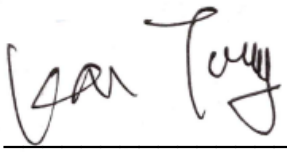
Technical Compliance Statement
FCC Test Report

For the following information **Ref. File No.: C1W2312046**

Product	:	Microwave Oven
Model Number	:	NN-SN67HS
Brand	:	Panasonic
Applicant	:	Panasonic Corporation of North America
Manufacturer	:	Panasonic Kitchen Appliances Technology (Jiaxing) Co., Ltd.
Rules and Standards		Title 47 FCC CFR, Part 18 FCC OST/MP-5 (1986)

We, **AUDIX Technology (Wujiang) Co., Ltd. EMC Dept.** hereby certify that the above product has been tested by us and complied with the FCC official limits. The product might be marketed in US in accordance with the standard Title 47 CFR FCC Part 18 equipment regulations under FCC Rules. The test was performed according to the procedures mentioned in FCC OST/MP-5 (1986). The test data and results are issued on the test report no. ACWE-F2401006.

Signature



K.M Tong/ Assistant Manager
Date: 2024. 01. 16

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

TEST REPORT

Microwave Oven
Model Number: NN-SN67HS
Brand: Panasonic
FCC ID: ACLAPBT31

Applicant for:
Panasonic Corporation of North America
Two Riverfront Plaza, Newark New Jersey USA

Prepared by:

Audix Technology (Wujiang) Co., Ltd. EMC Dept.
No.1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone
Jiangsu China 215200

File No.	:	C1W2312046
Report No.	:	ACWE-F2401006
Date of Report	:	2024.01.16

Test Report

Applicant	:	Panasonic Corporation of North America
Manufacturer	:	Panasonic Kitchen Appliances Technology (Jiaxing) Co., Ltd.
EUT Description		
(A) Product	:	Microwave Oven
(B) Model Number	:	NN-SN67HS
(C) Brand	:	Panasonic
(D) Power Rating	:	120V, 60Hz, 12.4A

Rules of Compliance and Applicable Standards:

Title 47 FCC CFR, Part 18
FCC OST/MP-5 (1986)

The device described above was tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept. to determine the maximum emission levels emanating from the device. All of the tests were requested by the applicant and the results thereof based upon the information that the applicant provided to us. We, Audix Technology (Wujiang) Co., Ltd. assumes full responsibility for the accuracy and completeness of these measurements. This report is made under Title 47 FCC CFR, Part 18, and shows that the EUT is technically compliance with the FCC OST/MP-5 (1986) for FCC rule and described as above.

No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: 2024.01.04~05 Date of Report: 2024.01.16

Reviewed by: Emma Hu
Emma Hu/ Assistant Administrator

Approved by: K.M Tong
K.M Tong/ Assistant Manager

Name of the Representative of the Responsible Party: _____

Signature: _____

NVLAP TESTING NVLAP LAB CODE 200786-0 ilac-MRA

Table of Content

1. Revision of Test Report

Edition No.	Date of Revision	Revision Summary	Report Number
0	Jan.16, 2024	Original Report.	ACWE-F2401006

2. Summary of Test Result

2.1. Test Result

EMISSION		
Description of Test Item	**Standard**	**Results**
Power-line conducted emission	Title 47 FCC CFR, Part 18 FCC OST/MP-5 (1986)	PASS Margin 4.96dB at 0.151MHz
Radiated emissions (30 – 1000MHz)	Title 47 FCC CFR, Part 18 FCC OST/MP-5 (1986)	PASS Margin 23.09dB at 251.160MHz
Radiated emissions (Above 1GHz)	Title 47 FCC CFR, Part 18 FCC OST/MP-5 (1986)	PASS Margin 8.64dB at 4953.300MHz

Note :

1. The uncertainty of our LAB-related test items is determined according to CISPR16-4-2 subclause 4.2, and the evaluation results are all ULAB<Ucispr, which is determined according to the Binary Statement for Simple Acceptance Rule (W=0).
2. N/A is an abbreviation for Not Applicable.
3. Special measures: None
4. Decision and justification not to measure: None

2.2. Description of Test Firm

Name of Test Firm	**Audix Technology (Wujiang) Co., Ltd. EMC Dept.** No1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200 Tel: +86-512-63403993 Fax: +86-512-63403339 Contact e-mail: Reportfeedback@audix.com.cn
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200786-0
Test Facilities	FCC OET Designation Number is : CN5026 (1) No.2 Conducted Shielding Enclosure (2) No.2 3m Semi-Anechoic Chamber

3. General Information

3.1. Description of Application

Applicant	Panasonic Corporation of North America Two Riverfront Plaza, Newark New Jersey USA
Manufacturer	Panasonic Kitchen Appliances Technology (Jiaxing) Co., Ltd. No.369 Chenggong Road, Economic and Technological Development Zone, Jiaxing, Zhejiang Province, China
Product	Microwave Oven
Brand	Panasonic
Model Number	NN-SN67HS Note: The product's series model number: NN-SN686S, NN-SN65HS, The difference between them was explained in the attached declaration letter.

3.2. Description of the EUT

Test Model	NN-SN67HS
Serial Number	PP10002
Power Rating	120V, 60Hz, 12.4A
Firmware Version	N/A
Date of Receipt	2024.01.03
Date of Test	2024.01.04~05
I/O Ports List	AC IN port*1
AC power cord(3C)	Unshielded, Undetachable

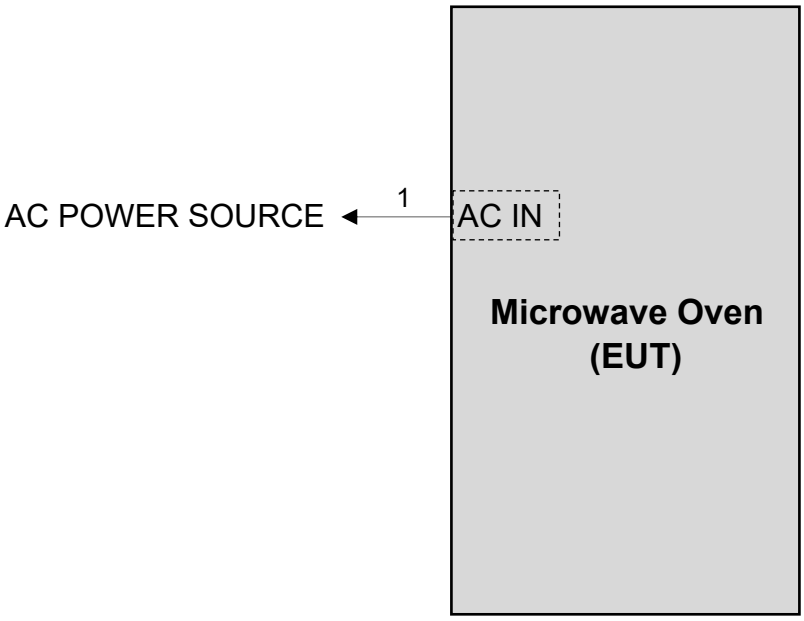
3.3. Highest Frequency within EUT

The highest frequency is 2450MHz.

4. Measurement Arrangement

4.1. Equipment and cables arrangement

- Connection Diagram of EUT and Peripheral Devices



(Out of Test Ares)

Partner System
(None)

4.2. List of Used Cables under Test

Item	Type	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remark
1	AC Power Cord (3C)	1	1.1	No	0	Accessory of EUT

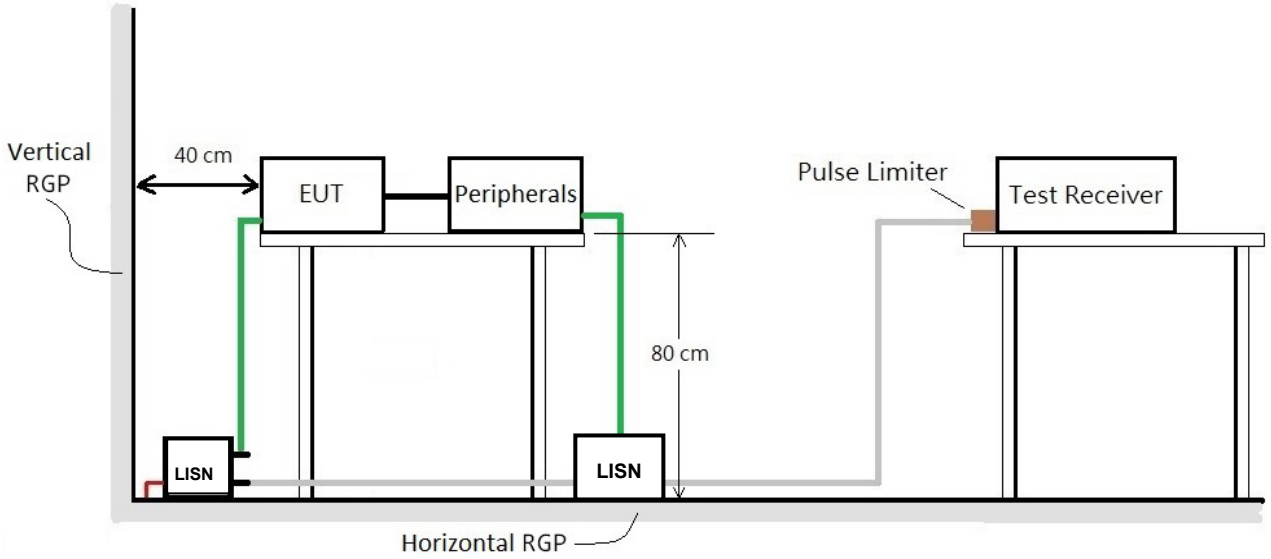
5. Measurement of Conducted Emissions

5.1. List of Test Instruments

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100839	2023-03-25	2024-03-24
2.	L.I.S.N.	Schwarzbeck	NNLK 8129	8129-164	2023-12-13	2024-12-12
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1793-4	2023-03-25	2024-03-24
4.	Pulse Limiter	R&S	ESH3-Z2	101832	2023-12-13	2024-12-12
5.	Switch	Anritsu	MP59B	6200547937	2023-12-13	2024-12-12
6.	50Ω Terminator	Tektronis	MS4630B	003-CON	2023-12-13	2024-12-12
7.	RF Cable	Shengxuan	ROS400	59/3	2023-12-13	2024-12-12
8.	Software	Audix /e3 (210616)				

5.2. Test Setup

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



5.3. 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

5.4. Measurement Procedure

- Setup the EUT and associated equipment described as section 4.1, and they were located 40cm from the vertical conducting plane.
- Connect the EUT power cord to the main A.M.N and associated equipment to the second A.M.N. All ports of the A.M.N not connecting to the measuring equipment was terminated into 50 ohm resistive load.
- Setup the resolution bandwidth of the test receiver at 9kHz (while testing within 0.15 to 30MHz).
- Operate the EUT system as described in section 4.2.
- Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, all of the interconnecting cables were manipulated.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT power cord with the peak detector by each of the EUT operation over the specified frequency range and record it.
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the current-carrying conductors of each of the EUT power cords, except the ground conductor, must be measured over the specified frequency range.
- The measurement result was calculated by following formula:
  Emission Level = Reading (Receiver) + Factor (A.M.N) + Cable Loss + Pulse Limiter
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

5.5. Measurement Result

The following data are the worst emissions based on the pre-scan measurement result.

Test Result Summary

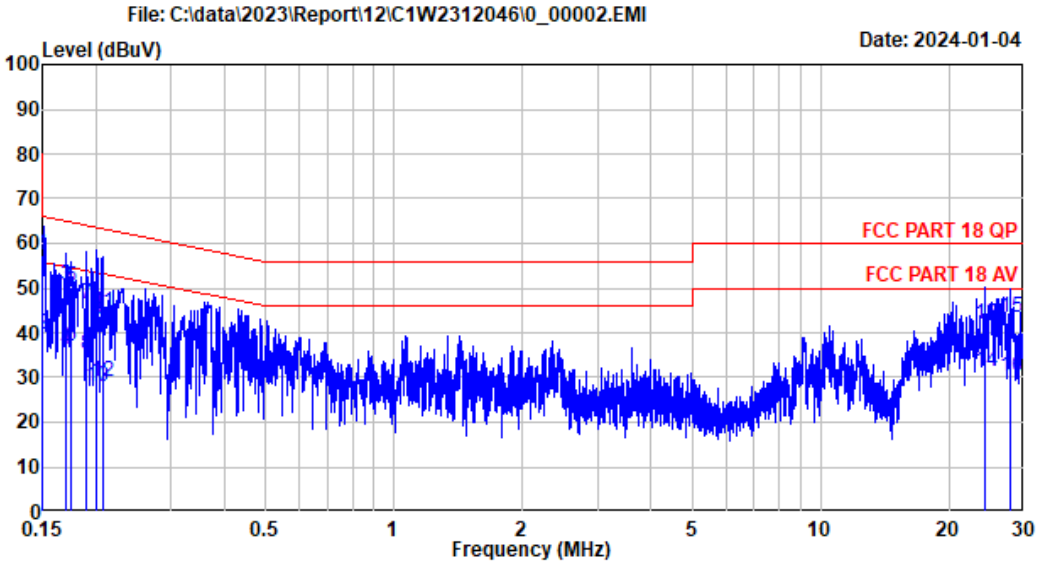
According to the recorded date in following table, the EUT complied with the FCC PART18, the worst margin reading as below:

8.76dB at 0.150MHz in the Neutral conducted mode

4.96dB at 0.151MHz in the Line conducted mode

Test Date: Jan.04, 2024 Temperature: 19.2℃ Humidity: 44%

Item	Test Condition	Reference Test Data No.	
		Neutral	Line
1	Max Power	# 2	# 1



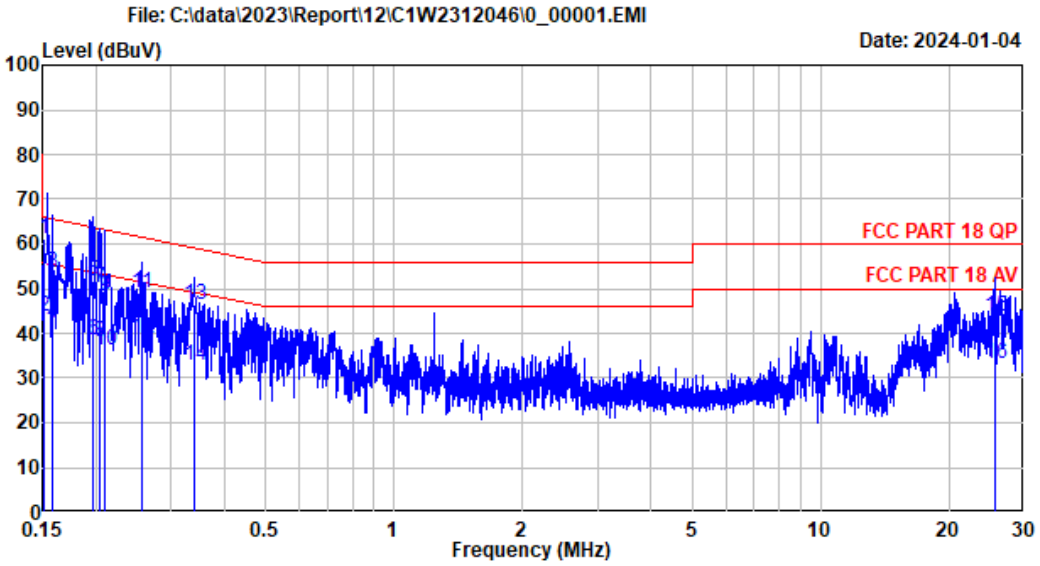
Site NO. : NO.2 shielded Room
Instrument 1 : Receiver ESCI (839)
Instrument 2 : NNLK 8129(164)|59/3|ESH3-Z2 (832)
Dis. / Ant. : NNLK8129-2312
Limit : FCC PART 18 QP
Env. / Ins. : 19.2℃& 44 %
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Neutral Data NO.:2

Engineer : Zhaolin

Freq. MHz	LISN Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.150	0.10	10.03	47.09	57.22	65.98	8.76	QP
0.150	0.10	10.03	29.60	39.73	55.98	16.25	Average
0.170	0.10	10.03	40.32	50.45	64.95	14.50	QP
0.170	0.10	10.03	25.98	36.11	54.95	18.84	Average
0.175	0.10	10.03	40.13	50.26	64.72	14.46	QP
0.175	0.10	10.03	26.79	36.92	54.72	17.80	Average
0.191	0.10	10.03	36.39	46.52	64.01	17.49	QP
0.191	0.10	10.03	24.82	34.95	54.01	19.06	Average
0.201	0.10	10.03	32.51	42.64	63.57	20.93	QP
0.201	0.10	10.03	17.91	28.04	53.57	25.53	Average
0.207	0.10	10.03	34.47	44.60	63.31	18.71	QP
0.207	0.10	10.03	18.88	29.01	53.31	24.30	Average
24.367	0.79	10.22	30.91	41.92	60.00	18.08	QP
24.367	0.79	10.22	20.29	31.30	50.00	18.70	Average
27.985	0.86	10.26	32.11	43.23	60.00	16.77	QP
27.985	0.86	10.26	19.06	30.18	50.00	19.82	Average

Remarks:Emisson Level = LISN factor+Cable loss(Cable+Pulse Att+Switch)+Reading



Site NO. : NO.2 shielded Room
Instrument 1 : Receiver ESCI (839)
Instrument 2 : NNLK 8129(164)|59/3|ESH3-Z2 (832)
Dis. / Ant. : NNLK8129-2312
Limit : FCC PART 18 QP
Env. / Ins. : 19.2℃& 44 %
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Line1 Data NO.:1

Engineer : Zhaolin

Freq. MHz	LISN Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.151	0.10	10.03	50.85	60.98	65.94	4.96	QP
0.151	0.10	10.03	33.52	43.65	55.94	12.29	Average
0.159	0.10	10.03	43.61	53.74	65.54	11.80	QP
0.159	0.10	10.03	32.02	42.15	55.54	13.39	Average
0.198	0.10	10.03	41.69	51.82	63.71	11.89	QP
0.198	0.10	10.03	28.25	38.38	53.71	15.33	Average
0.204	0.10	10.03	39.94	50.07	63.45	13.38	QP
0.204	0.10	10.03	28.10	38.23	53.45	15.22	Average
0.210	0.10	10.03	38.12	48.25	63.19	14.94	QP
0.210	0.10	10.03	26.12	36.25	53.19	16.94	Average
0.256	0.10	10.03	38.91	49.04	61.54	12.50	QP
0.256	0.10	10.03	28.60	38.73	51.54	12.81	Average
0.342	0.10	10.03	36.24	46.37	59.16	12.79	QP
0.342	0.10	10.03	22.85	32.98	49.16	16.18	Average
25.727	0.91	10.23	32.54	43.68	60.00	16.32	QP
25.727	0.91	10.23	22.08	33.22	50.00	16.78	Average

Remarks:Emisson Level = LISN factor+Cable loss(Cable+Pulse Att+Switch)+Reading

6. Measurement of Radiated Hazard

6.1. List of Test Instruments

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2023-03-25	2024-03-24
2.	Horn Antenna	ETS	3117	00218586	2023-03-13	2024-03-12
3.	Power Meter	Yokogawa test&Measurement Corporation	WT310E	C3XL12007E	2023-12-13	2024-12-12
4.	Thermometer	LUYUETING	923	N/A	2023-10-11	2024-10-10
5.	Field Probe + Field Meter	WAVECONTROL	WPF6 & SMP2	20WP060285 & 20SN1471	2023-10-11	2024-10-10

6.2. Applicable Standard

FCC §18.301 & FCC §18.305

6.3. Measurement Procedure

Radiation Hazard Measurement for microwave

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 0.1mW/cm^2 observed at any point 5 cm or more from the external surface of the oven.

A maximum of 1.0 mW/cm^2 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.

Input Power

Input power and current was measured using a power analyzer. A 1200mL water load was placed in the center of the oven and the oven was operated at maximum output power. A 1200mL water load was chosen for its compatibility with the procedure commonly used by manufacturers to determine their input ratings.

Input Voltage (V_{AC}/Hz)	Input Current (Amps)	Measured Input Power (Watts)	Rated Input Power (Watts)	Mode
120/60	12.3	1470	1480	Microwave

☒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 abso bed 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: 1200 milliliters of water in the beaker located in the center of the oven.
- Load for frequency measurement: 1200 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 840 and the other of 360 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.

The RF output power is rated at 1200 watts

Load used for power output measurement = 1200 milliliters of water
Load used for frequency measurement = 1200 milliliters of water
Load used for harmonic measurement =840 & 360 milliliters of water
Load used for other measurement = 840 milliliters of water

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 of 10 ºC ± 1 ºC is used for the test. The water temperature is measured immediately before it is poured into the container.

A quantity of 1200 g ± 5 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 20 ºC ± 2 ºC is measured. The oven is then switched off and the final water temperature is measured within 60 s.

m_w (g)	m_c (g)	T_0 (ºC)	T_1 (ºC)	T_2 (ºC)	t (s)
1200	450	19.6	10.1	20.5	48

RF Output Power = (4.187*1200*(20.5–10.1) + 0.55*450*(20.5–19.6))/48= 1093.3Watts

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_o 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-B, the measured out-of-band emissions were compared to the limit of 25μV/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-B, the measured out-of-band emissions were compared with the limit calculated as following:

LFS = 25*SQRT (Power Output/500)

LFS = 25*SQRT (1093.3/500) LFS

= 36.96

Where: LFS is the maximum allowable field strength for out-of-band emissions in μV/meter at a 300-meter measurement distance. Power Output is the measured output power in watts.

LFS μV/m@300m	dBμV/m@300m	dBμV/m@3m
36.96	31.7	71.7

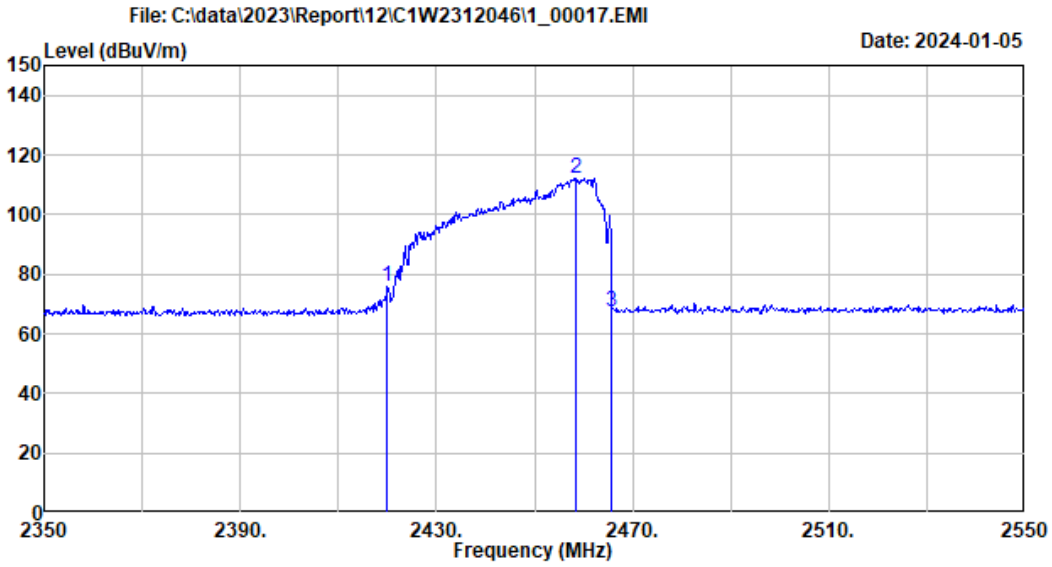
Note: Limit (dBμV/m@3) = Limit (dBμV/m@300m) + 40(dB)

6.4. Measurement Result

Variation in Operating Frequency with Time

The operating frequency was measured using a spectrum analyzer. Starting with the EUT at room temperature, a 1200mL 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.

Low Frequency (MHz)	High Frequency (MHz)
2420.000	2465.800

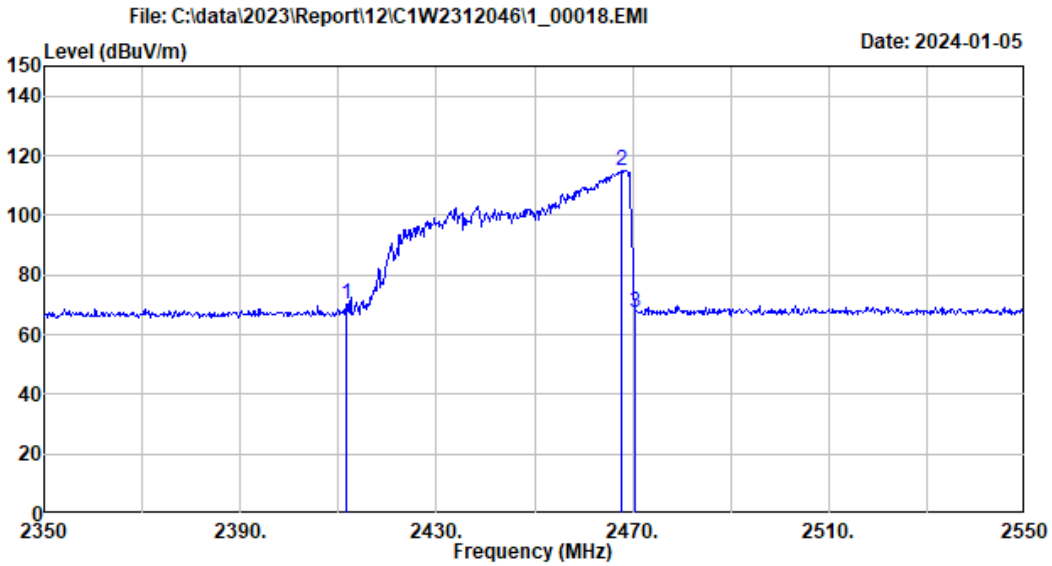


Variation in Operating Frequency with Line Voltage

The EUT was operated / warmed by at least 10 minutes of use with a 1200mL 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.

Line voltage varied from 96 V_{AC} to 150 V_{AC}.

Low Frequency (MHz)	High Frequency (MHz)
2411.600	2470.400



7. Measurement of Radiated Emissions

7.1. List of Test Instruments

- For measurement of 30 to 1000MHz frequency range
  (At No.2 3m Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESR7	101956	2023-03-25	2024-03-24
2.	Pre-Amplifier	Agilent	8447D	2944A10922	2023-03-25	2024-03-24
3.	Bi-log Antenna	SCHWARZBECK	VULB 9168	706	2023-03-12	2024-03-11
4.	RF Cable	Chengyi +Shengxuan	NM500+ROS 400	190945+6000+ 3000	2023-07-12	2024-07-11
5.	Software	Audix /e3 (210616)				

- For measurement of above 1GHz frequency range
  (At No.2 3m Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2023-03-25	2024-03-24
2.	Microwave Amplifier	Agilent	8449B	3008A02232	2023-03-25	2024-03-24
3.	Preamplifier (18~40G)	Chengyi	EMC184045SE	980556	2023-12-13	2024-12-12
4.	Horn Antenna	ETS	3117	00218586	2023-03-13	2024-03-12
5.	Horn Antenna	ETS	3116	62641	2023-05-29	2024-05-28
6.	RF Cable(1~18G)	Chengyi	EMC104-SF-SM-8000/NM-1000	190938+ 190942	2023-07-11	2024-07-10
7.	RF Cable(18~40G)	Huber+ Shuner	SUCOFLEX 102	800978/2+ 800977/2	2023-12-13	2024-12-12
8.	Software	Audix /e3 (210616)				

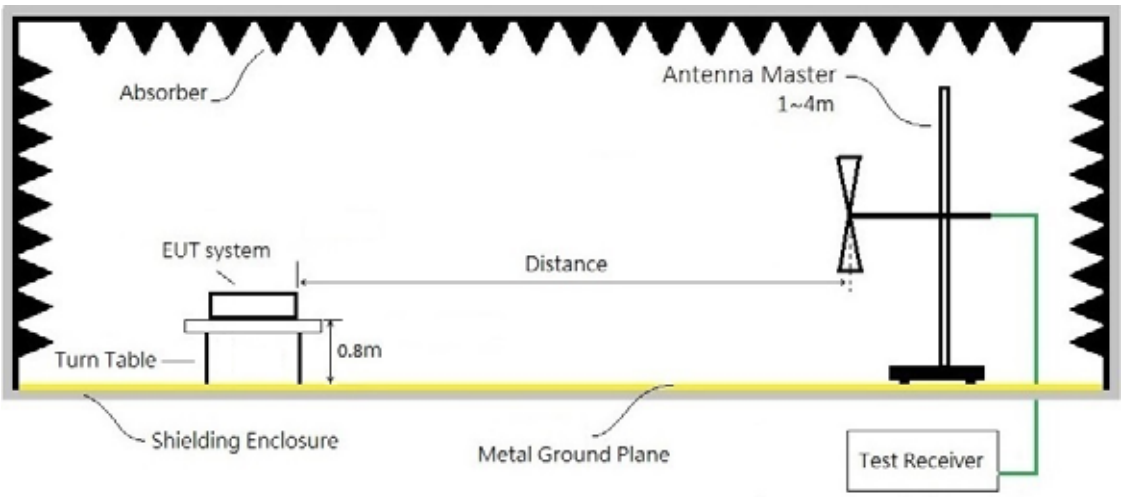
7.2. Applicable Standard

FCC §18.305, §18.309

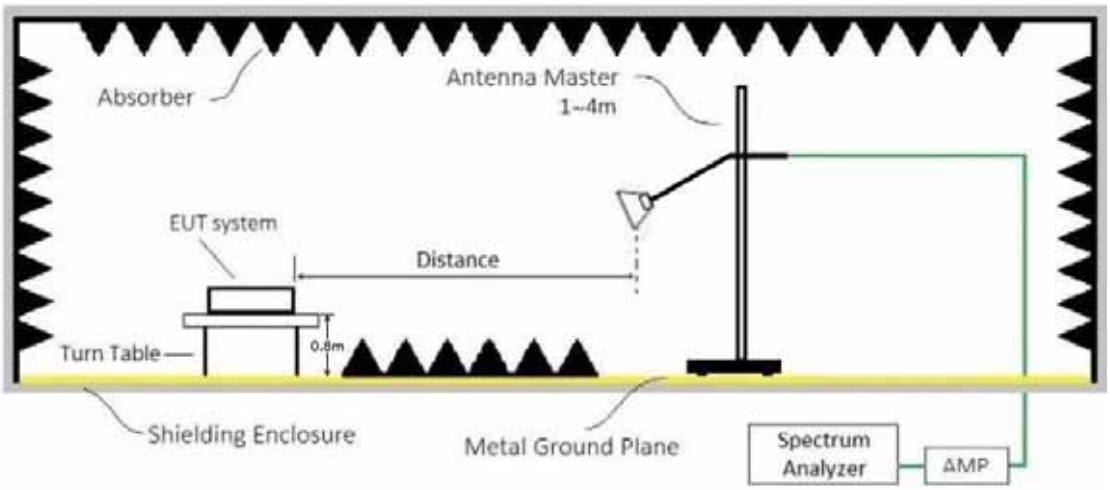
7.3. Test Setup

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.

- For frequency range 30 to 1000MHz (at Semi-Anechoic Chamber)



- For frequency range above 1GHz (at Semi-Anechoic Chamber)



7.4. EMI Test Receiver Setup

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

Frequency Range	RBW	Video B/W	IF B/W	Detector Type
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	Peak
	1MHz	10Hz	1MHz	AVG

7.5. Measurement Procedure

- The EUT and peripherals were placed on the rotatable non-conduction table, which is 0.8meters above the ground reference plane at the semi-anechoic chamber or OATS as described in section 4.1 and 6.2.
- The measurement distance is set as specified in section 6.3. The specified distance is between the horizontal projection onto the ground plane of the closest periphery of the EUT and the projection onto the ground plane of the center of the axis of the elements of the receiving antenna.
- The resolution bandwidth of the test receiver was at 120kHz (testing from 30 to 1000MHz) or 1MHz (testing above 1000MHz).
- Operate the EUT system as described in section 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of antenna polarization with the peak detector by each of the EUT operations over the specified frequency range and record it.
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it.
- In order to determine the maximum emission level, must rotate the table in 360 degree and move the receiving antenna between 1~4m height above the ground reference plane.
- In order to find the maximum emission, all of the interconnecting cables were manipulated, except for the bundled cable.
- Both polarizations of receiving antenna were determined.
- The measurement result was calculated by following formulas:

  (30 – 1000MHz)

  Emission Level (dBμV/m) = Reading (Spectrum) (dBμV) + Antenna Factor (dB/m)– Preamp Gain (dB) + Cable Loss (dB)

  (Above 1GHz)

  Emission Level (dBμV/m) = Reading (Spectrum) (dBμV) + Antenna Factor (dB/m)– Preamp Gain (dB) + Cable Loss (dB)
- The 3dB bandwidth of the horn antenna is minimum 22 degree (or *w*=1.17m at 3m distance) for 1~18 GHz.
- The 3dB bandwidth of the horn antenna is minimum 14 degree (or w=0.73m at 3m distance) for 1~18 GHz.

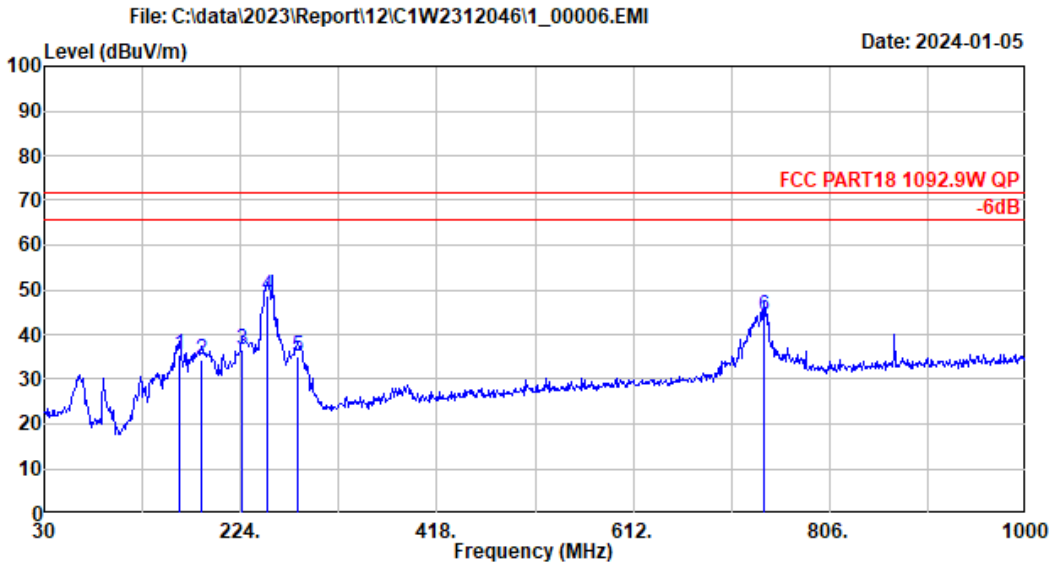
7.6. Measurement Result

Test Result Summary
According to the recorded date in following table, the EUT complied with the FCC PART18, the worst margin reading as below:
23.09dB at 251.160MHz in the Horizontal polarization, 30MHz-1GHz
8.64dB at 4953.300MHz in the Horizontal polarization, 1-25GHz

- For frequency range 30 – 1000MHz

Test Date: Jan.05, 2024 Temperature: 22℃ Humidity: 51%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	Max Power	# 6	# 5



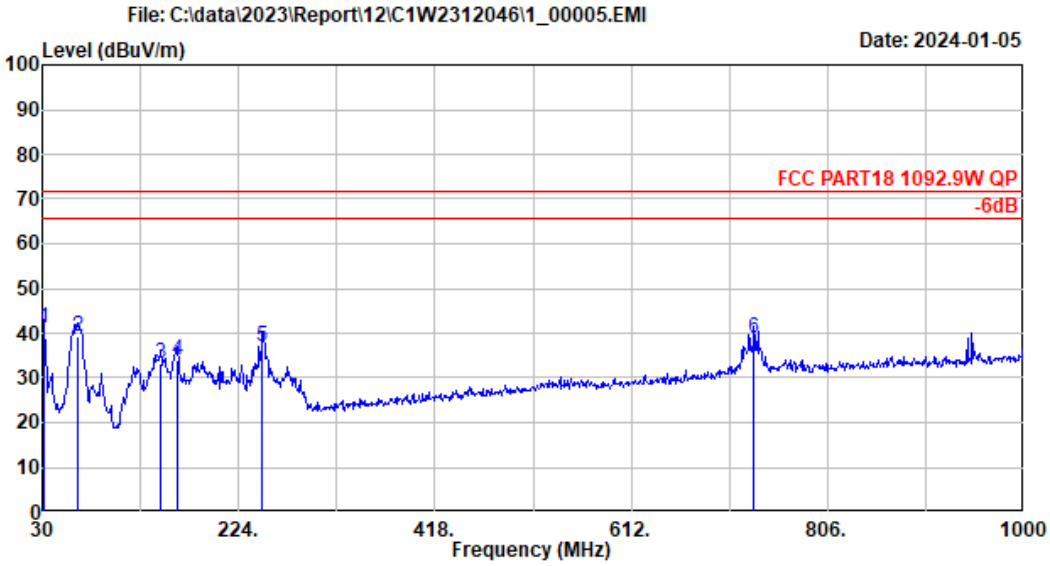
Site NO. : NO.2 3M Chamber
Instrument 1 : Receiver ESR7 (956)
Instrument 2 : Preamplifier 8447D(922)|400
Dis. / Ant. : 9168-706-2304-3M
Limit : FCC PART18 1092.9W QP
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Horizontal Data NO.:6

Engineer : Zhouweihan

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
162.890	19.10	0.70	43.06	27.40	35.46	71.70	36.24	QP
185.200	17.43	0.75	43.38	27.31	34.25	71.70	37.45	QP
224.970	16.95	0.85	45.85	27.21	36.44	71.70	35.26	QP
251.160	17.83	0.91	57.03	27.16	48.61	71.70	23.09	QP
280.260	18.71	0.98	42.65	27.11	35.23	71.70	36.47	QP
741.010	27.52	1.71	43.38	28.35	44.26	71.70	27.44	QP

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



Site NO. : NO.2 3M Chamber
Instrument 1 : Receiver ESR7 (956)
Instrument 2 : Preamplifier 8447D(922)|400
Dis. / Ant. : 9168-706-2304-3M
Limit : FCC PART18 1092.9W QP
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Vertical Data NO.:5

Engineer : Zhouweihan

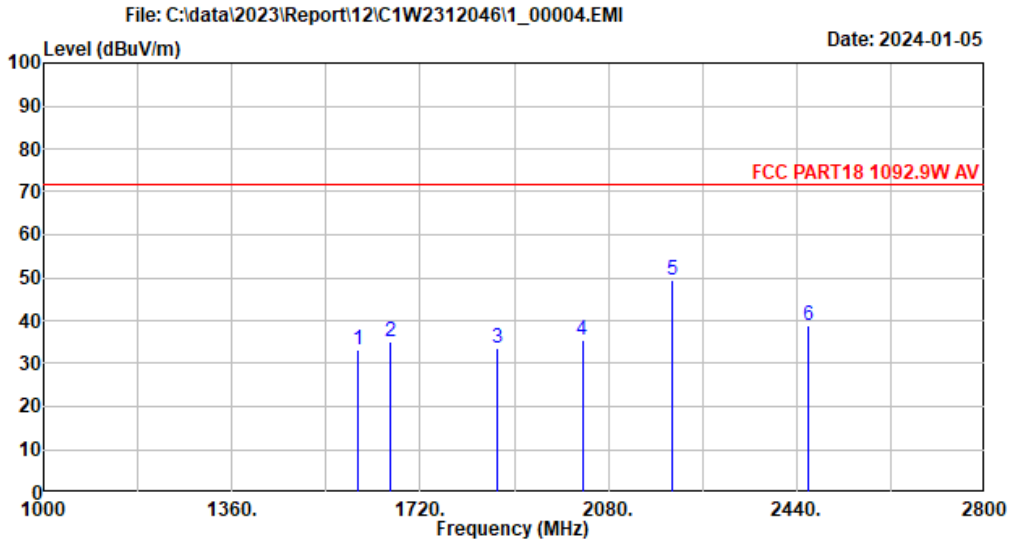
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
31.260	18.59	0.28	49.97	27.85	40.99	71.70	30.71	QP
65.890	18.32	0.43	48.36	27.73	39.38	71.70	32.32	QP
147.370	19.05	0.66	40.92	27.46	33.17	71.70	38.53	QP
162.890	19.10	0.70	41.65	27.40	34.05	71.70	37.65	QP
247.280	17.71	0.90	45.66	27.17	37.10	71.70	34.60	QP
733.250	27.40	1.70	37.97	28.39	38.68	71.70	33.02	QP

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

- For frequency range 1 – 2.8GHz

Test Date: Jan.05, 2024 Temperature: 22℃ Humidity: 51%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	Max Power	# 4	# 3



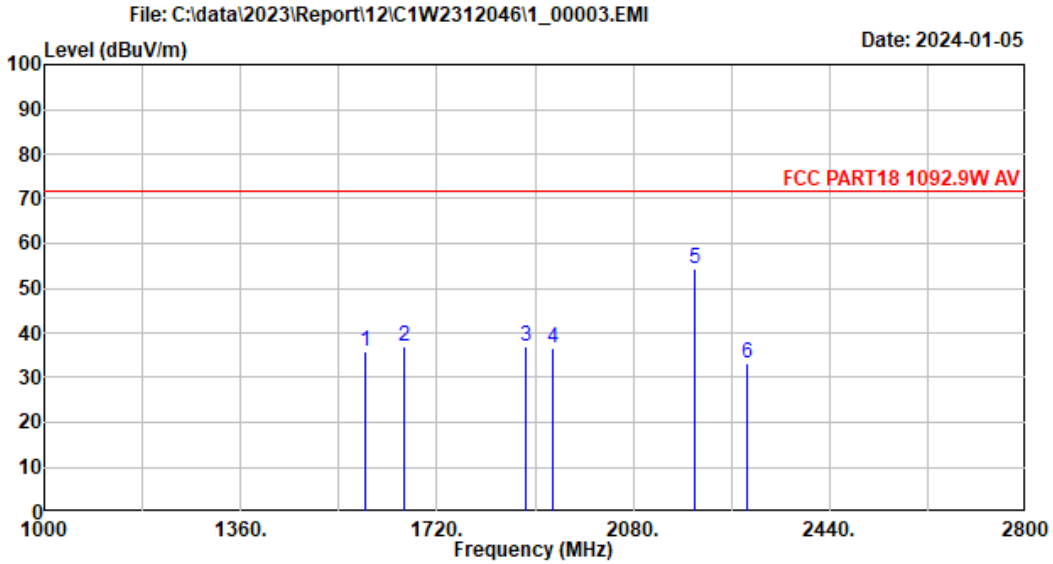
Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Memo13:Preamplifier 8449B(234)|000
Dis. / Ant. : 3117-586-2304
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Horizontal Data NO.:4

Engineer : Zhouweihan

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1599.900	28.46	2.32	35.36	32.78	33.36	71.70	38.34	Average
1662.950	29.00	2.38	36.62	32.74	35.26	71.70	36.44	Average
1868.790	30.77	2.58	32.97	32.59	33.73	71.70	37.97	Average
2030.140	31.92	2.74	33.20	32.49	35.37	71.70	36.33	Average
2202.300	32.02	2.91	46.78	32.44	49.27	71.70	22.43	Average
2462.960	32.18	3.17	35.78	32.36	38.77	71.70	32.93	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Memo13:Preamplifier 8449B(234)|000
Dis. / Ant. : 3117-586-2304
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Vertical Data NO.:3

Engineer : Zhouweihan

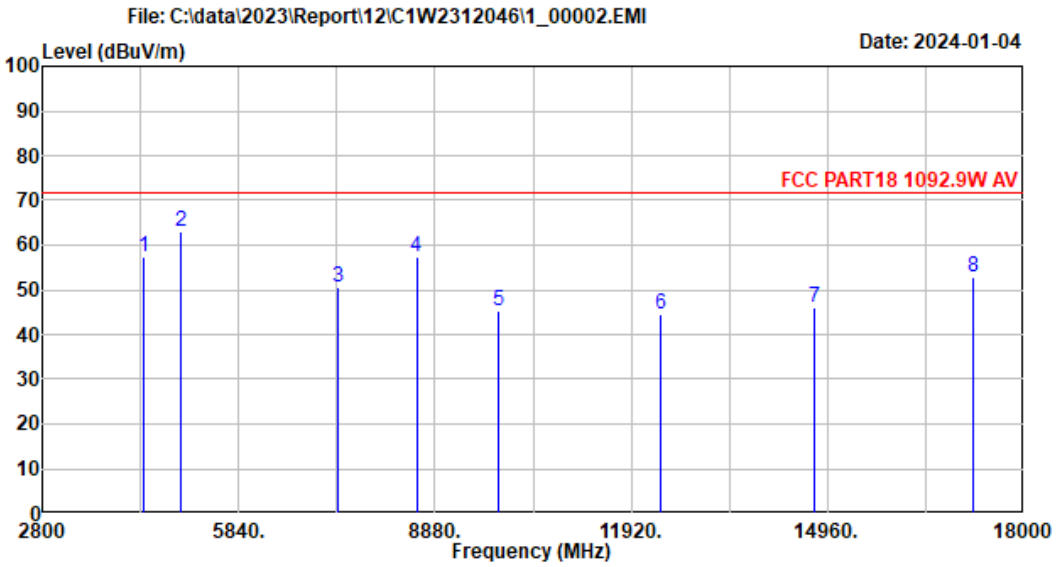
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1589.220	28.37	2.31	37.95	32.79	35.84	71.70	35.86	Average
1658.740	28.97	2.38	38.46	32.74	37.07	71.70	34.63	Average
1882.649	30.89	2.59	35.95	32.58	36.85	71.70	34.85	Average
1933.640	31.33	2.64	35.22	32.55	36.64	71.70	35.06	Average
2193.350	32.02	2.90	51.95	32.44	54.43	71.70	17.27	Average
2289.146	32.07	3.00	30.36	32.41	33.02	71.70	38.68	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

- For frequency range 2.8 – 18GHz

Test Date: Jan.04, 2024 Temperature: 22℃ Humidity: 51%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	Max Power	# 2	# 1



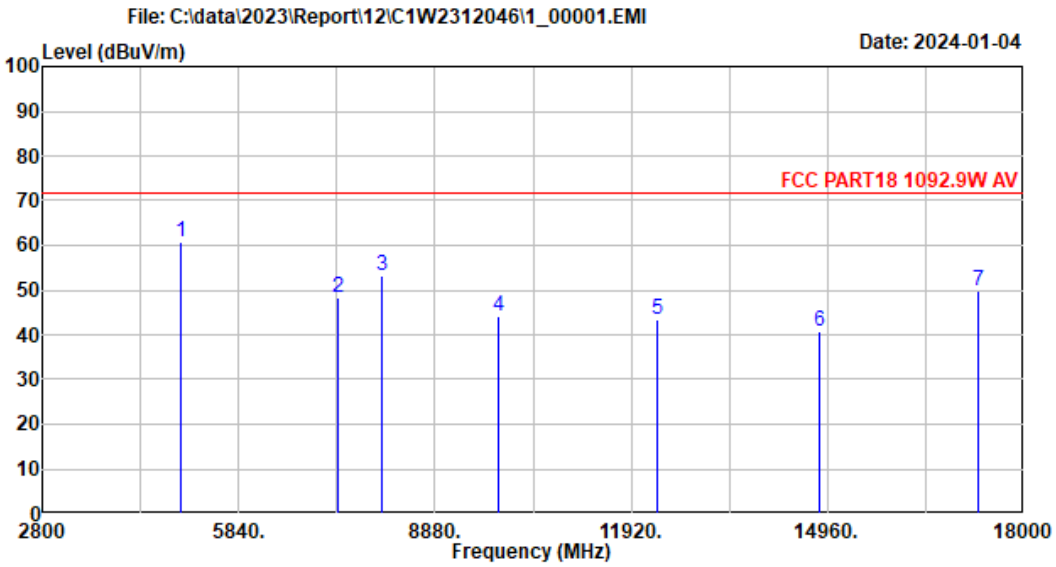
Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Memo13:Preamplifier 8449B(234)|000
Dis. / Ant. : 3117-586-2304
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Horizontal Data NO.:2

Engineer : Zhouweihan

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
4374.600	33.70	4.24	51.16	31.67	57.43	71.70	14.27	Average
4953.300	33.98	4.40	56.47	31.79	63.06	71.70	8.64	Average
7381.250	35.60	5.89	40.87	31.64	50.72	71.70	20.98	Average
8595.350	35.86	6.17	47.26	32.12	57.17	71.70	14.53	Average
9859.700	36.93	6.63	33.51	31.97	45.10	71.70	26.60	Average
12375.900	38.78	7.18	30.40	31.91	44.45	71.70	27.25	Average
14752.140	39.50	7.81	30.69	32.03	45.97	71.70	25.73	Average
17227.800	41.66	8.59	33.62	31.03	52.84	71.70	18.86	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Memo13:Preamplifier 8449B(234)|000
Dis. / Ant. : 3117-586-2304
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Vertical Data NO.:1

Engineer : Zhouweihan

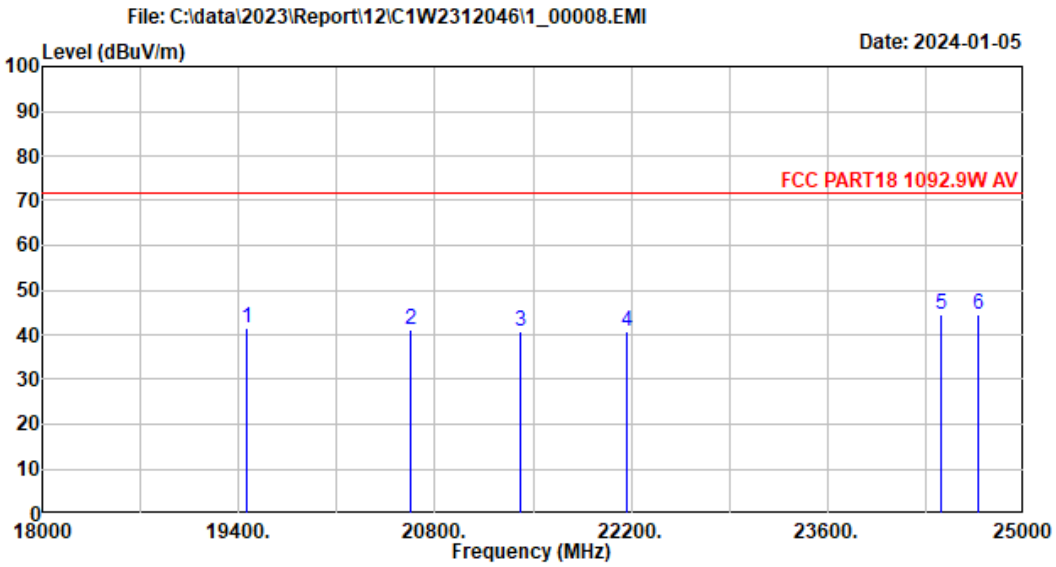
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
4948.950	33.98	4.40	54.13	31.79	60.72	71.70	10.98	Average
7388.250	35.60	5.90	38.55	31.64	48.41	71.70	23.29	Average
8058.500	35.80	6.05	42.99	31.74	53.10	71.70	18.60	Average
9861.350	36.93	6.63	32.59	31.97	44.18	71.70	27.52	Average
12325.150	38.77	7.16	29.27	31.90	43.30	71.70	28.40	Average
14846.160	39.58	7.85	25.55	32.21	40.77	71.70	30.93	Average
17296.350	41.62	8.61	30.49	31.10	49.62	71.70	22.08	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

- For frequency range 18 – 25GHz

Test Date: Jan.05, 2024 Temperature: 22℃ Humidity: 51%

Item	Test Condition	Reference Test Data No.	
		Horizontal	Vertical
1	Max Power	# 8	# 7



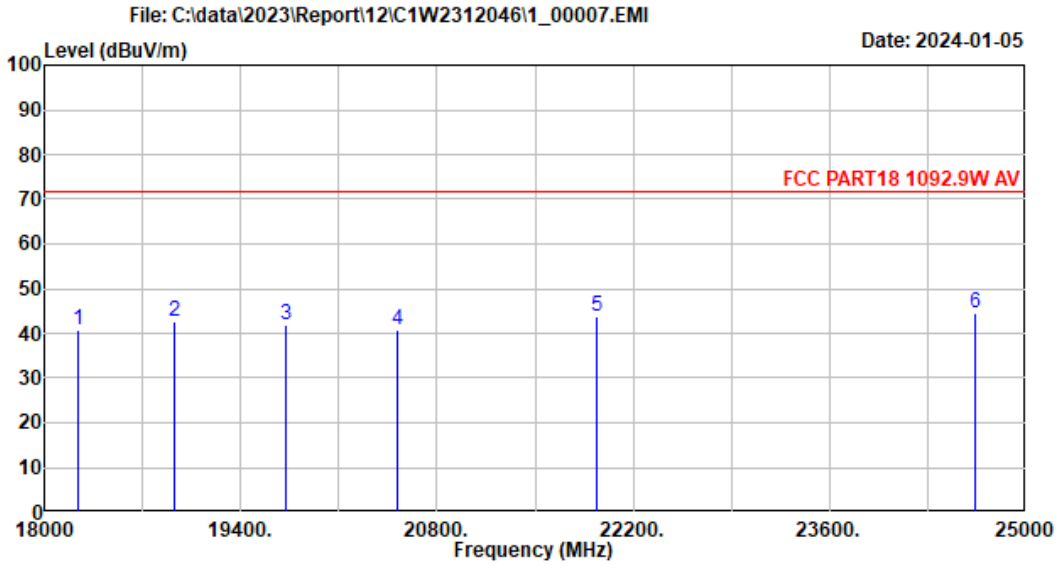
Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Preamplifier EMC184045SE(556)|7/2
Dis. / Ant. : 3116-641-2307
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Horizontal Data NO.:8

Engineer : Zhouweihan

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
19454.180	45.25	9.51	38.71	51.77	41.70	71.70	30.00	Average
20623.280	45.32	9.76	38.12	52.10	41.10	71.70	30.60	Average
21414.260	45.62	9.92	37.70	52.31	40.93	71.70	30.77	Average
22164.740	45.40	10.16	37.96	52.62	40.90	71.70	30.80	Average
24405.800	45.36	10.71	40.89	52.32	44.64	71.70	27.06	Average
24673.740	45.54	10.79	40.78	52.40	44.71	71.70	26.99	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(217)
Instrument 2 : Preamplifier EMC184045SE(556)|7/2
Dis. / Ant. : 3116-641-2307
Limit : FCC PART18 1092.9W AV
Env. / Ins. : 22°C/51%
EUT : Microwave Oven
M/N : NN-SN67HS
Power Rating : 120Vac/60Hz
Test Mode : Max Power
Memo :

Ant. pol.: Vertical Data NO.:7

Engineer : Zhouweihan

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
18244.880	44.14	9.12	39.02	51.35	40.93	71.70	30.77	Average
18933.400	44.75	9.33	40.13	51.49	42.72	71.70	28.98	Average
19727.780	45.30	9.60	38.79	51.94	41.75	71.70	29.95	Average
20515.280	45.22	9.75	37.99	52.10	40.86	71.70	30.84	Average
21942.500	45.42	10.09	41.01	52.57	43.95	71.70	27.75	Average
24643.630	45.51	10.78	40.62	52.39	44.52	71.70	27.18	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

8. Measurement Uncertainty List

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.

The uncertainties value is not used in determining the PASS/FAIL results.

Test Item	Range Frequency	Uncertainty
No.2 Conducted Shielding Enclosure		
Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 3.06dB
At 3m Semi-Anechoic Chamber		
Radiated Disturbance Measurement (Distance 3m)	30MHz ~ 1GHz	± 4.80dB
	1GHz ~ 6GHz	± 4.60dB
	6GHz ~ 18GHz	± 4.52dB
	18GHz ~ 40GHz	± 4.12dB

Remark: Uncertainty = $ku_c(y)$

The standards listed in this report only require the uncertainty to be listed, and the measurement uncertainty is not required to be calculated in the measurement results. Therefore, the conformity judgment results are in accordance with the quality document TMC-205, and the test results in this report meet the requirements of the standards listed in this report.

9. Photographs

9.1. Powerline Conducted Emission Measurement

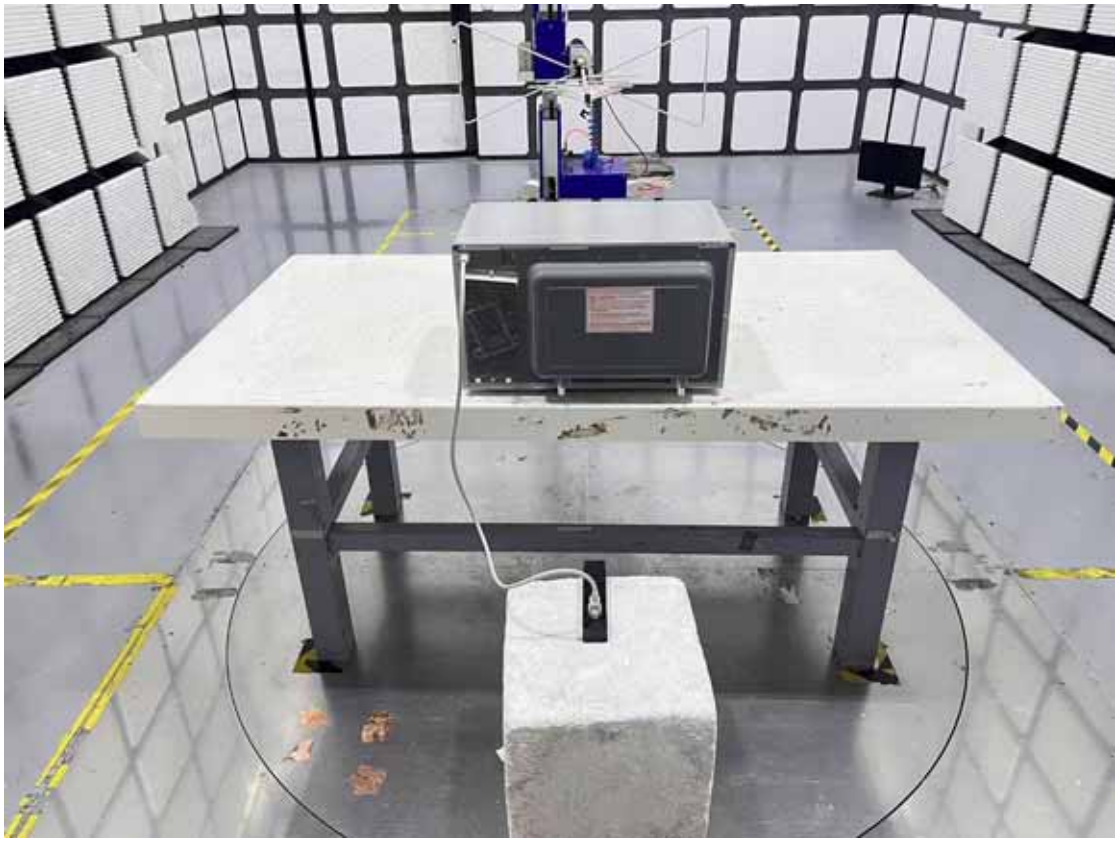
Front View of Conducted Measurement

Back View of Conducted Measurement

9.2. Radiated Emissions Measurement

- For Frequency Range 30 – 1000MHz

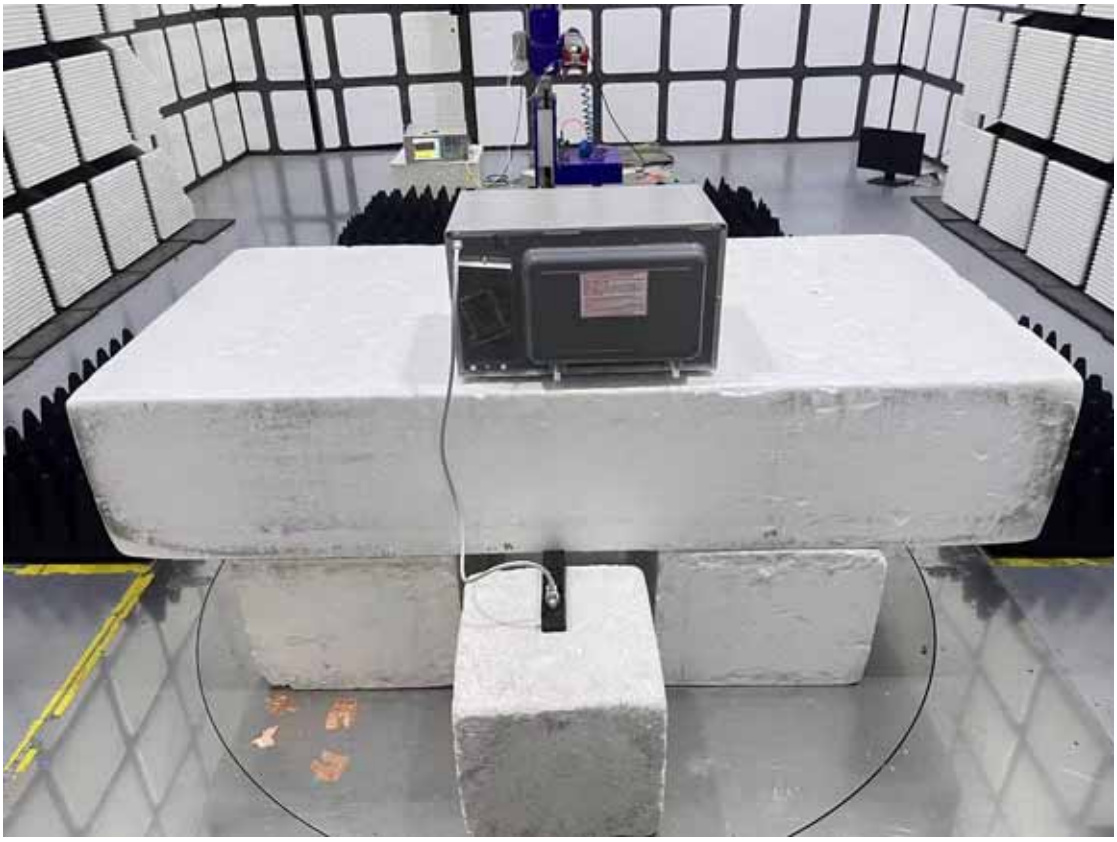
Front View of Radiated Measurement



Back View of Radiated Measurement

- For Frequency Rang 1 – 18GHz

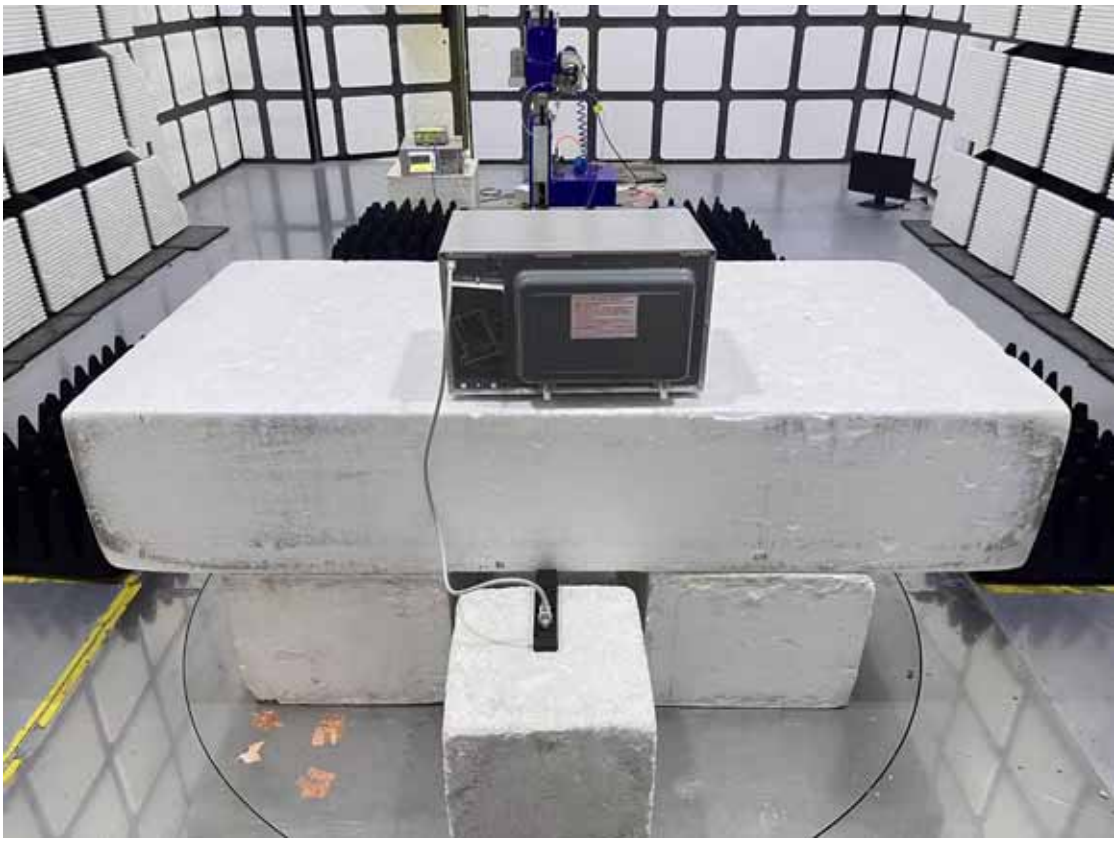
Front View of Radiated Measurement



Back View of Radiated Measurement

- For Frequency Rang Above 18GHz

Front View of Radiated Measurement



Back View of Radiated Measurement

APPENDIX

(Photos of EUT)

Figure 1
General Appearance (All View)

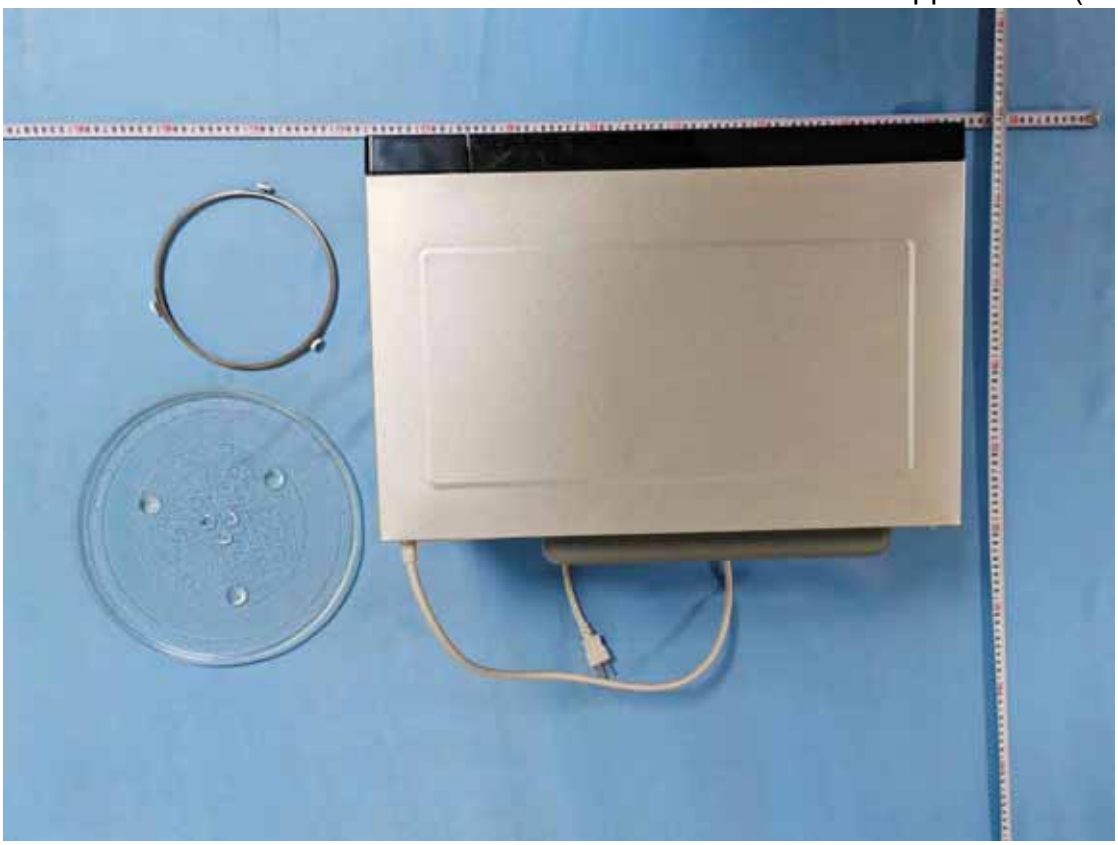


Figure 2
General Appearance (Front View)

Figure 3
General Appearance (Back View)

Figure 4
General Appearance (Side View)

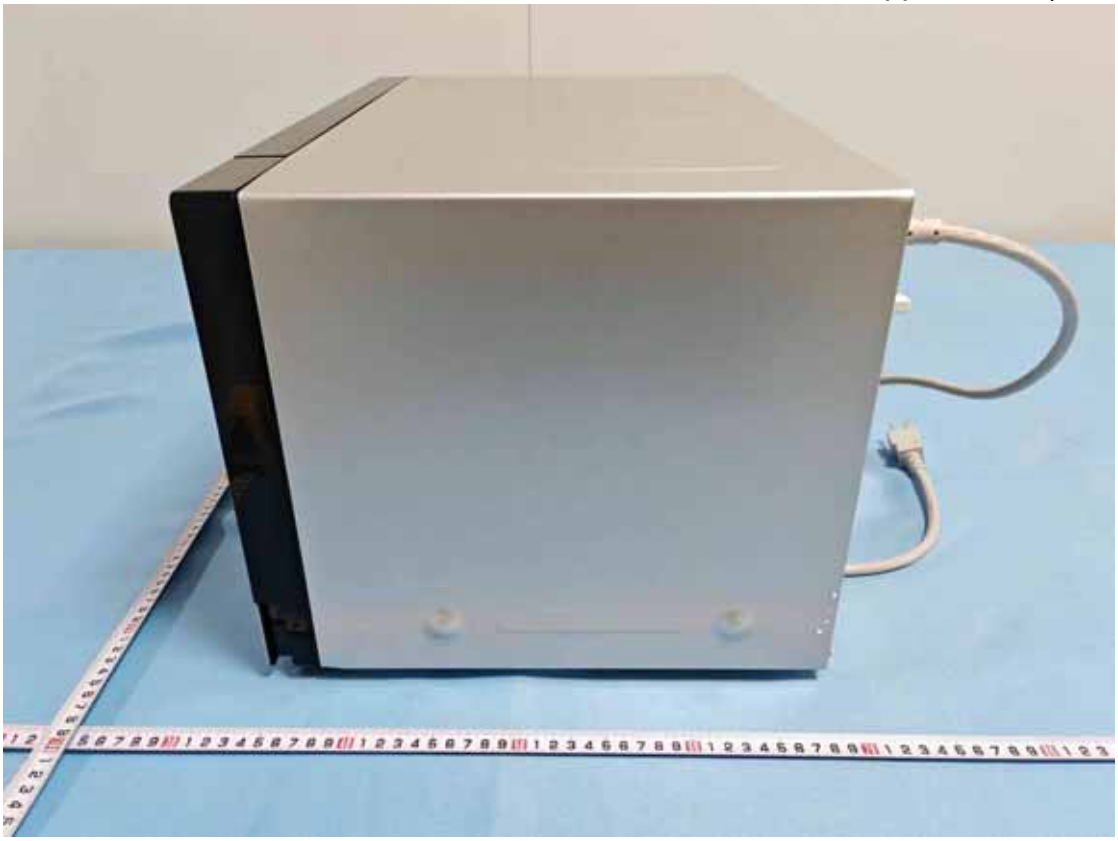


Figure 5
General Appearance (Side View)

Figure 6
General Appearance (Top View)

Figure 7
General Appearance (Bottom View)

Figure 8
Cover Off View-1

Figure 9
Cover Off View-2

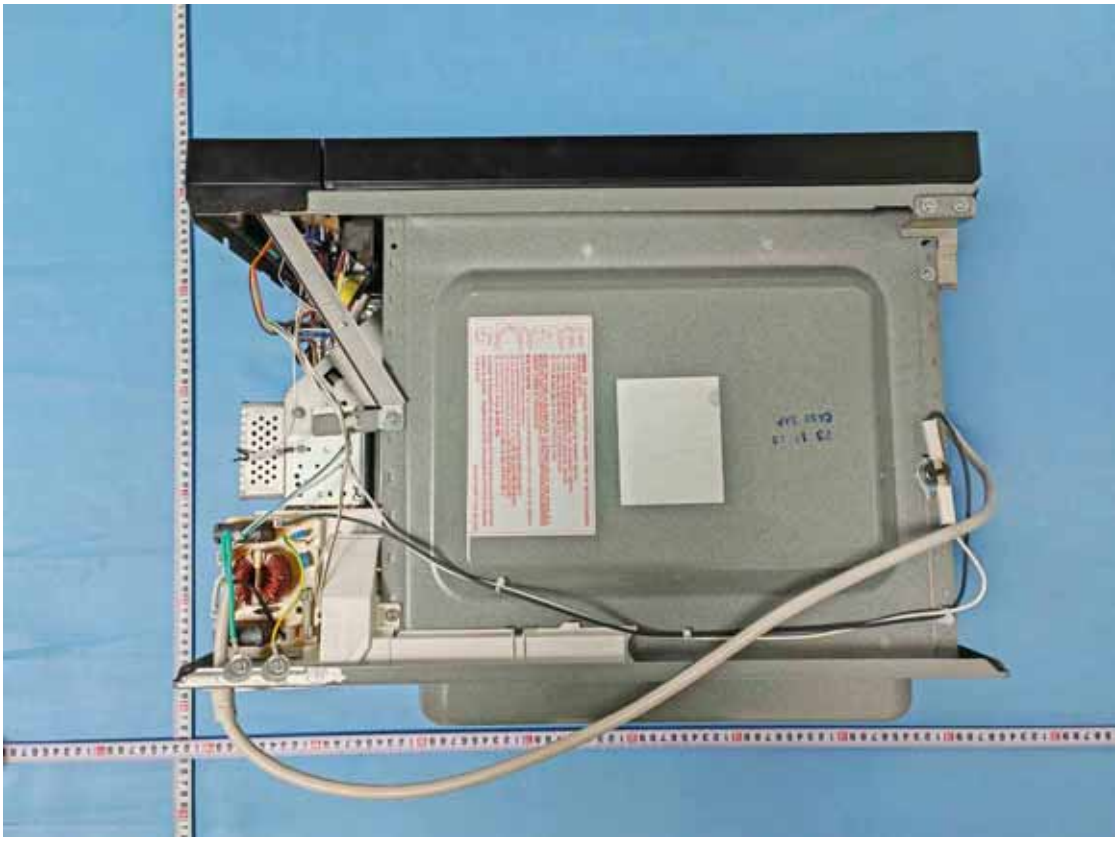


Figure 10
Cover Off View-3

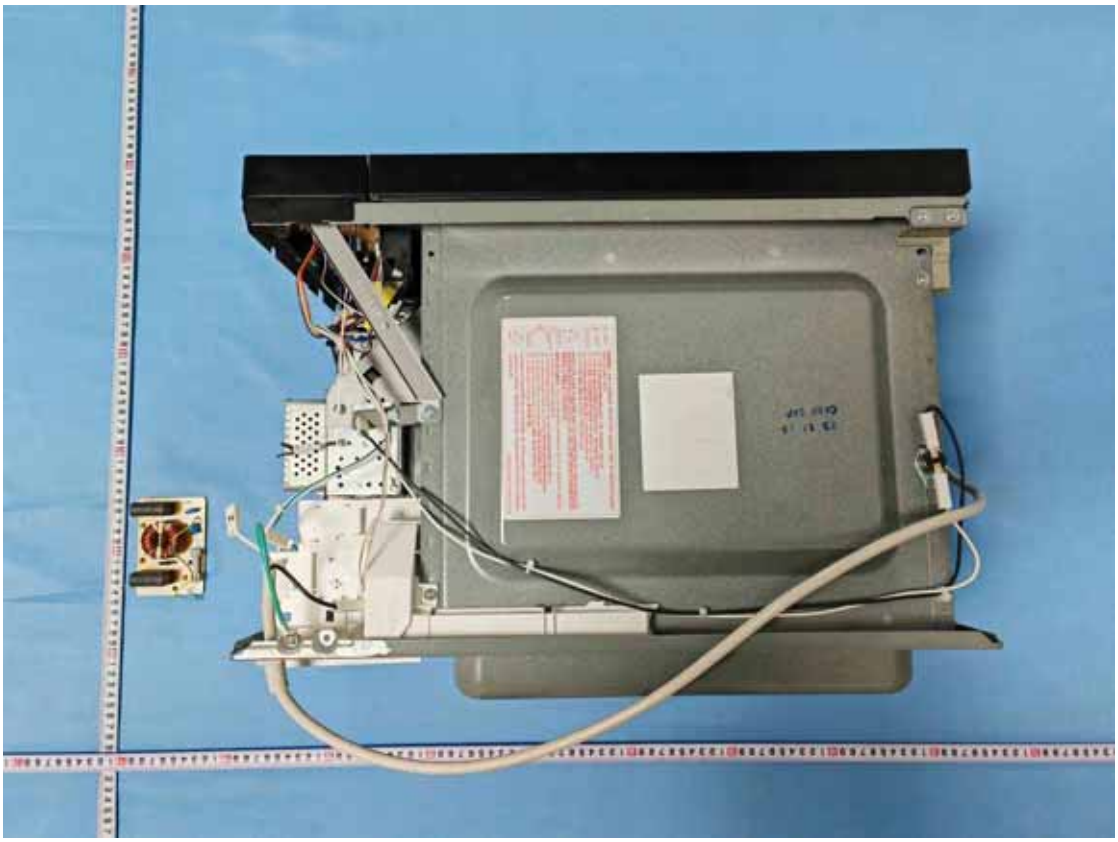


Figure 11
PCB Board-1 (Component Side)

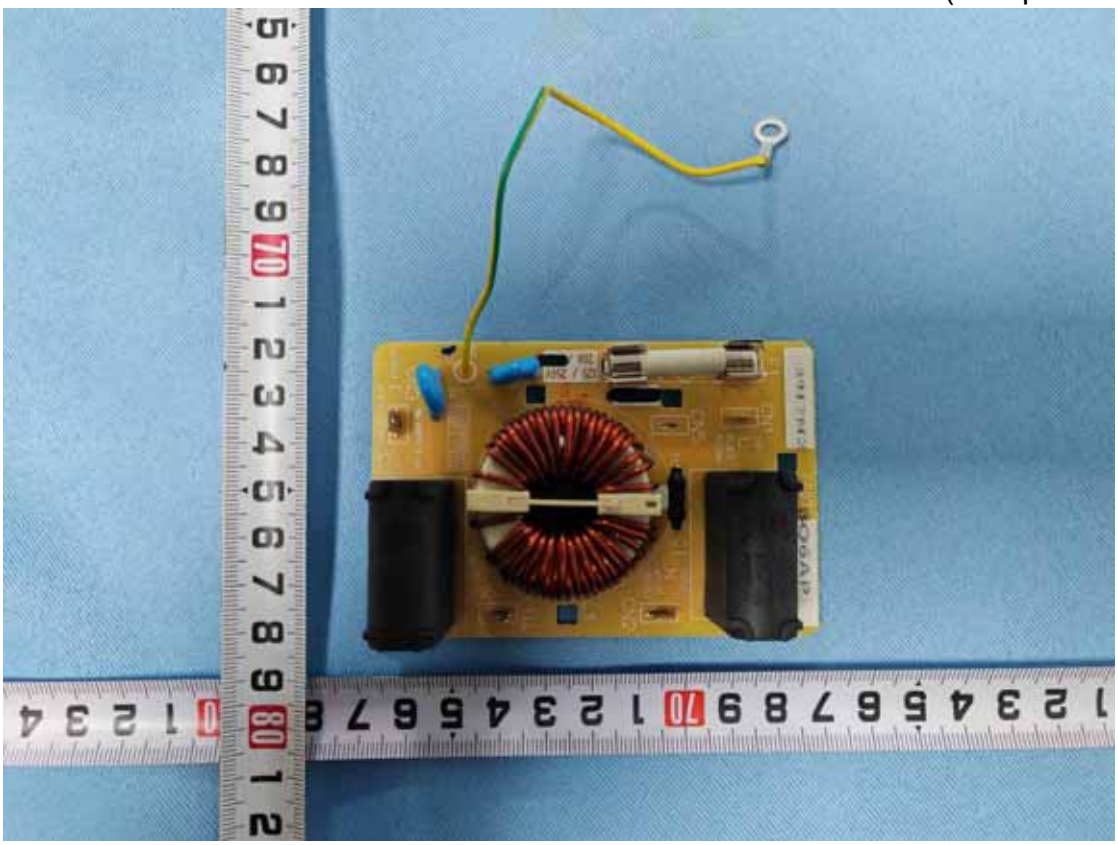


Figure 12
PCB Board-1 (Solder Side)

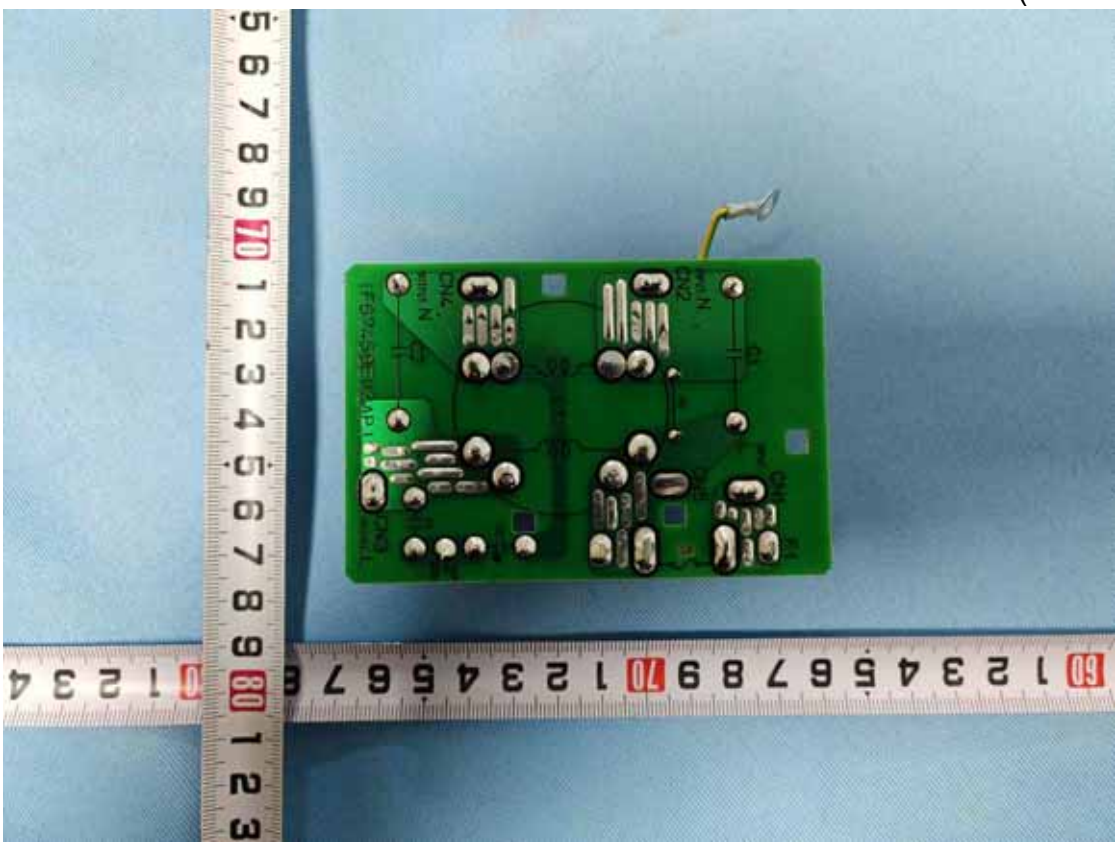


Figure 13
Cover Off View-4

Figure 14
Cover Off View-5

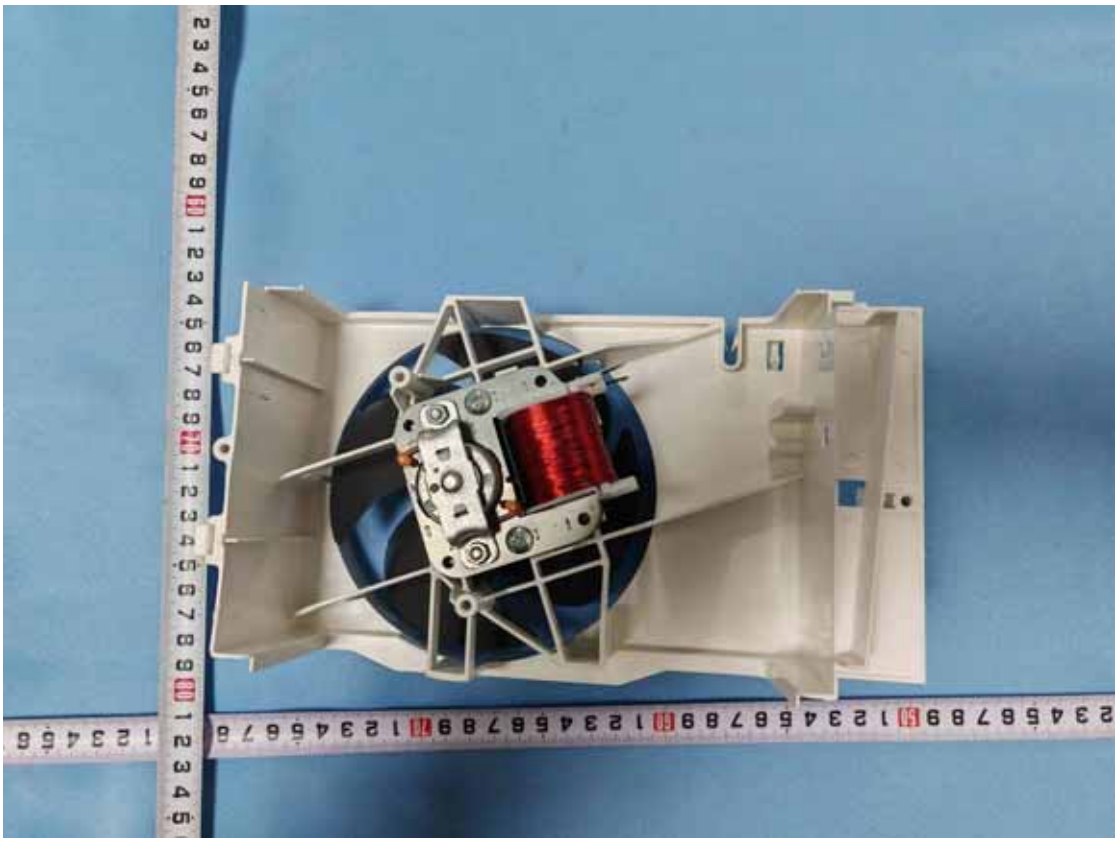


Figure 15
Cover Off View-6

Figure 16
Cover Off View-7

Figure 17
Cover Off View-8

Figure 18
Cover Off View-9

Figure 19
Cover Off View-10

Figure 20
Cover Off View-11

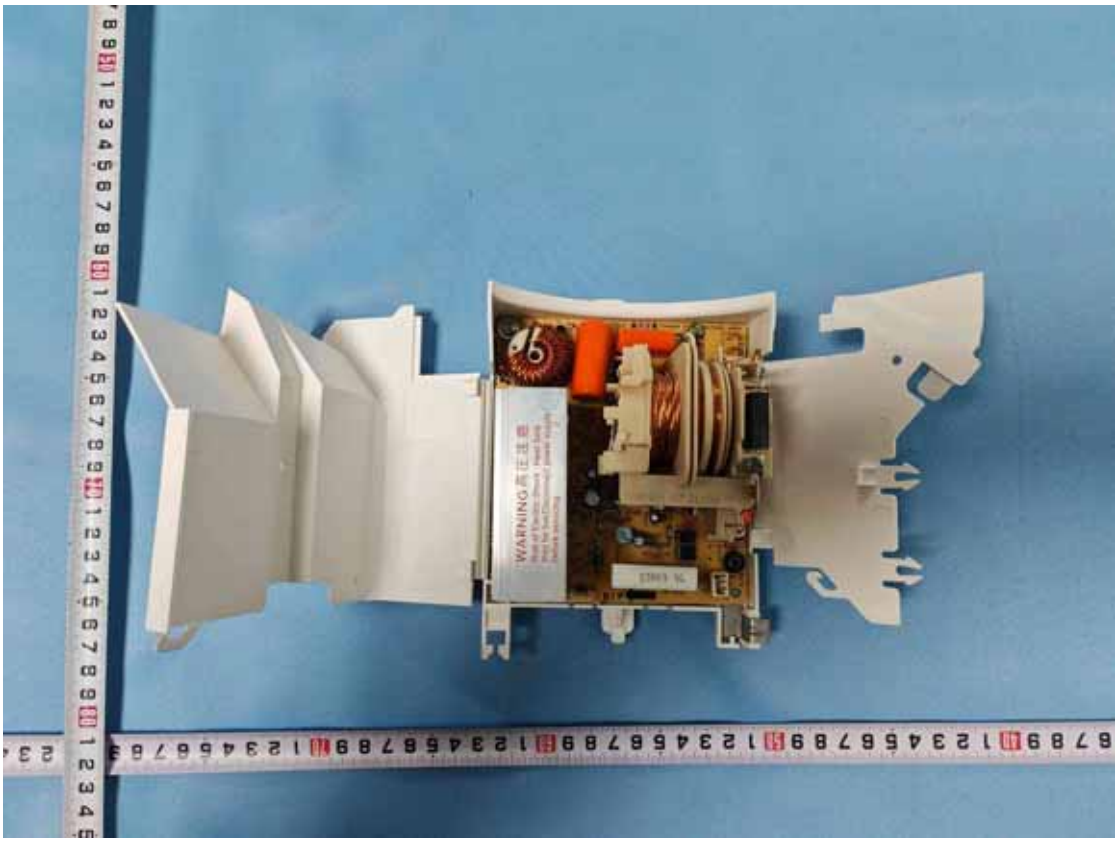


Figure 21
Cover Off View-12

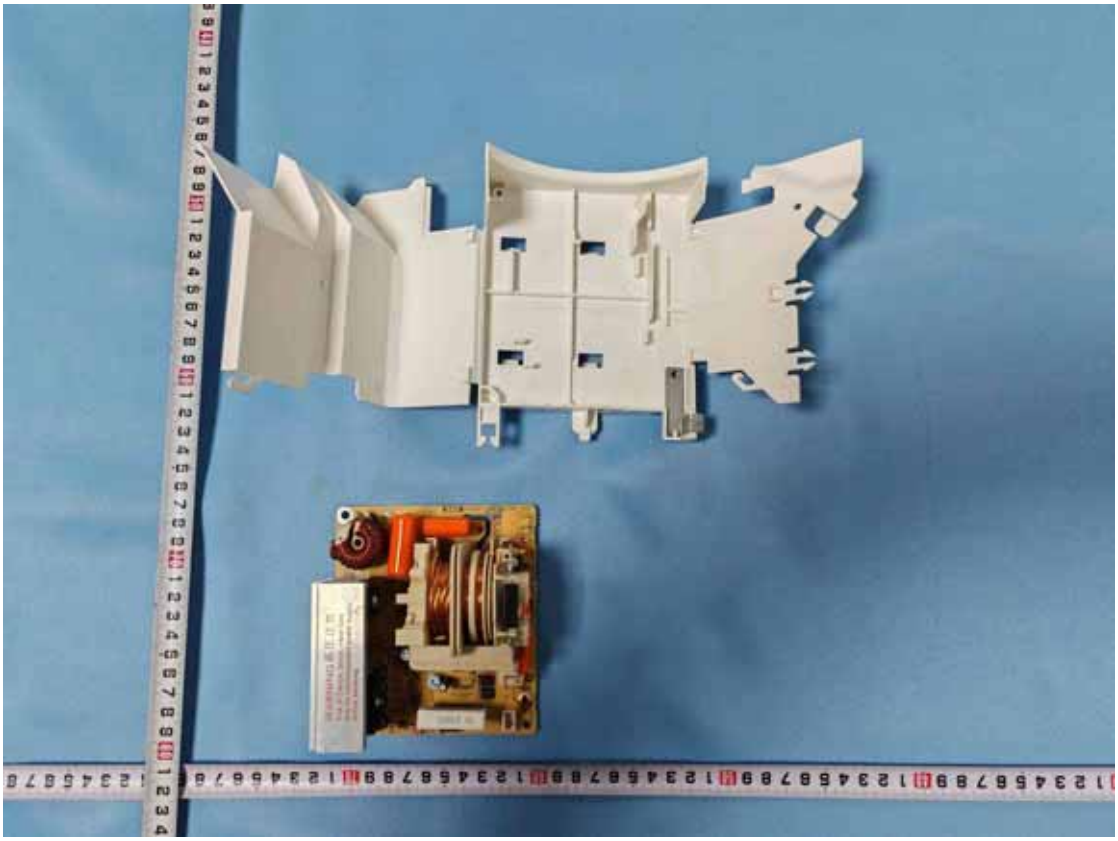


Figure 22
PCB Board-1 (Component Side)

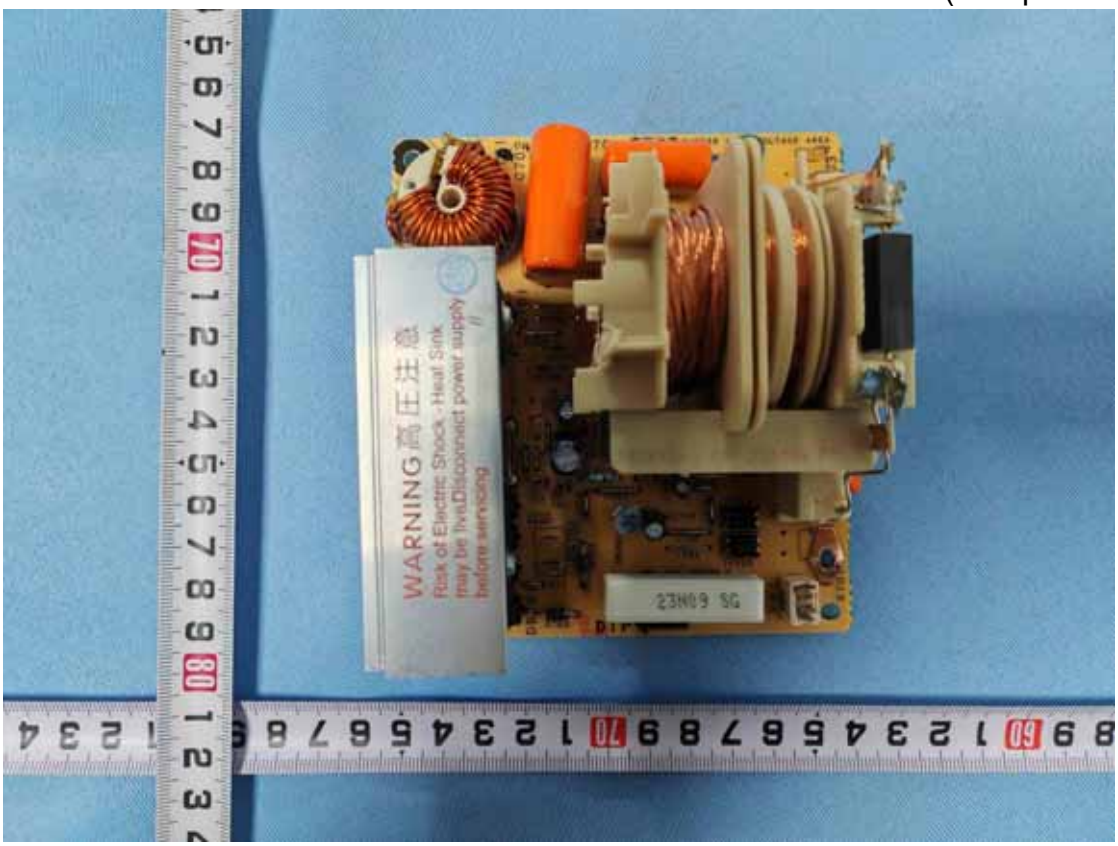


Figure 23
PCB Board-2 (Solder Side)

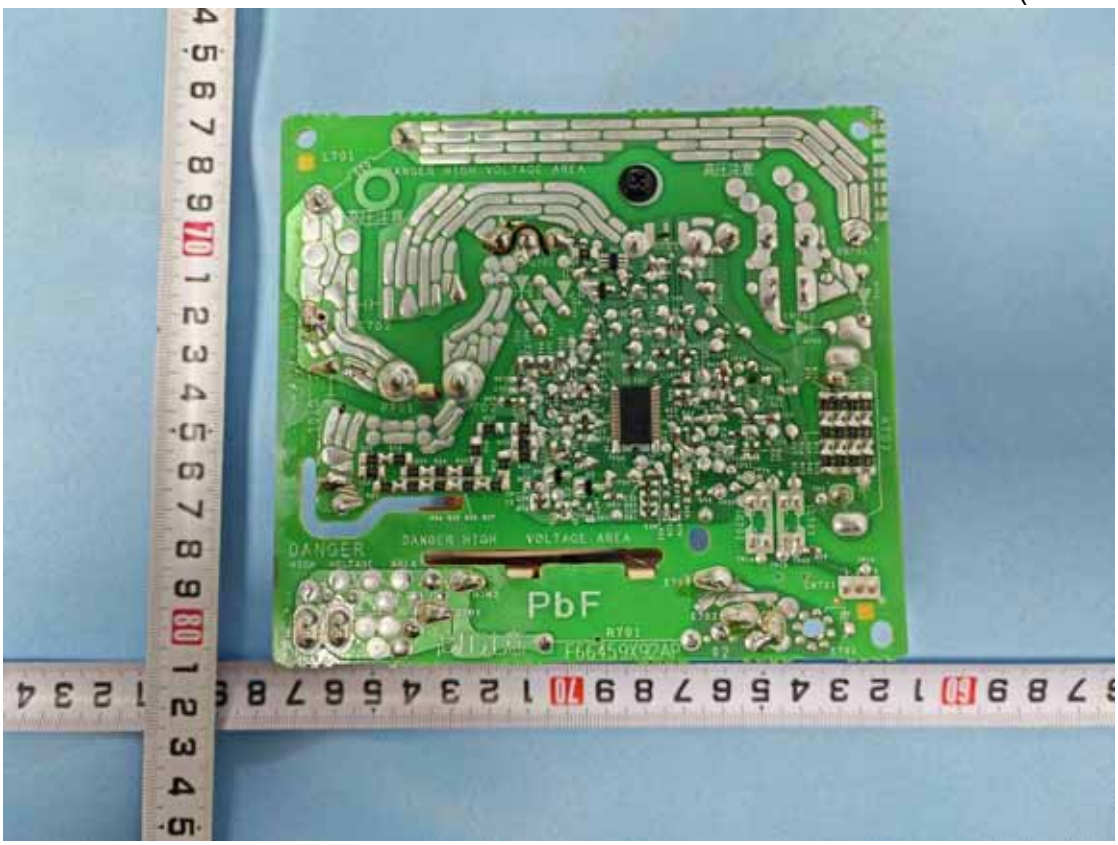


Figure 24
Cover Off View-13

Figure 25
Cover Off View-14

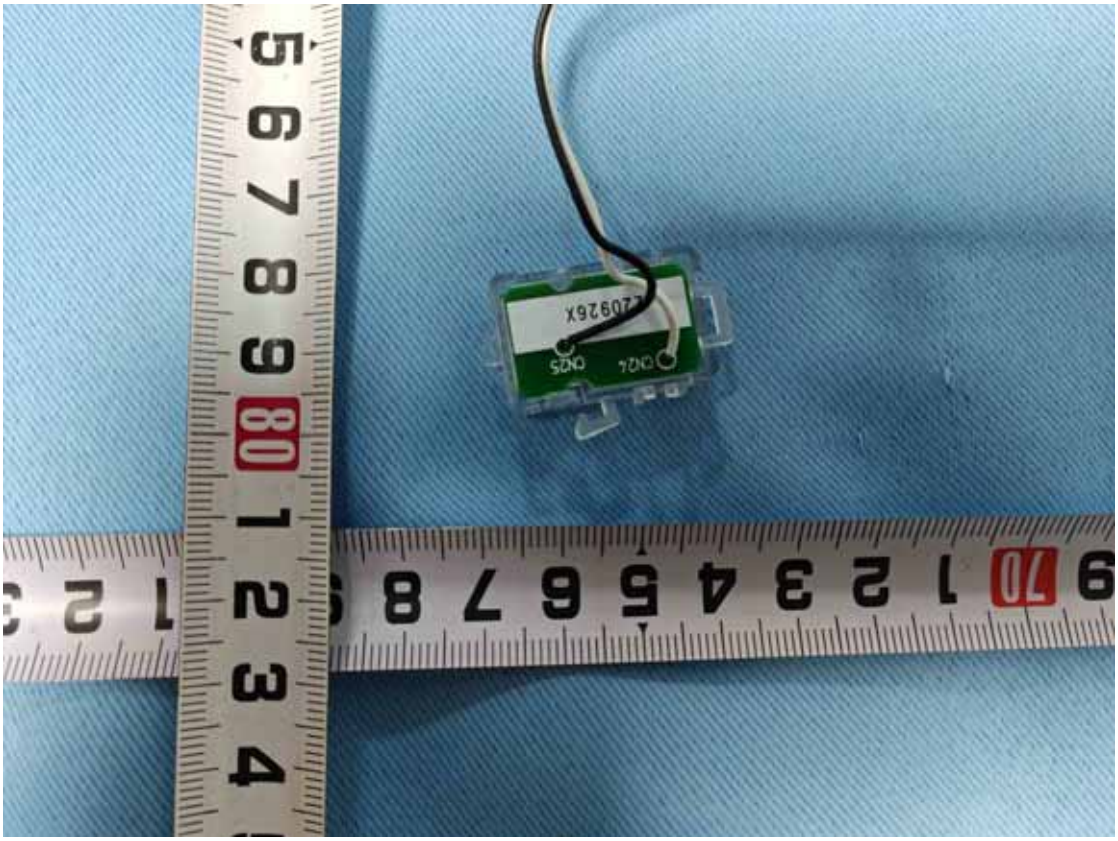


Figure 26
PCB Board-3 (Component Side)

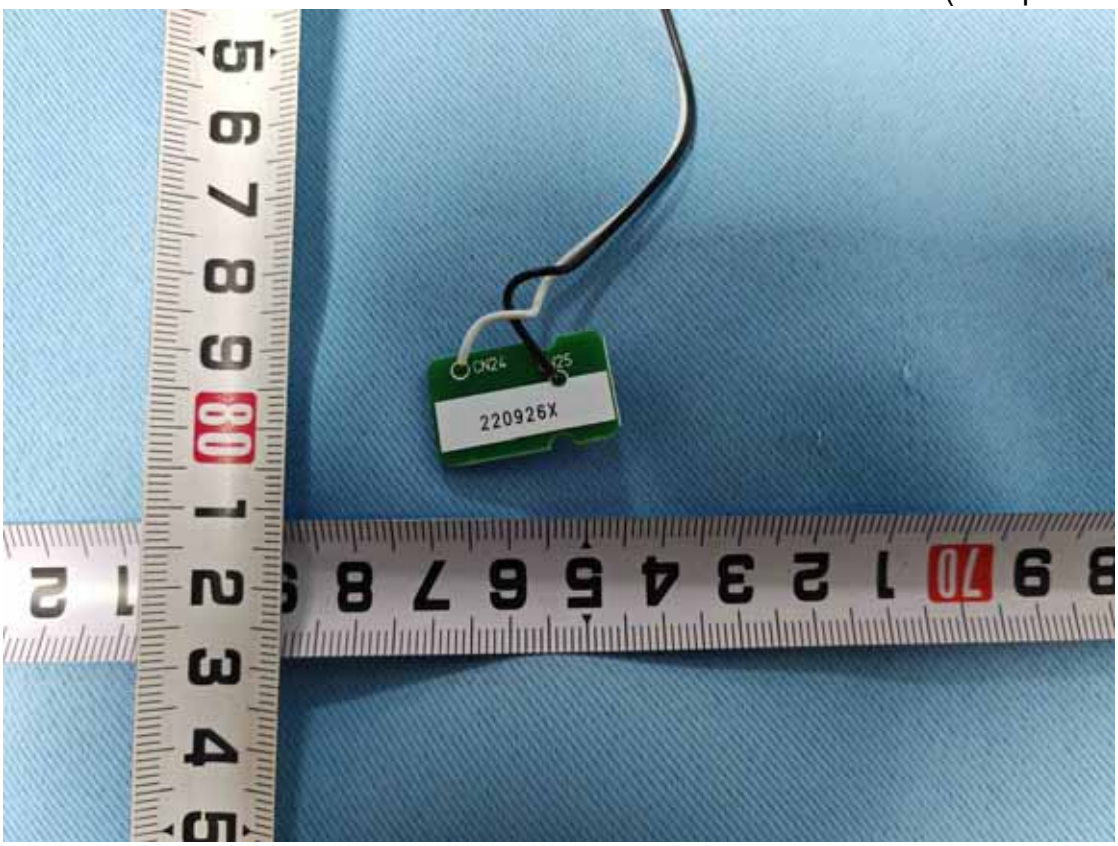


Figure 27
PCB Board-4 (Solder Side)

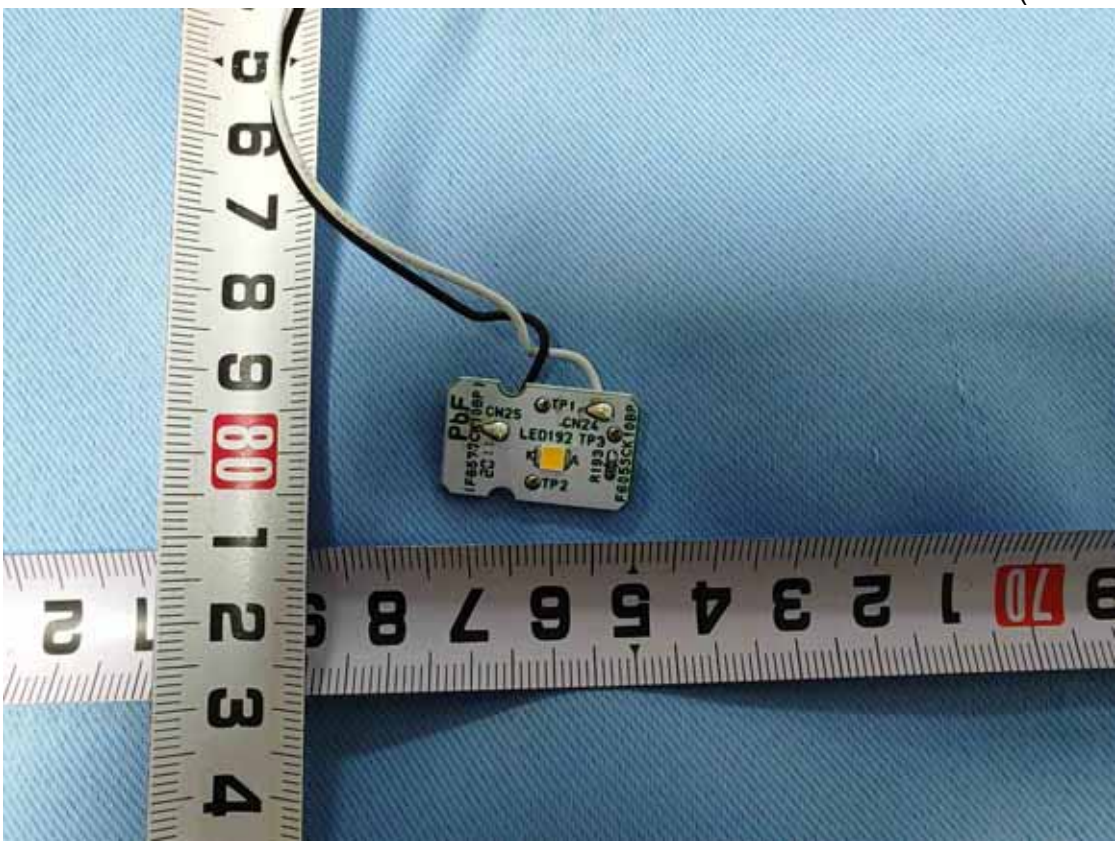


Figure 28
Cover Off View-15

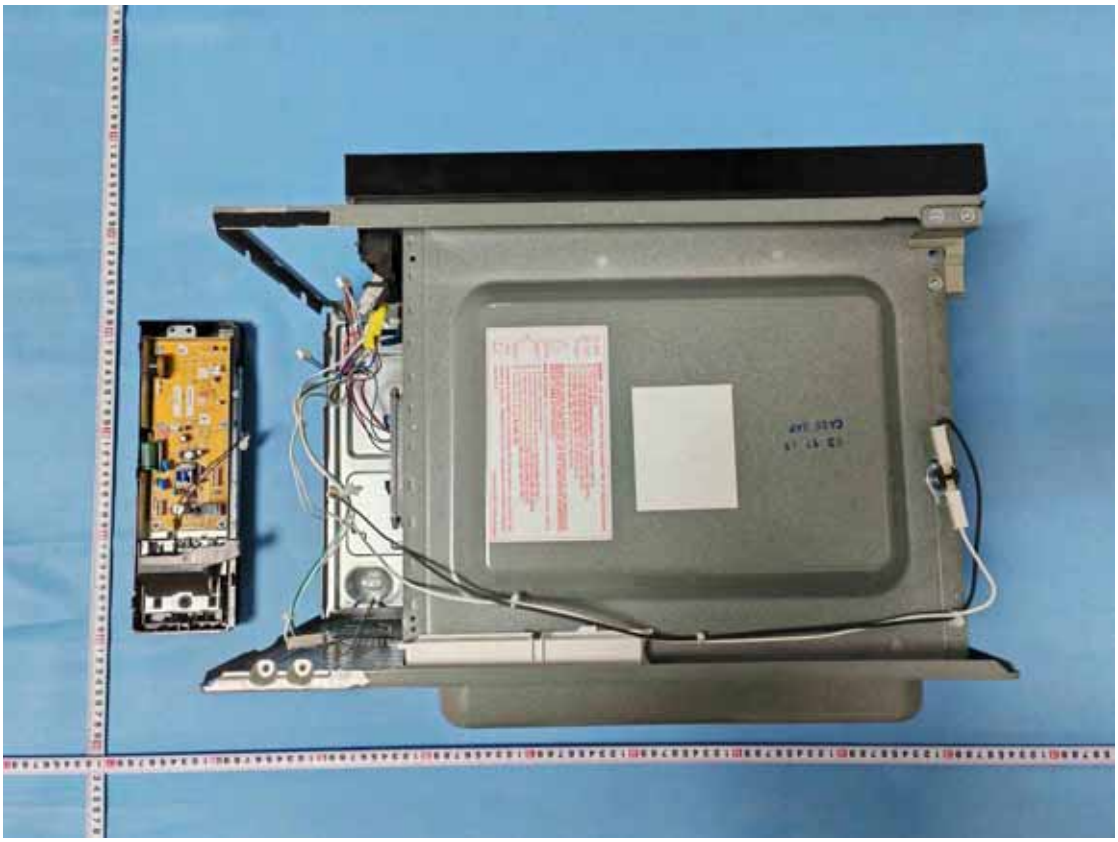


Figure 29
Cover Off View-16

Figure 30
Cover Off View-17

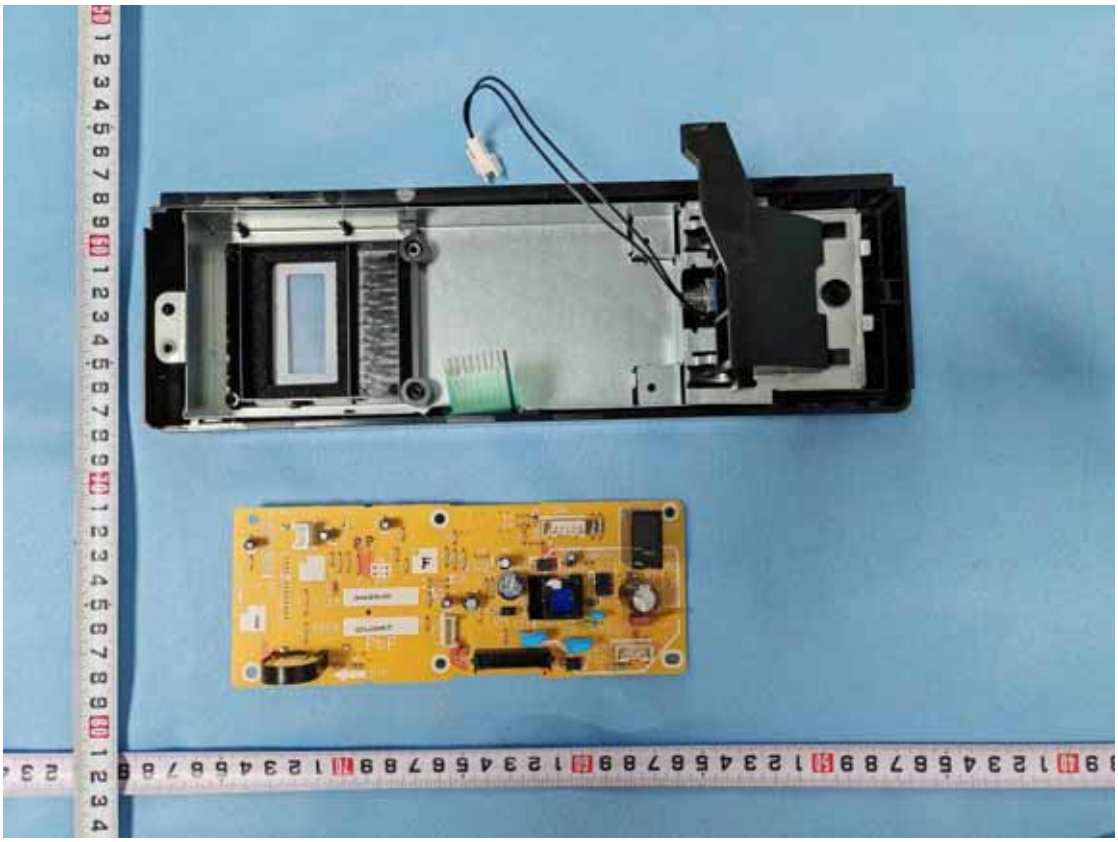


Figure 31
PCB Board-4 (Component Side)

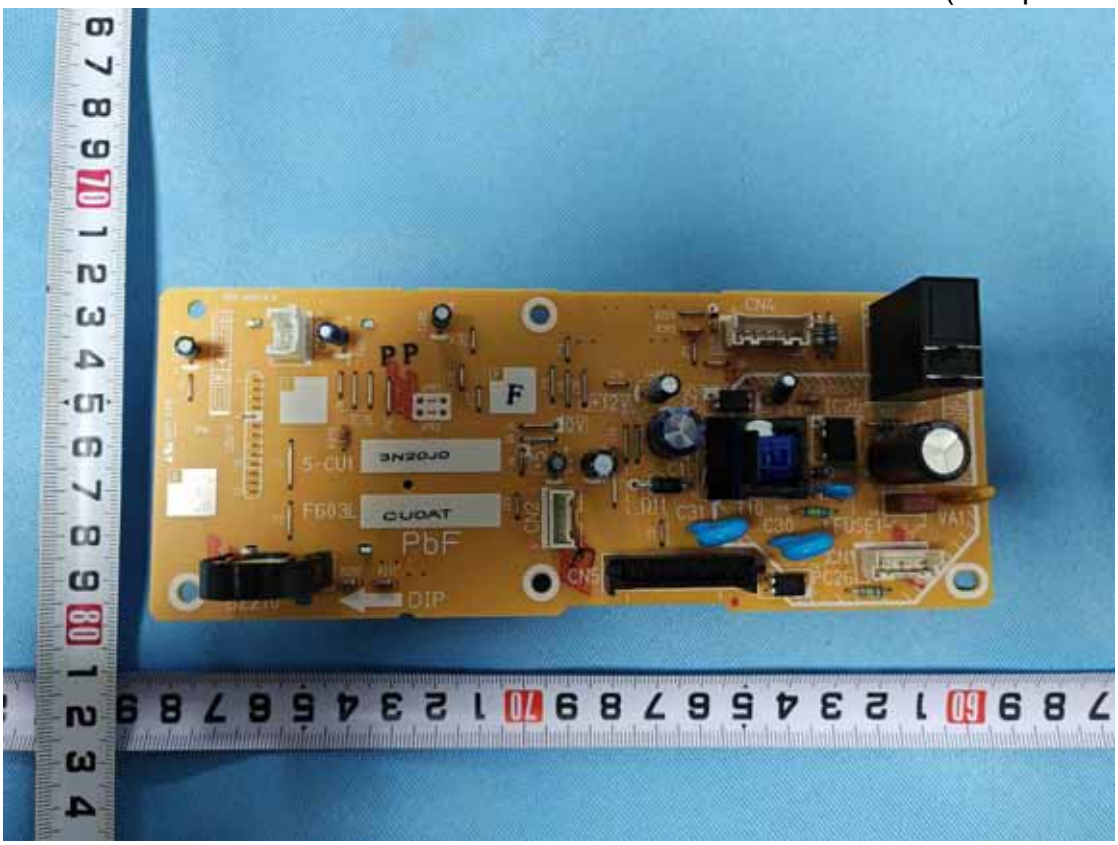
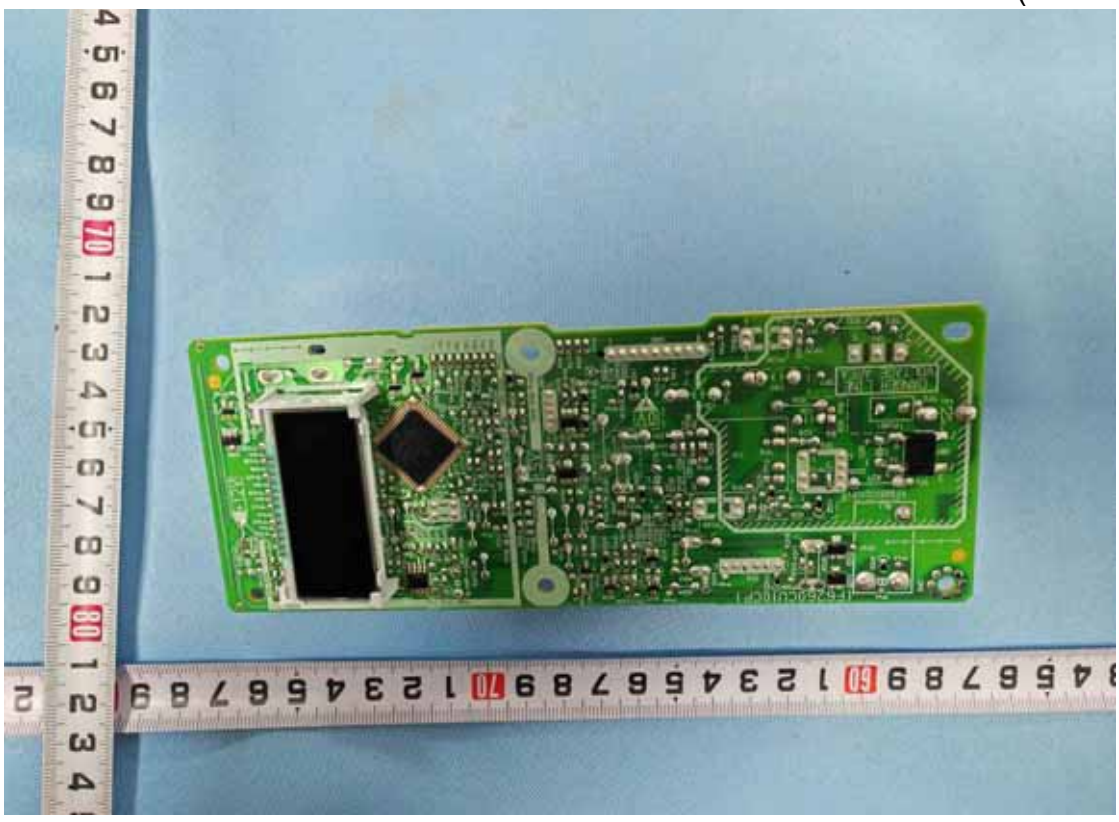


Figure 32
PCB Board-4 (Solder Side)



DECLARATION LETTER

Panasonic Appliance Company of America
Kitchen Appliances Certification Liaison

Add : Two Riverfront Plaza, 8th Floor, Newark, NJ 07102-5490
TEL: 201-348-7558
FAX: 201-348-7758

DECLARATION

Date: 01-22-2024

To:

Audix Technology (Wujiang) Co., Ltd. EMC Dept.
No.1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone
Jiangsu China 215200

Dear Sir or Madam:

We, **Panasonic Corporation of North America** hereby declare that product: Microwave Oven, model: NN-SN67HS, which has been tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept.

The differences between model NN-SN67HS and NN-SN686S, NN-SN65HS, are appearance color and operation method.

Please contact me if there is need for any additional clarification or information.

Best Regards,

Signature:
Printed name: Jim Wang
Title: Engineering & Quality Manager

----------The End----------