYY-MM-DD)
EMC0006	DMM	Fluke	73	70681569	2015-09-17	2016-09-16
EMC0007	DMM	Fluke	73	70671122	2015-09-17	2016-09-16



7 Emission Test Results

7.1 Conducted Emissions, 9 kHz to 30 MHz

Test Requirement: FCC Part 18
Test Method: FCC OST/ MP-5
Test Date: 2016-06-24
Power Supply: AC 120V 60Hz
Frequency Range: 9 kHz to 30 MHz
Detector: Peak for pre-scan, Quasi-Peak and Average for the final result.
(200 Hz Resolution Bandwidth for 9 kHz to 150 kHz,
9 kHz Resolution Bandwidth for 150 kHz to 30 MHz)

Limit:

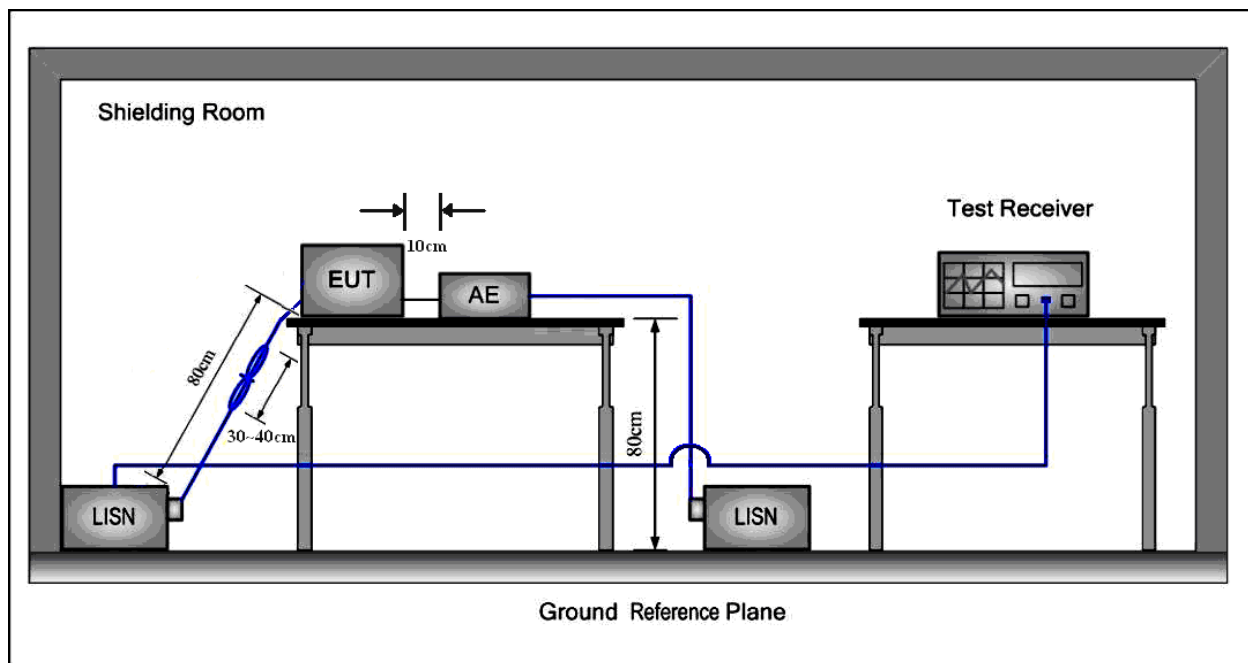
Frequency range MHz	AC mains terminals dB (μV)	
	Quasi-peak	Average
0.009 to 0.05	110	—
0.05 to 0.15	90 to 80 [*]	—
0.15 to 0.5	66 to 56 [*]	56 to 46 [*]
0.5 to 5	56	46
5 to 30	60	50
Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.05 MHz to 0.5 MHz.		
Note2: The lower limit is applicable at the transition frequency.		

7.1.1 E.U.T. Operation

A pre-test was performed on the EUT in heating mode at high, middle and low power in order to find the worst case.

Test the EUT in heating mode at high power for the compliance test as the worst case was found.

7.1.2 Test Setup and Procedure



1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to nominal power supply through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 1 m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1 m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

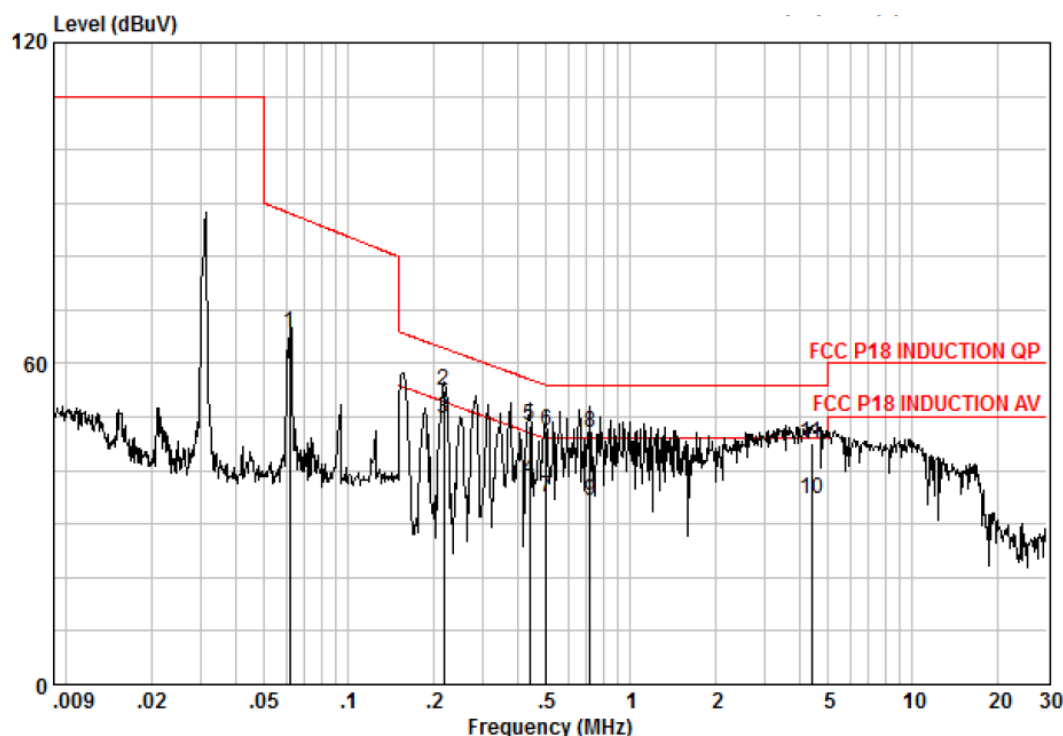
7.1.3 Measurement Data

Pre-scan was performed with peak detected on both live and neutral cable. Quasi-peak & average measurements were performed at the frequencies which maximum peak emission level was detected.

Please see the attached Quasi-peak and Average test results.

Live line:

Peak Scan



Quasi-peak and Average measurement:

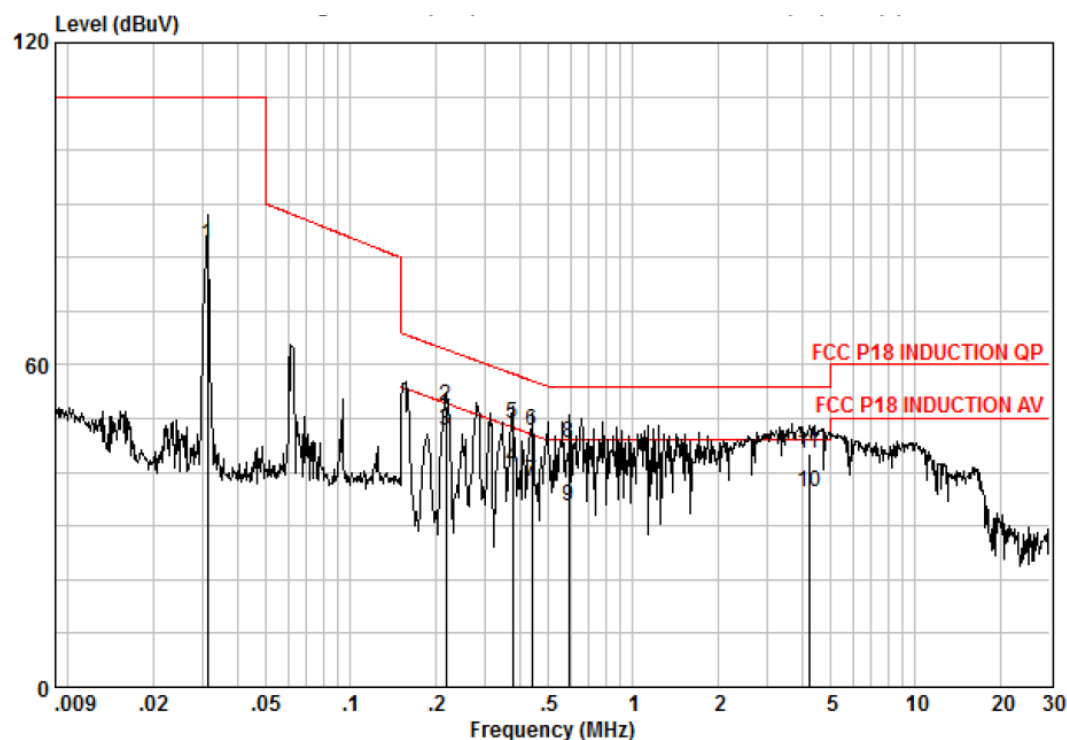
Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.062	56.02	0.00	9.70	65.72	88.04	-22.32	QP
0.217	45.12	0.08	9.60	54.80	62.92	-8.12	QP
0.217	40.00	0.08	9.60	49.68	52.92	-3.24	AVERAGE
0.440	28.41	0.04	9.64	38.09	47.07	-8.97	AVERAGE
0.440	38.61	0.04	9.64	48.29	57.07	-8.77	QP
0.502	37.75	0.04	9.70	47.49	56.00	-8.51	QP
0.502	25.41	0.04	9.70	35.15	46.00	-10.85	AVERAGE
0.720	37.51	0.02	9.70	47.23	56.00	-8.77	QP
0.720	24.52	0.02	9.70	34.24	46.00	-11.76	AVERAGE
4.384	24.85	0.19	9.70	34.74	46.00	-11.26	AVERAGE
4.384	35.16	0.19	9.70	45.05	56.00	-10.95	QP

Level = Read Level + LISN Factor + Cable Loss.



Neutral line:

Peak Scan



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.031	72.60	0.00	9.88	82.48	110.00	-27.52	QP
0.217	42.72	0.08	9.66	52.46	62.92	-10.46	QP
0.217	38.01	0.08	9.66	47.75	52.92	-5.17	AVERAGE
0.375	31.09	0.05	9.66	40.80	48.39	-7.59	AVERAGE
0.375	39.29	0.05	9.66	49.00	58.39	-9.39	QP
0.440	37.90	0.04	9.66	47.60	57.07	-9.46	QP
0.440	28.41	0.04	9.66	38.11	47.07	-8.95	AVERAGE
0.595	35.66	0.03	9.67	45.36	56.00	-10.64	QP
0.595	24.10	0.03	9.67	33.80	46.00	-12.20	AVERAGE
4.202	26.47	0.19	9.71	36.37	46.00	-9.63	AVERAGE
4.202	33.66	0.19	9.71	43.56	56.00	-12.44	QP

Level = Read Level + LISN Factor + Cable Loss.



7.2 Radiated Emissions, 9 kHz to 30 MHz

Test Requirement: FCC Part 18
Test Method: FCC OST/ MP-5
Power Supply: AC 120V 60Hz
Test Date: 2016-08-05
Frequency Range: 9 kHz to 30 MHz
Measurement Distance: 10 m
Detector: Peak for pre-scan, Average for the final result
(200 Hz Resolution Bandwidth for 9 kHz to 150 kHz
9 kHz Resolution Bandwidth for 150 kHz to 30 MHz)

Limit:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Induction cooking ranges	Below 90 kHz	Any	1,500	430
	On or above 90 kHz	Any	300	430

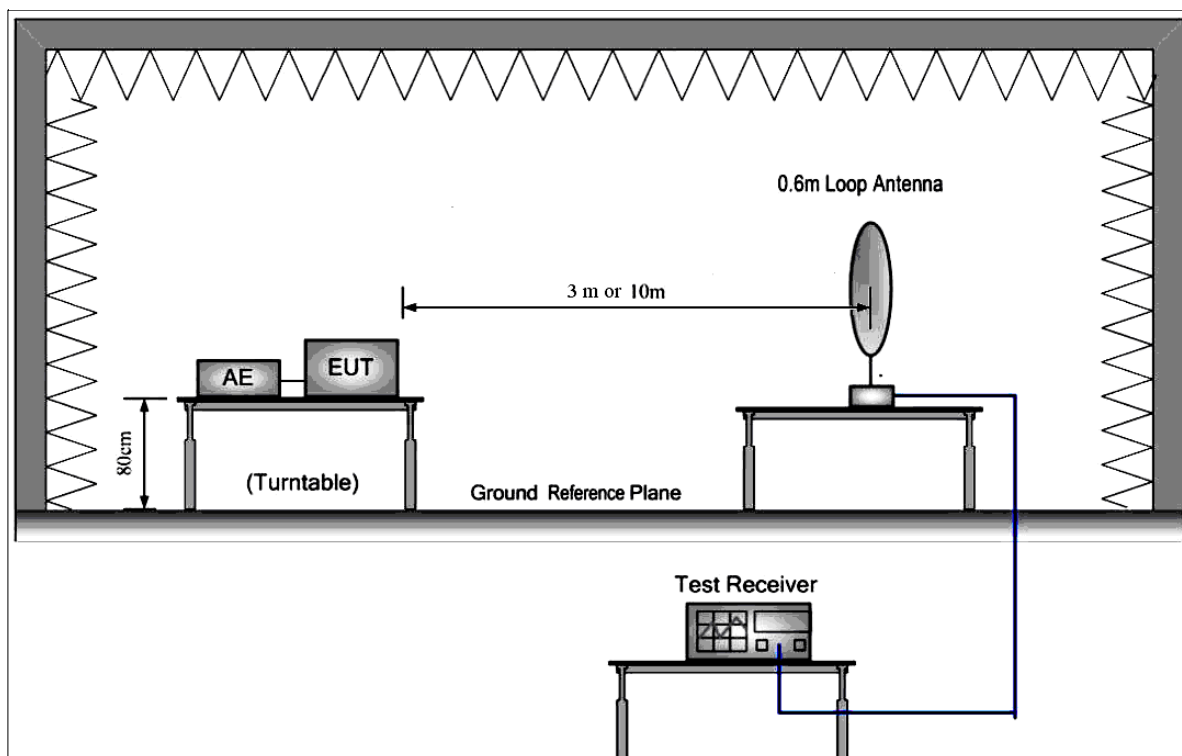
For Induction cooking ranges and the operating frequency is below 90 kHz, the field strength limit is 1,500 $\mu\text{V/m}$ @30m,
i.e. $20\lg(1500)+20\lg(30/10)=63.52+9.54=73.06\text{dBuV/m}$ @ 10m distance.

7.2.1 E.U.T. Operation

A pre-test was performed on the EUT in heating mode at high, middle and low power in order to find the worst case.

Test the EUT in heating mode at high power for the compliance test as the worst case was found.

7.2.2 Test Setup and Procedure



1. The magnetic emissions test was conducted in a semi-anechoic chamber.
2. The EUT was connected to AC power source through a mains power outlet which was bonded to the ground reference plane; The mains cables shall drape to the ground reference plane.
3. The tabletop EUT was placed upon a non-metallic table 1 m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. Before final measurements of magnetic emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum signature data plots of the EUT.

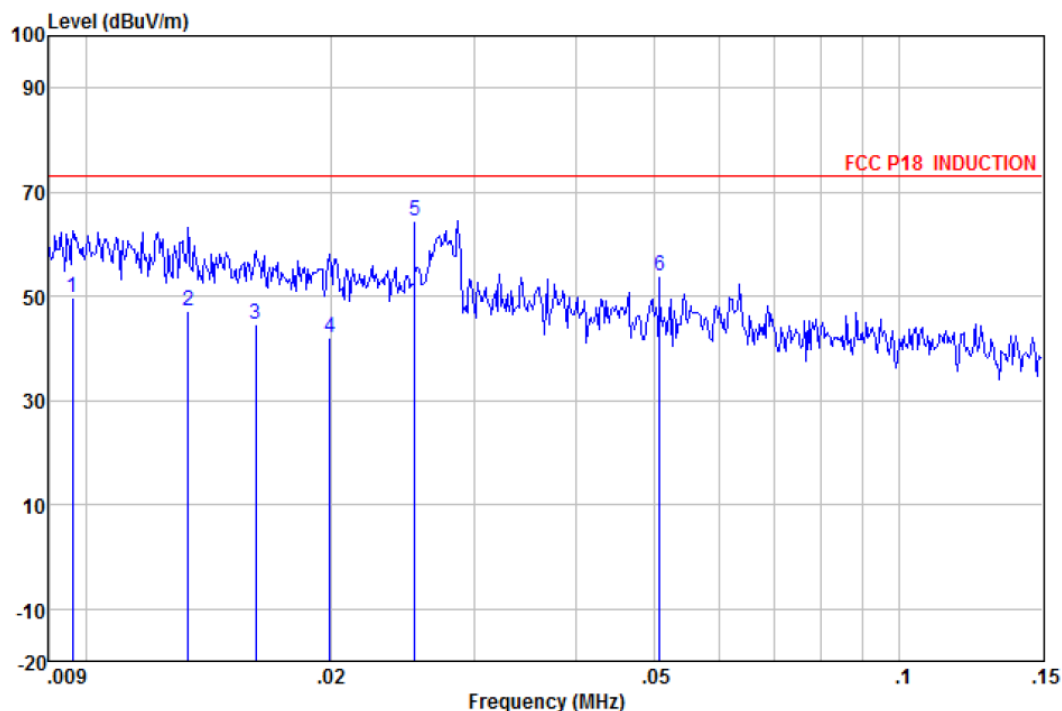
The frequencies of maximum emission were determined in the final magnetic emissions measurement, The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. At each frequency, the EUT was rotated 360°, the antenna was supported in the vertical plane and be rotatable about a vertical axis. The antenna height was set at around 2 m above the ground reference plane.



7.2.3 Measurement Data

Vertical:

Peak scan



Average measurement

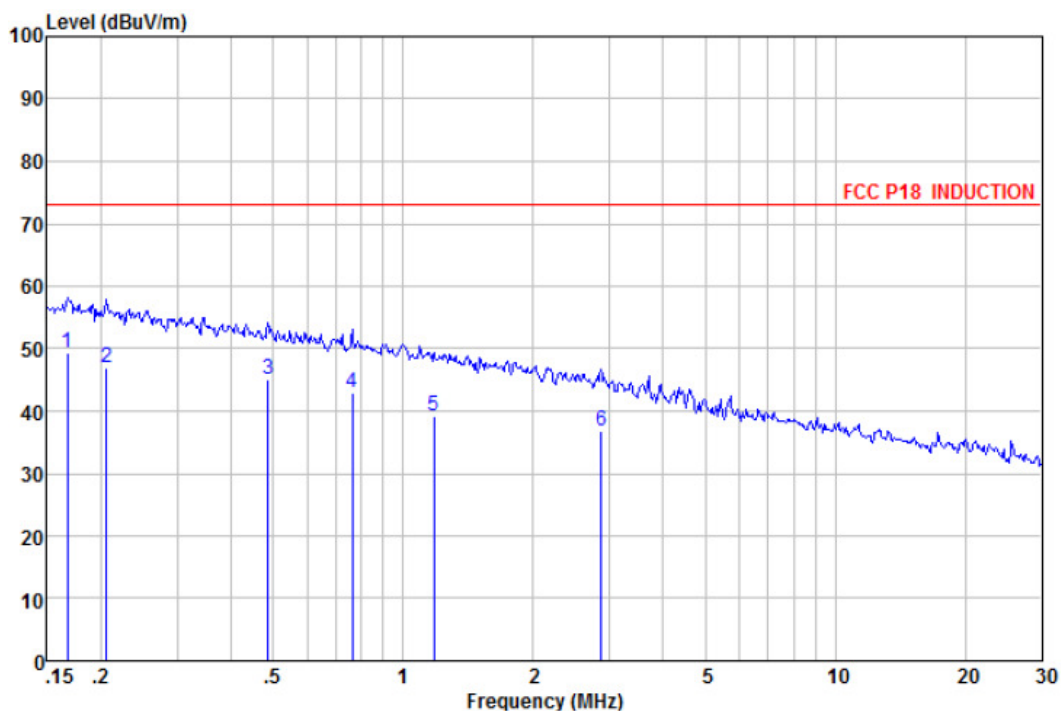
Freq	ReadAntenna	Cable	Preamp	Limit	Over			
MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
0.010	56.86	21.90	0.10	29.20	49.66	73.06	-23.40	Average
0.013	56.22	20.23	0.10	29.20	47.35	73.06	-25.71	Average
0.016	55.80	18.03	0.10	29.20	44.73	73.06	-28.33	Average
0.020	54.40	17.00	0.00	29.20	42.20	73.06	-30.86	Average
0.025	77.56	16.31	0.00	29.27	64.60	73.06	-8.46	Average
0.051	70.37	12.70	0.10	29.40	53.77	73.06	-19.29	Average

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



Vertical:

Peak scan



Average measurement

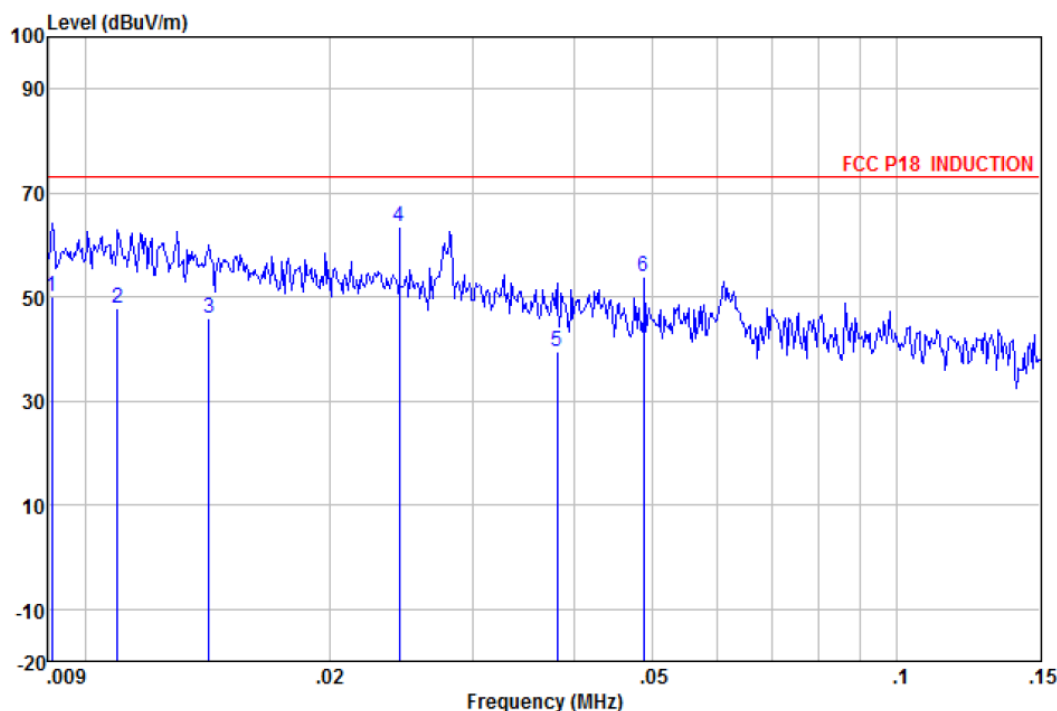
Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
MHz	Level	Factor	Loss	Factor	dBuV/m	Line	Limit	
	dBuV	dB/m	dB	dB		dBuV/m	dB	
0.167	65.75	12.80	0.00	29.30	49.25	73.06	-23.81	Average
0.206	63.32	12.80	0.00	29.30	46.82	73.06	-26.24	Average
0.486	61.70	12.51	0.10	29.30	45.01	73.06	-28.05	Average
0.763	59.57	12.61	0.10	29.30	42.98	73.06	-30.08	Average
1.178	55.69	12.76	0.12	29.30	39.27	73.06	-33.79	Average
2.869	53.58	12.22	0.20	29.21	36.79	73.06	-36.27	Average

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



Horizontal:

Peak scan



Average measurement

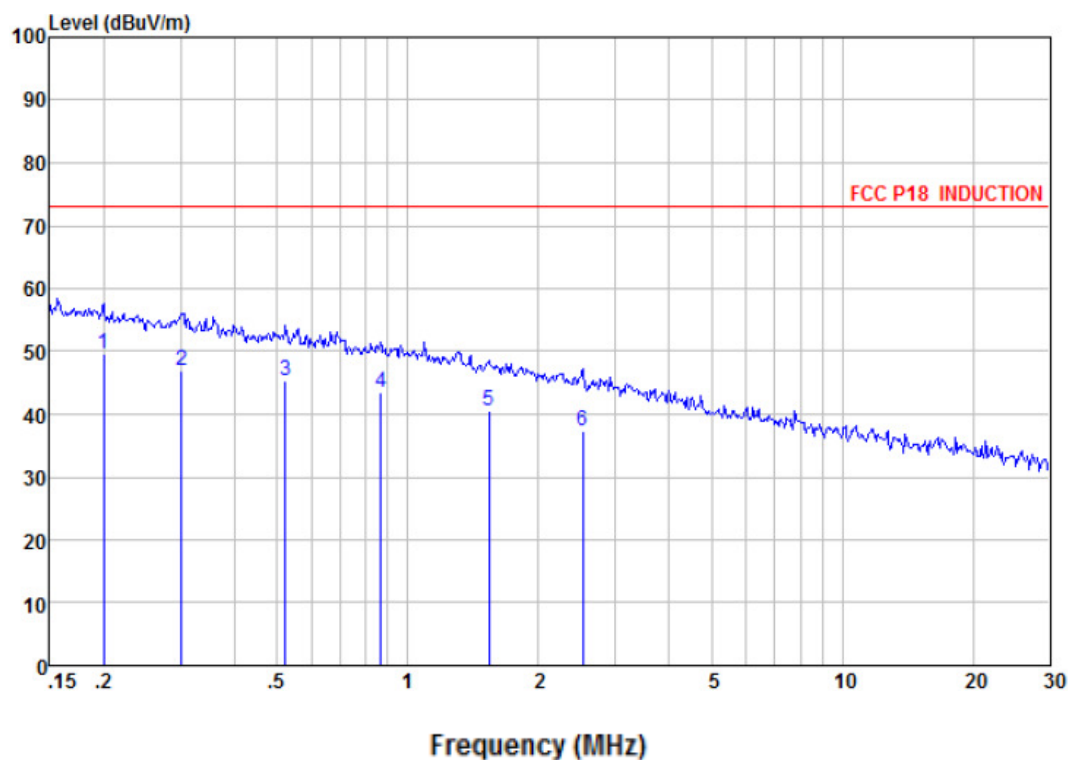
Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
MHz	Level	Factor	Loss	Factor	dBuV/m	Line	Limit	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
0.009	57.31	21.90	0.10	29.20	50.11	73.06	-22.95	Average
0.011	55.37	21.56	0.10	29.20	47.83	73.06	-25.23	Average
0.014	55.53	19.45	0.10	29.20	45.88	73.06	-27.18	Average
0.024	76.45	16.46	0.00	29.25	63.66	73.06	-9.40	Average
0.038	55.31	13.47	0.04	29.34	39.48	73.06	-33.58	Average
0.049	70.47	12.75	0.10	29.40	53.92	73.06	-19.14	Average

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.



Horizontal:

Peak scan



Average measurement

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
0.200	66.20	12.80	0.00	29.30	49.70	73.06	-23.36	Average
0.302	63.62	12.75	0.00	29.30	47.07	73.06	-25.99	Average
0.524	61.96	12.51	0.10	29.30	45.27	73.06	-27.79	Average
0.866	59.90	12.70	0.10	29.30	43.40	73.06	-29.66	Average
1.535	57.03	12.59	0.17	29.30	40.49	73.06	-32.57	Average
2.527	53.99	12.31	0.20	29.24	37.26	73.06	-35.80	Average

Level = Read Level + Antenna Factor + Cable Loss – Preamp Factor.

--End of Report--