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TEST REPORT

Application No.:	GZEM1808004649HS
Applicant:	Guangdong Galanz Enterprises Co., Ltd.
Address of Applicant:	25 Ronggui Nan Road, Shunde, Foshan, Guangdong, China
Manufacturer:	Guangdong Galanz Microwave Electrical Appliances Manufacturing Co., Ltd.
Address of Manufacturer:	3 Xingpu Avenue, Huangpu, Zhongshan, Guangdong, China
Factory:	The same as Manufacturer
Address of Factory:	The same as Manufacturer
Equipment Under Test (EUT):	
EUT Name:	Microwave oven
Model No.:	P70(u)(x)(y) series, (u) = J17, T20, J20, (x) = L, SL, TL, P, SP, TP, AL, ASL, ATL, AP, ASP, ATP, (y) = -V1, -V2, -V3, -V4, -V5, -V6, -V7, -V8. ¤
¤	Please refer to section 2 of this report for details.
Trade Mark:	Galanz
Standards:	EN55011:2016+A1:2017 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013
Date of Receipt:	2018-06-22
Date of Test:	2018-07-12 to 2018-07-14
Date of Issue:	2018-04-26 (for the report GZEM180400192701) 2018-07-19 (for the report GZEM180400192702) 2018-11-09 (for the report GZEM180400192703)

Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

Kobe Jian
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2018-04-26		Original
01		2018-07-19		Copy report: added new models.
02		2018-11-09		Copy report: updated standard and series model.

Authorized for issue by:				
Tested By		 **Owen_Huang /Project Engineer**		2018-07-12 to 2018-07-14 **Date**
Checked By		 **Cherie_Luo /Reviewer**		2018-11-07 **Date**

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Disturbance at Mains Terminals (150kHz-30MHz)	EN55011:2016 +A1:2017	CISPR 16-2-1	N/A	Pass
Radiated Disturbance (30MHz-1GHz)	EN55011:2016 +A1:2017	EN55011:2016 +A1:2017	Group 2 Class B	Pass
Radiated Disturbance (1GHz-18GHz)	EN55011:2016 +A1:2017	EN55011:2016 +A1:2017	Group 2 Class B	Pass
Radiated Disturbance (Magnetic field Induced Current) (9kHz-30MHz)	EN55011:2016 +A1:2017	EN55011:2016 +A1:2017	Group 2 Class B	Pass
Harmonic Current Emission	EN 61000-3-2:2014	EN 61000-3-2:2014	Class A	Pass
Voltage Fluctuations and Flicker	EN 61000-3-3:2013	EN 61000-3-3:2013	Clause 5 of EN 61000-3-3	Pass

N/A: Not applicable

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN 55014-2:2015	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Electrical Fast Transients/Burst at Power Port	EN 55014-2:2015	EN 61000-4-4:2012	1kV 5/50ns Tr/Th 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 55014-2:2015	EN 61000-4-5:2014	1.2/50μs Tr/Th 1kV Line to Line 2kV Line to Ground	Pass
Conducted Immunity at Power Port (150kHz-230MHz)	EN 55014-2:2015	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 55014-2:2015	EN 61000-4-11:2004	For 50Hz 0 % UT for 0.5per 40 % UT for 10per 70 % UT for 25per	Pass

Remark for the report GZEM180400192701
Model No.: P70J17(x)(y) series,
(x) = L, SL, TL, (y) = -V1.
According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the outer decoration.
Therefore only one model **P70J17L-V1** was tested in this report.

Remark for the report GZEM180400192702
This test report GZEM180400192702 is an additional report based on and only valid with the original test report GZEM180400192701, just added new models.
Added new models: P70J20(x)(y) series,
(x) = L, SL, TL, P, SP, TP, AL, ASL, ATL, AP, ASP, ATP, (y) = -V1, -V2.
According to the declaration of the applicant, the models supplemented in this report and models in the original report were identical, with only difference being the function of electrical mode was added.
Details for new models were shown as below:

Microwave oven without grill	Microwave output power (W)	Cavity Volume (L)	(x)			(y)
			Panel type	Cavity type	Door type	Type of the appearance
P	70: 700W	20: 20 Liter	Blank: Mechanical A: Electronic	Blank: Painted steel S: Stainless steel T: Grey painted steel	P:Push Door L:Pull Door	Set of characters which represented the model of accessories

Considering to the difference, new full tests were performed on model **P70J20AL-V1** in this report.
For original test data please refer to the report GZEM180400192701.

¤ Remark for the report GZEM180400192703

This test report GZEM180400192703 is an additional report based on and only valid with the previous test report GZEM180400192702, just updated standard and series models.

1. Updated standard:

Standard in original report	Standard in updated report
EN 55011:2016	EN 55011:2016+A1:2017

2. Updated series models:

P70(u)(x)(y) series,
(u) = J17, T20, J20,
(x) = L, SL, TL, P, SP, TP, AL, ASL, ATL, AP, ASP, ATP,
(y) = -V1, -V2, -V3, -V4, -V5, -V6, -V7, -V8.

Microwave oven without grill	Microwave output power (W)	Cavity Volume (L)	(x)			(y)
			Panel type	Cavity type	Door type	Type of the appearance
P	70: 700W	17: 17 Liter 20: 20 Liter	Blank: Mechanical A: Electronic	Blank: Painted steel S: Stainless steel T: Grey painted steel	P:Push Door L:Pull Door	Set of characters which represented the model of accessories

According to the declaration of the applicant, the models supplemented in this report and models in the original report were identical, with only difference being the outer decoration.

This was considered to be none technical changed and no tests were performed on the product. Therefore original data was kept in this report GZEM180400192703.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	AC 230-240V, 50Hz
Test Voltage:	AC 230V 50Hz
Cable:	3 wires x about 1.2m unscreened AC mains cable.

4.2 Description of Support Units

The EUT has been tested with a load of 1 liter of tap water initially at 20 ℃ ± 5 ℃. The water container is a cylindrical container of borosilicate glass of an external diameter of 190 mm ± 5 mm and a height of 90 mm ± 5 mm.

4.3 Test Location

All tests were performed at:

Laboratory of Guangdong Galanz Enterprises Co., Ltd.

No.25, South of Ronggui Rd., Shunde District, Foshan, Guangdong, China（528305）

Phone:0757-236123019/Fax:0757-23612537

4.4 Deviation from Standards

N/A

4.5 Abnormalities from Standard Conditions

None

4.6 Monitoring of EUT for All Immunity Test

Visual: LED display of the EUT.

Audio: N/A

5 Equipment List

Conducted Disturbance at Mains Terminals(150kHz-30MHz)

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC002	Shielding Room	ETS	RFD-100	3181	2023/6/15
GAL-EMC105	Receiver	R&S	ESR3	102050	2019/6/14
GAL-EMC100	AMN	R&S	ESH2-Z5	0338.5219.53-00396 -vj	2019/5/2

Radiated Disturbances

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC001	Semi-anechoic Chamber	ETS	RFD-F-100	3187	2022/8/10
GAL-EMC105	Receiver	R&S	ESR 3	102050	2019/6/14
GAL-EMC007	Double-ridged Wave guide horn	ETS	3115	6587	2018/10/30
GAL-EMC008	Microwave system amplifier (0.5G-26.5G)	Agilent	83017A	MY39500438	2018/10/13
GAL-EMC017	Biconilog Antenna	ETS	3142C	42672	2018/10/31
GAL-EMC055	Band-pass Filter	Micro-Tronic	BRM50702	S/N-030	2019/2/20
GAL-EMC056	Spectrum Analyzer 9KHz-30GHz	R&S	FSP30	100755	2018/12/21
GAL-EMC091	HF Loop Antenna	TESEQ	HLA6120	26348	2018/11/1

Harmonic Current Emission & Voltage Fluctuations and Flicker

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DPA500	EMTEST AG	DPA500	GAL-EMC010	2017-10-12	2018-10-12
ACS500	EMTEST AG	ACS500	GAL-EMC011	2017-10-12	2018-10-12

Electrostatic Discharge

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC018	ESD Tester	NOISEKEN	ESS2000	ESS0635285	2018/7/25
GAL-EMC019	ESD Tester	NOISEKEN	TC-815R	ESS0645426	2018/7/25

Fast Transients, Voltage Dips, Short Interruptions and Voltage Variations

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC012	TRANSIENT-2000	EMC PARTNER	TRA2000	450	2018/10/12

Surges

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC013	NSG2050	SCHAFFNER	NSG2050	200541-554LU	2018/7/20
GAL-EMC014	CDN131	SCHAFFNER	CDN131	34370	2018/7/20
GAL-EMC015	COMB WAVE	SCHAFFNER	PNW2050	200602-571LU	2018/7/20

Conducted Immunity at Power Port (150kHz-230MHz)

No.	Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
GAL-EMC066	Test System for Conducted and Radiated Immunity	TESEQ	NSG4070	24438	2019/6/14
GAL-EMC067	Coupling and Decoupling Network	TESEQ	CDNM016	24478	2018/10/12
GAL-EMC095	Attenutor	HUBER SUHNER AG	5906.17.0005	301532	2019/6/22

6 Emission Test Results

6.1 Conducted Disturbance at Mains Terminals(150kHz-30MHz)

Test Requirement:	EN55011:2016
Test Method:	CISPR 16-2-1
Frequency Range:	150KHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

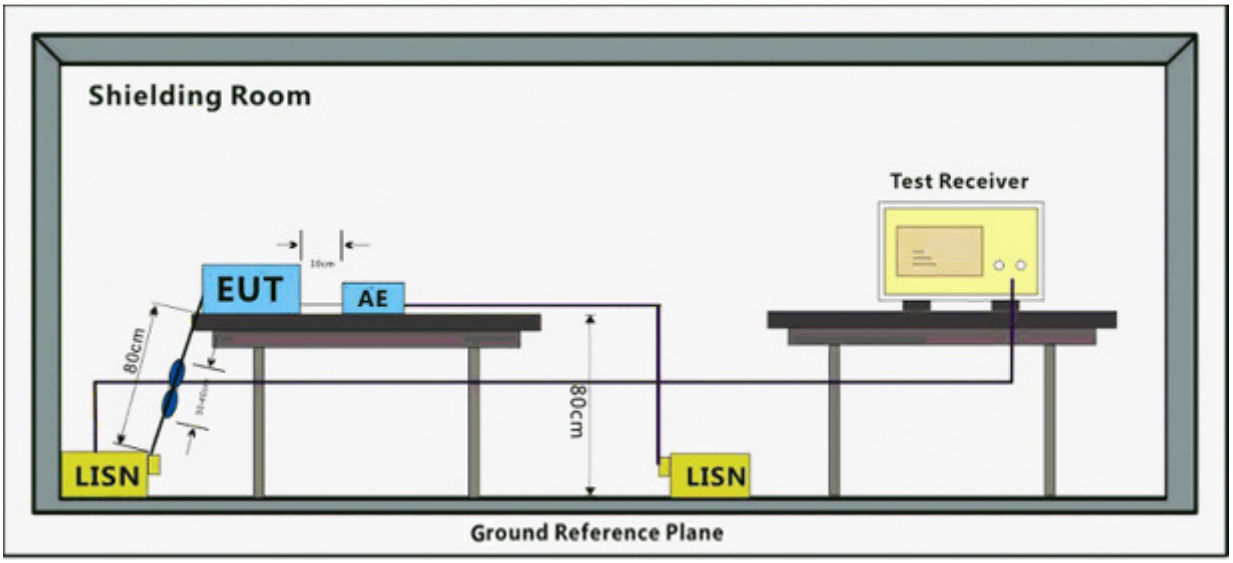
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 53 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in 100% Microwave Power Mode.

6.1.2 Test Setup Diagram

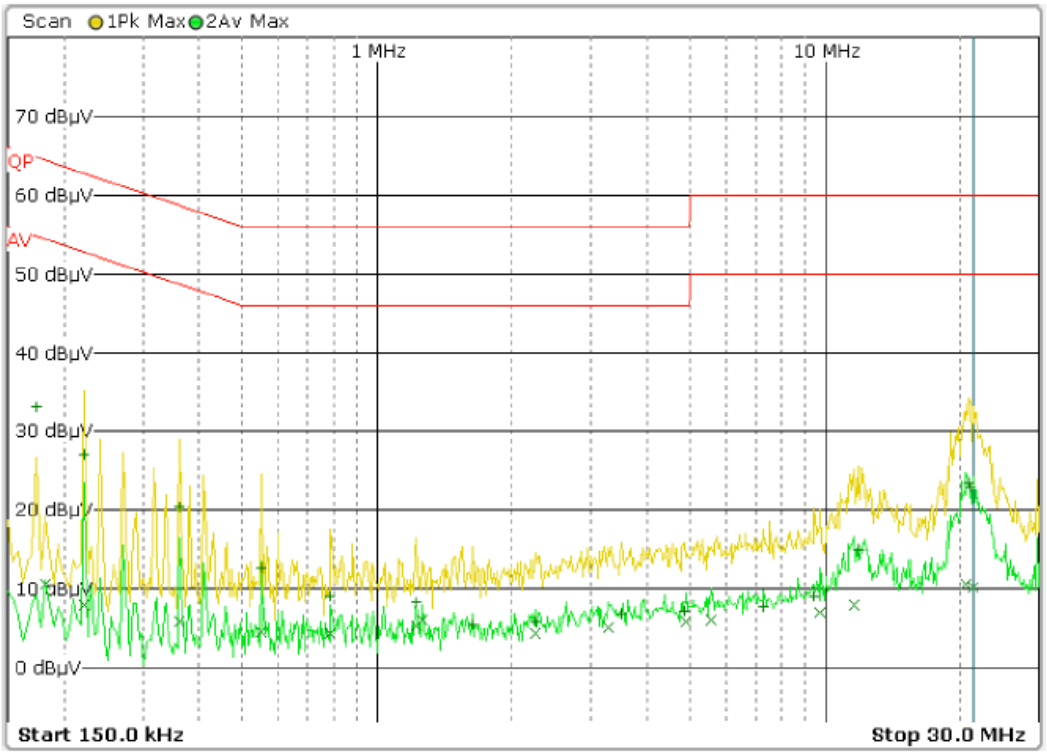


6.1.3 Measurement Data

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

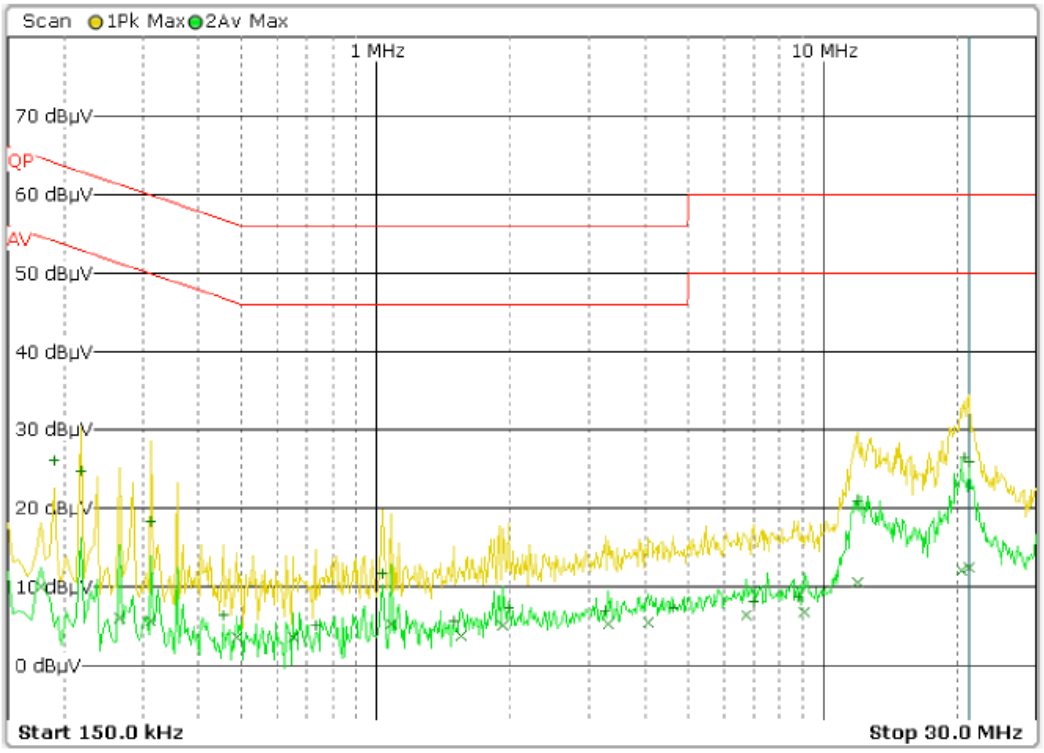
Live Line

Scan Diagram



Neutral Line

Scan Diagram



EN55011 Conducted emission Mains							
Operation Mode	Full Power of Microwave Mode						
Frequency (MHz)	Line	Measured QP (dBµV)	QP Limit (dBµV)	margin (dB)	Measured AV (dBµV)	AV Limit (dBµV)	Margin (dB)
0.2220	L	27.05	62.74	35.69	7.95	52.74	44.79
1.2180	L	8.26	56.00	47.74	5.23	46.00	40.77
20.8620	L	23.42	60.00	36.58	11.85	50.00	38.15
0.3140	N	18.35	59.86	41.51	5.63	49.86	44.23
11.9620	N	21.03	60.00	38.97	10.54	50.00	39.46
21.2180	N	25.83	60.00	34.17	12.48	50.00	37.52

6.2 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	EN55011:2016
Test Method:	EN55011:2016
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz-80.872MHz	40dB(μV/m) quasi-peak, 35dB(μV/m) average
80.872MHz-81.848MHz	60dB(μV/m) quasi-peak, 55dB(μV/m) average
81.848MHz-134.786MHz	40dB(μV/m) quasi-peak, 35dB(μV/m) average
134.786MHz-136.414MHz	60dB(μV/m) quasi-peak, 55dB(μV/m) average
136.414MHz-230MHz	40dB(μV/m) quasi-peak, 35dB(μV/m) average
230MHz-1000MHz	47dB(μV/m) quasi-peak, 42dB(μV/m) average
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1G

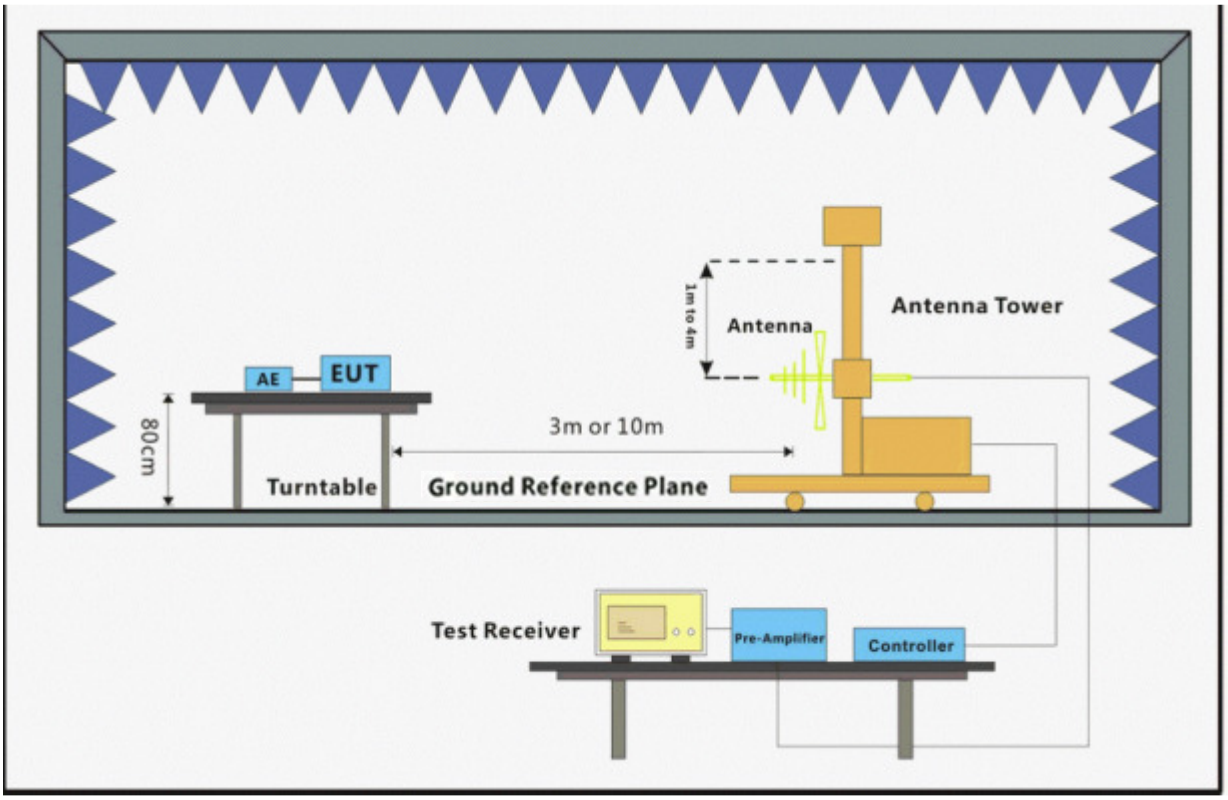
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 55 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in 100% Microwave Power Mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

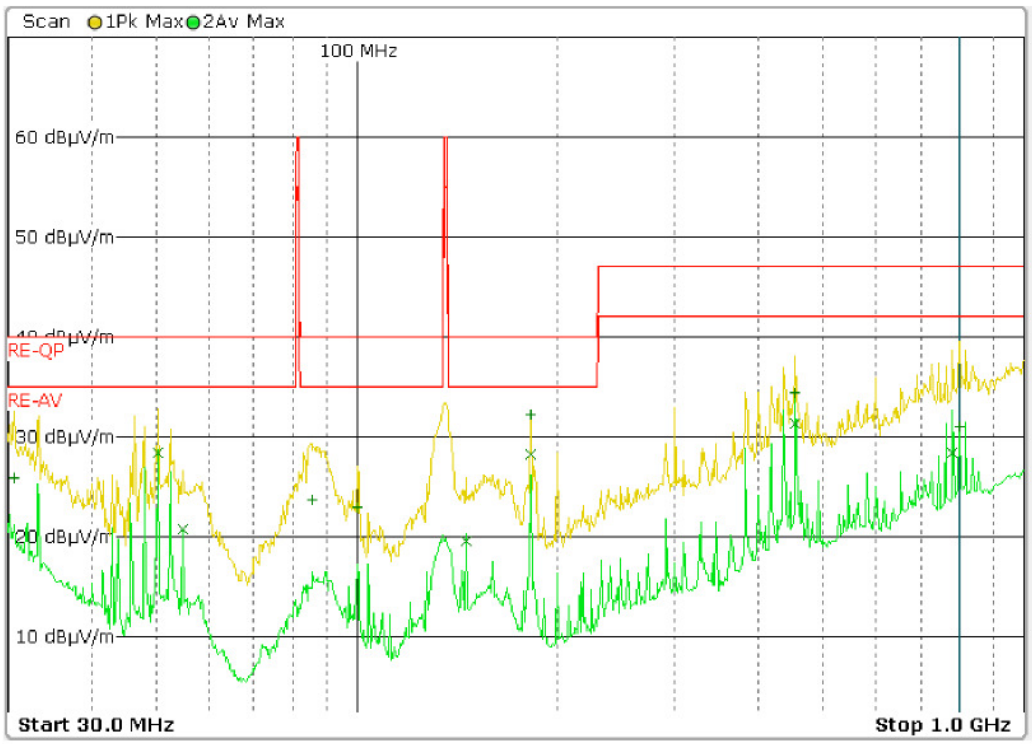
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Horizontal

Scan Diagram

Vertical

Scan Diagram



Frequency (MHz)	Antenna Polarity	Turn Table Degree(º)	Antenna Height (cm)	Measured QP (dBµV/m)	QP Limit (dBµ	Margin (dB)	Measured AV (dBµV/m)	AV Limit (dBµ	Margin (dB)
30.6000	V	0	100	25.83	40.00	14.17	17.45	35.00	17.55
85.5200	V	30	110	23.72	40.00	16.28	13.86	35.00	21.14
99.9600	V	30	110	22.91	40.00	17.09	15.76	35.00	19.24
181.8400	V	0	100	32.20	40.00	7.80	28.22	35.00	6.78
454.6000	V	30	100	34.47	47.00	12.53	31.27	42.00	10.73
800.1600	V	0	100	30.96	47.00	16.04	25.38	42.00	16.62
30.0000	H	0	100	23.38	40.00	16.62	18.65	35.00	16.35
60.1200	H	30	110	23.64	40.00	16.36	9.53	35.00	25.47
105.5200	H	30	100	27.96	40.00	12.04	9.76	35.00	25.24
216.9200	H	0	100	25.12	40.00	14.88	18.57	35.00	16.43
703.7200	H	0	110	21.63	47.00	25.37	22.47	42.00	19.53
732.5600	H	0	100	22.18	47.00	24.82	21.34	42.00	20.66

6.3 Radiated Disturbance(1GHz-18GHz)

Test Requirement: EN55011:2016
Test Method: EN55011:2016
Frequency Range: 1GHz to 18GHz
Measurement Distance: 3m
Limit:

Table 13:
1G to 18G :70dB(μV/m) Peak Within harmonic frequency bands
1G to 18G :70dB(μV/m) Peak Outside harmonic frequency bands
11.7G to 12.7G :73dB(μV/m) Peak
Table 14:
1 GHz to 2.4 GHz: 60 dB(μV/m) Peak
2.5 GHz to 5.725GHz: 60 dB(μV/m) Peak
5.875 GHz to 18 GHz: 60 dB(μV/m) Peak
Table 15 APD level:
1 GHz to 2.4 GHz: 70 dB(μV/m) Peak
2.5 GHz to 5.725GHz: 70 dB(μV/m) Peak
5.875 GHz to 18 GHz: 70 dB(μV/m) Peak

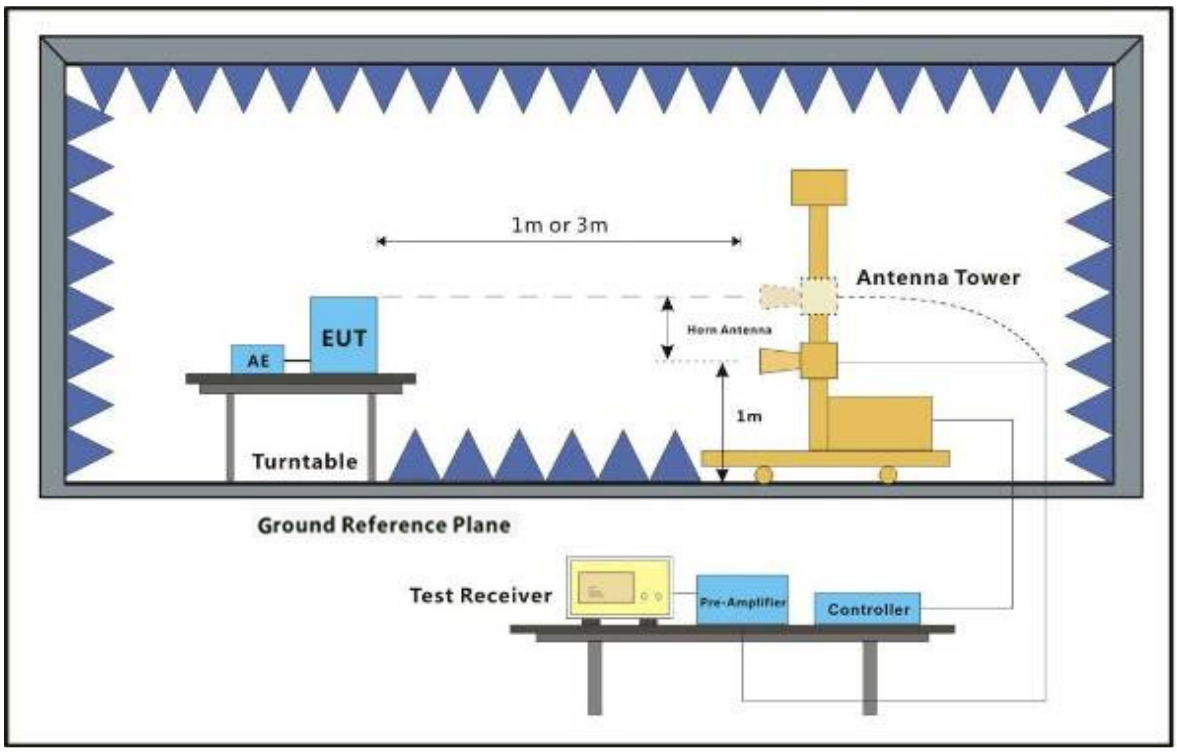
6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 55 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in 100% Microwave Power Mode.

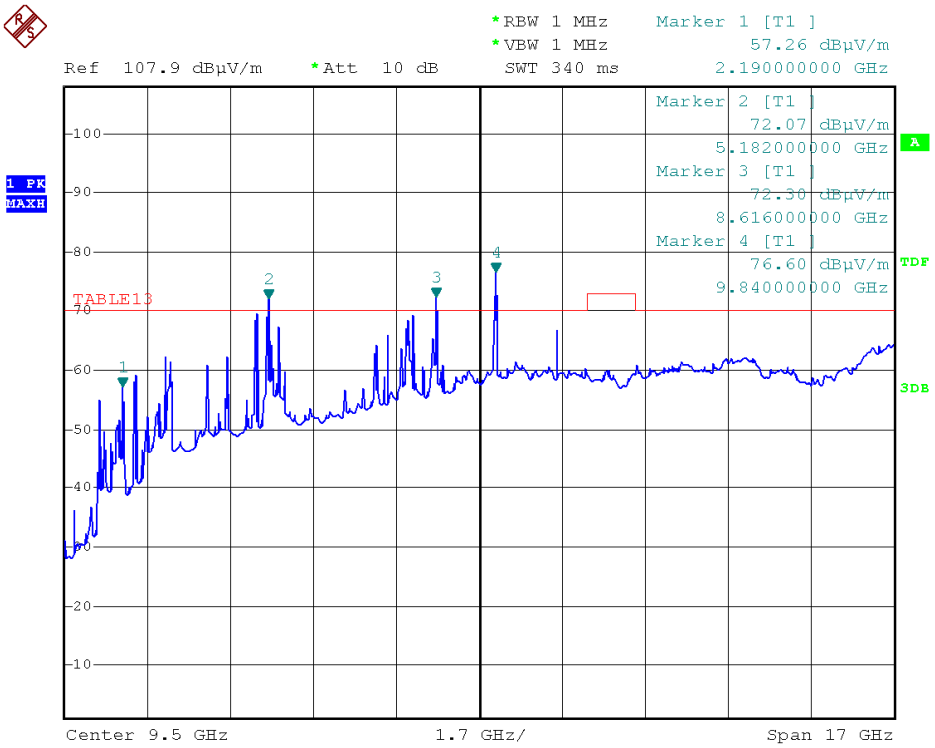
6.3.2 Test Setup Diagram



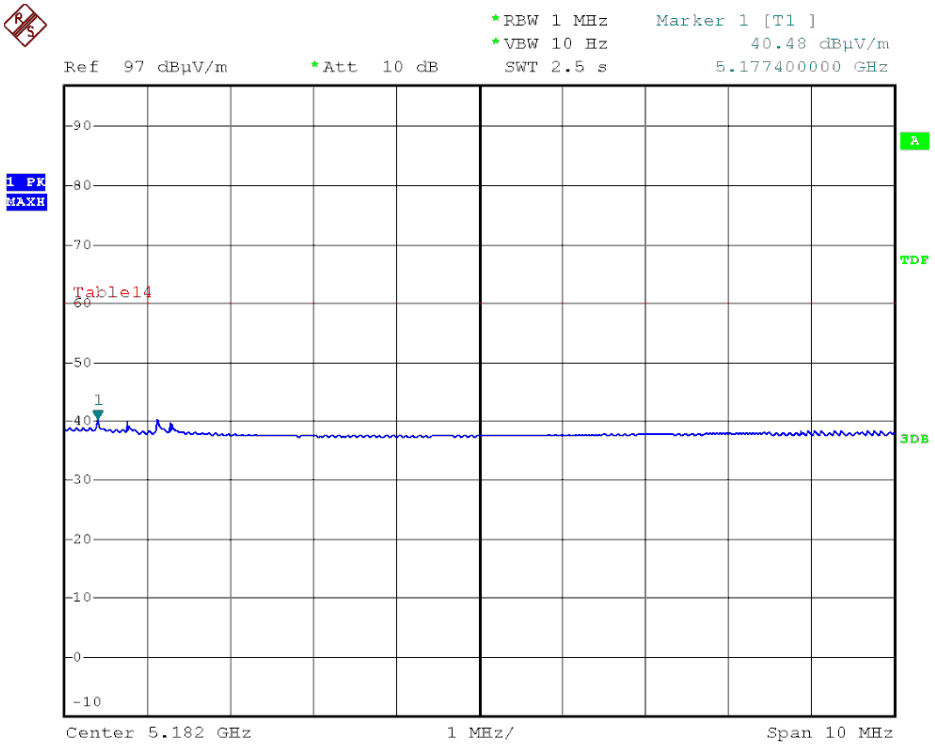
6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

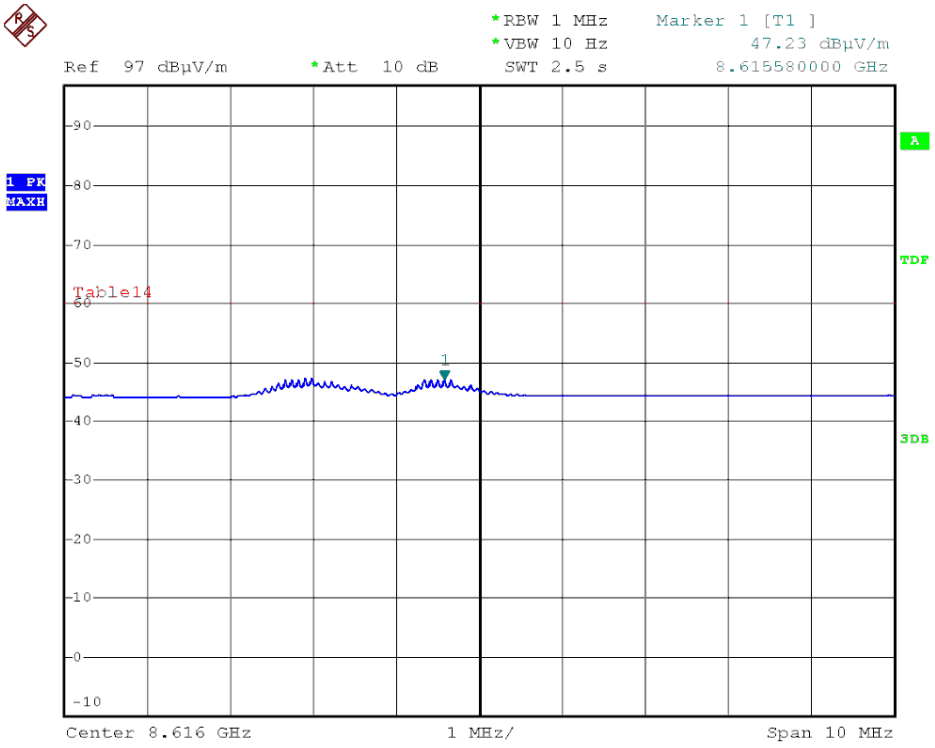
Horizontal



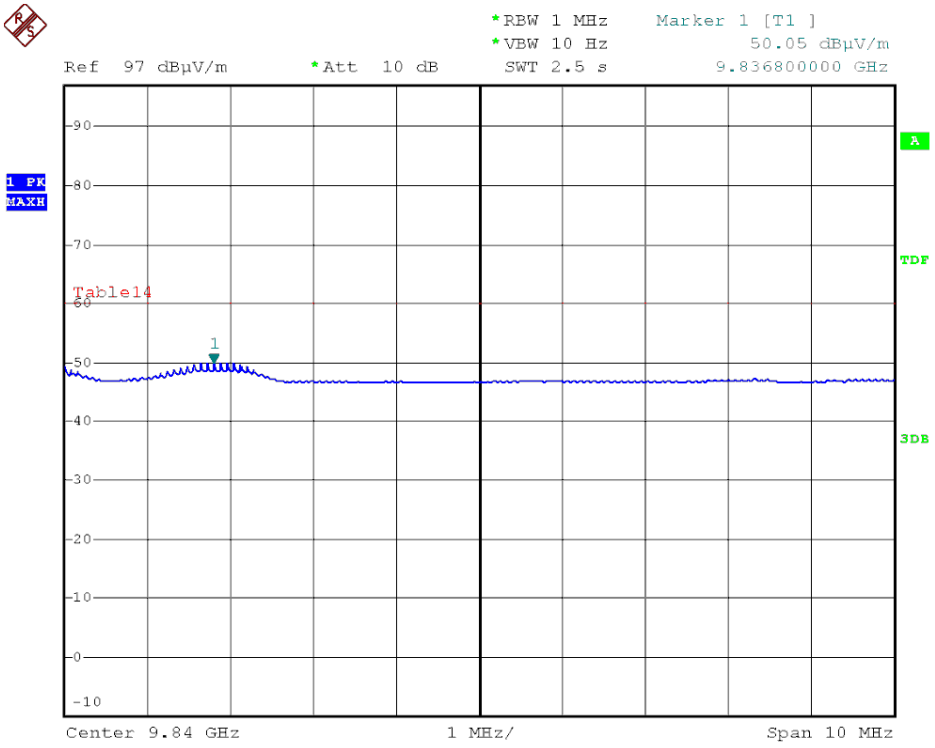
Horizontal (Table 14)



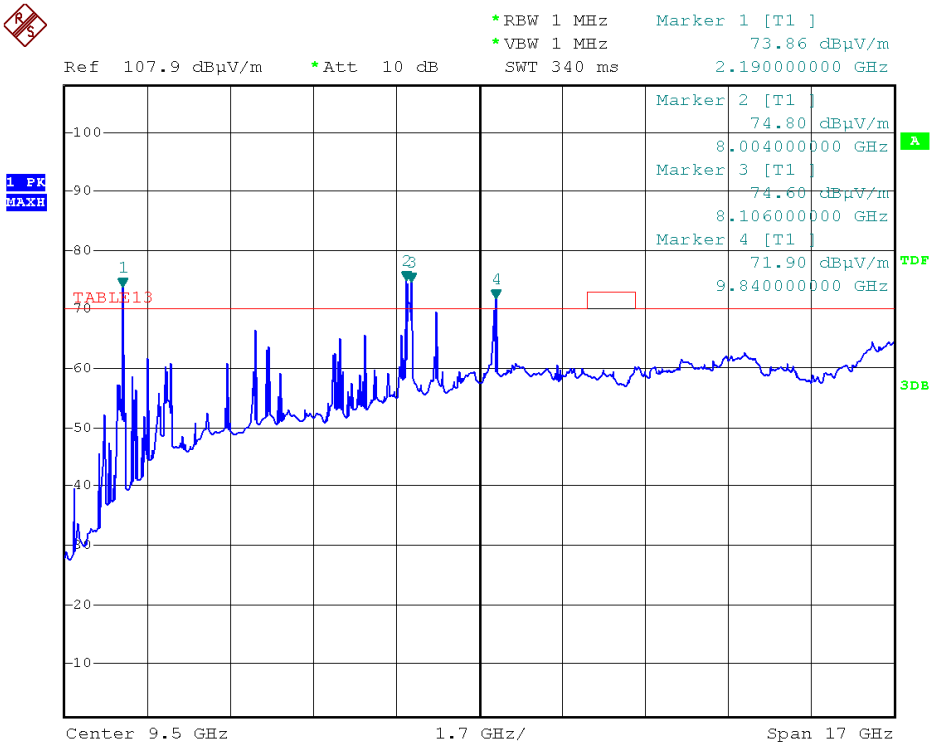
Horizontal (Table 14)



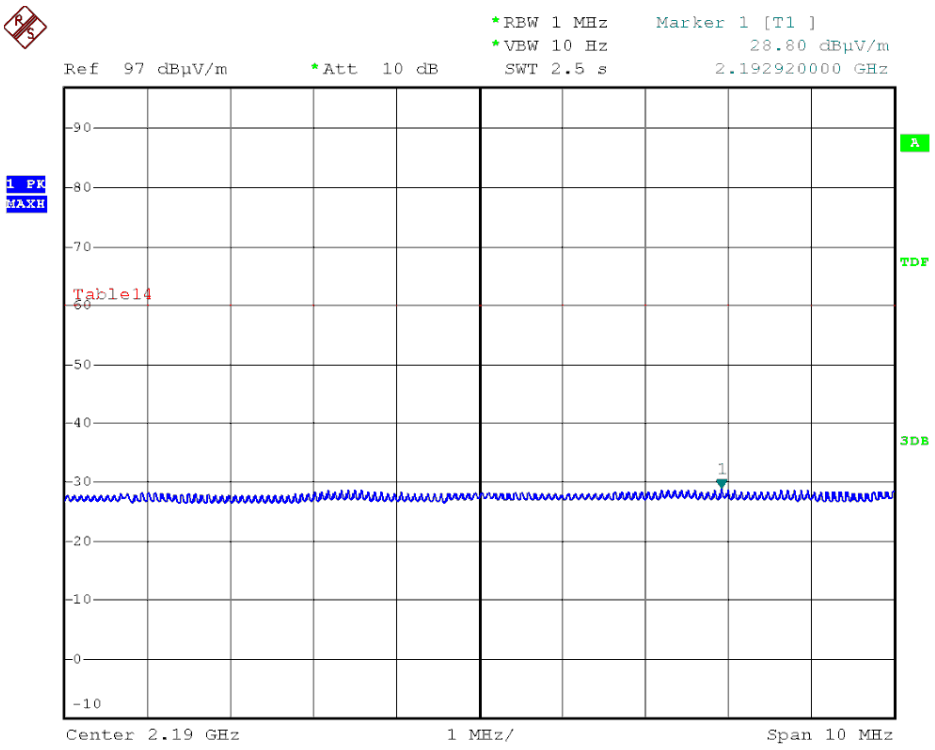
Horizontal (Table 14)



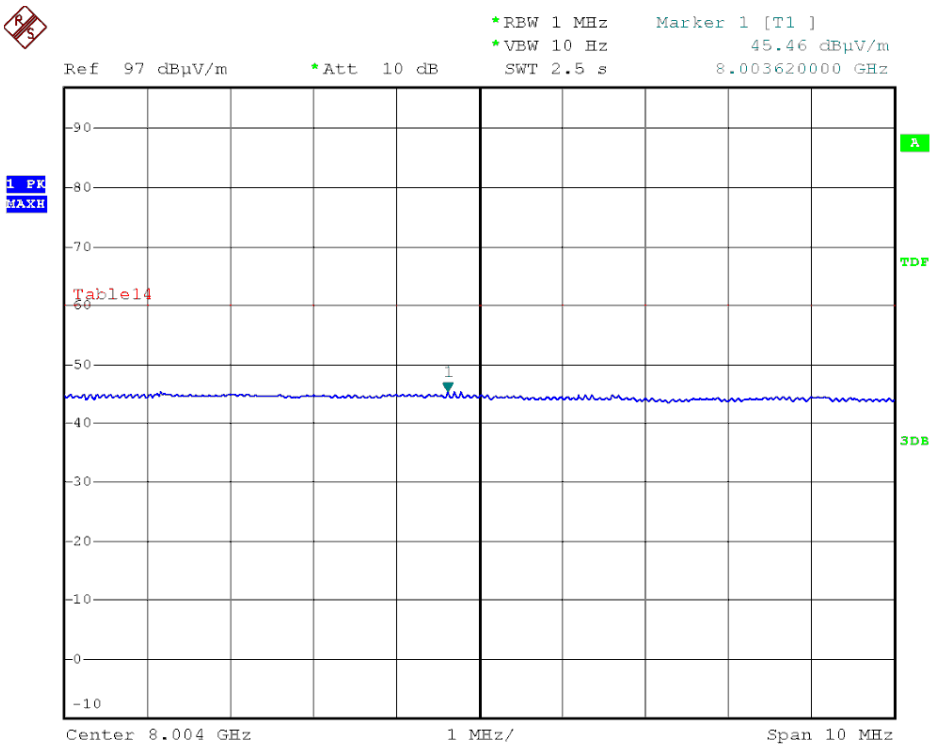
Vertical



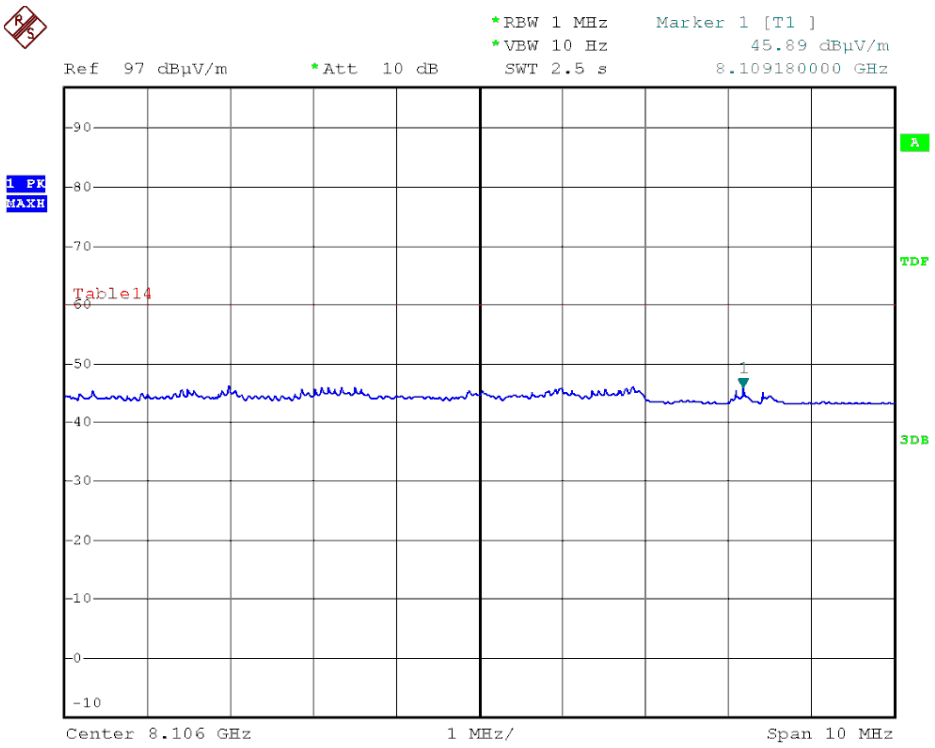
Vertical (Table 14)



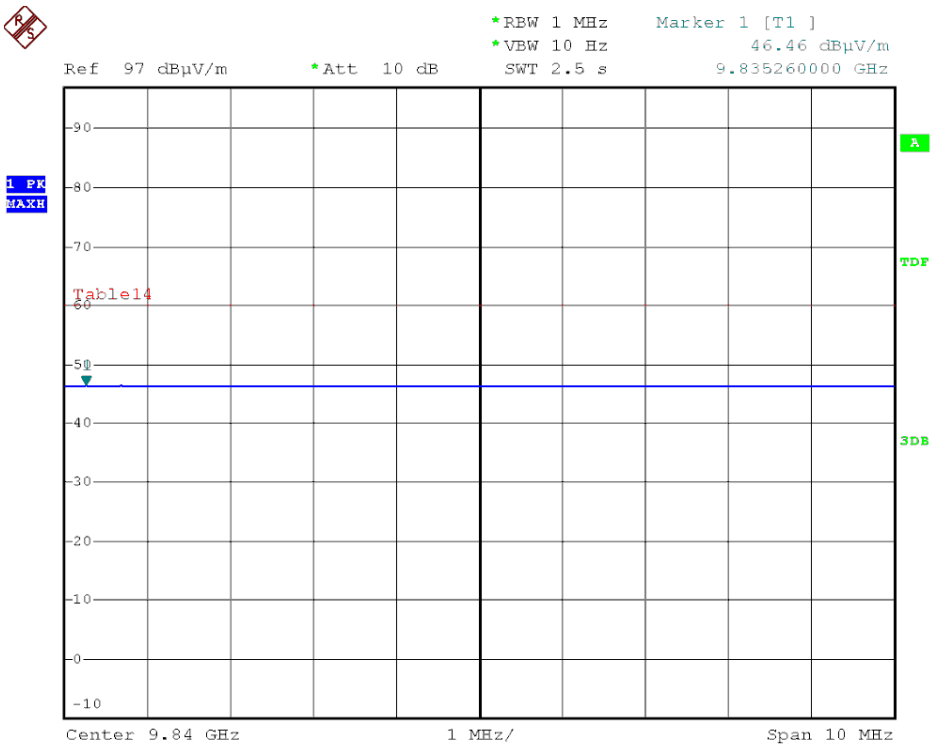
Vertical (Table 14)



Vertical (Table 14)



Vertical (Table 14)



Frequency (GHz)	Antenna Polarity	Turn Table Degree (º)	Measured Peak (dBµV/m)	Peak Limit (dBµV/m)	Margin (dB)
2.190	V	0	73.86	70.00	-3.86
8.004	V	0	74.80	70.00	-4.80
8.106	V	0	74.60	70.00	-4.60
9.840	V	0	71.90	70.00	-1.90
5.182	H	0	72.07	70.00	-2.07
8.616	H	0	72.30	70.00	-2.30
9.840	H	0	76.60	70.00	-6.60
Weighted Measurement					
2.19292	V	---	28.80	60.00	31.20
8.00362	V	---	45.46	60.00	14.54
8.10918	V	---	45.89	60.00	14.11
9.83526	V	---	46.46	60.00	13.54
5.17740	H	---	40.48	60.00	19.52
8.61558	H	---	47.23	60.00	12.77
9.83680	H	---	50.05	60.00	9.95
Remark	None				

6.4 Radiated Disturbance (Magnetic field Induced Current)(150kHz-30MHz)

Test Requirement: EN55011:2016
Test Method: EN55011:2016
Frequency Range: 150KHz to 30MHz
Measurement Distance: 3m
Limit: 39 to 3 dB (μA/m)

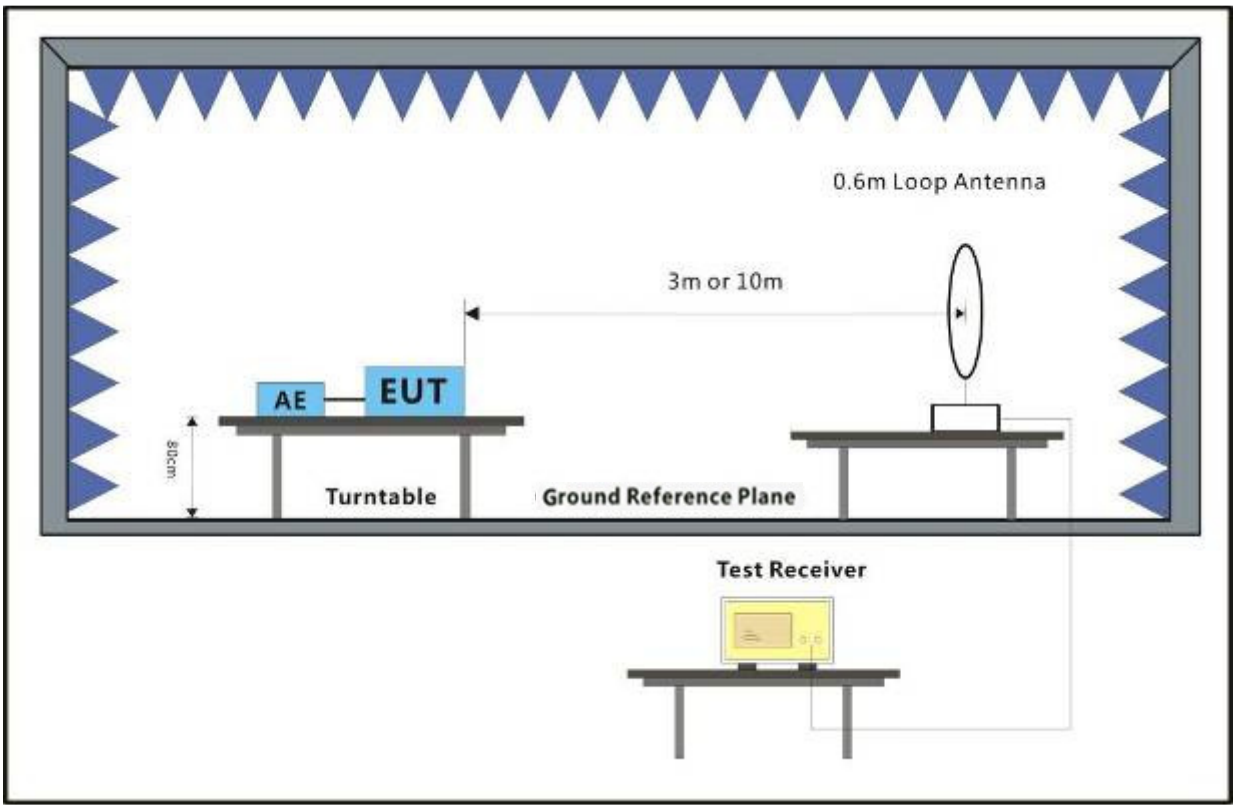
6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 53 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in 100% Microwave Power Mode.

6.4.2 Test Setup Diagram

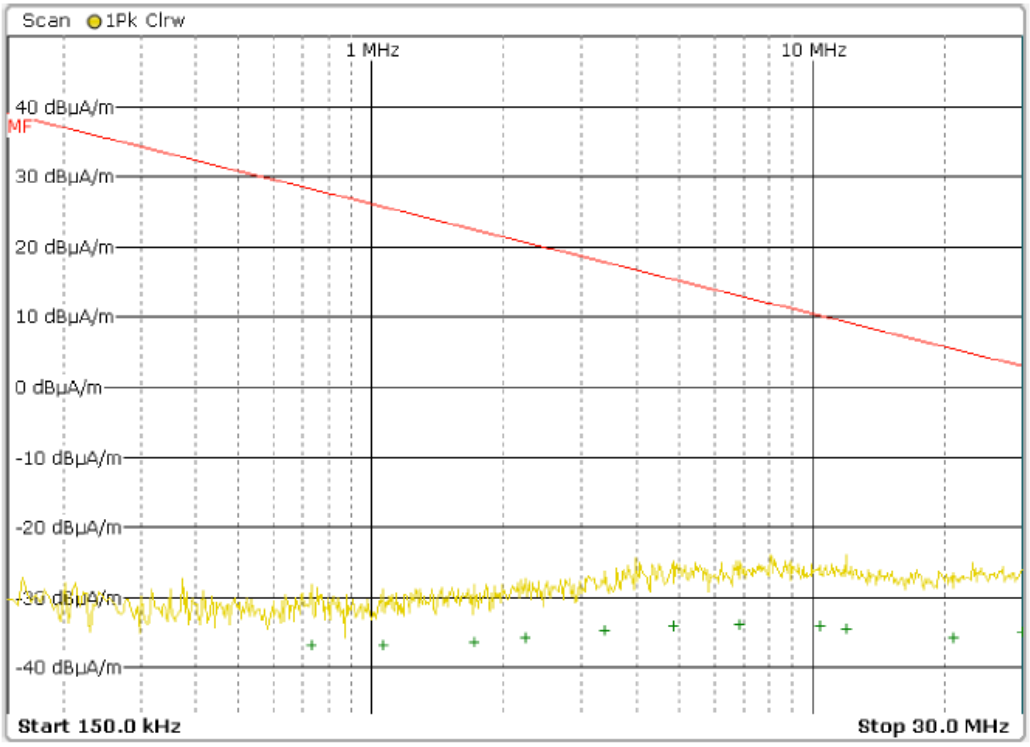


6.4.3 Measurement Data

Horizontal:

Level (dBμA)

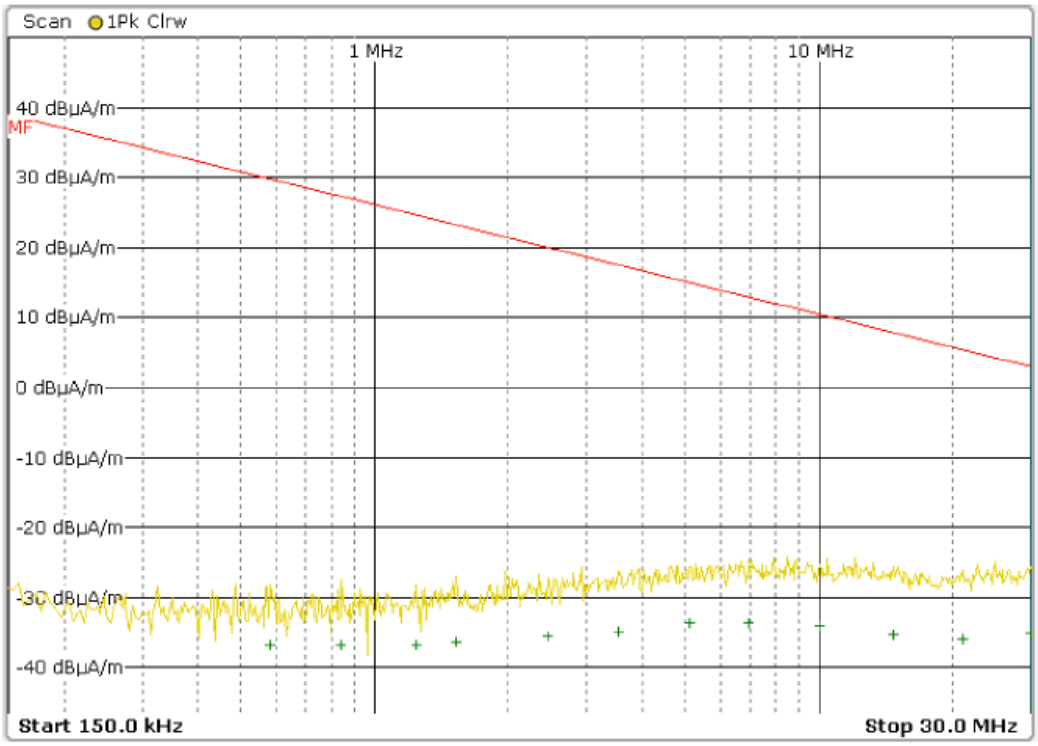
Scan Diagram



Vertical:

Level (dBµA)

Scan Diagram



6.5 Harmonic Current Emission

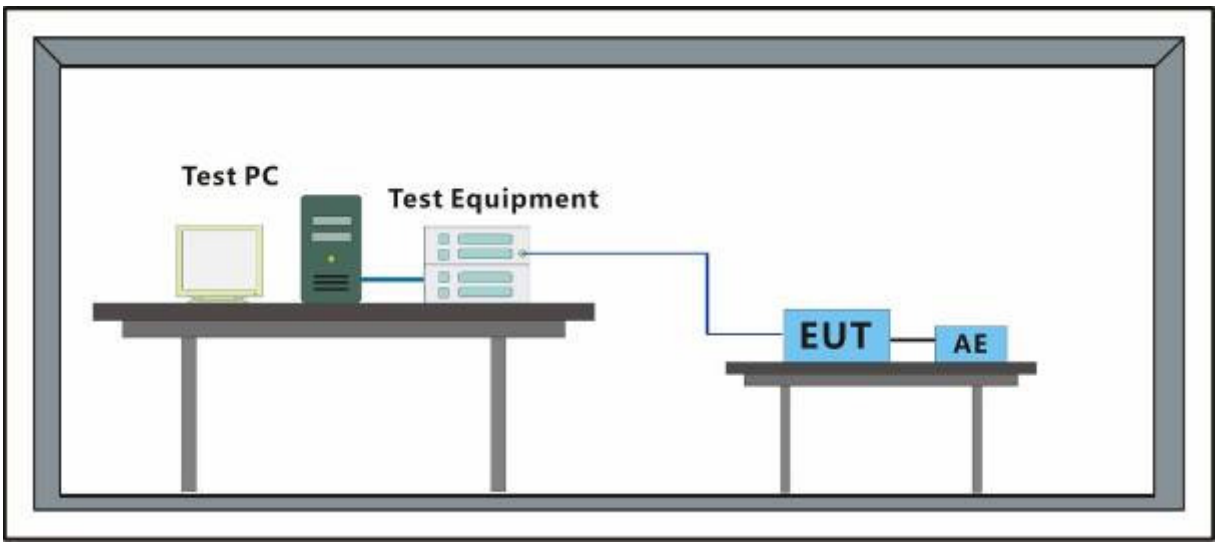
Test Requirement: EN 61000-3-2:2014
Test Method: EN 61000-3-2:2014
Frequency Range: 100Hz to 2kHz

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 55 % RH Atmospheric Pressure: 1010 mbar
Test mode a: Test the EUT in 100% Microwave Power Mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

Average harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	5.019			
2	442.842E-3	41.004	1.08	PASS
3	1.735	75.427	2.30	PASS
4	35.465E-3	8.248	430.00E-3	PASS
5	714.807E-3	62.702	1.14	PASS
6	31.967E-3			PASS
7	235.631E-3	30.601	770.00E-3	PASS
8	11.205E-3			PASS
9	122.129E-3	30.532	400.00E-3	PASS
10	6.920E-3			PASS
11	81.176E-3	24.599	330.00E-3	PASS
12	4.540E-3			PASS
13	47.650E-3	22.691	210.00E-3	PASS
14	2.531E-3			PASS
15	35.269E-3	23.513	150.00E-3	PASS
16	3.018E-3			PASS
17	25.257E-3			PASS
18	3.034E-3			PASS
19	21.640E-3			PASS
20	1.689E-3			PASS
21	18.135E-3			PASS
22	2.752E-3			PASS
23	15.862E-3			PASS
24	2.853E-3			PASS
25	13.815E-3			PASS
26	2.112E-3			PASS
27	12.366E-3			PASS
28	1.545E-3			PASS
29	11.219E-3			PASS
30	1.138E-3			PASS
31	10.089E-3			PASS
32	1.896E-3			PASS
33	9.239E-3			PASS
34	1.414E-3			PASS
35	8.648E-3			PASS
36	2.059E-3			PASS
37	8.162E-3			PASS
38	1.476E-3			PASS
39	7.454E-3			PASS
40	1.571E-3			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Maximum harmonic current results

Hn	Ieff [A]	% of Limit	Limit [A]	Result
1	5.110			
2	495.473E-3	30.585	1.62	PASS
3	1.805	52.306	3.45	PASS
4	50.724E-3	7.864	645.00E-3	PASS
5	738.146E-3	43.166	1.71	PASS
6	34.594E-3	7.688	450.00E-3	PASS
7	237.820E-3	20.590	1.15	PASS
8	15.755E-3			PASS
9	124.812E-3	20.802	600.00E-3	PASS
10	8.739E-3			PASS
11	86.494E-3	17.474	495.00E-3	PASS
12	6.060E-3			PASS
13	50.152E-3	15.921	315.00E-3	PASS
14	3.120E-3			PASS
15	37.833E-3	16.815	225.00E-3	PASS
16	3.482E-3			PASS
17	26.881E-3			PASS
18	3.765E-3			PASS
19	22.502E-3			PASS
20	2.415E-3			PASS
21	18.662E-3			PASS
22	3.551E-3			PASS
23	16.410E-3			PASS
24	3.002E-3			PASS
25	14.263E-3			PASS
26	2.568E-3			PASS
27	13.240E-3			PASS
28	1.896E-3			PASS
29	11.590E-3			PASS
30	1.345E-3			PASS
31	10.393E-3			PASS
32	2.306E-3			PASS
33	9.496E-3			PASS
34	1.655E-3			PASS
35	8.908E-3			PASS
36	2.464E-3			PASS
37	8.458E-3			PASS
38	1.824E-3			PASS
39	7.667E-3			PASS
40	2.129E-3			PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

6.6 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-3-3:2013

Test Method: EN 61000-3-3:2013

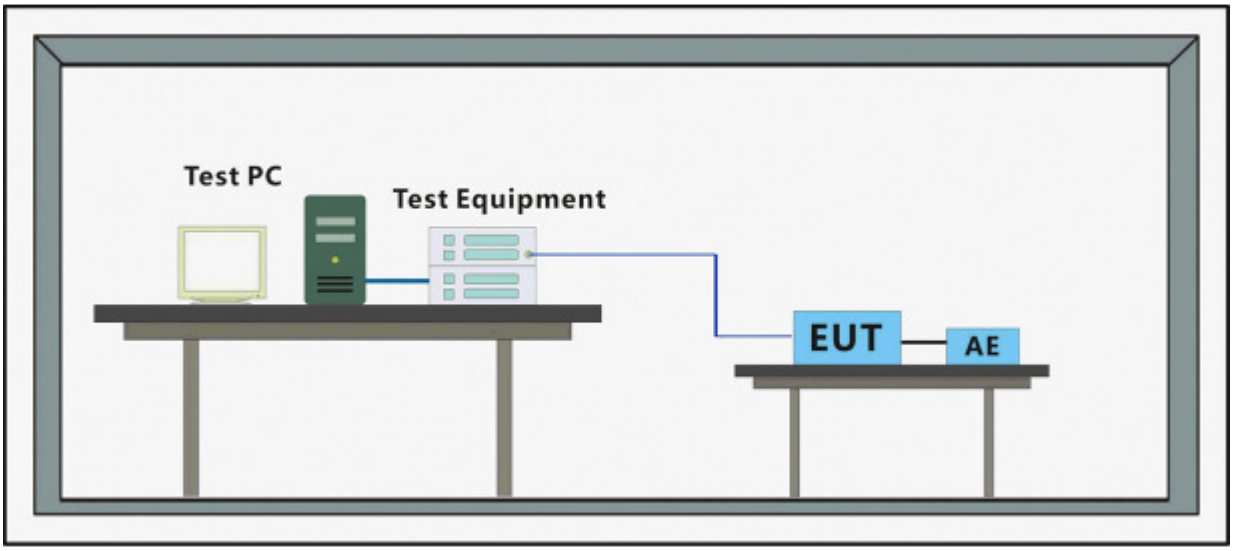
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 55 % RH Atmospheric Pressure: 1010 mbar

Test Mode: Test the EUT in microwave cooking with lowest power, medium power and a third stage which is the highest adjustable power less than or equal to 90% of the maximum power respective. Load the oven with a glass bowl containing 1 000 ± 50 g of water.

6.6.2 Test Setup Diagram



6.6.3 Measurement Data

Maximum Flicker results

20%Microwave Power

Flicker measurement 1	EUT values	Limit	Result
Pst	0.760	1.00	PASS
dc [%]	1.462	3.30	PASS
dmax [%]	1.625	6.00	PASS
dt [s]	0.000	0.50	PASS

60%Microwave Power

	EUT values	Limit	Result
Pst	0.738	1.00	PASS
dc [%]	1.421	3.30	PASS
dmax [%]	1.584	6.00	PASS
dt [s]	0.000	0.50	PASS

80%Microwave Power

	EUT values	Limit	Result
Pst	0.700	1.00	PASS
dc [%]	1.285	3.30	PASS
dmax [%]	2.185	6.00	PASS
dt [s]	0.000	0.50	PASS

7 Immunity Test Results

7.1 Performance Criteria Description in EN 55014-2:2015

Criterion A The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Criterion B The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.

Criterion C Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

7.2 Electrostatic Discharge

Test Requirement:	EN 55014-2:2015
Test Method:	EN 61000-4-2:2009
Performance Criterion:	B
Discharge Impedance:	330Ω/150pF
Number of Discharge:	Minimum 10 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

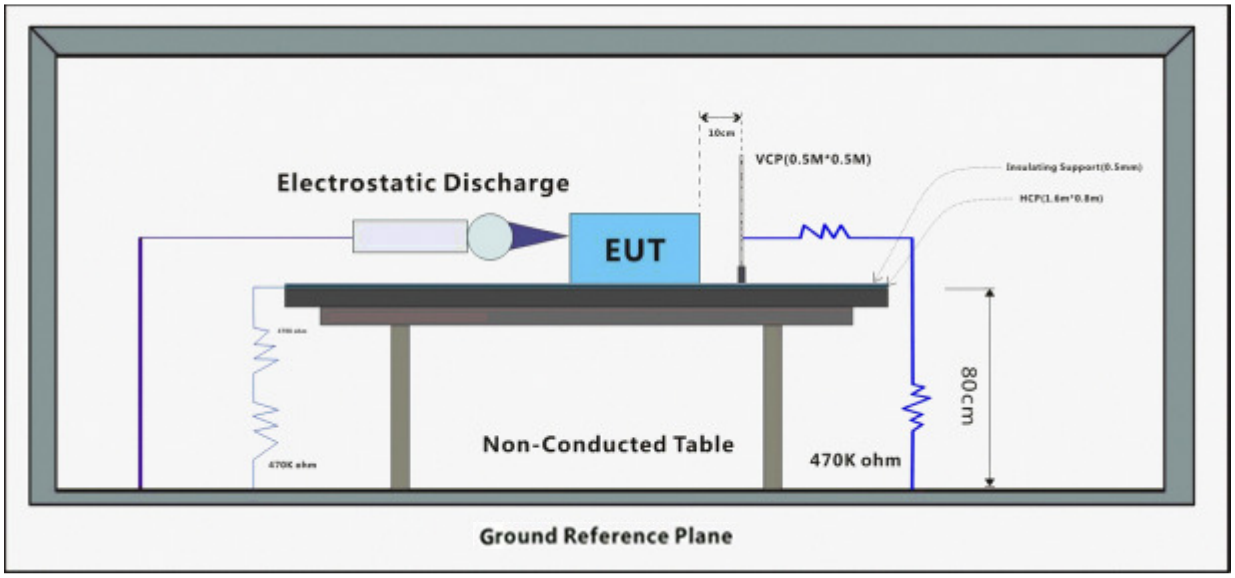
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 55 % RH Atmospheric Pressure: 1010 mbar

Test Mode: a: Test the EUT in microwave mode.
b: Test the EUT in idle mode.

7.2.2 Test Setup Diagram



7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.

7.3 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 55014-2:2015
Test Method: EN 61000-4-4:2012
Performance Criterion: B
Repetition Frequency: 5kHz
Burst Period: 300ms
Test Duration: 2 minute per level & polarity

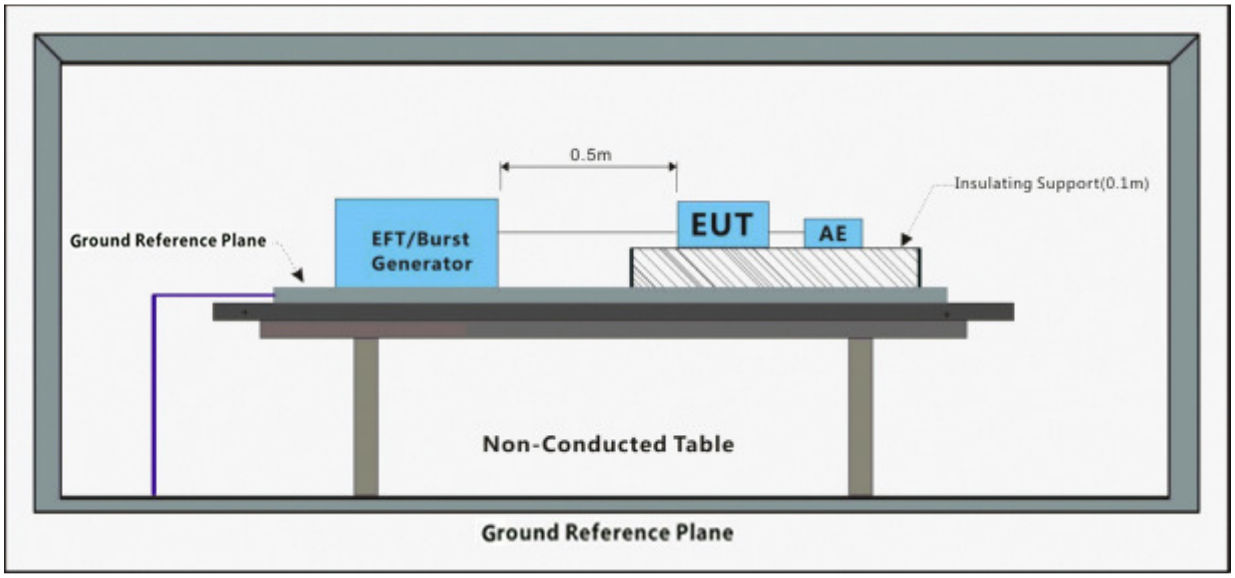
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 57 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in microwave mode.
b: Test the EUT in idle mode.

7.3.2 Test Setup Diagram



7.3.3 Test Results:

Test Line	Level (kV)	Polarity	Direct/Coupling	Result / Observations
AC power port	1	+	Direct	A
AC power port	1	-	Direct	A

Results:

A: No degradation in the performance of the EUT was observed.

7.4 Surge at Power Port

Test Requirement: EN 55014-2:2015
Test Method: EN 61000-4-5:2014
Performance Criterion: B
Interval: 60s between each surge
No. of surges: 5 positive at 90°, 5 negative at 270°.

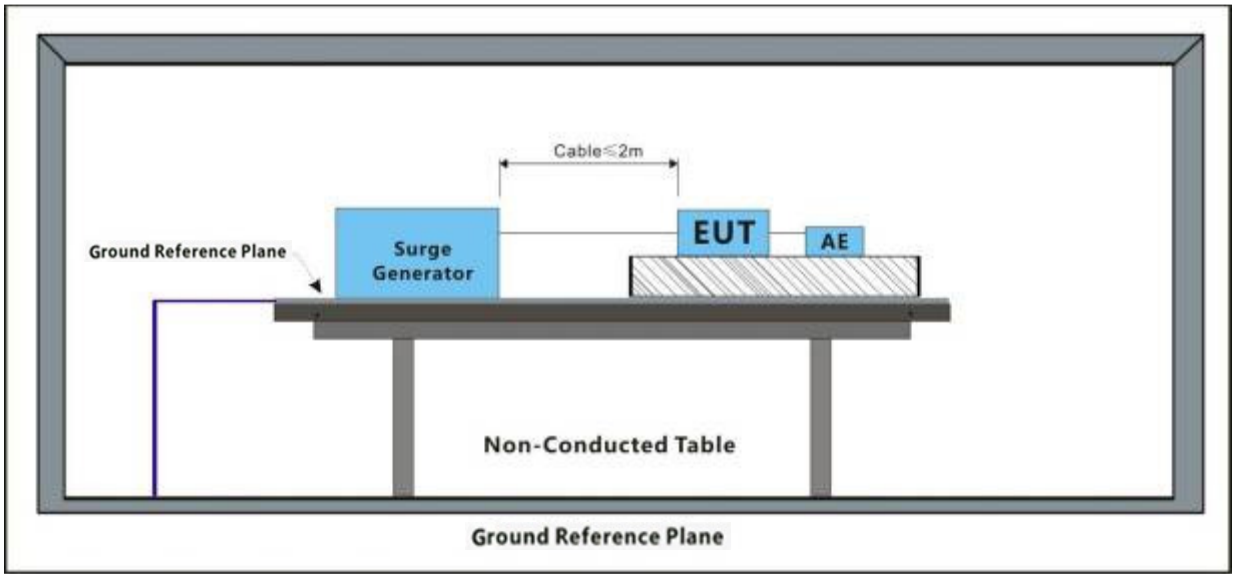
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 57 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in microwave mode.
b: Test the EUT in idle mode.

7.4.2 Test Setup Diagram



7.4.3 Test Results:

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	90°	A
L-N	1	-	270°	A
L-PE	2	+	90°	A
L-PE	2	-	270°	A
N-PE	2	+	90°	A
N-PE	2	-	270°	A

Results:

A: No degradation in the performance of the EUT was observed.

7.5 Conducted Immunity at Power Port(150kHz-230MHz)

Test Requirement: EN 55014-2:2015
Test Method: EN 61000-4-6:2014
Frequency Range: 0.15MHz to 230MHz
Performance Criterion: A
Modulation: 80%, 1kHz Amplitude Modulation
Step Size 1%

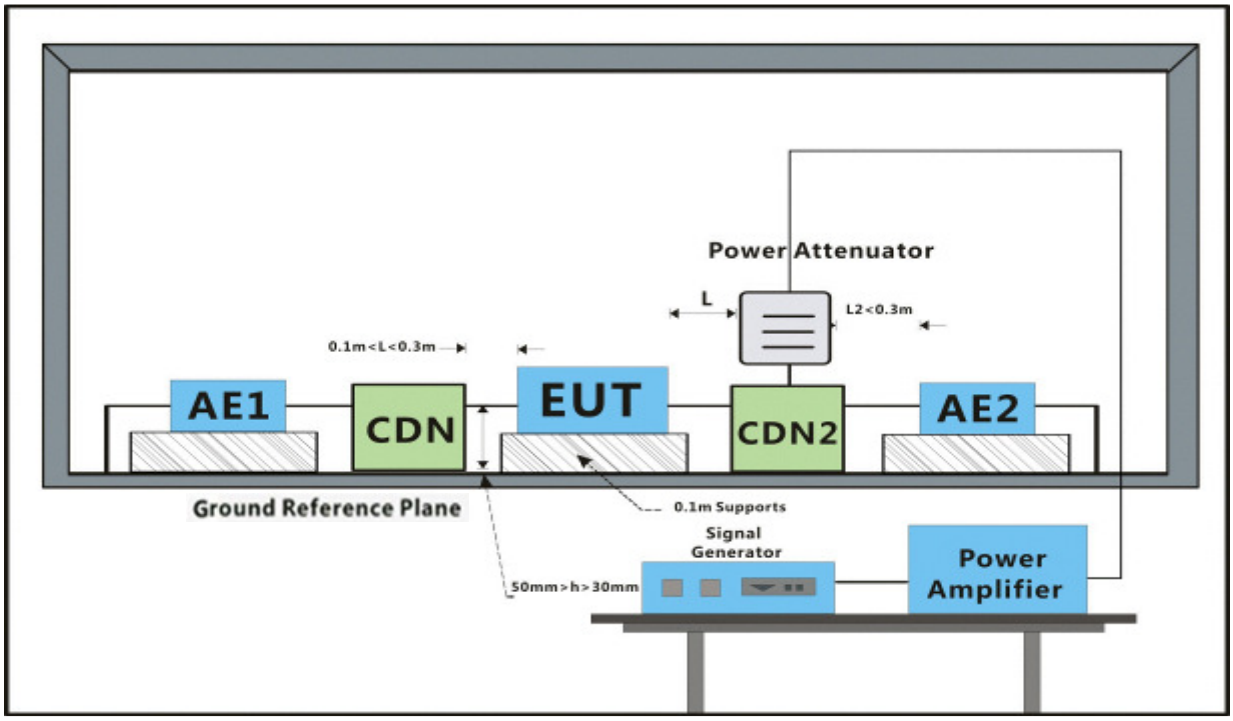
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 57 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in microwave mode.
b: Test the EUT in idle mode.

7.5.2 Test Setup Diagram



7.5.3 Test Results:

Cable port	Level (Vrms)	Direct/Coupling	Dwell time	Result / Observations
AC power port	3	Direct	1s	A

Results:

A: No degradation in the performance of the EUT was observed.

7.6 Voltage Dips and Interruptions

Test Requirement:	EN 55014-2:2015
Test Method:	EN 61000-4-11:2004
Performance Criterion:	For 50Hz
	0% of UT (Supply Voltage) for 0.5 Periods: C;
	40% of UT for 10 Periods: C;
	70% of UT for 25 Periods: C
No. of Dips / Interruptions:	3 per Level
Time between dropout	10s

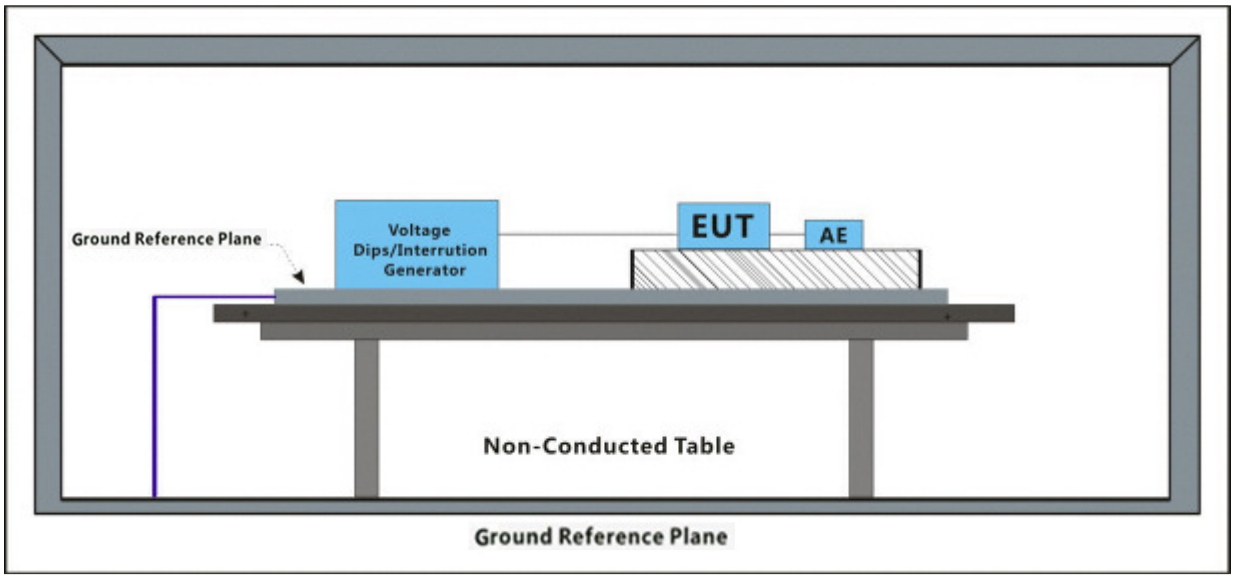
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 57 % RH Atmospheric Pressure: 1012 mbar

Test Mode: a: Test the EUT in microwave mode.
b: Test the EUT in idle mode.

7.6.2 Test Setup Diagram



7.6.3 Test Results:

For 50Hz

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Periods	3	B
0	180°	0.5 Periods	3	B
40	0°	10 Periods	3	B
40	180°	10 Periods	3	B
70	0°	25 Periods	3	B
70	180°	25 Periods	3	B

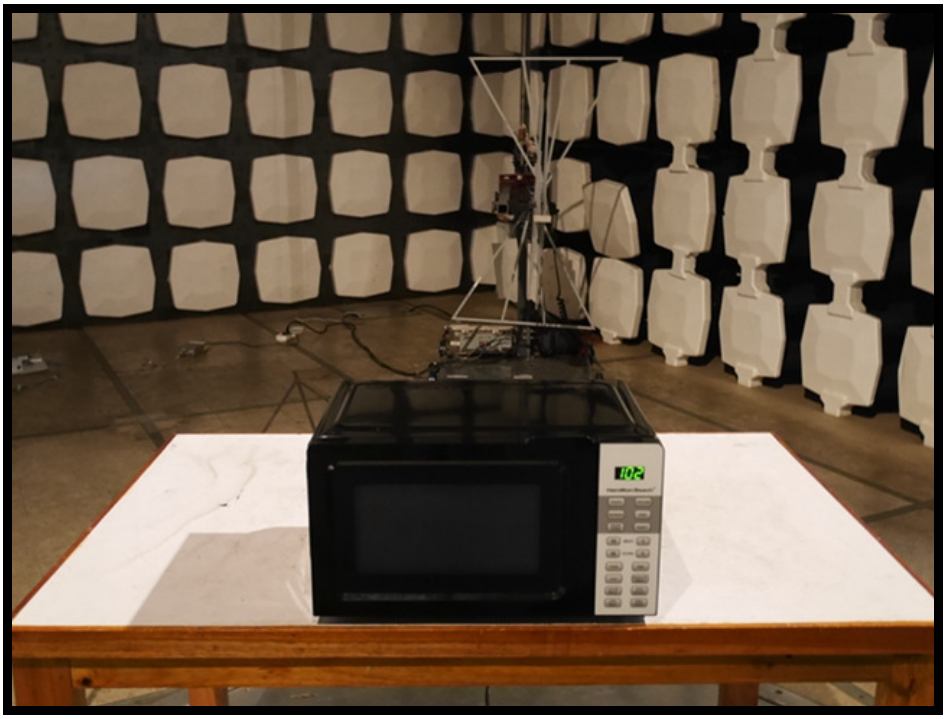
Results:

B: During test the lamp flashed, but it could recover automatically after test.

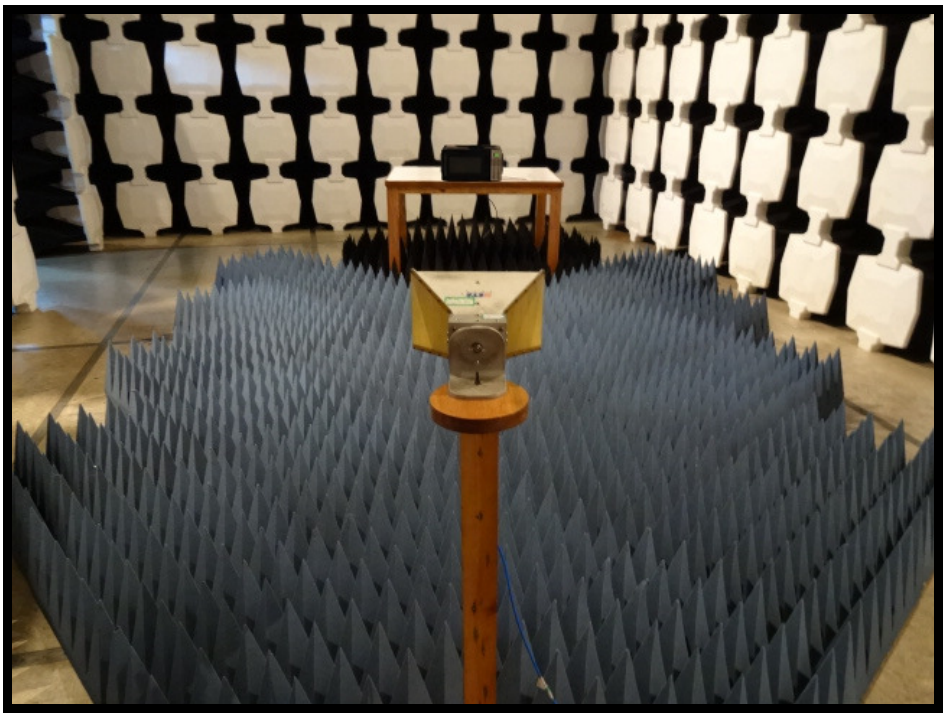
8 Photographs

8.1 Conducted Disturbance at Mains Terminals(150kHz-30MHz) Test Setup

8.2 Radiated Disturbance(30MHz-1GHz) Test Setup

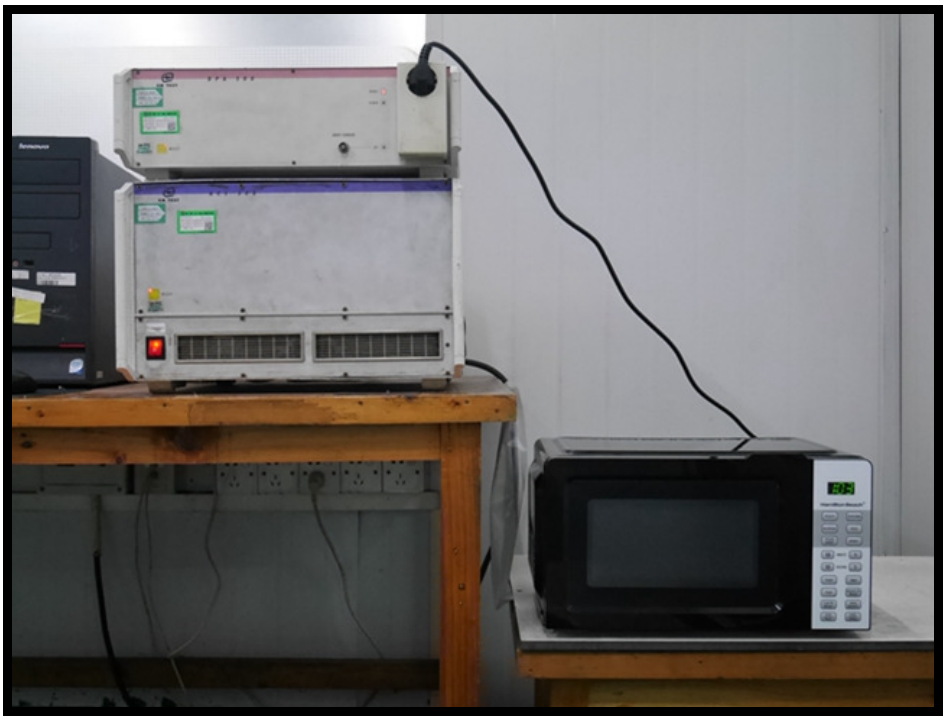


8.3 Radiated Disturbance(1GHz-18GHz) Test Setup

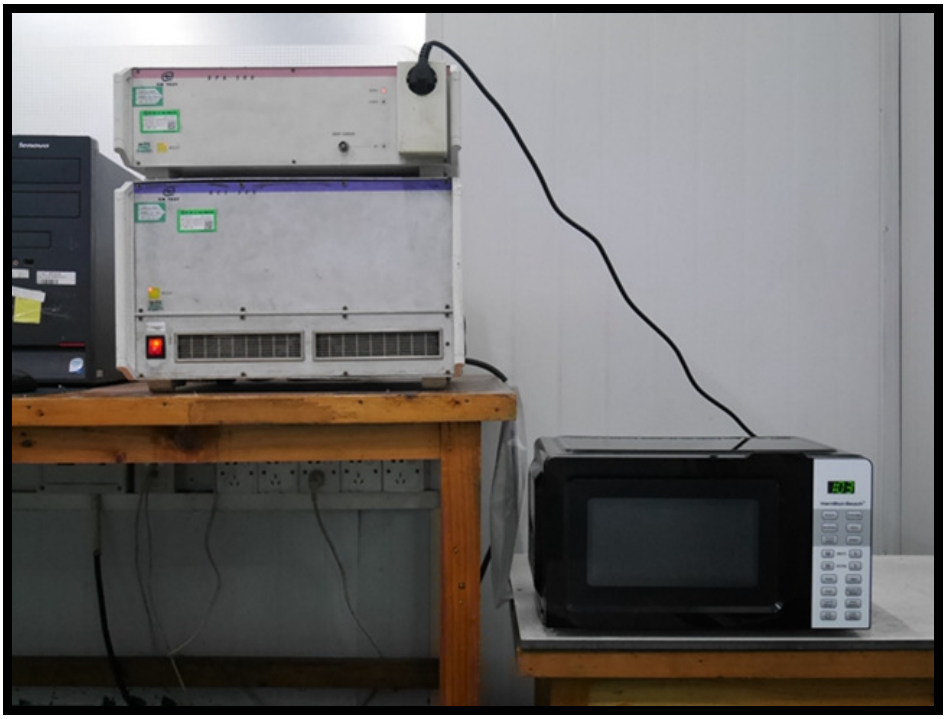


8.4 Radiated Disturbance (Magnetic field Induced Current)(9kHz-30MHz) Test Setup

8.5 Harmonic Current Emission Test Setup

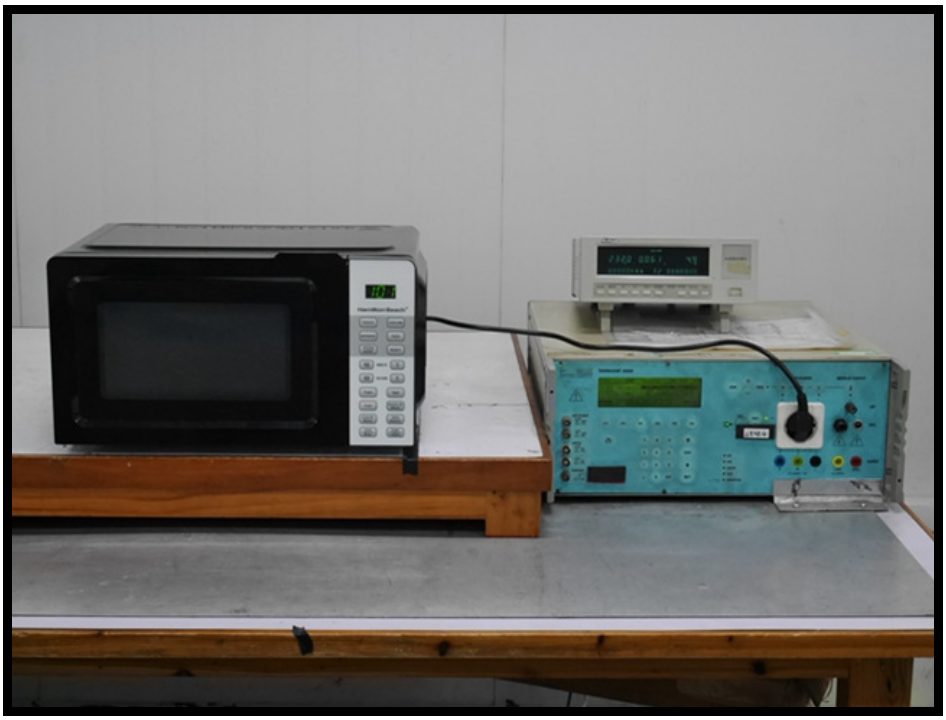


8.6 Voltage Fluctuations and Flicker Test Setup



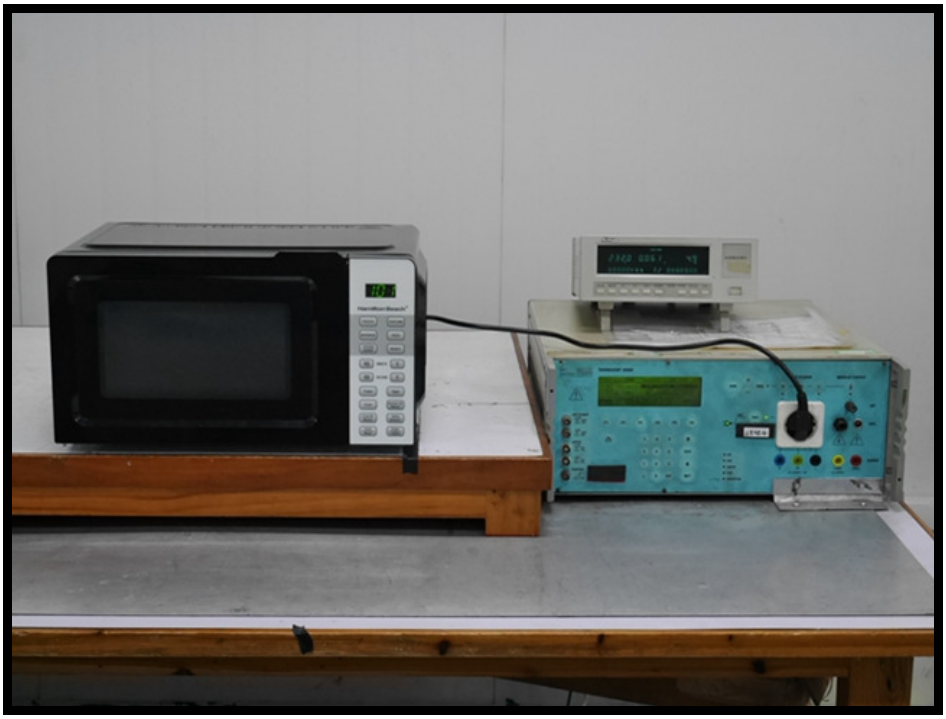
8.7 Electrostatic Discharge Test Setup

8.8 Electrical Fast Transients/Burst at Power Port Test Setup



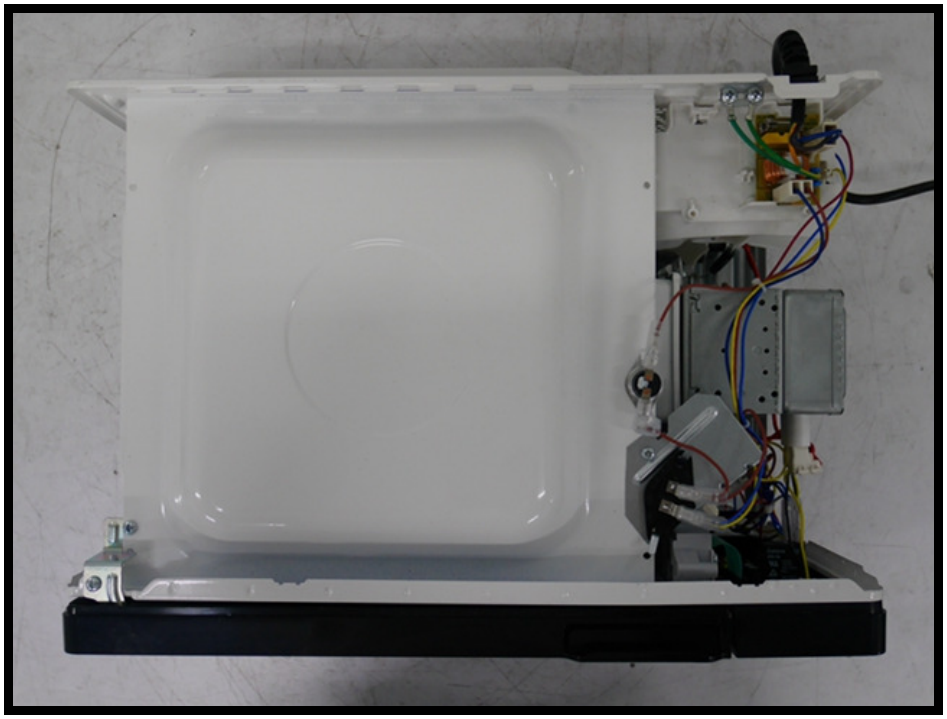
8.9 Surge at Power Port Test Setup

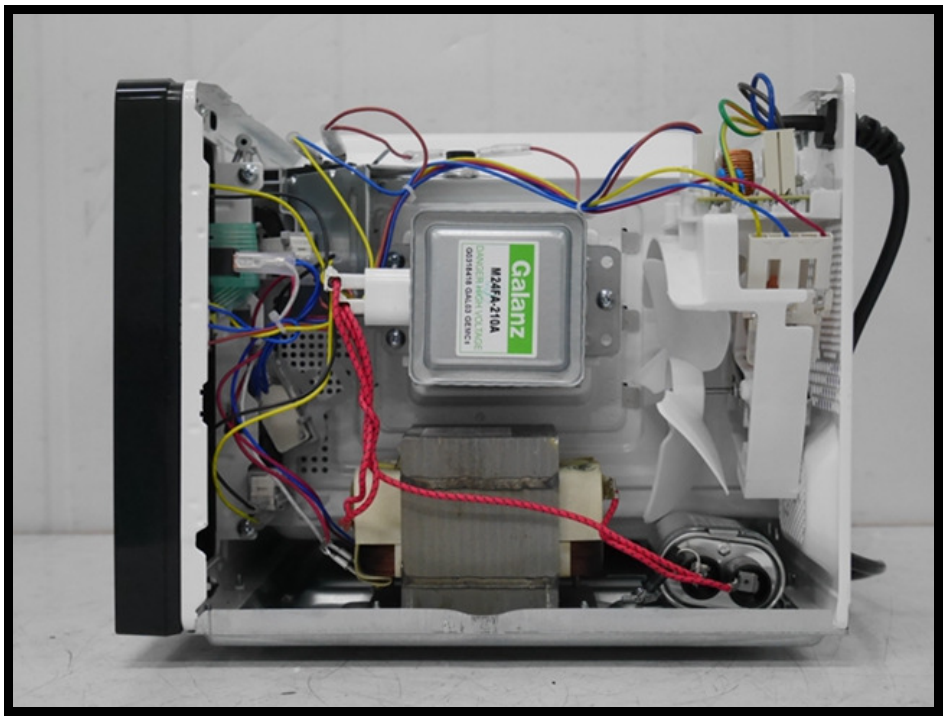
8.10 Voltage Dips and Interruptions Test Setup

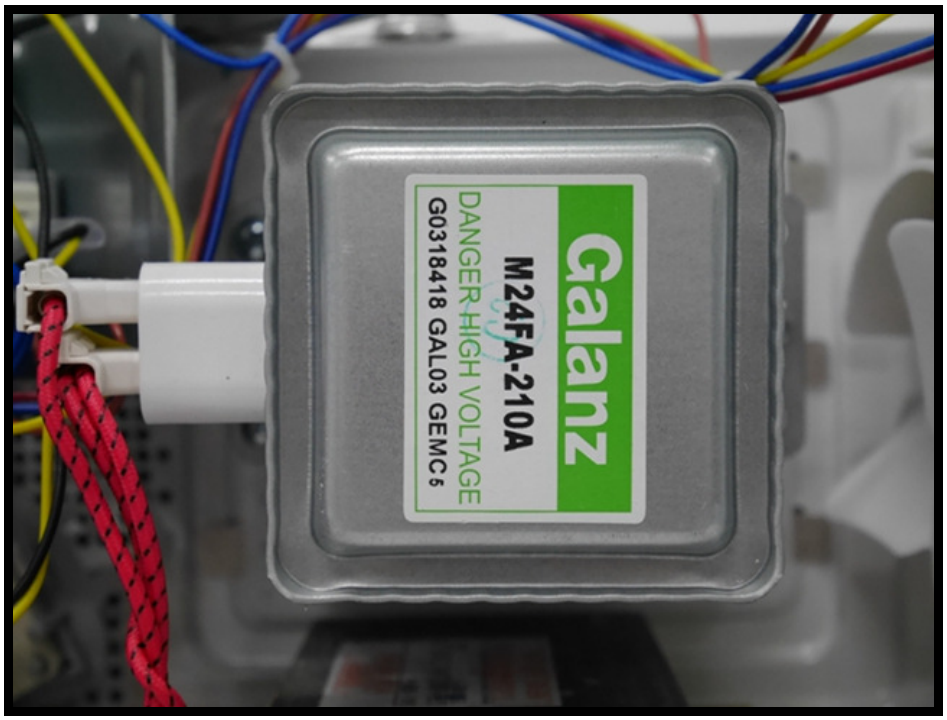


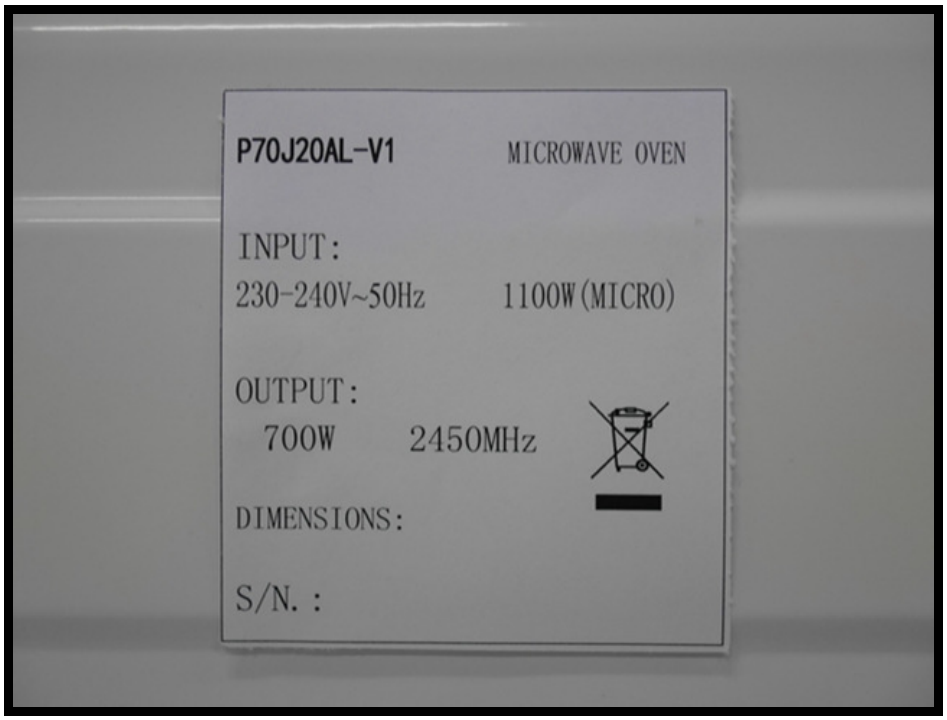
8.11 Conducted Immunity at Power Port(150kHz-230MHz) Test Setup

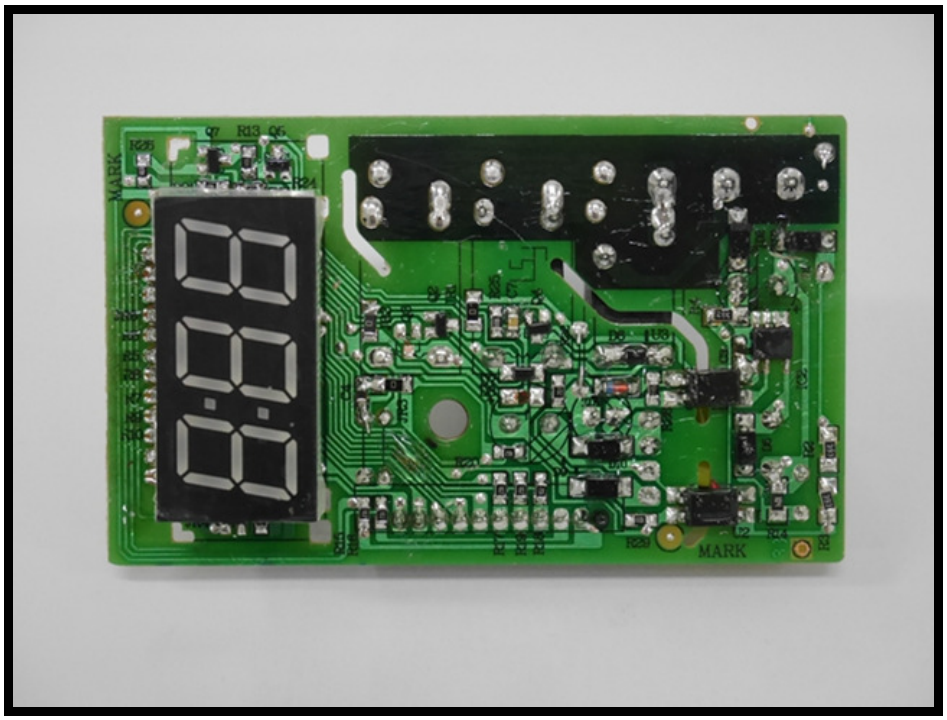
8.12 EUT Constructional Details

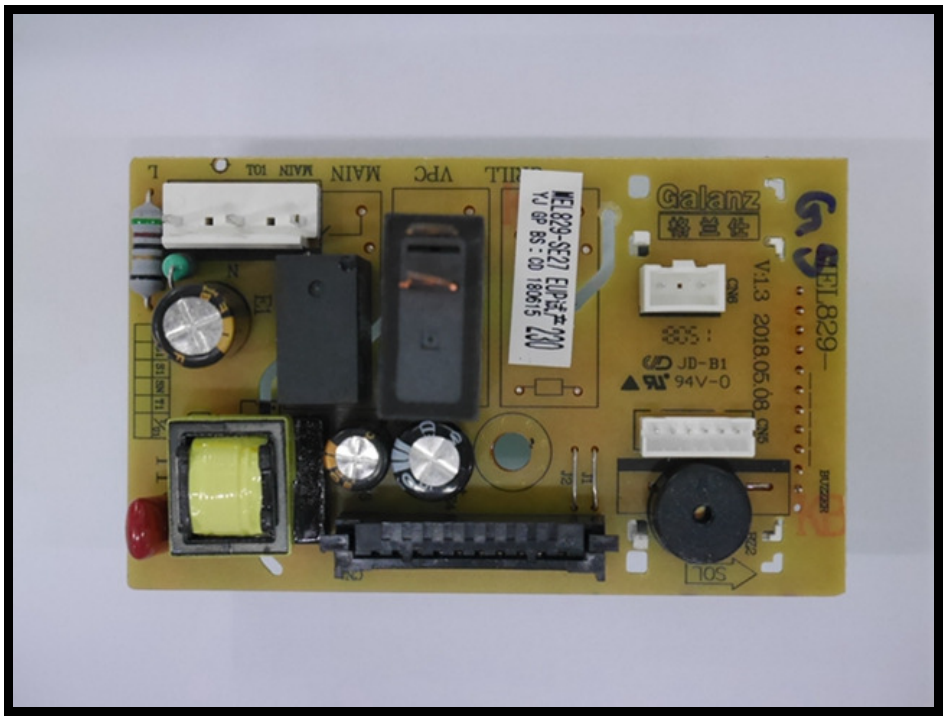


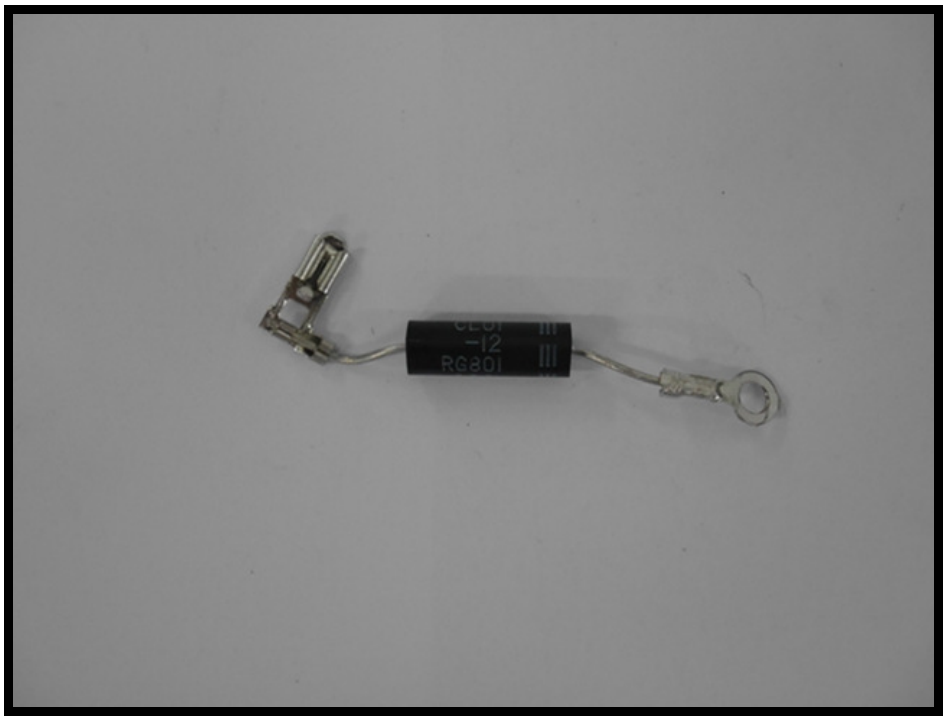


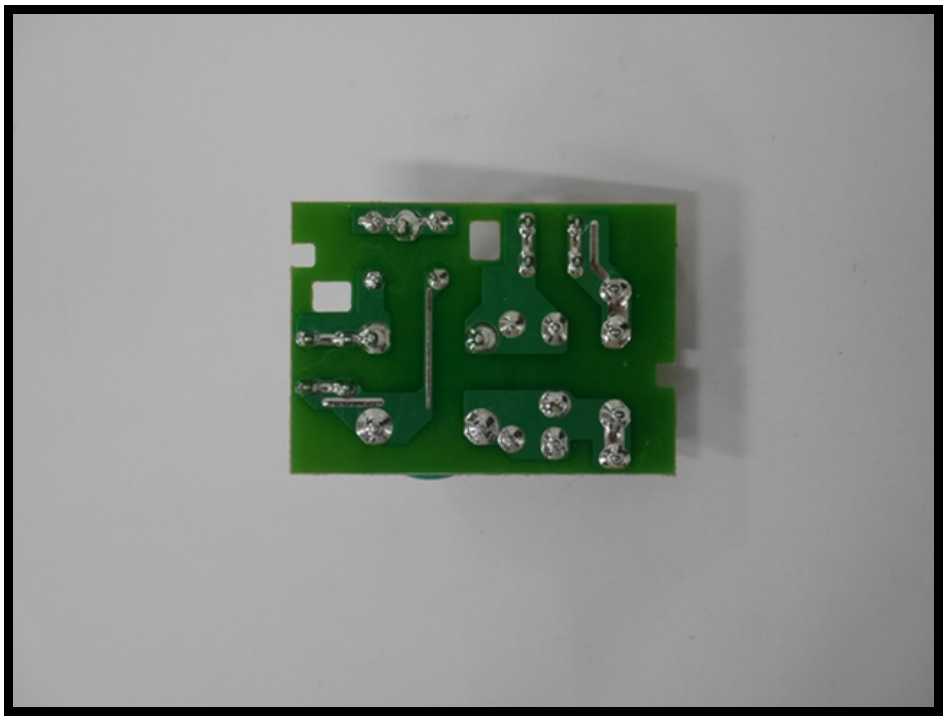


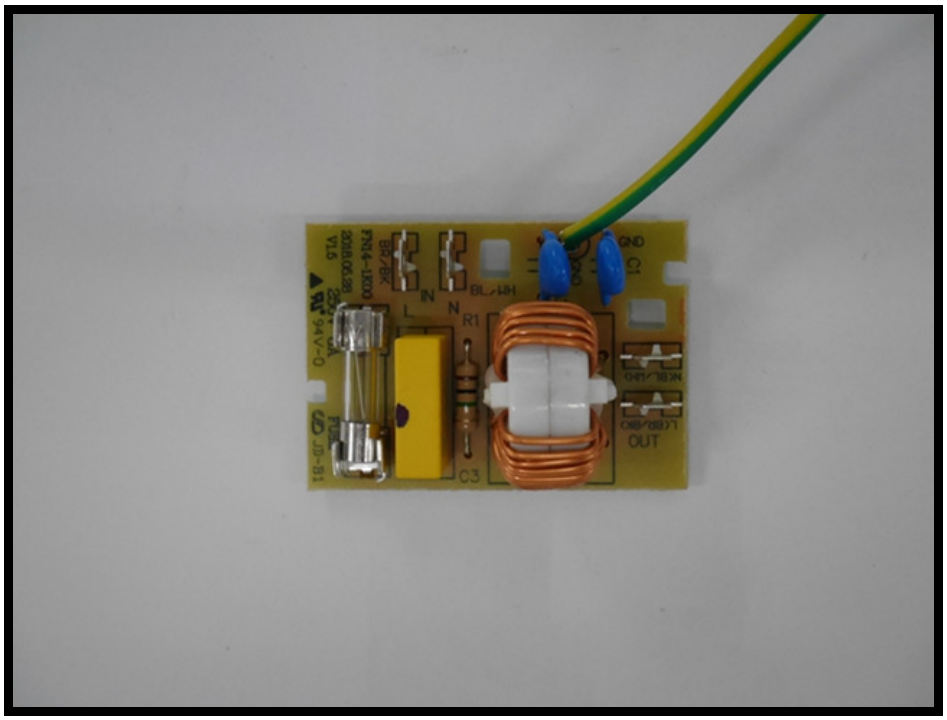












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