



FCC Part15 Subpart B

TEST REPORT

For

Multi-Microwave Oven

MODEL NUMBER: EC042AI0-S(GE)

REPORT NUMBER: 4788710010-F01-00

ISSUE DATE: Oct 27,2018

FCC ID No.: VG8XC042AYYGEW

Prepared for

**Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd
No.6, Yong An Road, Beijiao, Shunde, Foshan, Guangdong, China 528311**

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	10/27/2018	Initial Issue	--



Summary of Test Results				
Standard	Test Item	Limit	Result	Remark
FCC Part15, Subpart B ANSI C63.4-2014	Conducted Disturbance	Class B	PASS	/
	Radiated Disturbance below 1 GHz	Class B	PASS	/
	Radiated Disturbance above 1 GHz	Class B	PASS	NOTE (1)
Note: (1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less. (2) The product is a Multi-function equipment. This report only assesses the digital circuit functions of products, except the ISM part.				



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Guangdong Midea Kitchen Appliances Manufacturing Co.,Ltd
Address: No.6, Yong An Road, Beijiao, Shunde, Foshan, Guangdong, China 528311

Manufacturer Information

Company Name: Same as the Applicant
Address: Same as the Applicant

Factory Information

Company Name: Same as the Applicant
Address: Same as the Applicant

EUT Information

EUT Name: Multi-Microwave Oven
Model: EC042AI0-S(GE)
Brand: C A F É
Sample Status: Normal
Sample ID: #1
Sample Received Date: Oct 22, 2018
Date of Tested: Oct 22,2018~Oct 27,2018

APPLICABLE STANDARDS	
STANDARDS	TEST RESULTS
FCC Part15, Subpart B ANSI C63.4-2014	PASS

Prepared By:

Yam Shan
Project Engineer

Checked By:

Linda Ni
Senior Project Engineer



2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC Part15 Subpart B and ANSI C63.4-2014.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4338.01) Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with A2LA. CNAS (Registration No.: L7649) Shenzhen STS Test Services Co., Ltd. has been assessed and proved to be in compliance with CNAS. FCC (FCC Designation No.: 625569) Shenzhen STS Test Services Co., Ltd. has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules
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Note 1: All tests measurement facilities use to collect the measurement data are located at 1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China



4. CALIBRATION AND UNCERTAINTY

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.67 dB
Radiated disturbance Test	Below 1GHz	2	3.73 dB
Radiated disturbance Test	Above 1GHz	2	3.31 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			



5. EQUIPMENT UNDER TEST

5.1. Description of EUT

EUT Name	Multi-Microwave Oven
EUT Description	A microwave oven with heating function
Model	EC042AI0-S(GE)
Series Models	/
Model difference	EC042A##-S(GE) (remark: ## denote cosmetic differences, # could be from 0 to 9 or from A to Z)
Power Supply:	AC 120V 60Hz 1600W
Power Cord:	3 pins, AC input cable

5.2. Test Mode

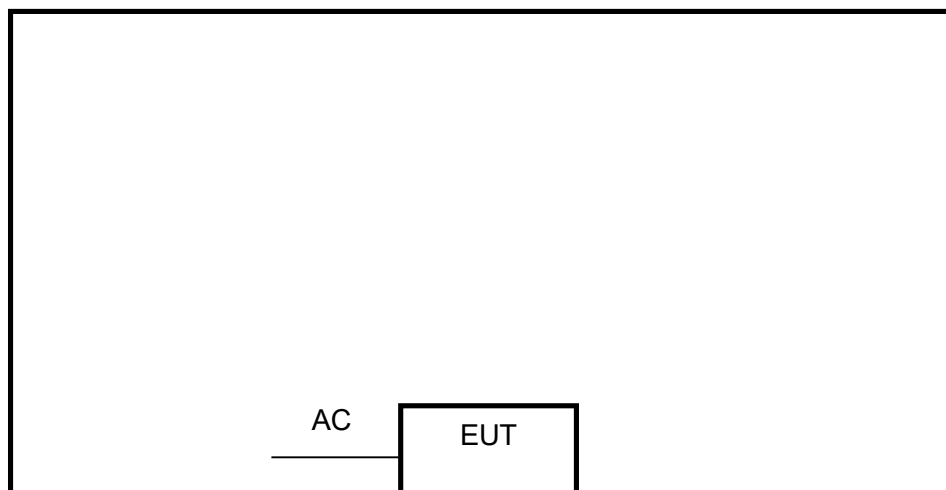
Test Mode	Description
Mode 1	Working with Heating mode.
Mode 2	Working with Heat Fan mode.

5.3. EUT Accessory

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/



5.4. Block Diagram Showing the Configuration of System Tested



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.	Specification	Series No.
--	--	--	--	--	--

Item	Type of cable	Shielded Type	Ferrite Core	Length
--	--	--	--	--



6. MEASURING EQUIPMENT AND SOFTWARE USED

Disturbance Voltage ☒				
Equipment	Manufacturer	Model No.	Serial No.	Cal Until
Test Receiver	R&S	ESCI	101427	2019.10.14
LISN	R&S	ENV216	101242	2019.10.14
Conduction Cable	EM	C01	N/A	2019.10.17
Temperature & Humidity	Mieo	HH660	N/A	2019.10.14

Radiated Emission ☒				
Equipment	Manufacturer	Model No.	Serial No.	Cal Until
EMI Test Receiver	R&S	ESCI	102086	12 Oct, 2019
Bilog Antenna	TESEQ	CBL6111D	34678	29 Oct, 2019
Horn Antenna	SCHWARZBECK	BBHA 9120D	1343	26 Oct, 2019
Spectrum Analyzer	Agilent	E4407B	MY50140340	07 Mar, 2019
Pre-Amplifier(1G-26.5G)	Agilent	8449B	60538	14 Oct, 2019
Spectrum Analyzer	Agilent	N9020A	MY49100060	07 Mar, 2019
Pre-Amplifier(0.1M-3GHz)	EM	EM330	--	27 Oct, 2019

7. EMISSION TEST

7.1. Conducted Disturbance Measurement

7.1.1. Limits of conducted disturbance voltage

FREQUENCY (MHz)	☐ Class A (dB μ V)		☒ Class B (dB μ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46*
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor
 Margin Level = Measurement Value - Limit Value

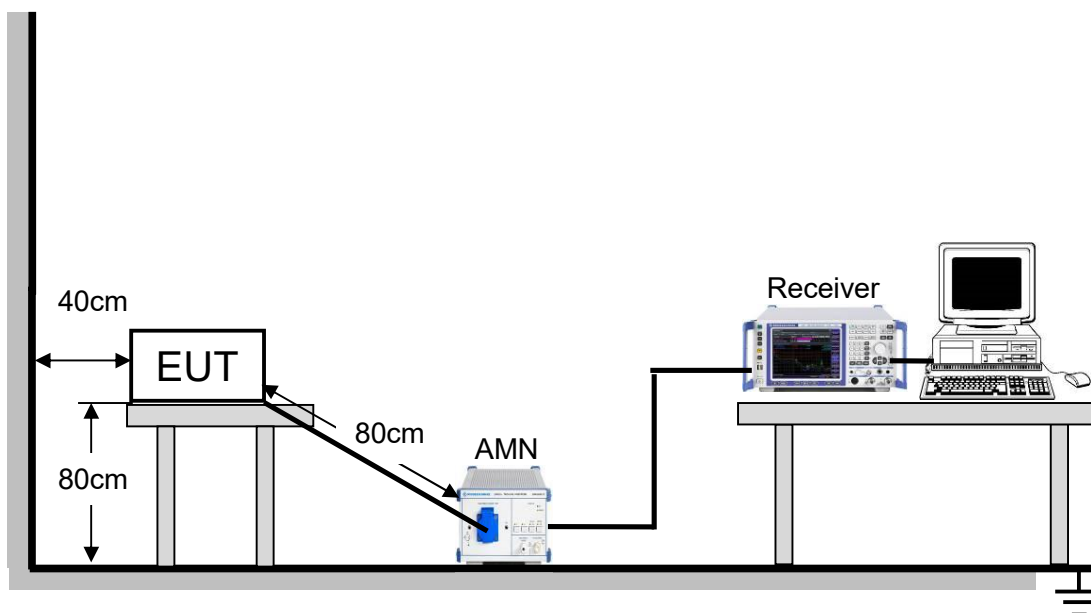
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

7.1.2. Test Procedure

- a. The EUT was placed 0.8 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.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item:EUT Test Photos.

7.1.3. Test Setup



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

7.1.4. Test Environment

Temperature:	26.1°C
Humidity:	55%
ATM pressure:	101kPa

7.1.5. Test Mode

Test Mode:	Mode 2
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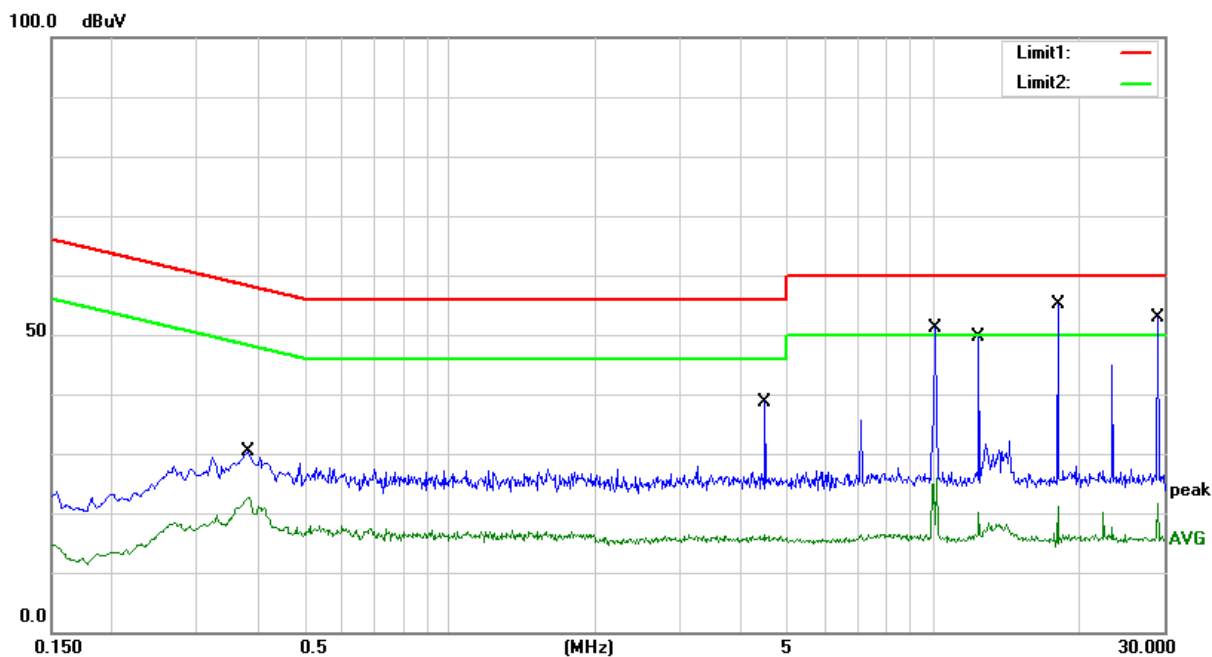
Note: According to pre-test results, the final test mode is each independent function's worst case and only shown in the report.



7.1.6. Test Results

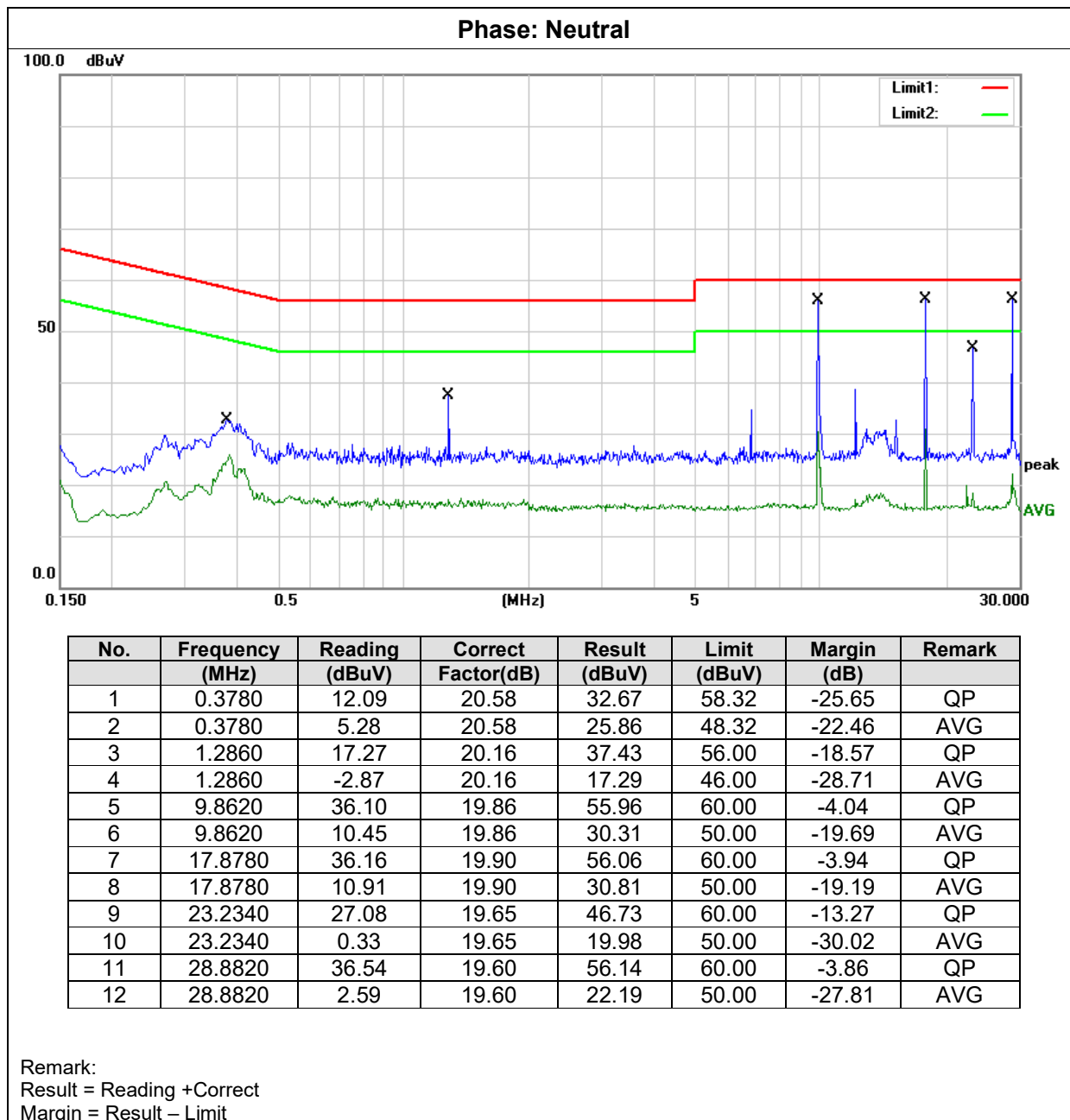
Model:	EC042AI0-S(GE)
Test Voltage:	AC 120V/60Hz

Phase: Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3820	9.87	20.57	30.44	58.24	-27.80	QP
2	0.3820	2.14	20.56	22.70	48.15	-25.45	AVG
3	4.4820	18.47	20.05	38.52	56.00	-17.48	QP
4	4.4820	-3.74	20.05	16.31	46.00	-29.69	AVG
5	10.1100	31.33	19.85	51.18	60.00	-8.82	QP
6	10.1100	6.03	19.85	25.88	50.00	-24.12	AVG
7	12.4020	29.80	19.84	49.64	60.00	-10.36	QP
8	12.4020	0.38	19.84	20.22	50.00	-29.78	AVG
9	18.1300	35.18	19.90	55.08	60.00	-4.92	QP
10	18.1300	1.14	19.90	21.04	50.00	-28.96	AVG
11	29.1300	33.34	19.60	52.94	60.00	-7.06	QP
12	29.1300	2.02	19.60	21.62	50.00	-28.38	AVG

Remark:
Result = Reading +Correct
Margin = Result - Limit





7.2. Radiated Disturbance Measurement

7.2.1. Limits of radiated disturbance measurement

Below 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:

Frequency (MHz)	☐ Class A		☒ Class B
	Field strength (uV/m) (at 10m)	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 - 88	90	49.5	40
88 - 216	150	53.9	43.5
216 - 960	210	56.9	46
Above 960	300	60	54

Above 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:

Frequency (MHz)	☐ Class A				☒ Class B	
	(dBuV/m) (at 3m)		(dBuV/m) (at 10m)		(dBuV/m) (at 3m)	
	Peak	Average	Peak	Average	Peak	Average
Above 1000	80	60	69.5	49.5	74	54

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

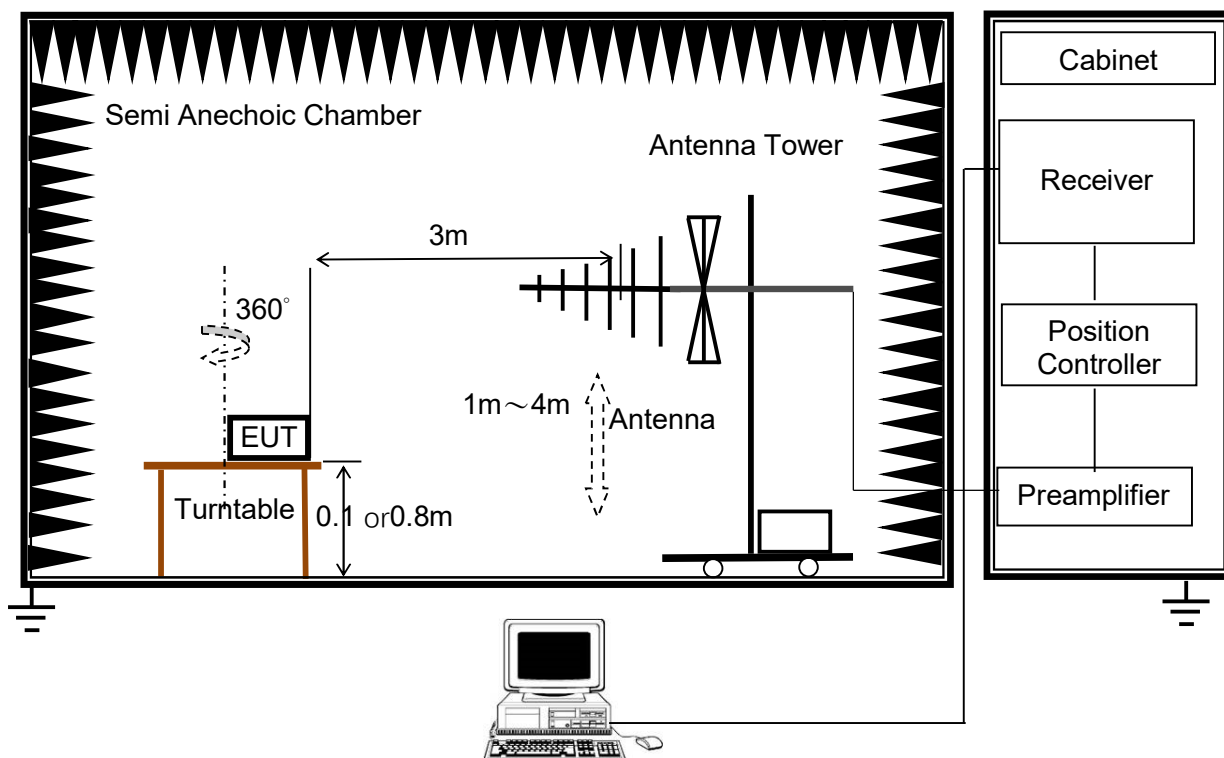
- (1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
- (2) The tighter limit applies at the band edges;
- (3) Emission level (dBuV/m) = 20log Emission level (uV/m),
3m Emission level = 10m Emission level + 20log(10m/3m);
- (4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor,
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use),
Margin Level = Measurement Value - Limit Value.

7.2.2. Test Procedure

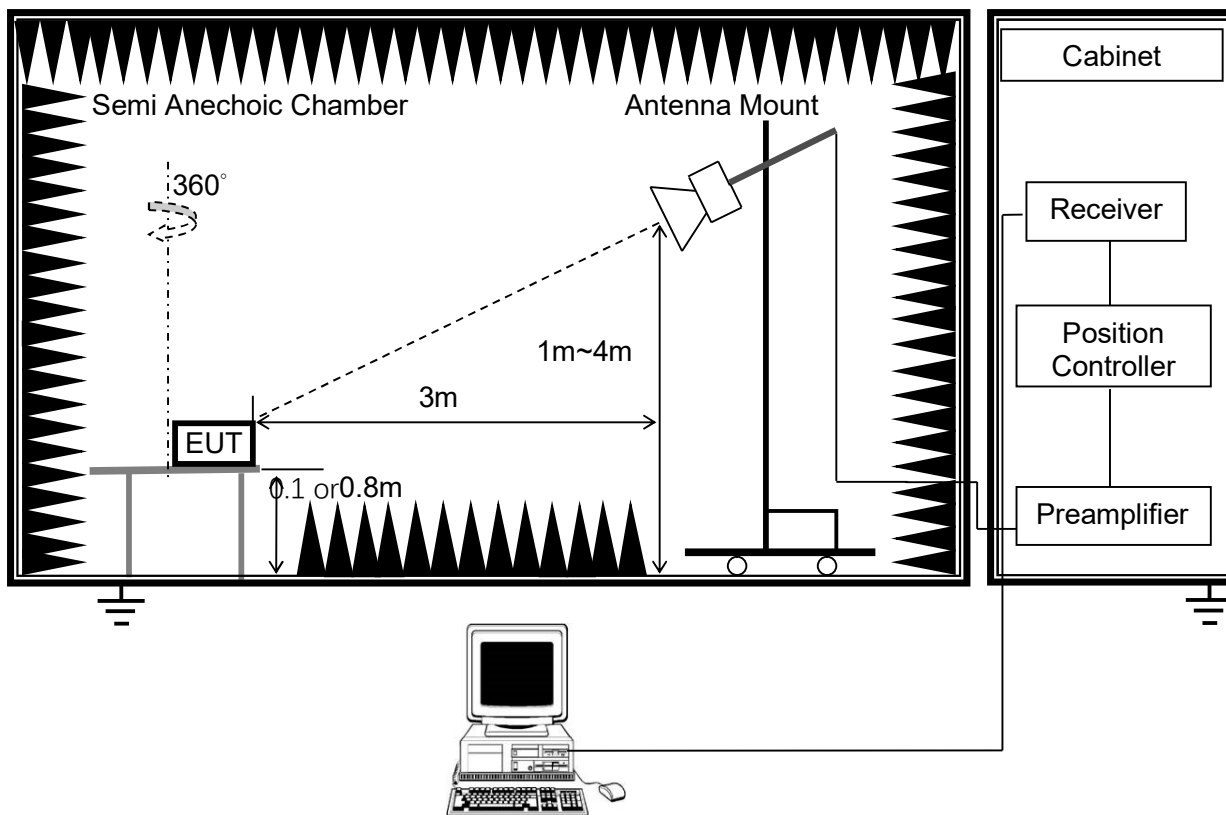
- The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment 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.
- For the actual test configuration, please refer to the related Item:EUT Test Photos.

7.2.3. Test Setup

(a) Radiated Disturbance Test Set-Up Frequency 30MHz - 1GHz



(b) Radiated Disturbance Test Set-Up Frequency above 1GHz



For the actual test configuration, please refer to Appendix I: Photographs of the Test Configuration.

7.2.4. Test Environment

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Temperature:	25.2°C	Temperature:	25.2°C
Humidity:	60%	Humidity:	60%
ATM pressure:	101.1kPa	ATM pressure:	100.1kPa

7.2.5. Test Mode

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz	
Test Mode:	Mode 2	Test Mode:	Mode 2

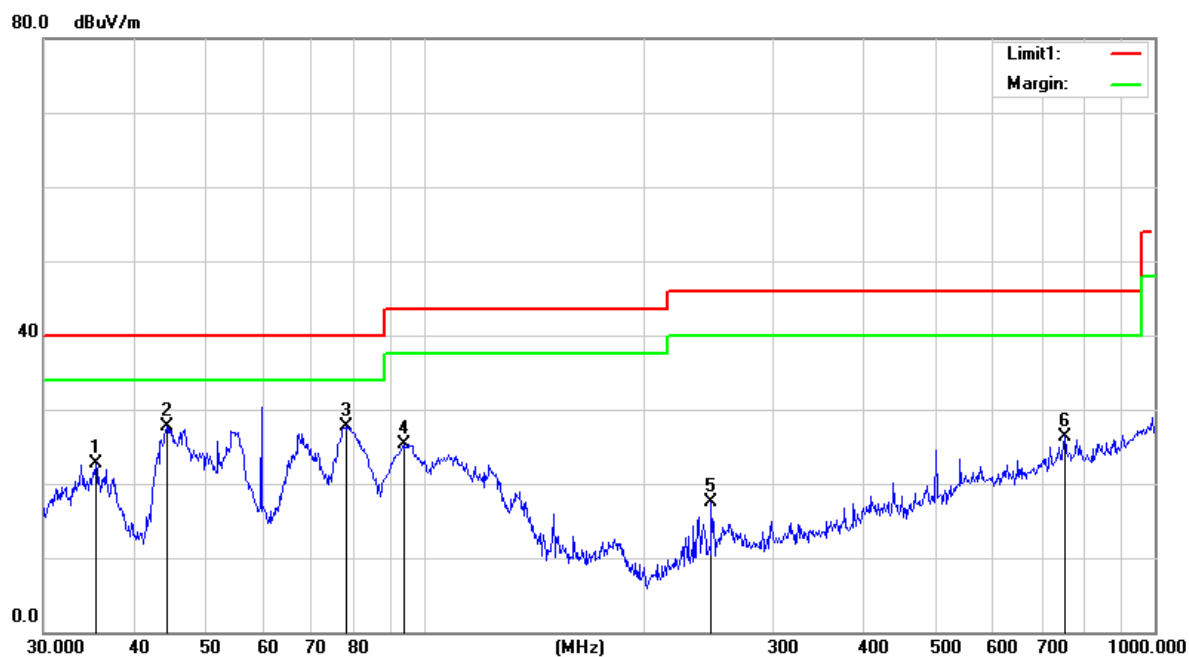
Note: According to pre-test results, the final test mode is each independent function's worst case and only shown in the report.



7.2.6. Test Results – below 1GHz

Model:	EC042AI0-S(GE)
Test Voltage:	AC 120V/60Hz

Polarization: Vertical

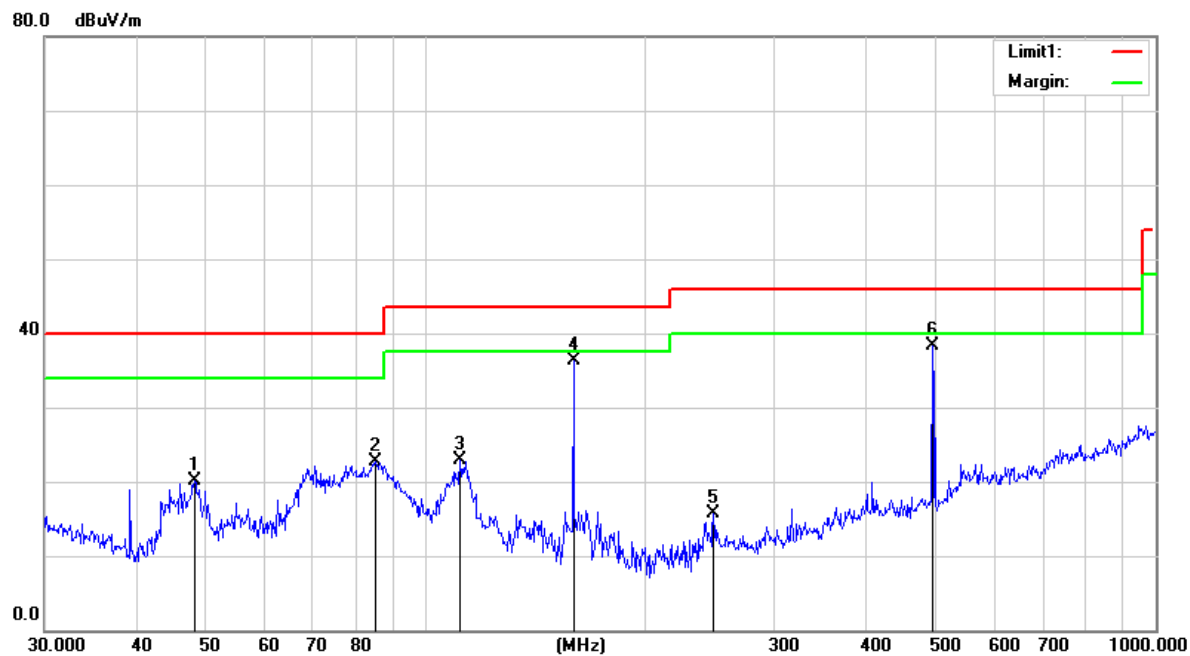


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	35.3750	36.72	-13.94	22.78	40.00	-17.22	QP
2	44.2752	46.30	-18.53	27.77	40.00	-12.23	QP
3	77.8654	50.66	-23.00	27.66	40.00	-12.34	QP
4	93.4402	45.24	-19.85	25.39	43.50	-18.11	QP
5	246.8150	34.38	-16.79	17.59	46.00	-28.41	QP
6	752.7432	29.97	-3.57	26.40	46.00	-19.60	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor



Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	48.1626	40.57	-20.53	20.04	40.00	-19.96	QP
2	85.2980	43.98	-21.37	22.61	40.00	-17.39	QP
3	111.3468	41.13	-18.25	22.88	43.50	-20.62	QP
4	159.2251	54.81	-18.46	36.35	43.50	-7.15	QP
5	247.6820	32.41	-16.66	15.75	46.00	-30.25	QP
6	494.1984	47.41	-9.05	38.36	46.00	-7.64	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor



7.2.7. Test Results – Above 1GHz

Model:	EC042AI0-S(GE)
Test Voltage:	AC 120V/60Hz

Polarization: Vertical

RE_FCC Test Case_FCC 15B 1GHz-25GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	ANT	Verdict
1**	1894.000	25.87	-3.19	54.0	-28.13	AV	1.00	V	Pass
1	1894.000	49.94	-3.19	74.0	-24.06	Peak	1.00	V	Pass
2**	2444.000	35.12	1.19	54.0	-18.88	AV	52.40	V	Pass
2	2444.000	44.82	1.19	74.0	-29.18	Peak	52.40	V	Pass
3**	2732.000	34.07	0.72	54.0	-19.93	AV	169.50	V	Pass
3	2732.000	50.34	0.72	74.0	-23.66	Peak	169.50	V	Pass
4**	14416.000	45.98	25.52	54.0	-8.02	AV	233.20	V	Pass
4	14416.000	55.90	25.52	74.0	-18.10	Peak	233.20	V	Pass
5**	21688.001	48.65	23.96	54.0	-5.35	AV	191.50	V	Pass
5	21688.001	58.37	23.96	74.0	-15.63	Peak	191.50	V	Pass
6**	23691.999	50.38	23.41	54.0	-3.62	AV	228.00	V	Pass
6	23691.999	59.60	23.41	74.0	-14.40	Peak	228.00	V	Pass

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor



Polarization: Horizontal

RE_FCC Test Case_FCC 15B 1GHz-25GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	ANT	Verdict
1**	2108.000	35.96	-2.18	54.0	-18.04	AV	213.90	H	Pass
1	2108.000	50.00	-2.18	74.0	-24.00	Peak	213.90	H	Pass
2**	2436.000	32.81	1.09	54.0	-21.19	AV	145.00	H	Pass
2	2436.000	44.37	1.09	74.0	-29.63	Peak	145.00	H	Pass
3**	7740.000	29.36	9.91	54.0	-24.64	AV	9.70	H	Pass
3	7740.000	39.57	9.91	74.0	-34.43	Peak	9.70	H	Pass
4**	14416.000	46.22	25.52	54.0	-7.78	AV	21.10	H	Pass
4	14416.000	55.09	25.52	74.0	-18.91	Peak	21.10	H	Pass
5**	21255.999	48.82	24.07	54.0	-5.18	AV	57.60	H	Pass
5	21255.999	58.49	24.07	74.0	-15.51	Peak	57.60	H	Pass
6**	24171.999	50.01	23.25	54.0	-3.99	AV	155.50	H	Pass
6	24171.999	59.37	23.25	74.0	-14.63	Peak	155.50	H	Pass

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor

8. Appendix I: Photographs of EMC Test Configuration

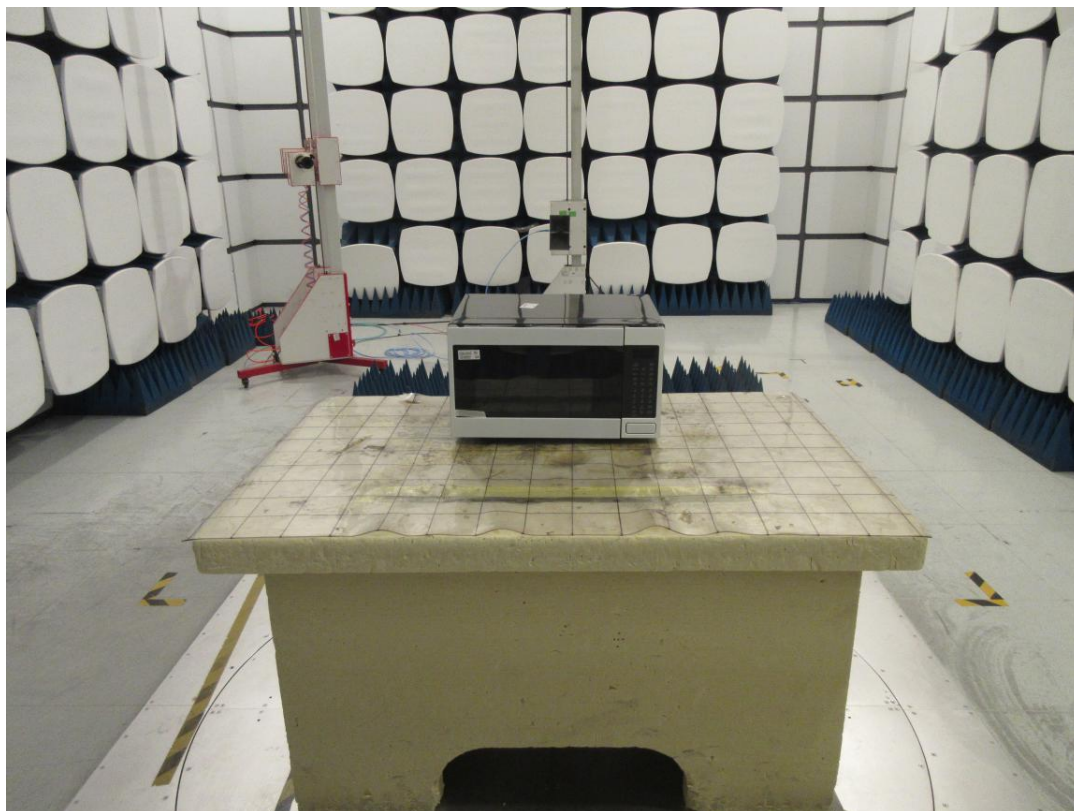
Conducted Disturbance



Radiated Disturbance below 1GHz



Radiated Disturbance Above 1GHz





9. Appendix II: Photographs of the EUT

Refer to the Appendix report 4788710010-A1&4788710010-A2

END OF REPORT