

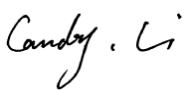
# FCC PART 18 TEST REPORT

For

## Guangdong Midea Kitchen Appliances Manufacturing Co., Ltd

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

**FCC ID: VG8XM136AYYW**

|                                                                                                                                                                                                                                                                                                        |                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Report Type:</b><br>Class II Permissive Change                                                                                                                                                                                                                                                      | <b>Product Type:</b><br>Microwave oven                                                        |
| <b>Report Number:</b> <u>SZ2211019-53626E-EMA1</u>                                                                                                                                                                                                                                                     |                                                                                               |
| <b>Report Date:</b> <u>2021-11-02</u>                                                                                                                                                                                                                                                                  |                                                                                               |
| <b>Reviewed By:</b> RF Engineer                                                                                                                                                                                                                                                                        | Candy Li  |
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                             |                                                  |
|-----------------------------|--------------------------------------------------|
| Product                     | Microwave oven                                   |
| Tested Model                | AM136A2DU-P0H(PAN)                               |
| Multiple Models             | AM136A##-P0H(PAN), AM136A***-P0H(PAN), NN-S#75## |
| Model Difference*           | Refer to the DoS                                 |
| Voltage Range               | AC 120V/60Hz                                     |
| Highest operating frequency | 2450 MHz                                         |
| Microwave Output power      | 1100W                                            |
| Microwave Input power       | 1500W                                            |
| Date of Test                | 2021-10-22 to 2021-11-02                         |
| Sample serial number        | SZ2211019-53626E-EMA1-S1 (Assigned by ATC)       |
| Received date               | 2021-10-19                                       |
| Sample/EUT Status           | Good condition                                   |

### Objective

This report is in accordance with Part 2-Subpart J, and Part 18-Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine compliance with FCC Part 18 limits.

This is a CIIPC application of the device; the differences between the original device and the current one are as follows:

1. Change the Connection PCB of Wi-Fi module

Based on above differences, it's will affect all the test of item, so all the items were performed, we will updated the test data and related EUT photos.

### Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurements were performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters. Each test item follows test standards and with no deviation.

## Measurement Uncertainty

| Parameter                          |                | Uncertainty |
|------------------------------------|----------------|-------------|
| AC Power Lines Conducted Emissions |                | 2.72dB      |
| Emissions,<br>Radiated             | 30MHz - 1GHz   | 4.28dB      |
|                                    | 1GHz- 18GHz    | 4.98dB      |
|                                    | 18GHz- 26.5GHz | 5.06dB      |

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

## Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

## OPERATING CONDITION/TEST CONFIGURATION

### Justification

The EUT was operated at maximum (continuous) RF output power. The loads consisted of water in a glass beaker in the amounts specified in the test procedure.

### EUT Exercise Software

No exercise software was used.

### Special Accessories

No special accessory was used.

### Equipment Modifications

No modifications were made to the EUT tested.

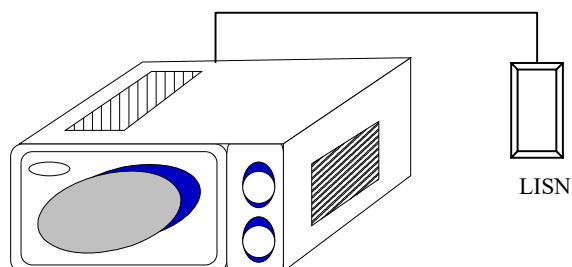
### Support Equipment List and Details

| Manufacturer | Description  | Model | Serial Number |
|--------------|--------------|-------|---------------|
| /            | Glass beaker | /     | /             |

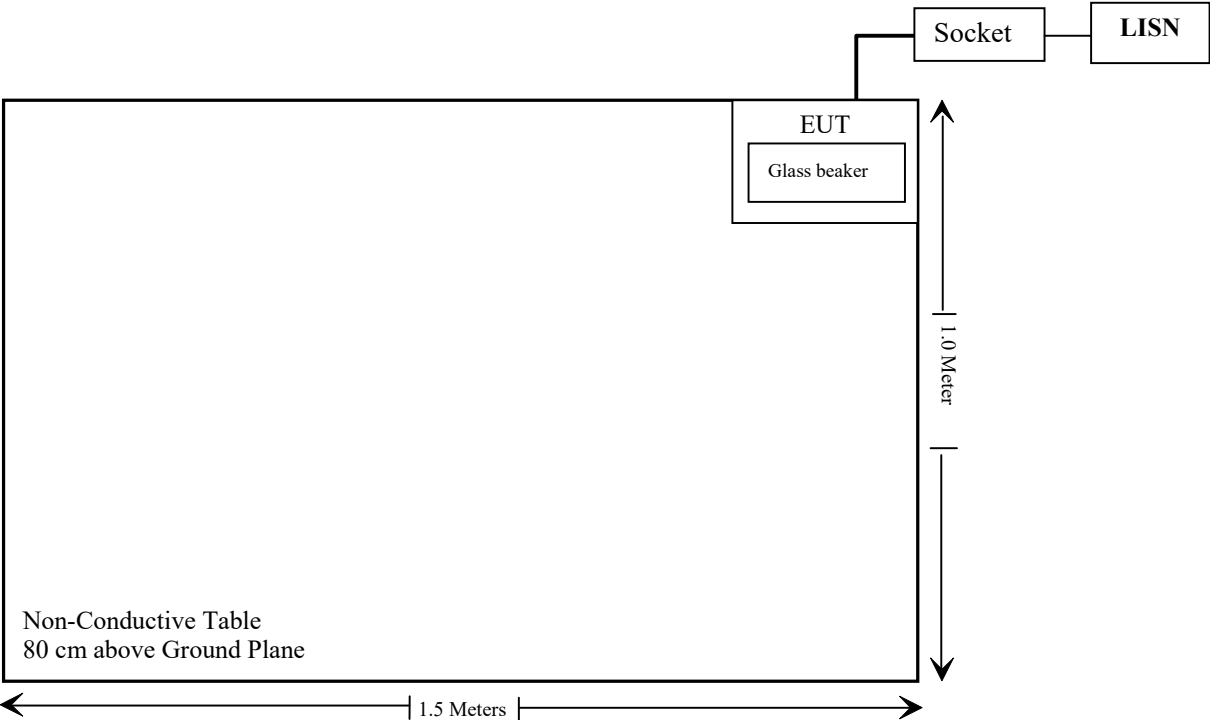
### External Cable List and Details

| Cable Description                 | Length (m) | From/Port | To   |
|-----------------------------------|------------|-----------|------|
| Unshielded un-detachable AC cable | 1.0        | Socket    | LISN |
| Unshielded un-detachable AC cable | 1.0        | Socket    | EUT  |

### Configuration of Test Setup



Block Diagram of Test Setup



**SUMMARY OF TEST RESULT**

| FCC Rules                        | Description of Test          | Results   |
|----------------------------------|------------------------------|-----------|
| FCC §18.313, §1.1310,<br>§2.1091 | Maximum Permissible Exposure | Compliant |
| FCC §18.307                      | AC Line Conducted Emissions  | Compliant |
| FCC/OST MP-5<br>FCC §18.301      | Radiation Hazard Measurement | Compliant |
| FCC §18.305                      | Field Strength               | Compliant |

**TEST EQUIPMENT LIST**

| Manufacturer                                   | Description        | Model           | Serial Number | Calibration Date | Calibration Due Date |
|------------------------------------------------|--------------------|-----------------|---------------|------------------|----------------------|
| Conducted Emissions Test                       |                    |                 |               |                  |                      |
| Rohde& Schwarz                                 | Test Receiver      | ESPI3           | 100396        | 2020/12/24       | 2021/12/23           |
| R & S                                          | L.I.S.N.           | ENV216          | 101314        | 2020/12/25       | 2021/12/24           |
| Anritsu Corp                                   | 50Ω Coaxial Switch | MP59B           | 6200506474    | 2020/12/25       | 2021/12/24           |
| Unknown                                        | CE Cable           | CE Cable        | Unknown       | 2020/12/26       | 2021/12/25           |
| Conducted Emission Test Software: ES-K1 V1.71  |                    |                 |               |                  |                      |
| Radiated Emissions Test                        |                    |                 |               |                  |                      |
| Rohde&Schwarz                                  | Test Receiver      | ESR             | 101817        | 2020/12/24       | 2021/12/23           |
| Rohde & Schwarz                                | Spectrum Analyzer  | FSV-40          | 101495        | 2020/12/24       | 2021/12/23           |
| A.H. Systems, inc.                             | Preamplifier       | PAM-0118P       | 531           | 2021/07/08       | 2022/07/07           |
| SONOMA INSTRUMENT                              | Amplifier          | 310 N           | 186131        | 2020/12/25       | 2021/12/24           |
| Anritsu Corp                                   | 50 Coaxial Switch  | MP59B           | 6100237248    | 2020/12/25       | 2021/12/24           |
| Schwarzbeck                                    | Bilog Antenna      | VULB9163        | 9163-323      | 2020/01/04       | 2023/01/03           |
| Schwarzbeck                                    | Horn Antenna       | BBHA9120D       | 9120D-1067    | 2020/01/05       | 2023/01/04           |
| Schwarzbeck                                    | HORN ANTENNA       | BBHA9170        | 9170-359      | 2020/01/05       | 2023/01/04           |
| Quinstar                                       | Amplifier          | QLW-18405536-J0 | 15964001002   | 2020/11/28       | 2021/11/27           |
| Unknown                                        | RF Coaxial Cable   | N-5m            | No.3          | 2020/12/25       | 2021/12/24           |
| Unknown                                        | RF Coaxial Cable   | N-5m            | No.4          | 2020/12/25       | 2021/12/24           |
| Unknown                                        | RF Coaxial Cable   | N-1m            | No.5          | 2020/12/25       | 2021/12/24           |
| Unknown                                        | RF Coaxial Cable   | N-1m            | No.6          | 2020/12/25       | 2021/12/24           |
| Radiated Emission Test Software: e3 19821b(V9) |                    |                 |               |                  |                      |



| Manufacturer                 | Description             | Model     | Serial Number | Calibration Date | Calibration Due Date |
|------------------------------|-------------------------|-----------|---------------|------------------|----------------------|
| Radiation Hazard Measurement |                         |           |               |                  |                      |
| Rohde & Schwarz              | Spectrum Analyzer       | FSV-40    | 101495        | 2020/12/24       | 2021/12/23           |
| Schwarzbeck                  | Horn Antenna            | BBHA9120D | 9120D-1067    | 2020/01/05       | 2023/01/04           |
| Unknown                      | RF Coaxial Cable        | N-5m      | No.4          | 2020/12/25       | 2021/12/24           |
| Unknown                      | RF Coaxial Cable        | N-1m      | No.6          | 2020/12/25       | 2021/12/24           |
| Qingzhi                      | Digital Power Meter     | 8716C     | 870307126     | 2020/12/25       | 2021/12/24           |
| OHAUS                        | Electronic Scale        | R2000-6   | 8339220237    | 2020/12/25       | 2021/12/24           |
| ETS                          | Microwave Survery Meter | 1501      | 123654        | 2021/3/12        | 2022/3/12            |
| MC                           | Thermometer             | Unknown   | Unknown       | 2021/10/31       | 2022/10/30           |

**\* Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## **FCC §18.313, §1.1310, §2.1091- MAXIMUM PERMISSIBLE EXPOSURE**

### **Applicable Standard**

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                      |                                      |                                          |                                 |
|----------------------------------------------------------------|--------------------------------------|--------------------------------------|------------------------------------------|---------------------------------|
| <b>Frequency Range (MHz)</b>                                   | <b>Electric Field Strength (V/m)</b> | <b>Magnetic Field Strength (A/m)</b> | <b>Power Density (mW/cm<sup>2</sup>)</b> | <b>Averaging Time (minutes)</b> |
| 0.3–1.34                                                       | 614                                  | 1.63                                 | *(100)                                   | 30                              |
| 1.34–30                                                        | 824/f                                | 2.19/f                               | *(180/f <sup>2</sup> )                   | 30                              |
| 30–300                                                         | 27.5                                 | 0.073                                | 0.2                                      | 30                              |
| 300–1500                                                       | /                                    | /                                    | f/1500                                   | 30                              |
| 1500–100,000                                                   | /                                    | /                                    | 1.0                                      | 30                              |

f = frequency in MHz; \* = Plane-wave equivalent power density;

### **Measurement**

#### **Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 23 °C     |
| <b>Relative Humidity:</b> | 52 %      |
| <b>ATM Pressure:</b>      | 101.0 kPa |

*The testing was performed by Amy Cao on 2021-10-22.*

Radiation leakage was measured in the as-received condition with the oven door closed using a microwave leakage meter.

A 275 mL water load was placed in the center of the oven and the oven was operated at maximum output power.

☒ There was no microwave leakage exceeding a power level of 0.2mW/cm<sup>2</sup> observed at any point 5 cm or more from the external surface of the oven.

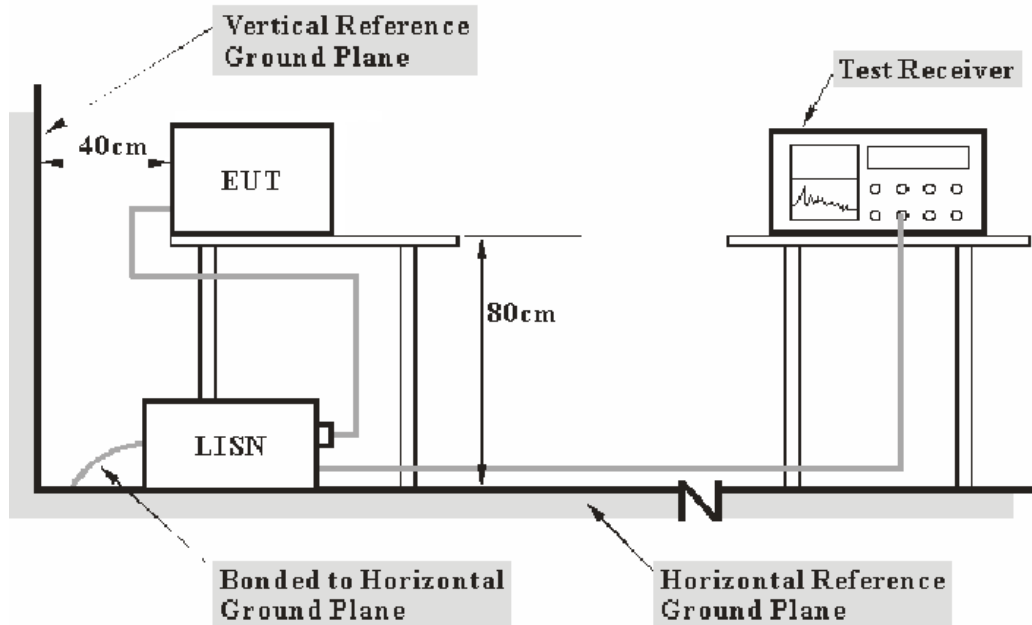
A maximum of 1.0 mW/cm<sup>2</sup> is allowed in accordance with the applicable Federal Standards. Hence, microwave leakage in the as-received condition with the oven door closed was below the maximum allowed.

## CONDUCTED EMISSIONS

### Applicable Standard

FCC §18.307

## EUT Setup



**Note:** 1. Support units were connected to second LISN.  
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18.

The socket was connected to a 120 VAC/ 60Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz  |

## Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

## Transd Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Transd Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\begin{aligned}\text{Margin} &= \text{Limit} - \text{level} \\ \text{Level} &= \text{reading level} + \text{Transd Factor}\end{aligned}$$

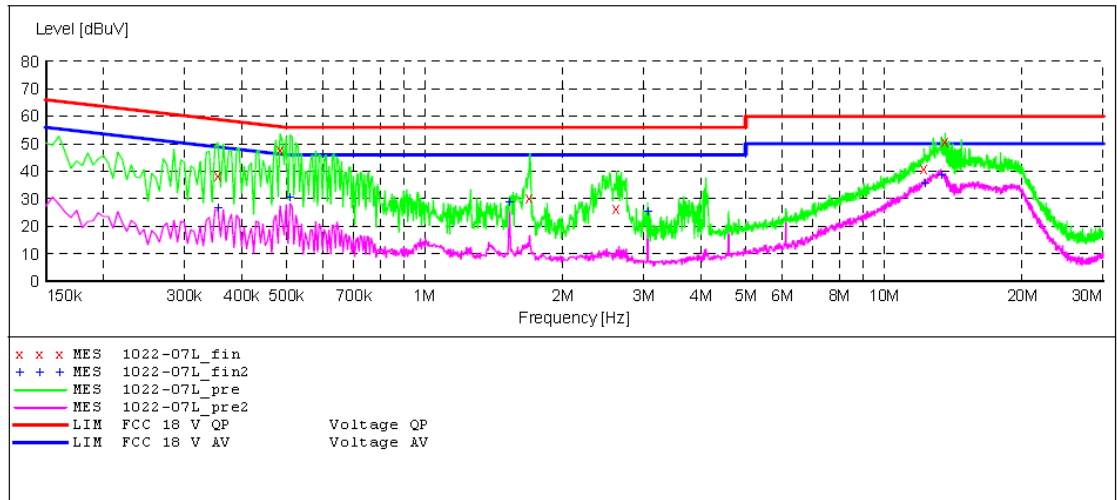
## Test Data

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23 °C     |
| Relative Humidity: | 52 %      |
| ATM Pressure:      | 101.0 kPa |

*The testing was performed by Amy Cao on 2021-10-22.*

*Test mode: Microwave*

**AC 120V/60 Hz, Line****MEASUREMENT RESULT: "1022-07L\_fin"**

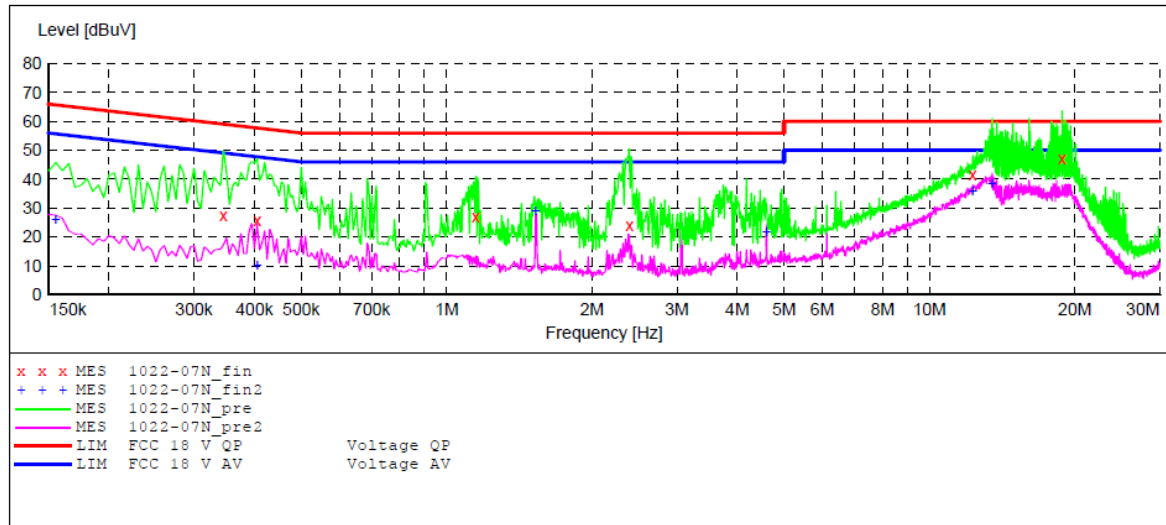
2021-10-22 05:02

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.355000         | 38.80         | 10.9         | 59            | 20.2         | QP       | L1   | GND |
| 0.485000         | 47.40         | 11.0         | 56            | 8.6          | QP       | L1   | GND |
| 1.695000         | 30.50         | 11.2         | 56            | 25.5         | QP       | L1   | GND |
| 2.620000         | 26.50         | 11.3         | 56            | 29.5         | QP       | L1   | GND |
| 12.225000        | 41.00         | 11.6         | 60            | 19.0         | QP       | L1   | GND |
| 13.575000        | 50.60         | 11.6         | 60            | 9.4          | QP       | L1   | GND |

**MEASUREMENT RESULT: "1022-07L\_fin2"**

2021-10-22 05:02

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.355000         | 27.10         | 10.9         | 49            | 21.9         | AV       | L1   | GND |
| 0.510000         | 30.70         | 11.0         | 46            | 15.3         | AV       | L1   | GND |
| 1.530000         | 28.80         | 11.2         | 46            | 17.2         | AV       | L1   | GND |
| 3.060000         | 25.70         | 11.3         | 46            | 20.3         | AV       | L1   | GND |
| 12.250000        | 35.70         | 11.6         | 50            | 14.3         | AV       | L1   | GND |
| 13.300000        | 39.00         | 11.6         | 50            | 11.0         | AV       | L1   | GND |

**AC 120V/60 Hz, Neutral****MEASUREMENT RESULT: "1022-07N\_fin"**

2021-10-22 04:59

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.345000         | 27.30         | 10.9         | 59            | 31.7         | QP       | N    | GND |
| 0.405000         | 25.90         | 11.0         | 58            | 32.1         | QP       | N    | GND |
| 1.150000         | 26.90         | 11.2         | 56            | 29.1         | QP       | N    | GND |
| 2.390000         | 24.00         | 11.3         | 56            | 32.0         | QP       | N    | GND |
| 12.300000        | 41.50         | 11.6         | 60            | 18.5         | QP       | N    | GND |
| 18.850000        | 47.30         | 11.7         | 60            | 12.7         | QP       | N    | GND |

**MEASUREMENT RESULT: "1022-07N\_fin2"**

2021-10-22 04:59

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.155000         | 26.40         | 10.8         | 56            | 29.6         | AV       | N    | GND |
| 0.405000         | 10.50         | 11.0         | 48            | 37.5         | AV       | N    | GND |
| 1.530000         | 29.00         | 11.2         | 46            | 17.0         | AV       | N    | GND |
| 4.600000         | 22.10         | 11.4         | 46            | 23.9         | AV       | N    | GND |
| 12.300000        | 36.10         | 11.6         | 50            | 13.9         | AV       | N    | GND |
| 13.500000        | 38.60         | 11.6         | 50            | 11.4         | AV       | N    | GND |

## RADIATION HAZARD MEASUREMENT

### Applicable Standard

FCC §18.301 & FCC/OST MP-5

### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23 °C     |
| Relative Humidity: | 52 %      |
| ATM Pressure:      | 101.0 kPa |

The testing was performed by Amy Cao on 2021-10-28.

### Input Power

Input power and current was measured using a power analyzer. A 1000 mL water load was placed in the center of the oven and the oven was operated at maximum output power. A 1000mL water load was chosen for its compatibility with the procedure commonly used by manufacturers to determine their input ratings.

| Input Voltage<br>(V <sub>AC</sub> /Hz) | Input Current<br>(Amps) | Measured Input Power<br>(Watts) | Rated Input Power<br>(Watts) |
|----------------------------------------|-------------------------|---------------------------------|------------------------------|
| 118.9                                  | 12.4                    | 1474.36                         | 1500                         |

☒ Based on the measured input power, the EUT was found to be operating within the intended specifications.

### Load for Microwave Ovens

For all measurements, the energy developed by the oven was absorbed by a dummy load consisting of a quantity of tap water in a beaker. If the oven was provided with a shelf or other utensil support, this support was in its initial normal position. For ovens rated at 1000 watts or less power output, the beaker contained quantities of water as listed in the following subparagraphs. For ovens rated at more than 1000 watts output, each quantity was increased by 50% for each 500watts or fraction thereof in excess of 1000 watts. Additional beakers were used if necessary.

- Load for power output measurement: 1000 milliliters of water in the beaker located in the center of the oven.
- Load for frequency measurement: 1000 milliliters of water in the beaker located in the center of the oven.
- Load for measurement of radiation on second and third harmonic: Two loads, one of 700 and the other of 300 milliliters, of water are used. Each load is tested both with the beaker located in the center of the oven and with it in the right front corner.

## RF Output Power Measurement

A cylindrical container of borosilicate glass is used for the test. It has a maximum thickness of 3 mm, an external diameter of approximately 190 mm and a height of approximately 90 mm. The mass of the container is determined.

At the start of the test, the oven and the empty container are at ambient temperature. Water having an initial temperature is used for the test. The water temperature is measured immediately before it is poured into the container.

A quantity of  $1100 \text{ g} \pm 5 \text{ g}$  of water is added to the container and its actual mass obtained. The container is then immediately placed in the centre of the oven shelf, which is in its lowest normal position. The oven is operated and the time for the water temperature to attain is measured. The oven is then switched off and the final water temperature is measured within 60 s.

| $m_w$<br>(g) | $m_c$<br>(g) | $T_0$<br>(°C) | $T_1$<br>(°C) | $T_2$<br>(°C) | $t$<br>(s) |
|--------------|--------------|---------------|---------------|---------------|------------|
| 1100         | 377.0        | 24.8          | 9.6           | 20.1          | 45         |

RF Output Power =  $(4.187 \times 1100 \times (20.1 - 9.6) + 0.55 \times 377.0 \times (20.1 - 24.8)) / 45 = 1053.0068$  Watts

$P$  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.

☐ The measurement output power was found to be less than 500 watts. Therefore, in accordance with Section 18.305 of Subpart-C, the measured out-of-band emissions were compared to the limit of  $25 \mu\text{V}/\text{meter}$  at a 300-meter measurement distance.

☒ The measured output power was found to exceed 500 watts. Therefore, in accordance with Section 18.305 of Subpart-C, the measured out-of-band emissions were compared with the limit calculated as following:

$$\text{LFS} = 25 * \text{SQRT} (\text{Power Output}/500)$$

$$\text{LFS} = 25 * \text{SQRT} (1053.0068/500)$$

$$\text{LFS} = 36.28$$

Where: LFS is the maximum allowable field strength for out-of-band emissions in  $\mu\text{V}/\text{meter}$  at a 300-meter measurement distance. Power Output is the measured output power in watts.

| LFS<br>$\mu\text{V}/\text{m}@300\text{m}$ | $\text{dB}\mu\text{V}/\text{m}@300\text{m}$ | $\text{dB}\mu\text{V}/\text{m}@3\text{m}$ |
|-------------------------------------------|---------------------------------------------|-------------------------------------------|
| 36.28                                     | 31.19                                       | 71.19                                     |

**Note:** Limit ( $\text{dB}\mu\text{V}/\text{m}@3\text{m}$ ) = Limit ( $\text{dB}\mu\text{V}/\text{m}@300\text{m}$ ) + 40(dB)



## Operating Frequency Measurement

### Variation in Operating Frequency with Time

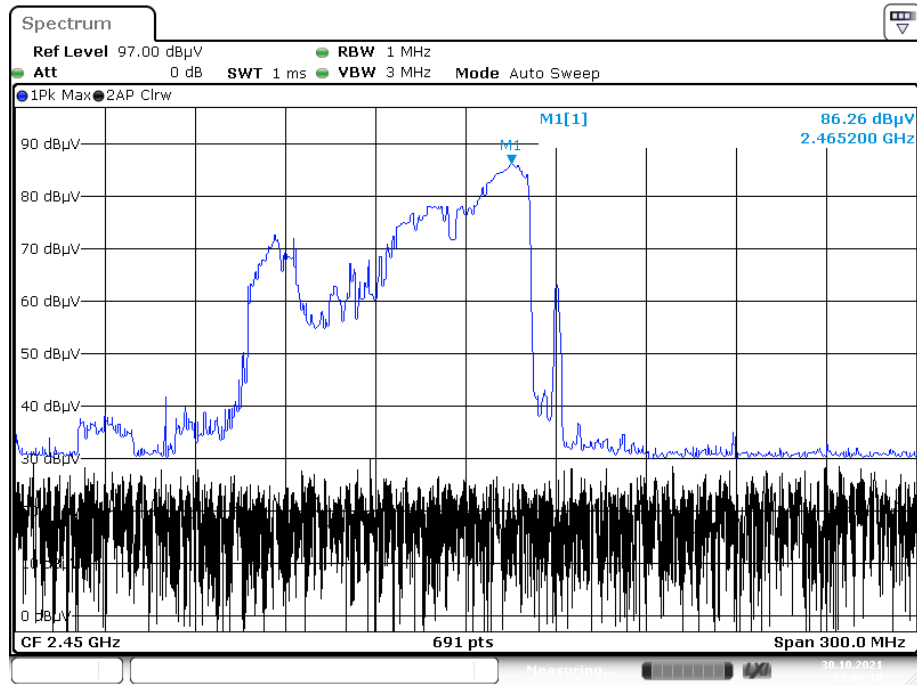
The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1000mL water load was placed in the center of the oven and the oven was operated at maximum output power. The fundamental operating frequency was monitored until the water load was reduced to 20 percent of the original load.

The results of this test are as follows:

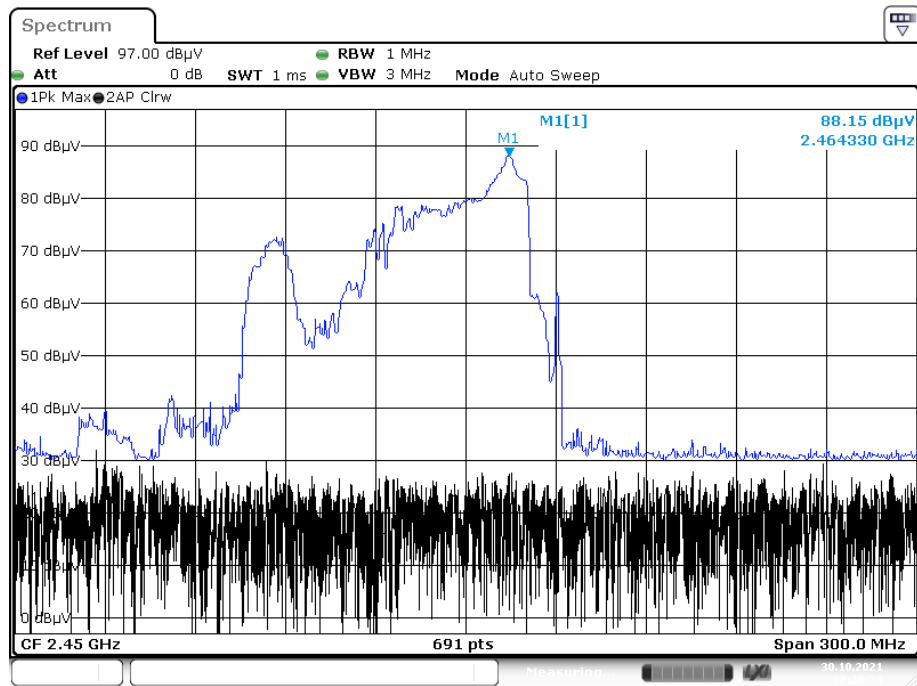
| Frequency at Start time<br>(MHz) | Frequency at End time<br>(MHz) |
|----------------------------------|--------------------------------|
| 2465.2                           | 2464.33                        |

Refer to data pages for details of the variation in operating frequency with time measurement.

Start time:



End time:



### Variation in Operating Frequency with 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.

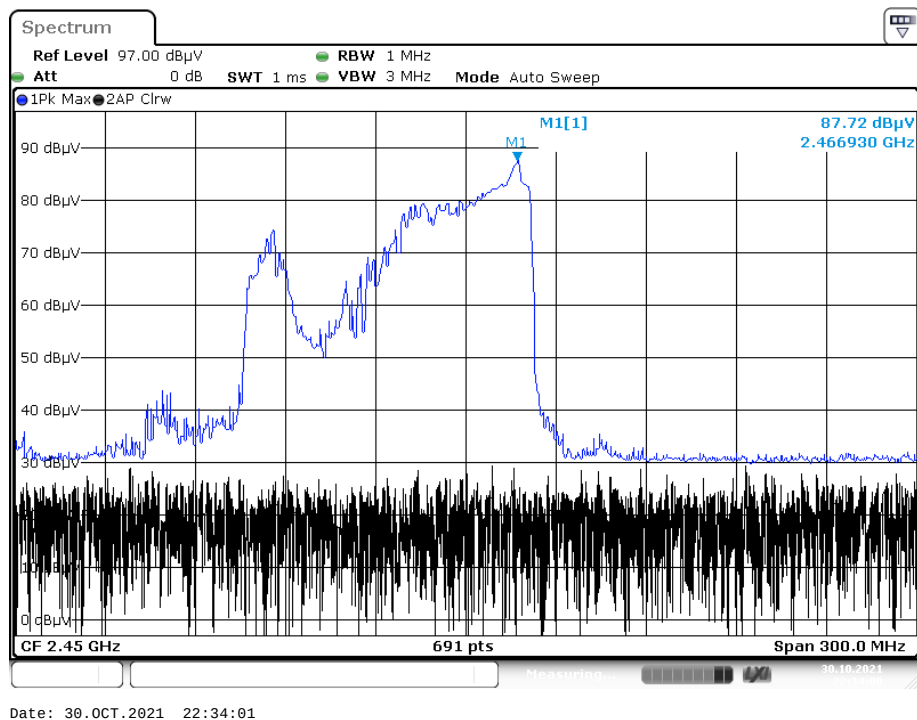
The results of this test are as follows:

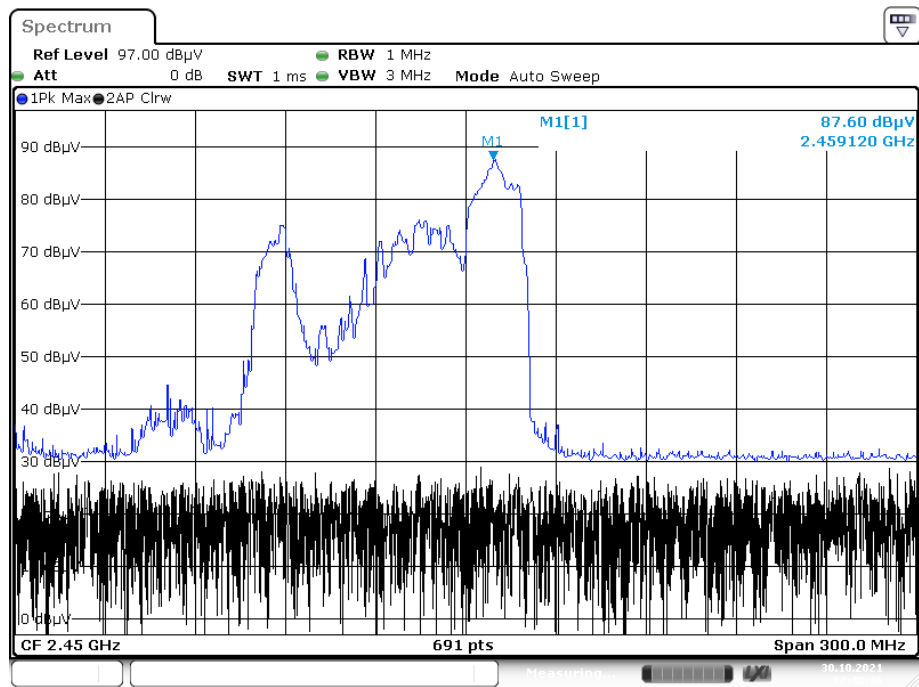
Line voltage varied from 96 V<sub>AC</sub> to 150 V<sub>AC</sub>.

| (Low voltage) Frequency (MHz) | (High voltage) Frequency (MHz) |
|-------------------------------|--------------------------------|
| 2466.93                       | 2459.12                        |

Please refer to following pages for details of the variation in operating frequency with line voltage measurement.

#### Low Voltage:



**High Voltage:**

Date: 30.OCT.2021 22:48:37

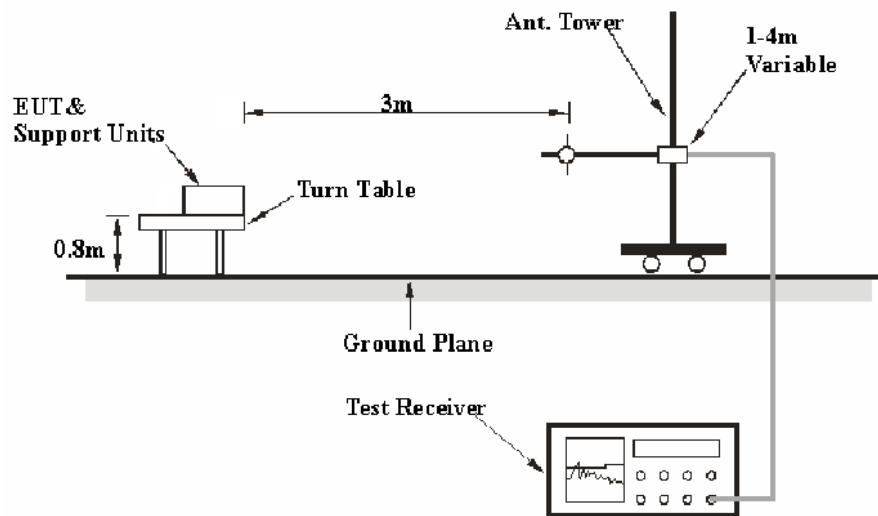
## RADIATED EMISSIONS

### Applicable Standard

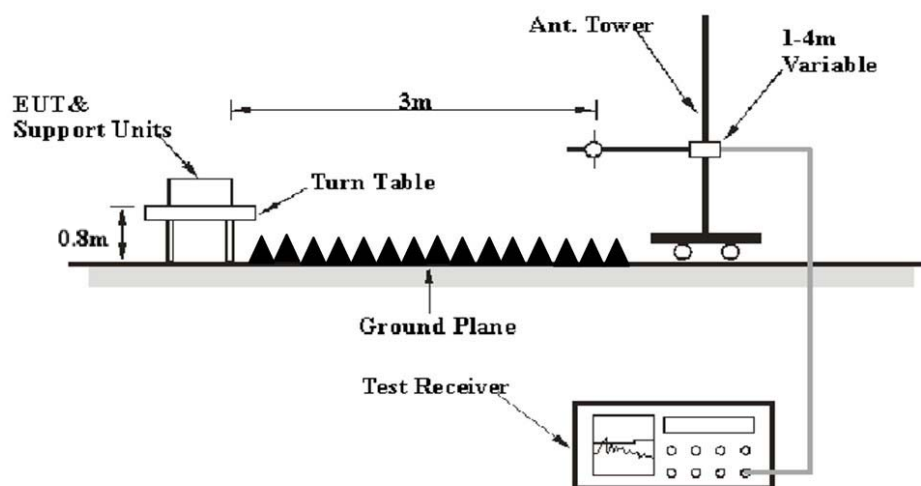
FCC §18.305 and FCC §18.309

### EUT Setup

**Below 1GHz:**



**Above 1GHz:**



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the FCC MP - 5. The specification used was the FCC part 18 limits.

The socket was connected to 120 VAC/60 Hz power source.

### EMI Test Receiver Setup and Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

| Frequency Range  | RBW     | Video B/W | IF B/W | Measurement |
|------------------|---------|-----------|--------|-------------|
| 30MHz – 1000 MHz | 100 kHz | 300 kHz   | 120kHz | QP          |
| Above 1 GHz      | 1MHz    | 3 MHz     | /      | PK.         |
|                  | 1MHz    | 10 Hz     | /      | Ave.        |

### Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure that the EUT complied with all installation combinations.

The EUT was in the normal (naïve) operating mode during the final qualification test to represent the worst results.

### Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\begin{aligned}\text{Margin} &= \text{Result} / \text{Absolute Level} - \text{Limit} \\ \text{Result} / \text{Absolute Level} &= \text{Reading} + \text{Factor}\end{aligned}$$

### Test Data and Plots

#### Environmental Conditions

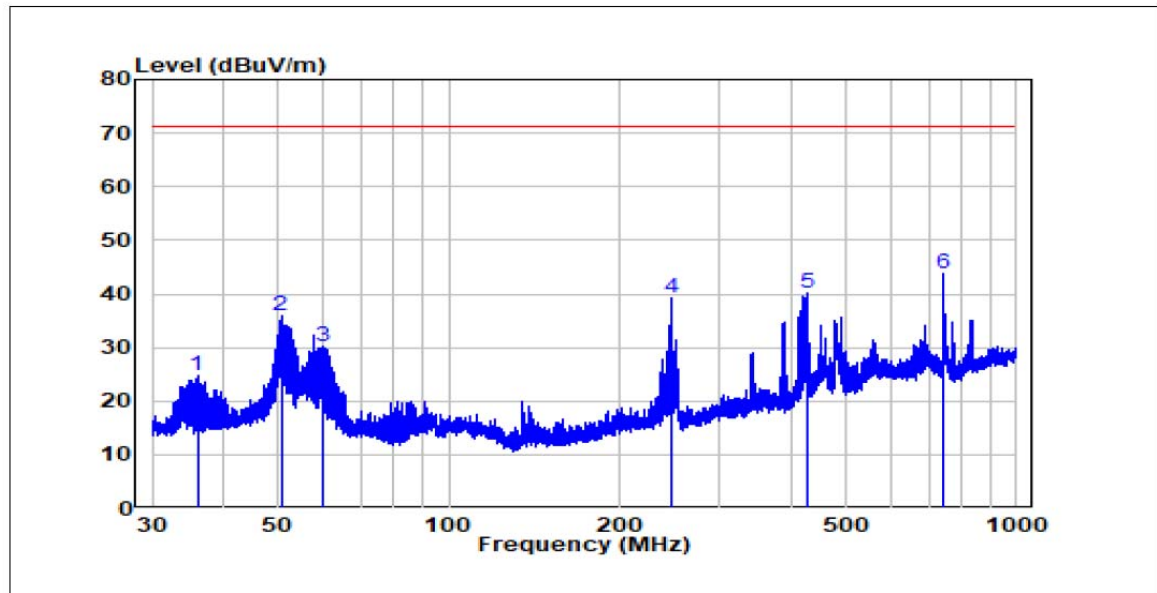
|                    |          |
|--------------------|----------|
| Temperature:       | 23 °C    |
| Relative Humidity: | 52%      |
| ATM Pressure:      | 101.0kPa |

The testing was performed by Amy Cao on 2021-10-28 for below 1GHz and by Amy Cao on 2021-04-29 for above 1GHz.

Test mode: Microwave

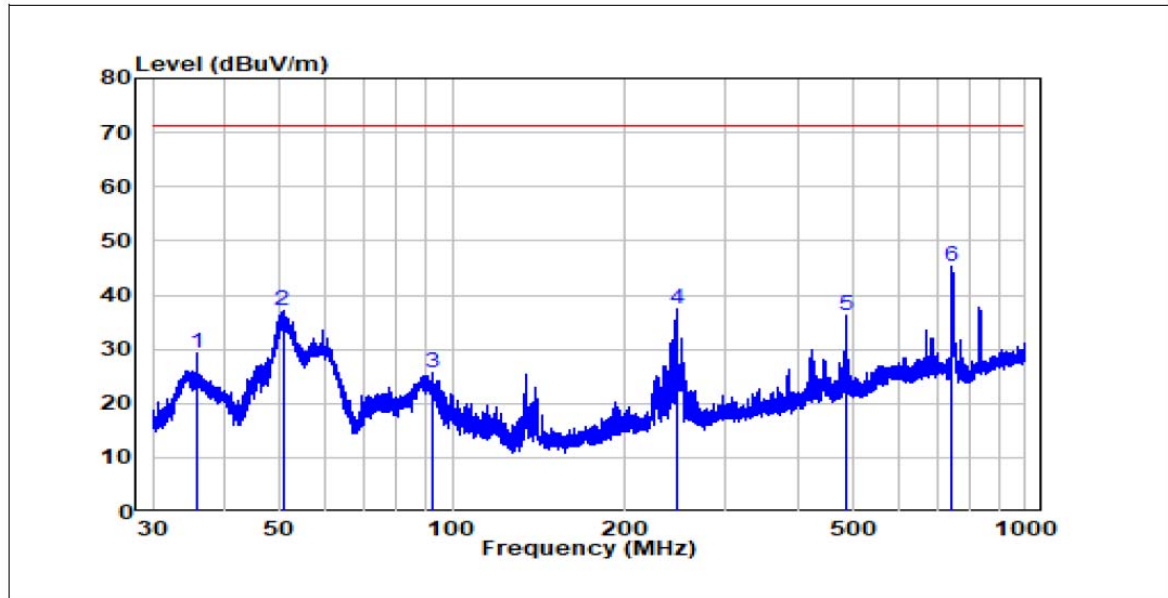
## 30 MHz – 1 GHz

## Horizontal



| No. | Frequency | Reading | Correct      | Result   | Limit    | Over<br>Limit | Remark | Phase      |
|-----|-----------|---------|--------------|----------|----------|---------------|--------|------------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)          |        |            |
| 1   | 36.02     | 44.03   | -19.28       | 24.75    | 71.19    | -46.44        | Peak   | Horizontal |
| 2   | 50.59     | 53.40   | -17.37       | 36.03    | 71.19    | -35.16        | Peak   | Horizontal |
| 3   | 60.07     | 49.85   | -19.53       | 30.32    | 71.19    | -40.87        | Peak   | Horizontal |
| 4   | 245.84    | 57.79   | -18.60       | 39.19    | 71.19    | -32.00        | Peak   | Horizontal |
| 5   | 427.46    | 54.56   | -14.39       | 40.17    | 71.19    | -31.02        | Peak   | Horizontal |
| 6   | 744.54    | 54.92   | -11.12       | 43.80    | 71.19    | -27.39        | Peak   | Horizontal |

## Vertical



| No. | Frequency | Reading | Correct      | Result   | Limit    | Over<br>Limit | Remark | Phase    |
|-----|-----------|---------|--------------|----------|----------|---------------|--------|----------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)          |        |          |
| 1   | 35.78     | 48.62   | -19.32       | 29.29    | 71.19    | -41.9         | Peak   | Vertical |
| 2   | 50.59     | 54.43   | -17.37       | 37.06    | 71.19    | -34.13        | Peak   | Vertical |
| 3   | 92.67     | 46.26   | -20.70       | 25.57    | 71.19    | -45.62        | Peak   | Vertical |
| 4   | 246.38    | 55.92   | -18.59       | 37.33    | 71.19    | -33.86        | Peak   | Vertical |
| 5   | 487.53    | 50.57   | -14.33       | 36.24    | 71.19    | -34.95        | Peak   | Vertical |
| 6   | 745.19    | 56.29   | -11.11       | 45.18    | 71.19    | -26.01        | Peak   | Vertical |



**1 -25 GHz:**

| Frequency<br>(MHz) | Measurement       |            | Turntable<br>Degree | Rx Antenna    |                  | Corrected<br>Factor<br>(dB/m) | Corrected<br>Amplitude<br>(dBμV/m) | FCC Part 18       |                |
|--------------------|-------------------|------------|---------------------|---------------|------------------|-------------------------------|------------------------------------|-------------------|----------------|
|                    | Reading<br>(dBμV) | PK/QP/Ave. |                     | Height<br>(m) | Polar<br>(H / V) |                               |                                    | Limit<br>(dBμV/m) | Margin<br>(dB) |
| 2367.35            | 52.66             | AV         | 297                 | 1.5           | H                | -6.54                         | 46.12                              | 71.19             | -25.07         |
| 2367.35            | 52.43             | AV         | 99                  | 1.5           | V                | -6.54                         | 45.89                              | 71.19             | -25.3          |
| 2506.12            | 52.03             | AV         | 101                 | 2.1           | H                | -5.85                         | 46.18                              | 71.19             | -25.01         |
| 2506.12            | 51.49             | AV         | 346                 | 2.0           | V                | -5.85                         | 45.64                              | 71.19             | -25.55         |
| 4381.37            | 31.21             | AV         | 296                 | 1.3           | H                | 2.13                          | 33.34                              | 71.19             | -37.85         |
| 4381.37            | 32.94             | AV         | 299                 | 1.3           | V                | 2.13                          | 35.07                              | 71.19             | -36.12         |
| 700ml water        |                   |            |                     |               |                  |                               |                                    |                   |                |
| 4916.35            | 47.21             | AV         | 258                 | 1.3           | V                | 3.15                          | 50.36                              | 71.19             | -20.83         |
| 4916.35            | 48.29             | AV         | 20                  | 1.0           | H                | 3.15                          | 51.44                              | 71.19             | -19.75         |
| 7365.09            | 40.55             | AV         | 7                   | 2.2           | V                | 8.60                          | 49.15                              | 71.19             | -22.04         |
| 7365.09            | 38.62             | AV         | 315                 | 1.5           | H                | 8.60                          | 47.22                              | 71.19             | -23.97         |
| 300ml water        |                   |            |                     |               |                  |                               |                                    |                   |                |
| 4922.12            | 51.88             | AV         | 200                 | 1.2           | H                | 3.17                          | 55.05                              | 71.19             | -16.14         |
| 4922.12            | 58.8              | AV         | 296                 | 1.9           | V                | 3.17                          | 61.97                              | 71.19             | -9.22          |
| 7341.81            | 46.51             | AV         | 125                 | 1.6           | H                | 8.44                          | 54.95                              | 71.19             | -16.24         |
| 7341.81            | 45.73             | AV         | 59                  | 1.9           | V                | 8.44                          | 54.17                              | 71.19             | -17.02         |

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