

S

T

S

L

A

B




## FCC TEST REPORT

Report No: STS1804231E01

Issued for

Guangdong Midea Kitchen Appliances Manufacturing Co.,  
Ltd.

No.6, Yong An Road, Beijiao, Shunde, Foshan, China

Product Name:	Microwave Oven
Brand Name:	
Test Model Name:	EM145AAK
Series Model:	XM145AYY-P(P1),XM145AYYY-P(P1), XM145AYY-E,XM145AYYY-E, XM145AYY-PHB,XM145AYYY-PHB, XM145AYY-EHB,XM145AYYY-EHB
FCC ID:	VG8XM145AXX-P
Test Standard:	FCC Part 18

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from STS, All Test Data Presented in this report is only applicable to presented Test sample.

Shenzhen STS Test Services Co., Ltd.  
1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road,  
Fuyong Street, Bao'an District, Shenzhen, Guangdong, China  
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail: sts@stsapp.com



**TEST RESULT CERTIFICATION**

**Applicant's name**.....: Guangdong Midea Kitchen Appliances Manufacturing Co., Ltd.

Address .....: No.6, Yong An Road, Beijiao, Shunde, Foshan, China

**Manufacture's Name** .....: Guangdong Midea Kitchen Appliances Manufacturing Co., Ltd.

Address .....: No.6, Yong An Road, Beijiao, Shunde, Foshan, China

**Product description**

Product name .....: Microwave Oven

Model Name .....: EM145AAK

Series Model .....: XM145AYY-P(P1),XM145AYYY-P(P1),XM145AYY-E,  
XM145AYYY-E, XM145AYY-PHB,XM145AYYY-PHB,  
XM145AYY-EHB,XM145AYYY-EHB

**Standards** .....: 47 CFR PART 18:2016

This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of STS, this document may be altered or revised by STS, personal only, and shall be noted in the revision of the document.

Date of Test .....

Date of performance of tests ..... April 26th. 2018 ~ May 03th. 2018

Date of Issue ..... May 04th. 2018

Test Result..... **Pass**

Testing Engineer :

*Kyle. Rao*

( Kyle Rao )

Technical Manager :

*Chopin. Xiao*

( Chopin Xiao )

Authorized Signatory :

*Vita Li*

( Vita Li )



**TABLE OF CONTENTS**

<b>1.TEST SUMMARY</b>	<b>5</b>
1.1 TEST FACTORY	5
1.2 MEASUREMENT UNCERTAINTY	5
<b>2. GENERAL INFORMATION</b>	<b>6</b>
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST MODES	7
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	7
2.4 DESCRIPTION OF SUPPORT UNITS	8
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	9
<b>3. EMC EMISSION TEST</b>	<b>10</b>
3.1 OPERATING FREQUENCY	10
3.2 RADIATION HAZARD TEST	12
3.3 RF OUTPUT POWER MEASUREMENT	13
3.4 CONDUCTED EMISSIONS, 150 KHZ TO 30MHZ	14
3.5 RADIATED EMISSIONS,9 KHZ TO25GHZ	18
<b>APPENDIX 1-PHOTOS OF TEST SETUP</b>	<b>27</b>
<b>APPENDIX 2-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS</b>	<b>30</b>

**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	May 04th. 2018	STS1804231E01	ALL	Initial Issue
Note: <b>Format version</b> of the report -V01				





## 1.TEST SUMMARY

### Electromagnetic Interference (EMI)

EMISSION			
Standard	Item	Class / Severity	Result
47 CFR PART 18:2016	Conducted Emission (150 kHz to 30 MHz)	18.307(b)	PASS
	Radiated Emission (9 kHz to 30 MHz)	18.305(b)	PASS
	Radiated Emission (30 MHz to 1 GHz)	18.305(b)	PASS
	Radiated Emission (1 GHz to 25 GHz)	18.305(b)	PASS

NOTE:

(1) EUT: In this whole report EUT means Equipment Under Test.

### 1.1 TEST FACTORY

Company Name:	Shenzhen STS Test Services Co., Ltd.
Address:	1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	+86-755 3688 6288
Fax:	+86-755 3688 6277
Registration No.:	CNAS Registration No.: L7649; FCC Registration No.: 625569
	IC Registration No.: 12108A; A2LA Certificate No.: 4338.01;

### 1.2 MEASUREMENT UNCERTAINTY


The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	$\pm 2.88\text{dB}$
2	Conducted Emission (150KHz-30MHz)	$\pm 2.67\text{dB}$
3	All emissions, radiated (<1G) 30MHz-200MHz	$\pm 3.73\text{dB}$
4	All emissions, radiated (<1G) 200MHz-1000MHz	$\pm 3.92\text{dB}$
5	All emissions, radiated (>1G)	$\pm 3.31\text{dB}$



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Microwave Oven												
Trade Name													
Test Model Name	EM145AAK												
Series Model	XM145AYY-P(P1),XM145AYYY-P(P1),XM145AYY-E, XM145AYYY-E, XM145AYY-PHB,XM145AYYY-PHB, XM145AYY-EHB,XM145AYYY-EHB												
Model Difference	<p>XM145AYY-P(P1),XM145AYYY-P(P1),XM145AYY-E,XM145AYYY-E, XM145AYY-PHB,XM145AYYY-PHB, XM145AYY-EHB,XM145AYYY-EHBmodel designations as follows: X= E or A; M: Indicate Microwave; 145: "1" indicate the microwave output power is 1000W, "45" indicate cavity capacity is 45 liters; A: Indicate the design No.; YY/YYYY= 0-9 or A-Z, indicate different appearance; -P/E: indicate various painted cavity; Model EM145AAK was used for the final testing. XM145AYY-PHB is identical to model XM145AYY-P except model name, XM145AYY-EHB is identical to model XM145AYY-E except model name, XM145AYY-P1 is similar to Model XM145AYY-P except for additional ventilation openings at left side of Enclosure and countertop installation only.XM145AYY-E is identical to Model XM145AYY-P except for appearance difference</p> <p>Note : There are two Manufacturer's LED lamp (model:ZH187AW and YHW01) which is contained by this report.They areelectrical identical except model and Manufacturer.</p>												
Technical Specifications	<p>The technical specifications of EUT are as below:</p> <table><tr><td>Power Supply</td><td>120V AC/60Hz</td></tr><tr><td>Rated Input Power (Microwave)</td><td>1550W</td></tr><tr><td>Rated Output Power (Microwave)</td><td>1100W</td></tr><tr><td>Frequency</td><td>2450 MHz(Class B/Group 2)</td></tr><tr><td>Magnetron Model</td><td>2M392J</td></tr><tr><td>Magnetron Manufacturer</td><td>WITOL</td></tr></table> <p>NOTE: For more detailed information or features please refer to user's manual of EUT.</p>	Power Supply	120V AC/60Hz	Rated Input Power (Microwave)	1550W	Rated Output Power (Microwave)	1100W	Frequency	2450 MHz(Class B/Group 2)	Magnetron Model	2M392J	Magnetron Manufacturer	WITOL
Power Supply	120V AC/60Hz												
Rated Input Power (Microwave)	1550W												
Rated Output Power (Microwave)	1100W												
Frequency	2450 MHz(Class B/Group 2)												
Magnetron Model	2M392J												
Magnetron Manufacturer	WITOL												

DESCRIPTION OF SUPPORT UNITS	<p>The EUT has been tested with water.</p> <p>Load for power output measurement :1000 milliliters of water in the beaker located in the centre of the oven</p> <p>Load for frequency measurement :1000 milliliters of water in the beaker located in the centre of the oven</p> <p>Load for conducted and radiated emission measurement :1000 milliliters of water in the beaker located in the centre of the oven</p>
------------------------------	--

*Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.*

## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

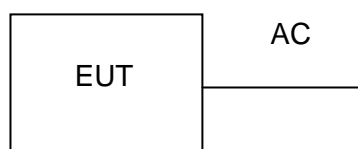
Pretest Mode	Description
Mode 1	Heating Mode

For Conducted Test	
Final Test Mode	Description
Mode 1	Heating Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	Heating Mode

NOTE: The test modes were carried out for all operation modes. Only worst case will be show in this report

## 2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED





## 2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.
N/A	N/A	N/A	N/A

Item	Shielded Type	Ferrite Core	Length
N/A	N/A	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



## 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

### Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2017.10.15	2018.10.14
Bilog Antenna	TESEQ	CBL6111D	34678	2017.10.30	2018.10.29
Horn Antenna	SCHWARZBECK	BBHA 9120D	1343	2017.10.27	2018.10.26
Spectrum Analyzer	Agilent	E4407B	MY50140340	2018.03.08	2019.03.07
Pre-mpplier(1G-18G)	Agilent	8449B	60538	2017.10.28	2018.10.27
Spectrum Analyzer	Agilent	N9020A	MY49100060	2018.03.08	2019.03.07
Pre-mpplier(0.1M-3GHz)	EM	EM330	--	2018.03.11	2019.03.10
Loop Antenna	ZHNAN	ZN3090C	16035	2018.03.11	2019.02.10

### Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESPI	102086	2017.10.15	2018.10.14
LISN	R&S	ENV216	101242	2017.10.15	2018.10.14
LISN	EMCO	3810/2NM	23625	2017.10.15	2018.10.14
Absorbing clamp	R&S	MDS-21	100668	2017.10.19	2018.10.18
Power meter	STS S094	PF9901	G100731CJ351244	2018.03.11	2019.03.10

### Radiation Hazard and Output Power Test equipment

Test Equipment	Manufacturer	Model	Serial No.	Last Calibration	Calibrated Until
Power Meter	Ainuo	AN8720P	058704074	2018.03.11	2019.03.10
Power Meter	STS S094	PF9901	G100731CJ351244	2018.03.11	2019.03.10
Microwave Measurement system	HOLADAY	HI-1710	98371	2018.03.11	2019.03.10



### 3. EMC EMISSION TEST

#### 3.1 OPERATING FREQUENCY

Test Requirement:	47 CFR PART 18
Test Method:	FCC OST/ MP-5
Test Date:	2018-04-27
Power Supply:	AC 120V 60Hz
Frequency Range:	2400-2500 MHz
Detector:	Peak
Limit:	

ISM equipment may be operated on any frequency above 9 kHz. And the frequency band 2400-2500MHz is allocated for use by ISM equipment. (§18.301)

ISM frequency	Tolerance
6.78 MHz .....	±15.0 kHz
13.56 MHz .....	±7.0 kHz
27.12 MHz .....	±163.0 kHz
40.68 MHz .....	±20.0 kHz
915 MHz .....	±13.0 MHz
2,450 MHz .....	±50.0 MHz
5,800 MHz .....	±75.0 MHz
24,125 MHz .....	±125.0 MHz
61.25 GHz .....	±250.0 MHz
122.50 GHz .....	±500.0 MHz
245.00 GHz .....	±1.0 GHz

##### 3.1.1 FREQUENCY FOR NORMAL VOLTAGE

The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1000mL 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 percent of the original load.

#### MEASUREMENT DATA

START Frequency (MHz)	STOP Frequency (MHz)
2402.1	2469.5



### 3.1.2 FREQUENCY FOR LINE VOLTAGE

The EUT was operated / warmed by at least 10 minutes of use with a 1000 mL water load at room temperature at the beginning of the test. Then the operating frequency was monitored as the input voltage was varied between 80 and 125 percent of the nominal rating.

#### MEASUREMENT DATA

START Frequency (MHz)	STOP Frequency (MHz)
2408.4	2468.2





### 3.2 RADIATION HAZARD TEST

CLIENT:	Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd	TEST STANDERD:	FCC Part 18
MODEL NUMBERS:	EM145AAK XM145AYY-P, XM145AYYY-P	PRODUCT:	Microwave Oven
MODEL TESTED:	EM145AAK	EUT DESIGNATION:	Home or Office
TEMPERATURE:	22.5°C	HUMIDITY:	56.7%
ATM PRESSURE:	101kPa	GROUNDING:	Through AC Power Cord
TESTED BY:	Barry li	DATE OF TEST:	May. 02nd,2018
TEST REFERENCE:	ANSI C63.4-2014, FCC/OST MP-5:1986		
TEST PROCEDURE:	The EUT was set-up according to the FCC MP-5 and FCC Part 18 for Radiation Hazard Measurement. The measurement was using a microwave leakage meter to measure the Radiation leakage in the as-received condition with the oven door closed. A 1000ml water load in a beaker was located in the center of the oven and the Microwave Oven was set to maximum power. While the oven operating, the microwavemeter will check the leakage and then record the maximum leakage.		
TESTED RANGE:	N/A		
TEST VOLTAGE:	AC120V/60Hz		
RESULTS:	There was no microwave leakage exceeding a power level of 0.56mW/cm2 observed at any point 5cm or more from the external surface of the oven. A maximum of 1.0 mW/cm2 is allowed in accordance with the applicable FCC standards. Hence, microwave leakage in the as-received condition with the oven door closed was below the maximum allowed. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by STS Electronic Technical Testing Corp (Shenzhen) test personnel.		
M. UNCERTAINTY:	0.0002 mW/cm2		



### 3.3 RF OUTPUT POWER MEASUREMENT

Test Requirement: 47 CFR PART 18  
Test Method: FCC OST/ MP-5  
Test Date: 2018-04-27  
Power Supply: AC120V/60Hz

#### 3.3.1 E.U.T. Operation

Test the EUT in microwave mode with full power.

#### 3.3.2 Measurement Data

Mass of water(g)	Mass of the container(g)	Ambient temperature(°C)	Initial temperature(°C)	Final temperature(°C)	Heating time(S)	Power output(watts)
1000	480	20	23.2	46.5	120	1011.38

Formula :

$$P = \frac{4.2 \times m_w (T_2 - T_1) + 0.9 \times m_c (T_2 - T_0)}{t}$$

**NOTE :**

P is the microwave power output, in watts

$m_w$  is the mass of the water, in grams

$m_c$  is the mass of the container, in grams

$T_0$  is the ambient temperature, in degrees Celsius

$T_1$  is the initial temperature of the water, in degrees Celsius

$T_2$  is the final temperature of the water, in degrees Celsius

$t$  is the heating time, in seconds, excluding the magnetron filament heating-up time.



### 3.4 CONDUCTED EMISSIONS, 150 KHZ TO 30MHZ

Test Requirement: 47 CFR PART 18  
Test Method: FCC OST/ MP-5  
Test Date: 2018-04-27  
Power Supply: AC 120V 60Hz  
Frequency Range: 150 kHz to 30 MHz  
Detector: Peak for pre-scan, Quasi-Peak and Average for the final result.  
(9kHz Resolution Bandwidth for 150 kHz to 30 MHz)

Limit:

Frequency range MHz	AC mains terminals dB (μV)	
	Quasi-peak	Average
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.		

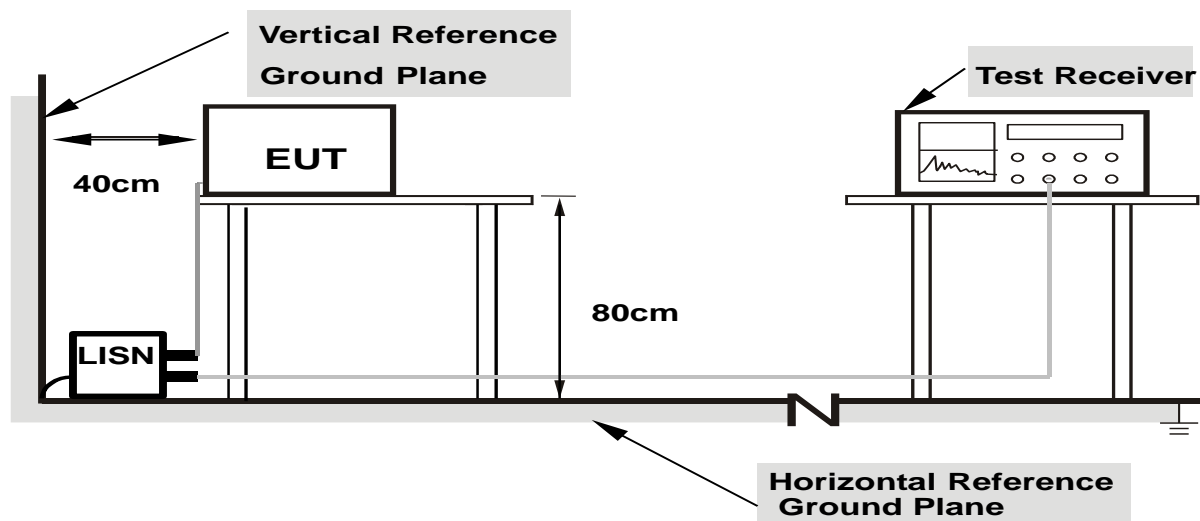
#### 3.4.1 TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.  
I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the
  - cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
  - LISN at least 80 cm from nearest part of EUT chassis.
  - For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 3.4.2 DEVIATION FROM TEST STANDARD

No deviation

### 3.4.3 TEST SETUP



**Note: 1. Support units were connected to second LISN.**

**2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

### 3.4.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



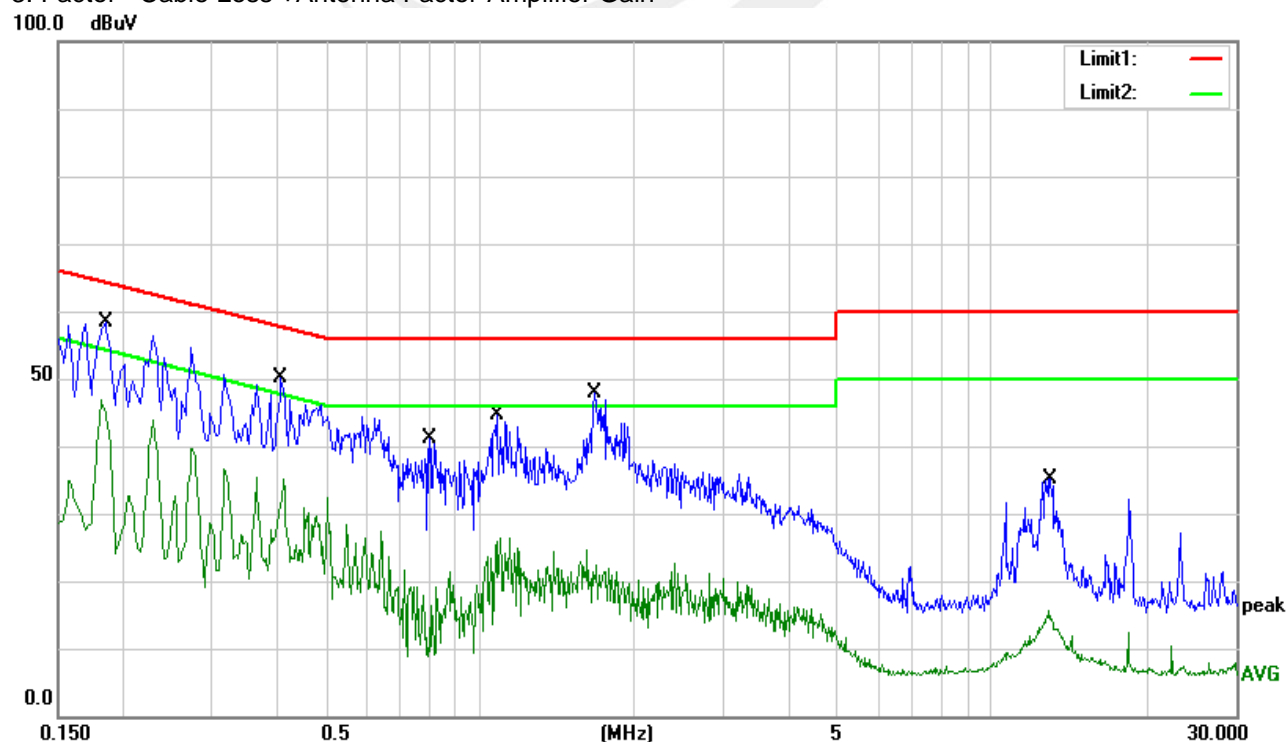
### 3.4.5 TEST RESULTS

Temperature:	23.5 °C	Relative Humidity:	59%
Phase:	L	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1860	48.49	9.78	58.27	64.21	-5.94	QP
2	0.1860	33.39	9.78	43.17	54.21	-11.04	AVG
3	0.4100	40.00	10.03	50.03	57.65	-7.62	QP
4	0.4100	21.73	10.03	31.76	47.65	-15.89	AVG
5	0.7980	30.44	9.83	40.27	56.00	-15.73	QP
6	0.7980	-0.03	9.83	9.80	46.00	-36.20	AVG
7	1.0820	34.84	9.80	44.64	56.00	-11.36	QP
8	1.0820	11.57	9.80	21.37	46.00	-24.63	AVG
9	1.6740	38.00	9.79	47.79	56.00	-8.21	QP
10	1.6740	10.85	9.79	20.64	46.00	-25.36	AVG
11	13.0220	25.00	10.22	35.22	60.00	-24.78	QP
12	13.0220	4.18	10.22	14.40	50.00	-35.60	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain







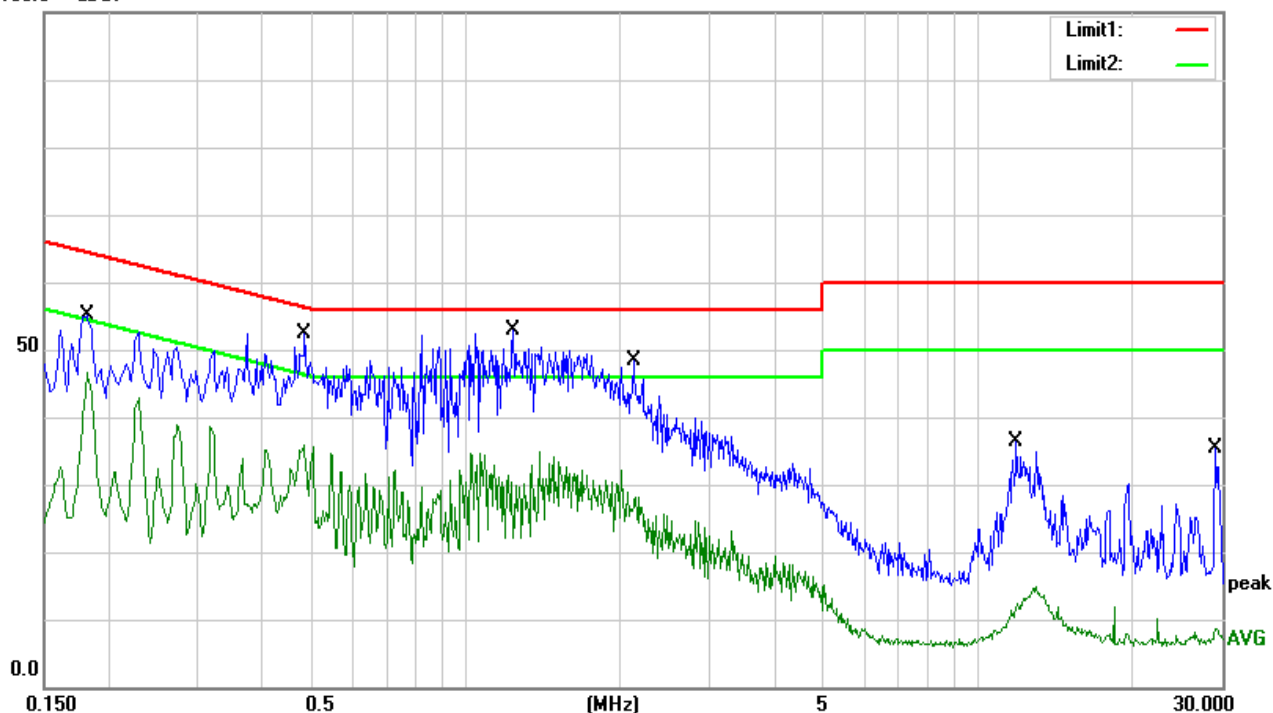
Temperature:	23.5°C	Relative Humidity:	59%
Phase:	N	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1820	45.23	9.78	55.01	64.39	-9.38	QP
2	0.1820	36.39	9.78	46.17	54.39	-8.22	AVG
3	0.4860	42.39	10.03	52.42	56.24	-3.82	QP
4	0.4860	24.14	10.03	34.17	46.24	-12.07	AVG
5	1.2420	42.96	9.80	52.76	56.00	-3.24	QP
6	1.2420	14.84	9.80	24.64	46.00	-21.36	AVG
7	2.1300	38.64	9.79	48.43	56.00	-7.57	QP
8	2.1300	18.45	9.79	28.24	46.00	-17.76	AVG
9	11.8700	26.04	10.22	36.26	60.00	-23.74	QP
10	11.8700	1.36	10.22	11.58	50.00	-38.42	AVG
11	29.1700	25.09	10.27	35.36	60.00	-24.64	QP
12	29.1700	-1.59	10.27	8.68	50.00	-41.32	AVG

## Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = Cable Loss + Antenna Factor - Amplifier Gain

100.0 dBuV





### 3.5 RADIATED EMISSIONS,9 KHZ TO25GHZ

#### 3.5.1 Radiated Emission Limits

- (a) ISM equipment operation on a frequency specified in §18.301 is permitted unlimited radiated energy in the band specified for that frequency.
- (b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

RF Power generated by equipment(watts)	Field strength Limit(uV/m) @300m
Below 500	25
500 or more	$25 \cdot \text{SQRT}(\text{power}/500)$

Power =550.2W according to cluse7.2.2

Limit= $20\lg(25 \cdot \text{SQRT}(\text{power}/500)) + 20\lg(300/3)$  @ 3m distance.



### 3.5.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

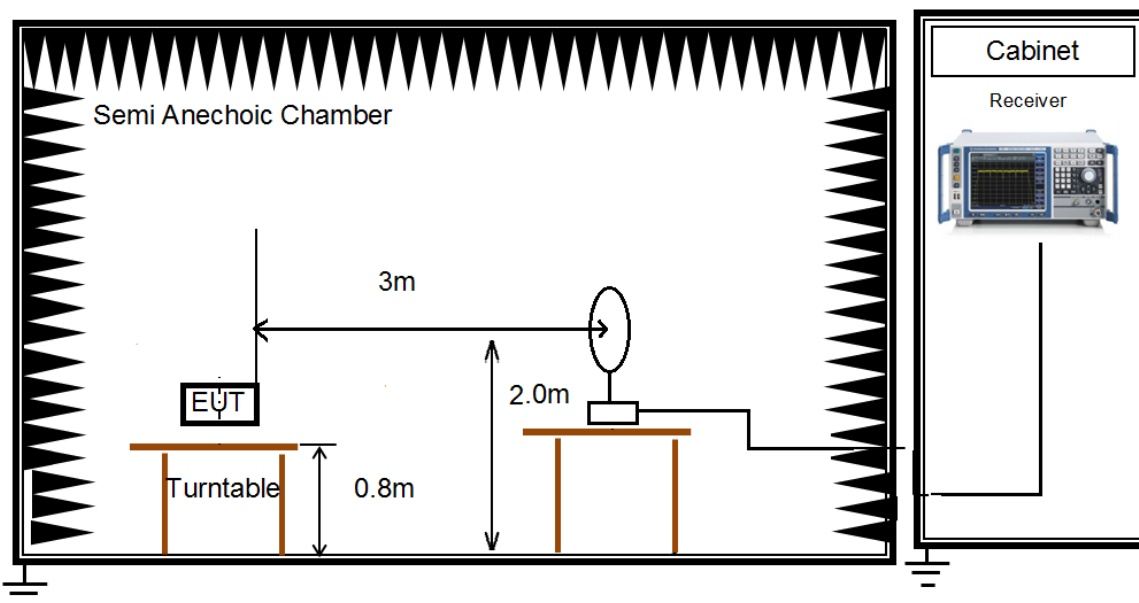
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

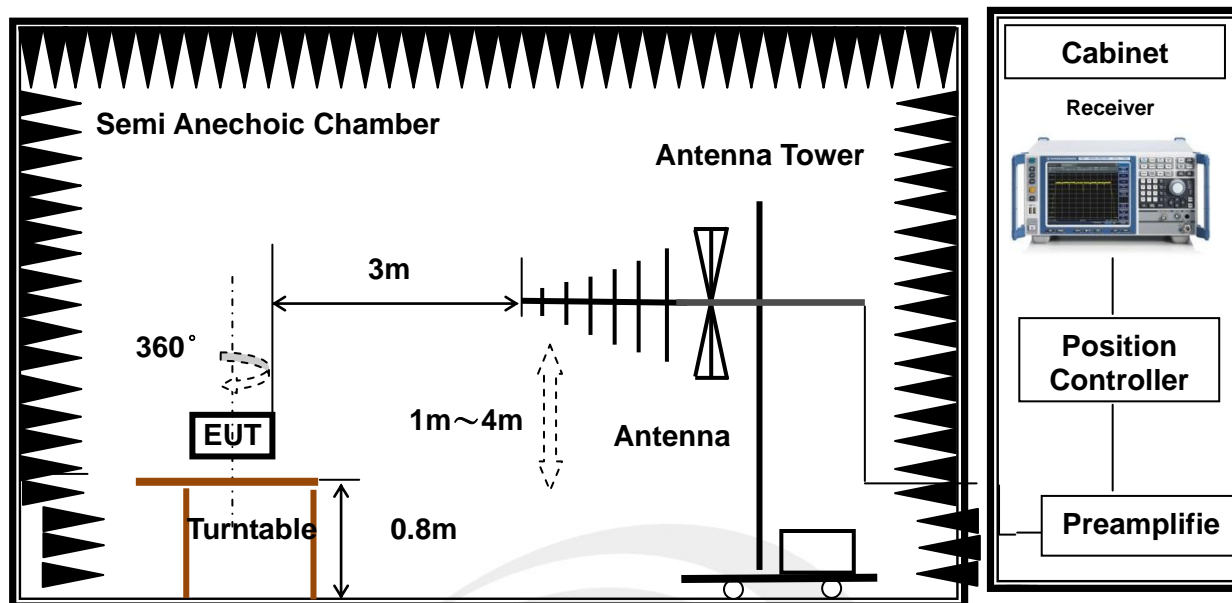
*Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported*

### 3.5.3 TEST SETUP

- (A) Radiated Emission Test-Up Frequency 9KHz~30MHz



(B) Radiated Emission Test-Up Frequency 30 MHz to 1 GHz

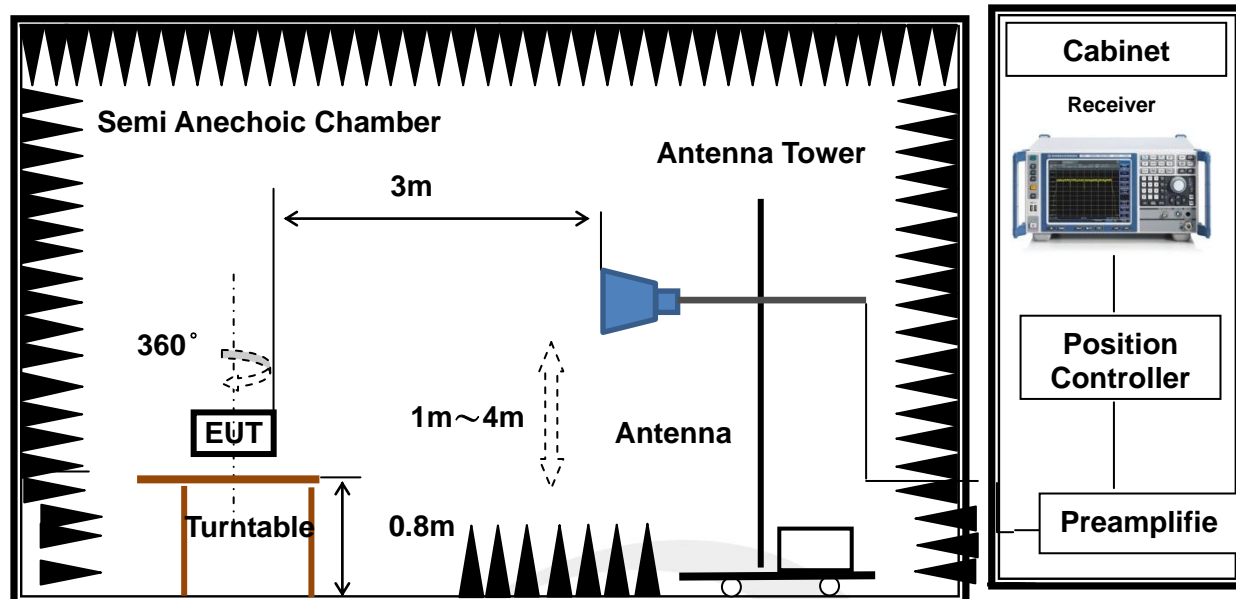


1. The radiated emissions test was conducted in a semi-anechoic chamber.
2. Biconical and log periodic antenna was used for the frequency range from 30MHz to 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m 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 radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

Above 1 GHz:

1 GHz to 18 GHz



1. The radiated emissions test was conducted in a fully-anechoic chamber.
2. Horn antenna was used for the frequency above 1GHz
3. The EUT was connected to nominal power supply through a mains power outlet which was bonded to the ground reference plane; The mains cables were draped to the ground reference plane. The tabletop EUT was placed upon a non-metallic table 0.8m 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 radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT.

The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.



### 3.5.4 TEST RESULTS

Between 0.15MHz-30MHz

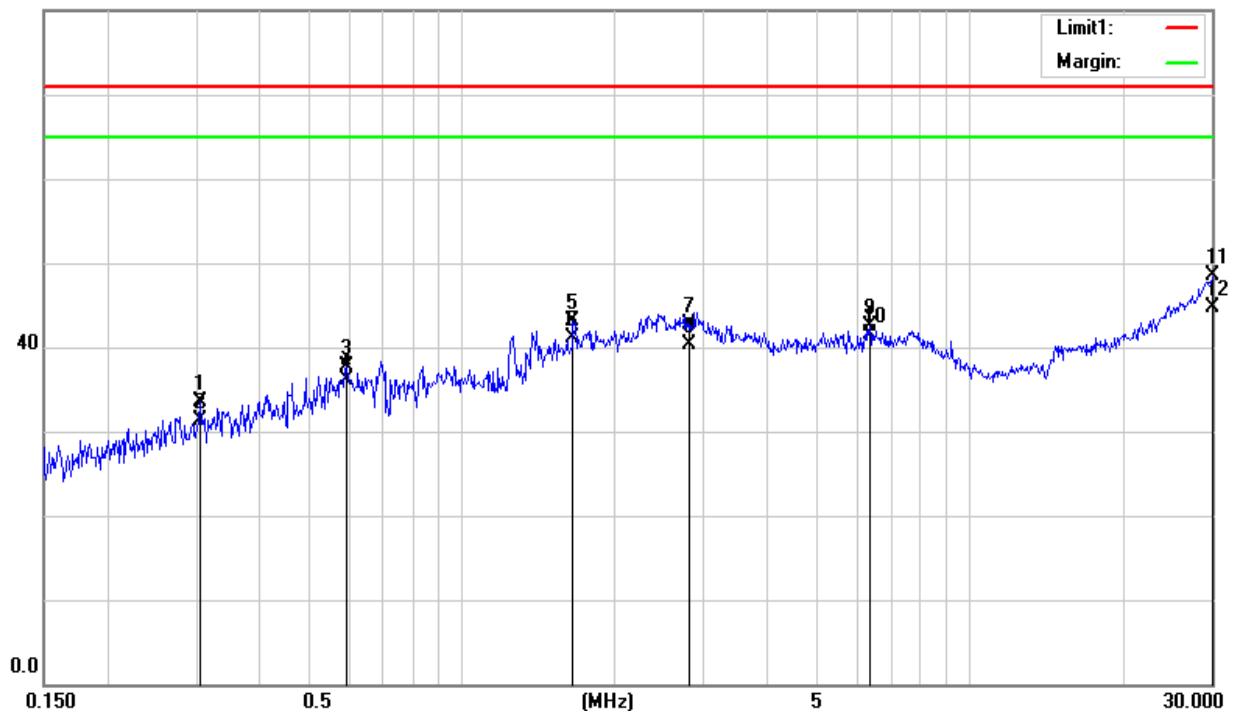
Temperature:	24.6 °C	Relative Humidity:	58%
Phase:	X	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBUV)	Correct Factor (dB)	Results (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	0.3050	-21.60	55.14	33.54	71.02	-37.48	QP
2	0.3050	-23.74	55.14	31.40	71.02	-39.62	AVG
3	0.5916	-8.61	46.29	37.68	71.02	-33.34	QP
4	0.5916	-10.19	46.29	36.10	71.02	-34.92	AVG
5	1.6532	7.49	35.56	43.05	71.02	-27.97	QP
6	1.6532	5.53	35.56	41.09	71.02	-29.93	AVG
7	2.8090	12.52	30.27	42.79	71.02	-28.23	QP
8	2.8090	10.11	30.27	40.38	71.02	-30.64	AVG
9	6.3520	21.39	21.12	42.51	71.02	-28.51	QP
10	6.3520	20.40	21.12	41.52	71.02	-29.5	AVG
11	30.0000	33.65	14.94	48.59	71.02	-22.43	QP
12	30.0000	29.73	14.94	44.67	71.02	-26.35	AVG

Remark:

1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor )-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

80.0 dBUV





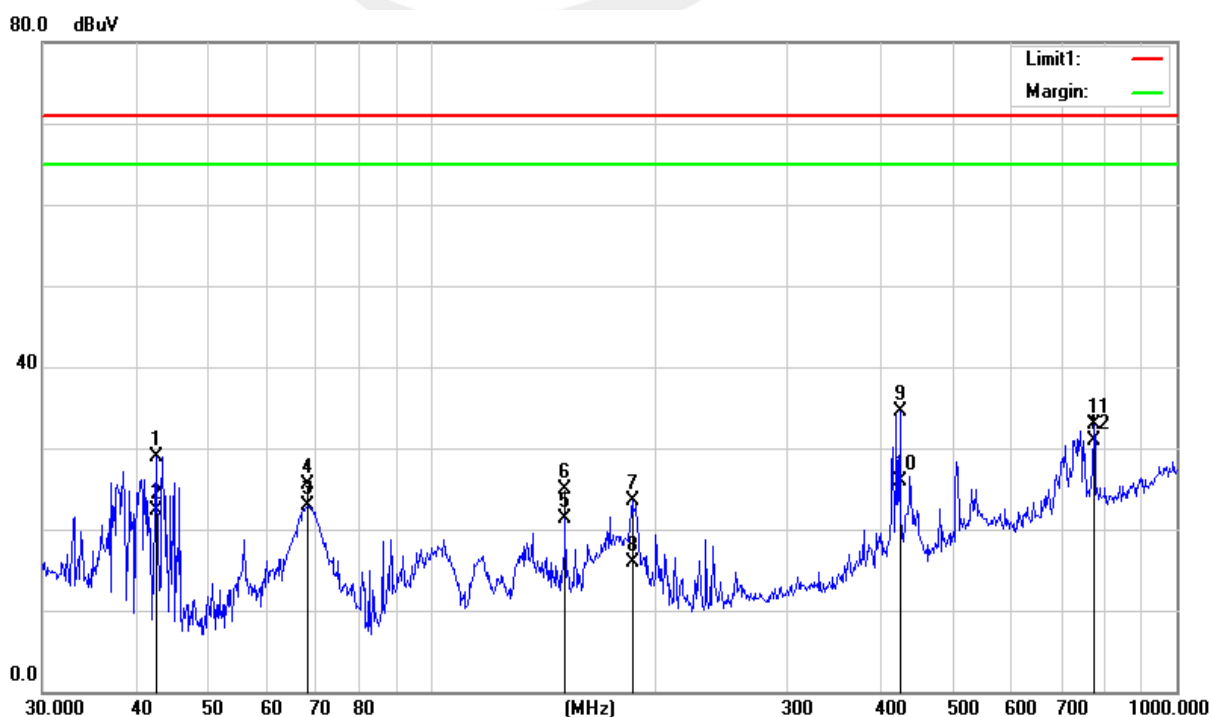
Between 30MHz-1GHz

Temperature:	24.6 °C	Relative Humidity:	58%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBUV)	Correct Factor (dB)	Results (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector
1	42.6000	46.65	-17.67	28.98	71.02	-42.04	QP
2	42.6000	39.97	-17.67	22.30	71.02	-48.72	AVG
3	68.1514	47.03	-24.15	22.88	71.02	-48.14	QP
4	68.1514	49.60	-24.15	25.45	71.02	-45.57	AVG
5	151.0666	39.33	-18.03	21.30	71.02	-49.72	QP
6	151.0666	42.86	-18.03	24.83	71.02	-46.19	AVG
7	185.7882	43.35	-19.91	23.44	71.02	-47.58	QP
8	185.7882	35.87	-19.91	15.96	71.02	-55.06	AVG
9	425.0280	45.35	-10.90	34.45	71.02	-36.57	QP
10	425.0280	36.86	-10.90	25.96	71.02	-45.06	AVG
11	774.1584	36.07	-3.25	32.82	71.02	-38.2	QP
12	774.1584	34.12	-3.25	30.87	71.02	-40.15	AVG

Remark:

1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor )-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain





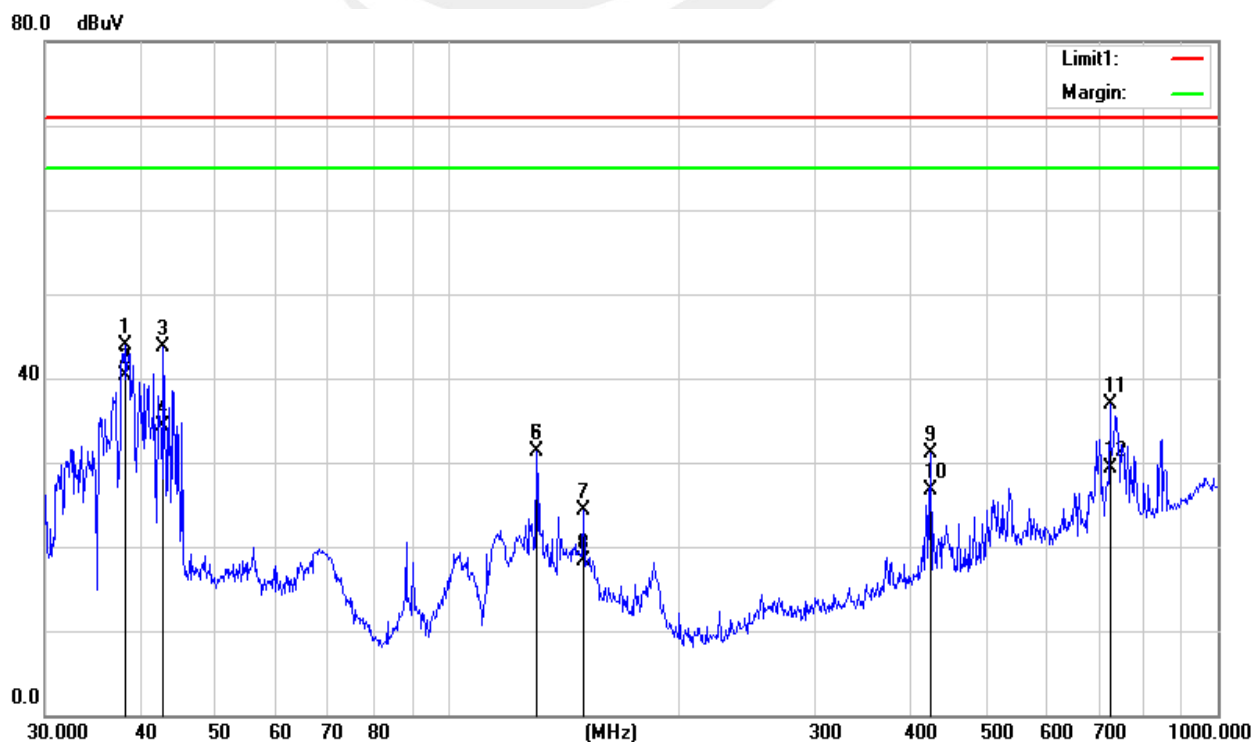
Between 30MHz-1GHz

Temperature:	24.6 °C	Relative Humidity:	58%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	38.0783	59.26	-15.33	43.93	71.02	-27.09	QP
2	38.0783	55.58	-15.33	40.25	71.02	-30.77	AVG
3	42.7496	61.46	-17.75	43.71	71.02	-27.31	QP
4	42.7496	52.10	-17.75	34.35	71.02	-36.67	AVG
5	130.3790	48.85	-17.55	31.30	71.02	-39.72	QP
6	130.3790	48.88	-17.55	31.33	71.02	-39.69	AVG
7	150.0108	42.36	-17.97	24.39	71.02	-46.63	QP
8	150.0108	36.24	-17.97	18.27	71.02	-52.75	AVG
9	423.5403	42.03	-10.91	31.12	71.02	-39.9	QP
10	423.5403	37.55	-10.91	26.64	71.02	-44.38	AVG
11	724.2611	41.31	-4.40	36.91	71.02	-34.11	QP
12	724.2611	33.66	-4.40	29.26	71.02	-41.76	AVG

Remark:

1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor )-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain







Between 1GHz-25GHz

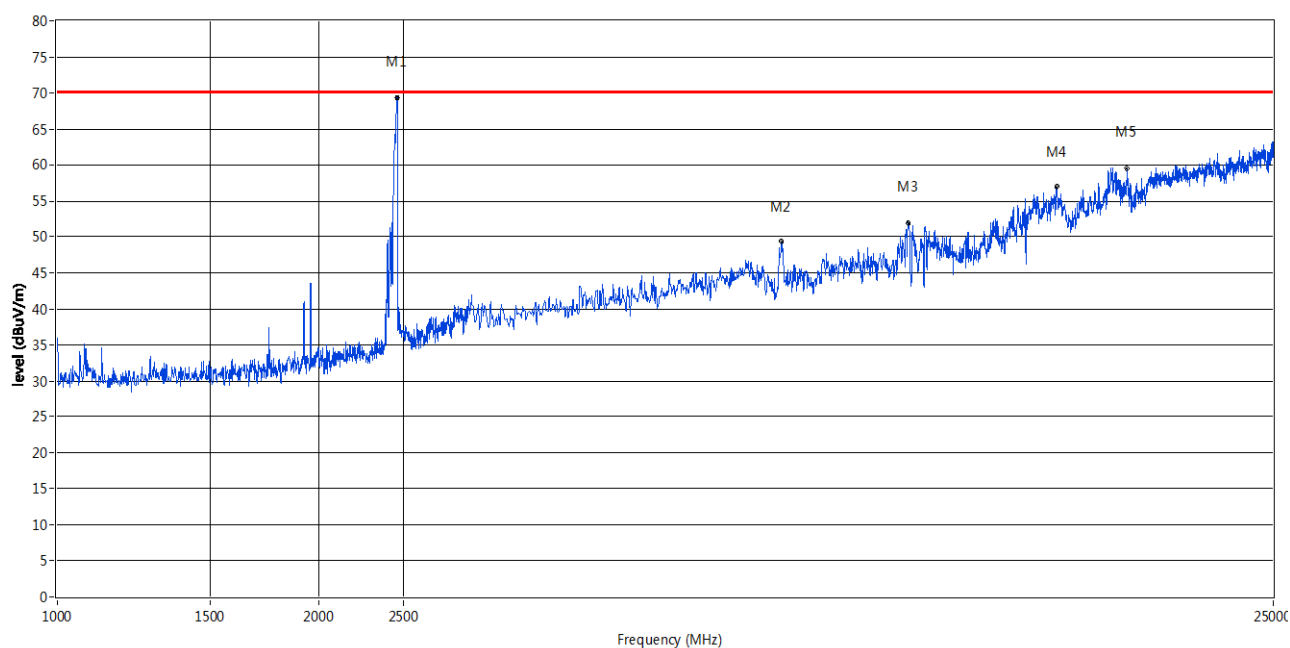
Temperature:	25 °C	Relative Humidity:	65%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2458.541	69.41	-13.75	71.02	1.61	Peak	285.60	100	Horizontal	Pass
1	2458.541	51.19	-13.75	71.02	19.83	AV	285.60	100	Horizontal	Pass
2	6806.194	49.31	-3.99	71.02	21.71	Peak	233.90	100	Horizontal	Pass
2	6806.194	43.76	-3.99	71.02	27.26	AV	233.90	100	Horizontal	Pass
3	9513.487	51.95	1.63	71.02	19.07	Peak	81.70	100	Horizontal	Pass
3	9513.487	45.36	1.63	71.02	25.66	AV	81.70	100	Horizontal	Pass
4	14114.885	56.94	3.96	71.02	14.08	Peak	155.60	100	Horizontal	Pass
4	14114.885	50.87	3.96	71.02	20.15	AV	155.60	100	Horizontal	Pass
5	16980.020	59.56	7.09	71.02	11.46	Peak	260.00	100	Horizontal	Pass
5	16980.020	54.79	7.09	71.02	16.23	AV	260.00	100	Horizontal	Pass
6	21595.405	61.63	6.39	71.02	9.39	Peak	208.30	100	Horizontal	Pass
6	21595.405	56.76	6.39	71.02	14.26	AV	208.30	100	Horizontal	Pass

## Remark:

1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor )–Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

RE\_FCC Test Case\_FCC 18 1GHz-25GHz





Between 1GHz-25GHz

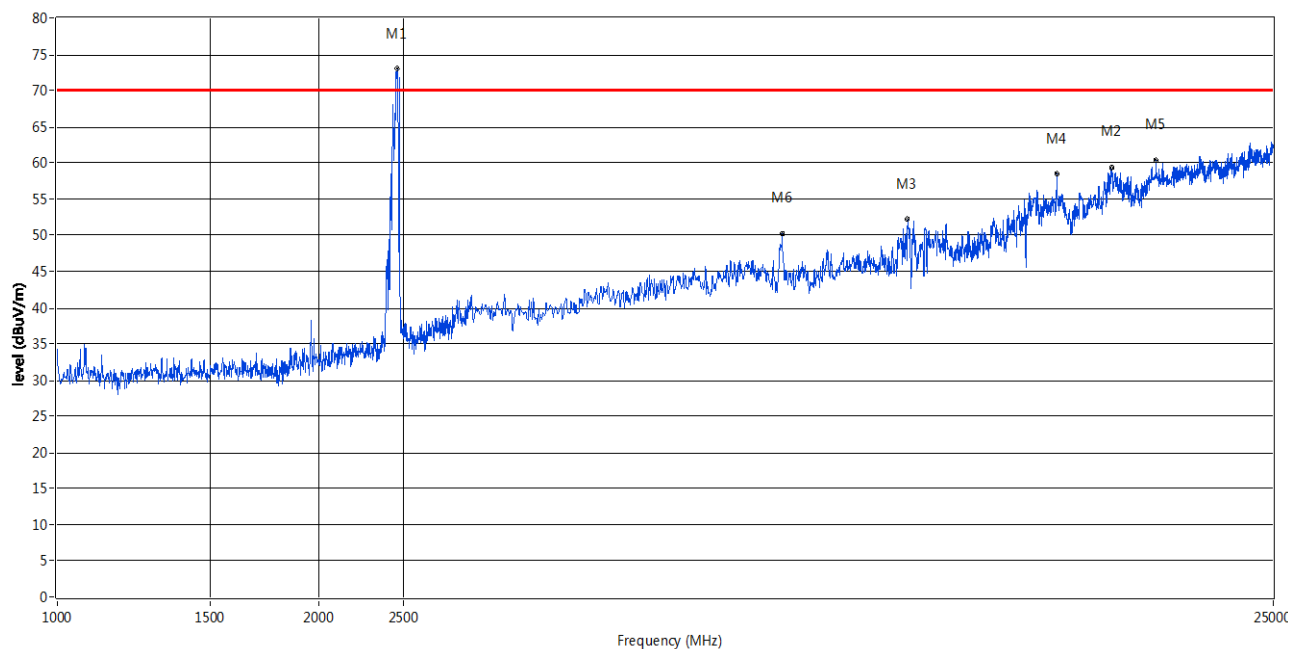
Temperature:	25 °C	Relative Humidity:	65%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2462.537	72.99	-13.73	71.02	-1.97	Peak	3.00	100	Vertical	N/A
1	2462.537	58.86	-13.73	71.02	12.16	AV	3.00	100	Vertical	Pass
2	16284.715	59.38	6.16	71.02	11.64	Peak	68.00	100	Vertical	Pass
2	16284.715	54.75	6.16	71.02	16.27	AV	68.00	100	Vertical	Pass
3	9503.497	52.19	2.61	71.02	18.83	Peak	4.00	100	Vertical	Pass
3	9503.497	47.96	2.61	71.02	23.06	AV	4.00	100	Vertical	Pass
4	14114.885	58.47	3.96	71.02	12.55	Peak	0.00	100	Vertical	Pass
4	14114.885	53.17	3.96	71.02	17.85	AV	0.00	100	Vertical	Pass
5	18334.665	60.42	6.07	71.02	10.6	Peak	4.00	100	Vertical	Pass
5	18334.665	54.68	6.07	71.02	16.34	AV	4.00	100	Vertical	Pass
6	6816.184	50.25	-3.86	71.02	20.77	Peak	6.00	100	Vertical	Pass
6	6816.184	44.75	-3.86	71.02	22.27	AV	6.00	100	Vertical	Pass

## Remark:

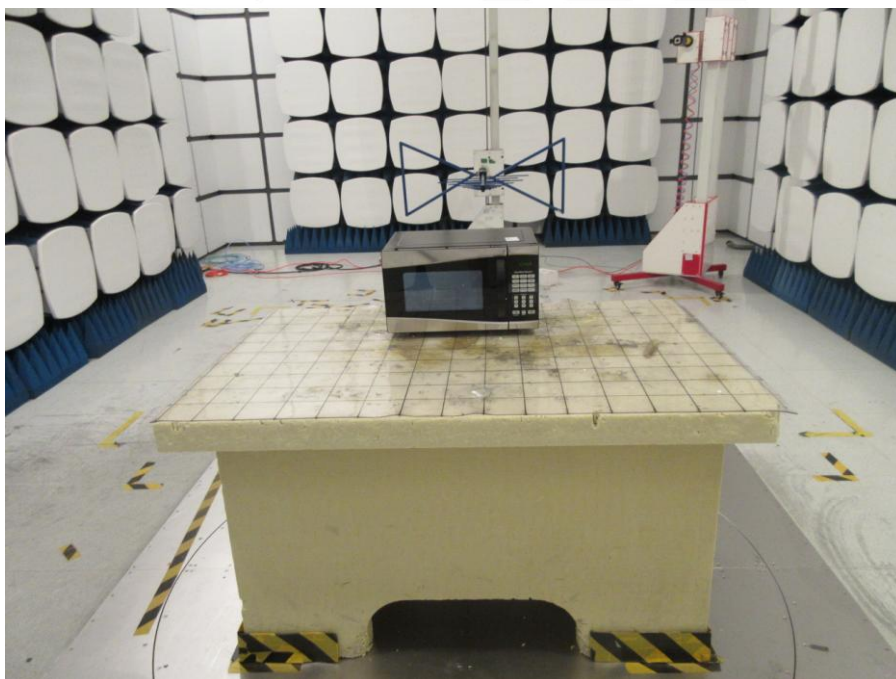
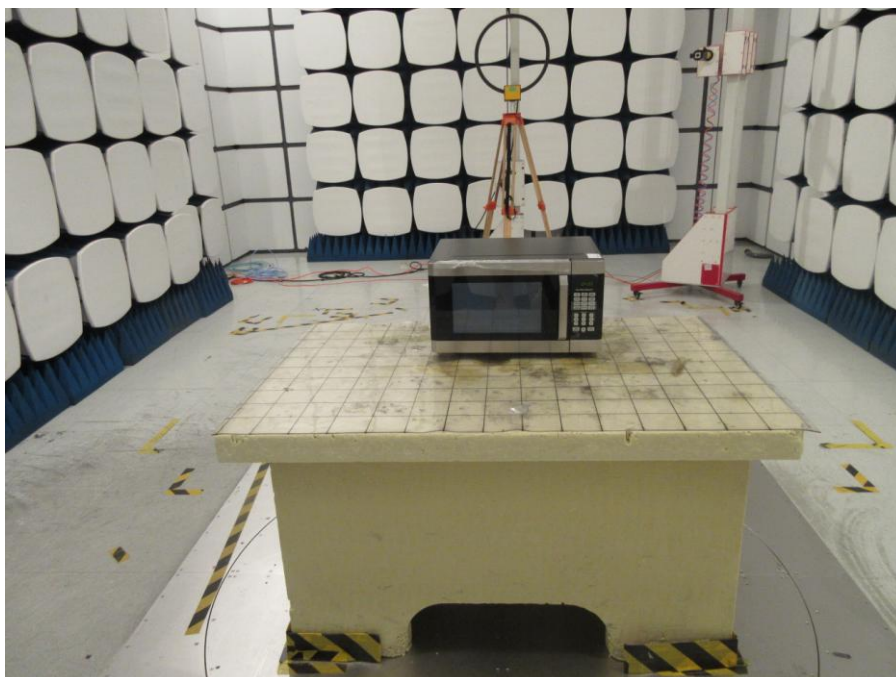
1. All readings are Quasi-Peak .
2. Margin = Result (Result =Reading + Factor )–Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain

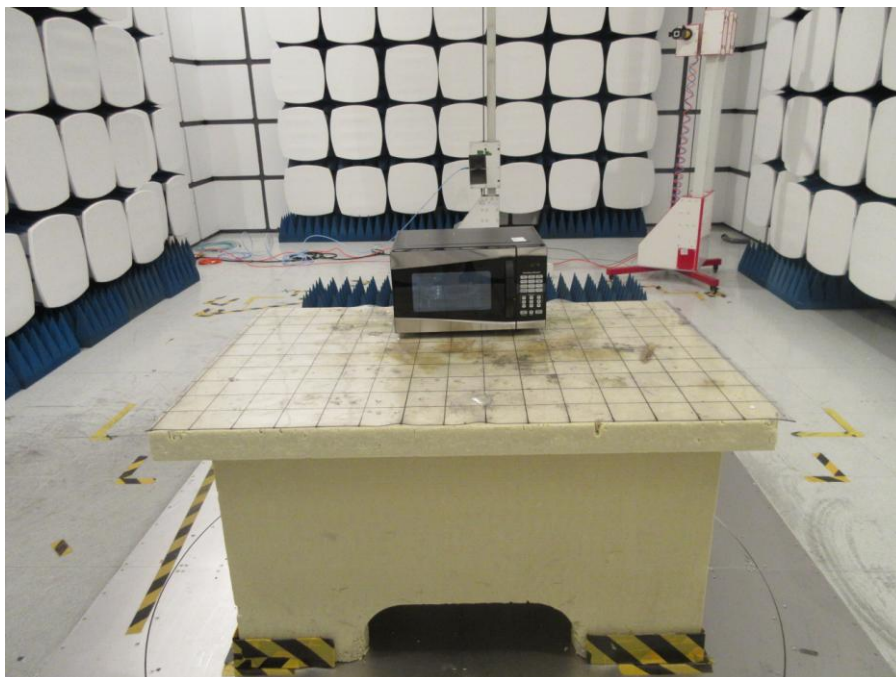
RE\_FCC Test Case\_FCC 18 1GHz-25GHz



**APPENDIX 1-PHOTOS OF TEST SETUP**

## Radiated Measurement Photos





Conducted Measurement Photos



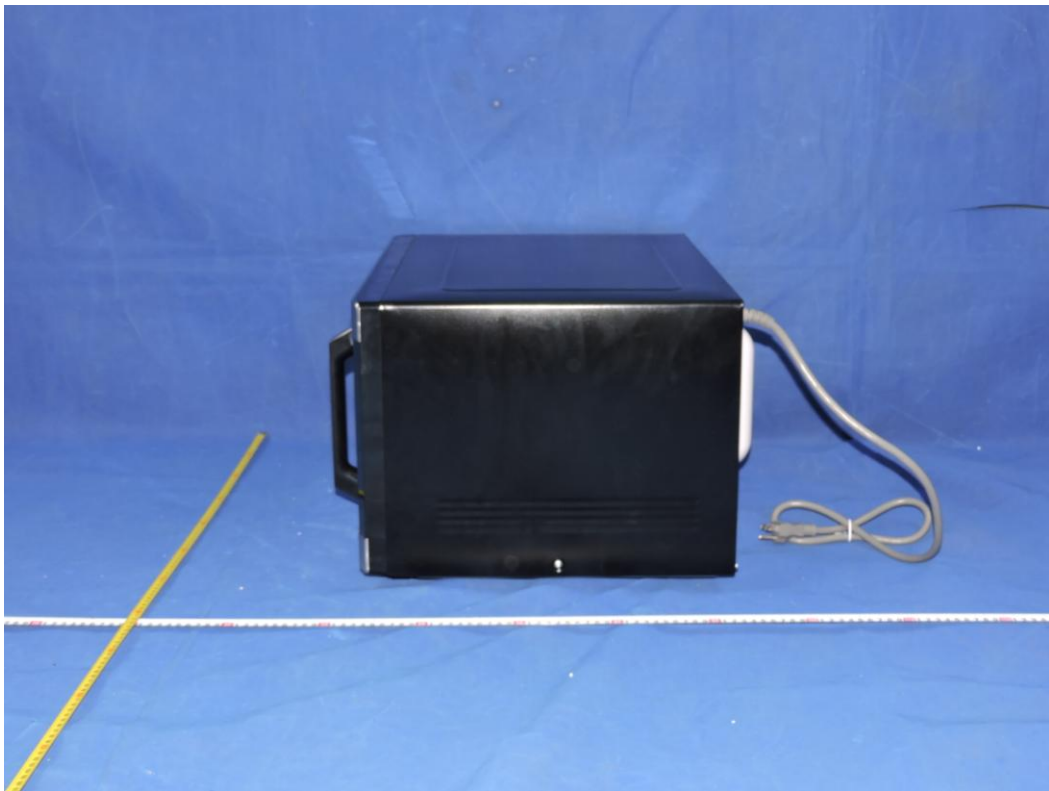




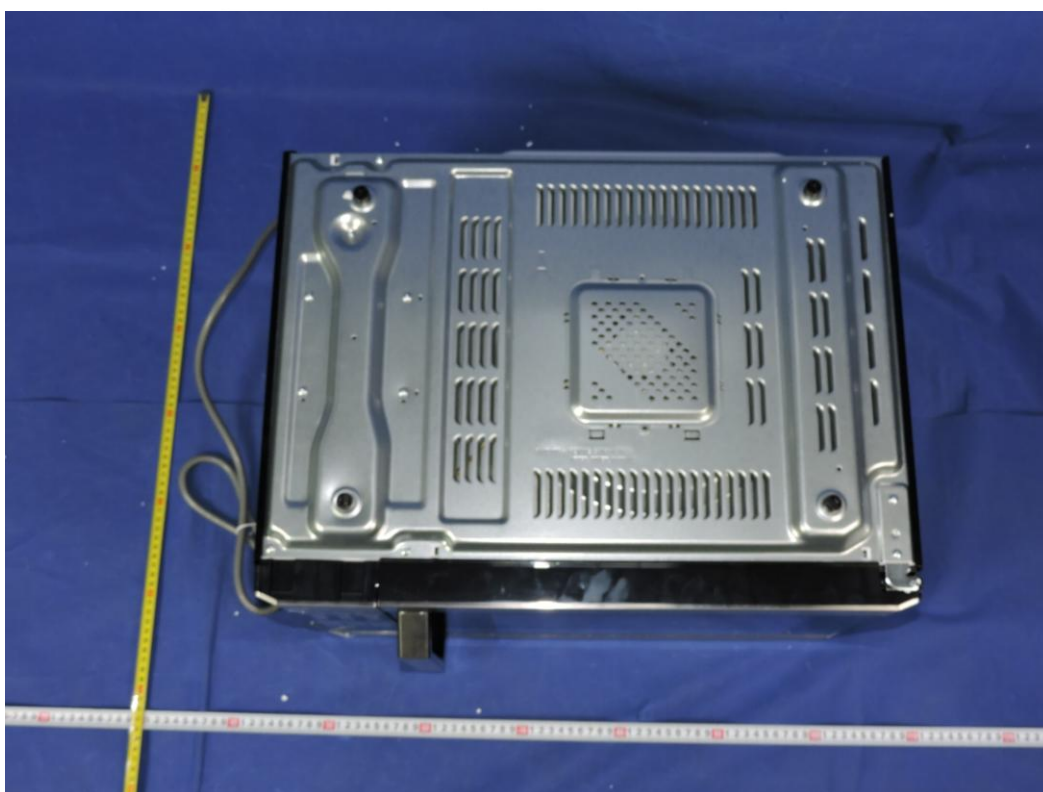
Power meter



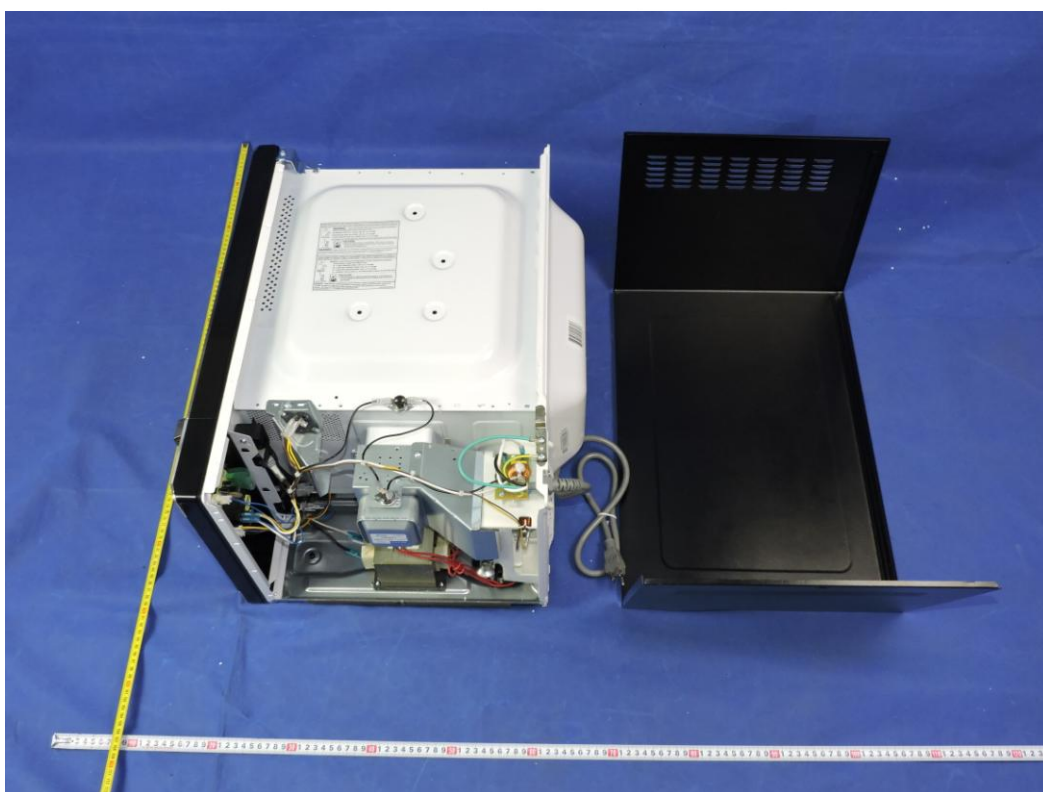
**APPENDIX 2-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS**





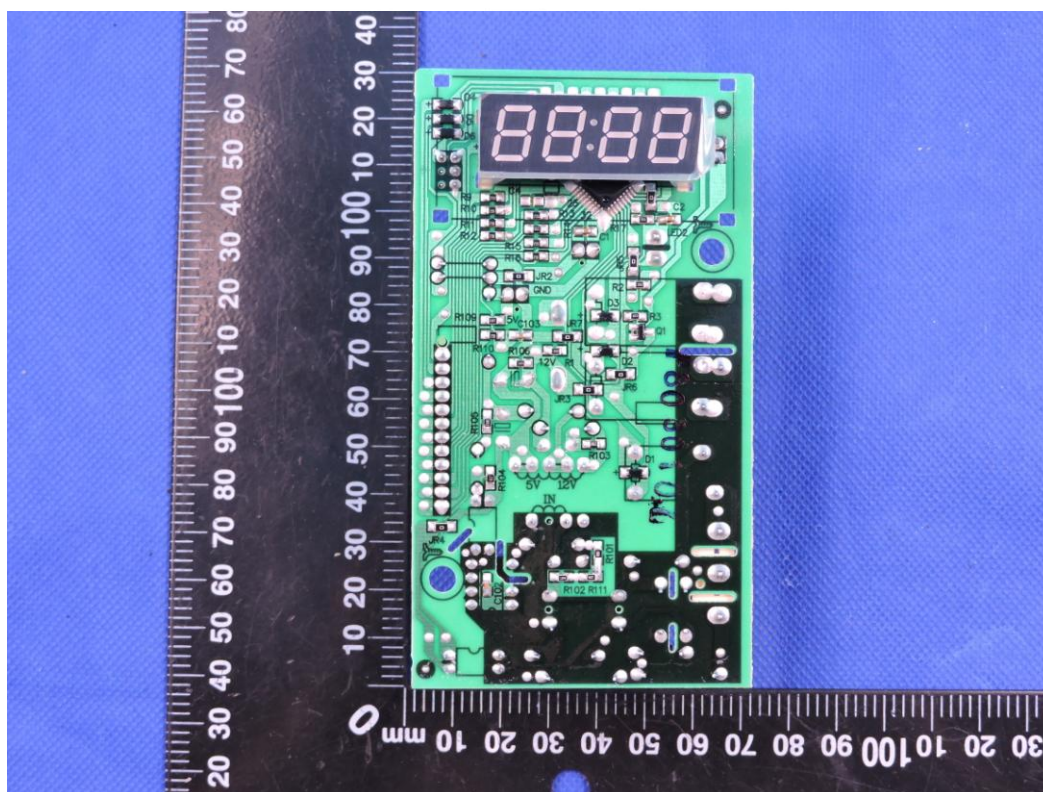
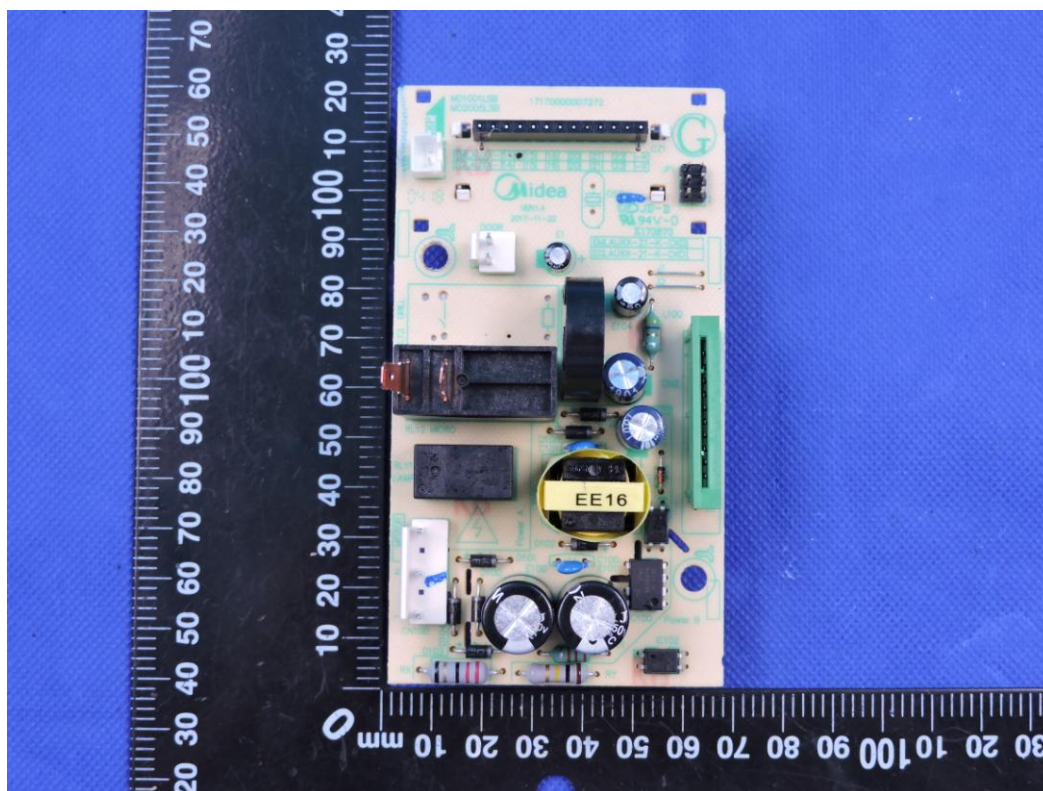




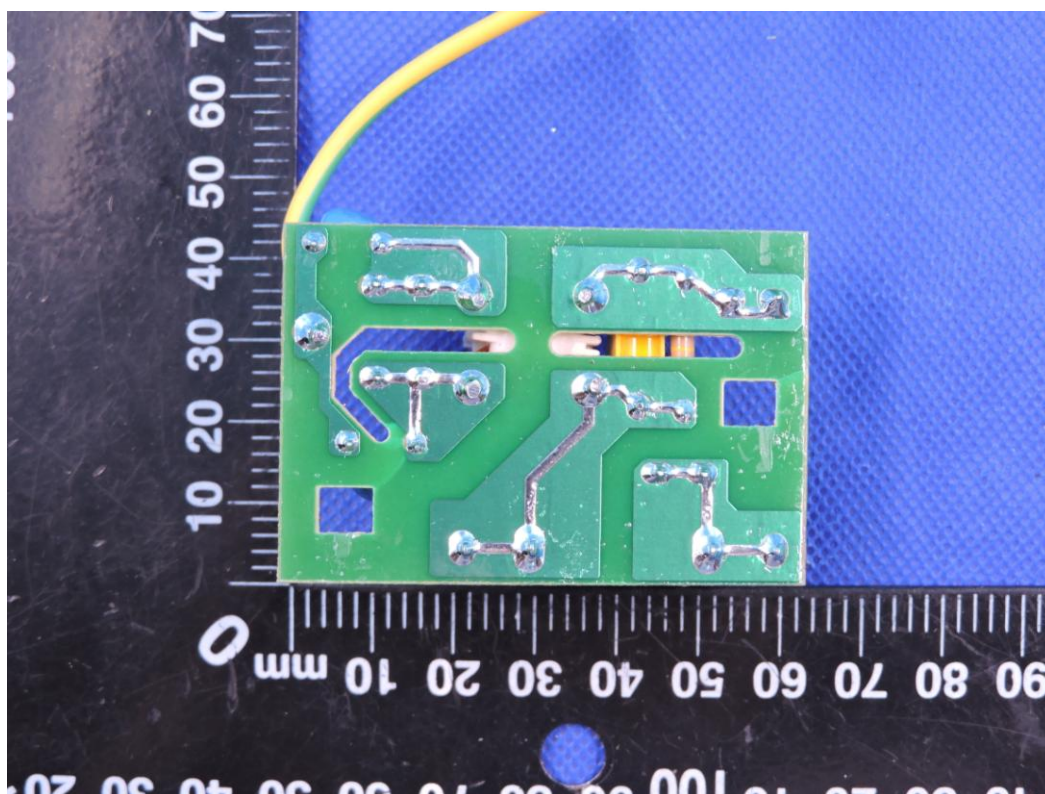
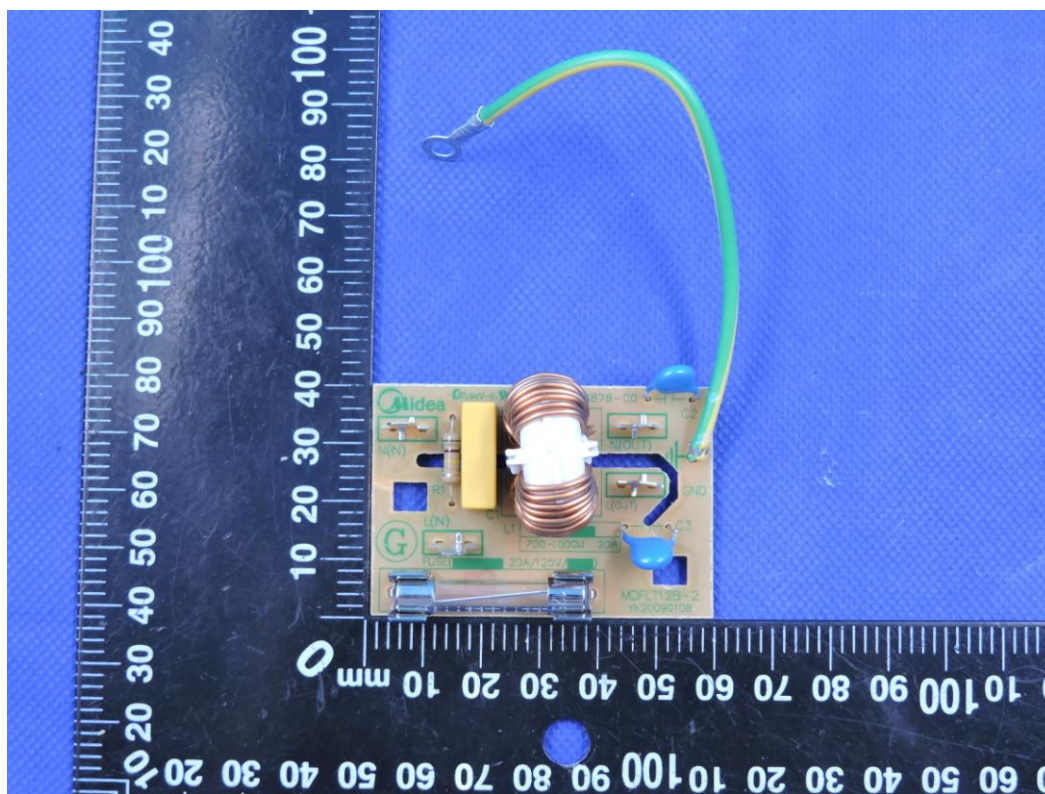












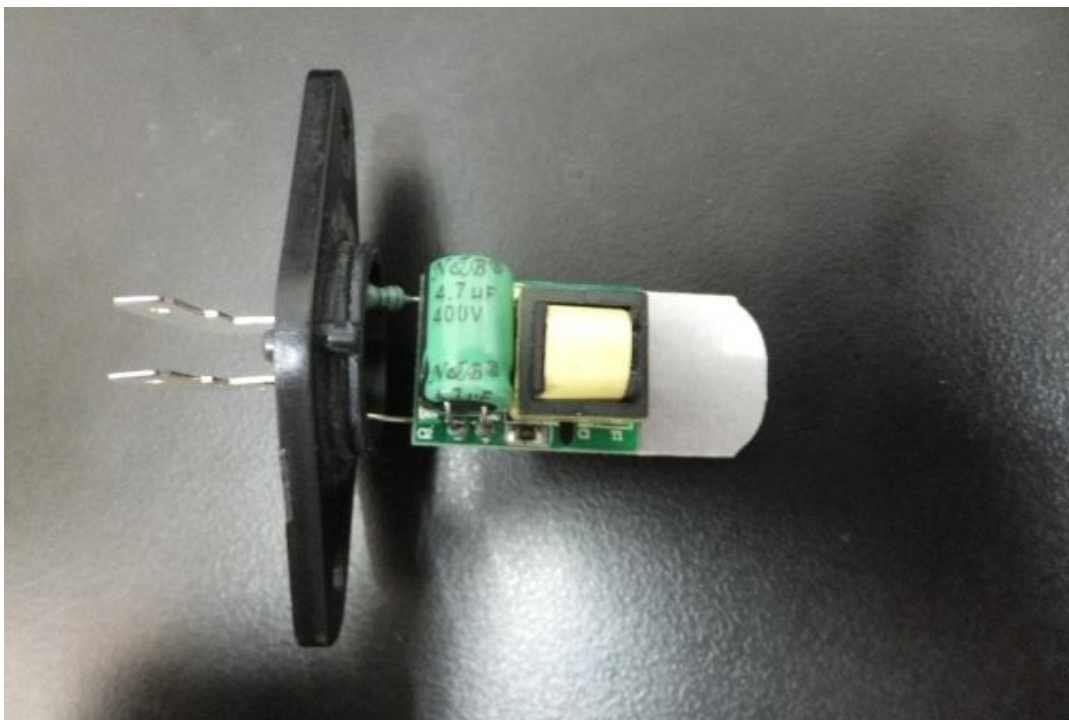


*LED Lamp 1: Exterior View*

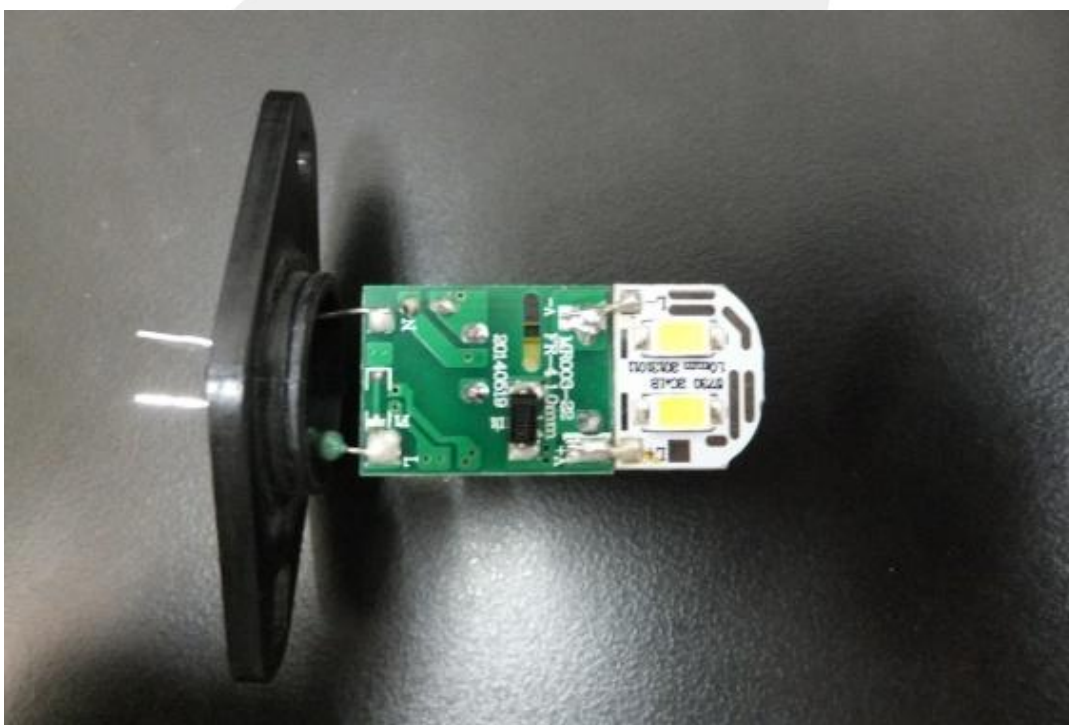


*LED Lamp 1: Inside View*





**LED Lamp 1: PCB board- Top View**



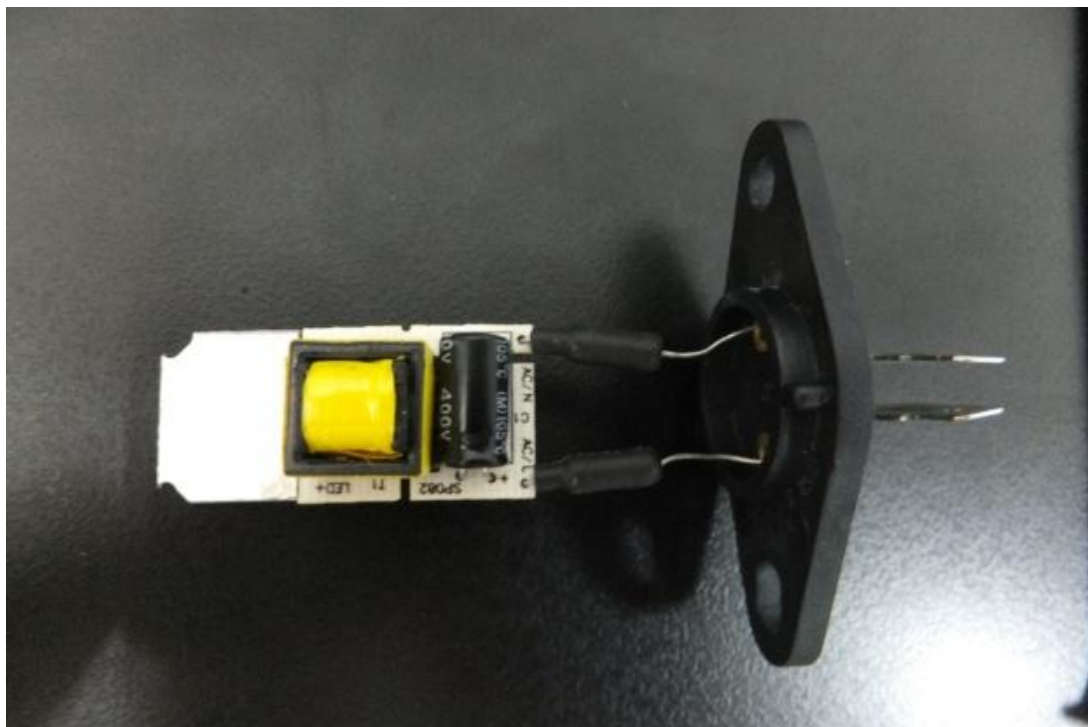
**LED Lamp 1: PCB board-Bottom View**



**LED Lamp 2(YHW01): Exterior View**



**LED Lamp 2: Inside View**



**LED Lamp 2: PCB board- Top View**



**LED Lamp 2: PCB board- Bottom View**

\*\*\*\*\*END OF THE REPORT\*\*\*\*\*