TEST REPORT

Application No.:	GZEM2401000102HS
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:	1. Guangdong Galanz Microwave Electrical Appliances Manufacturing Co., Ltd. 2. Guangdong Galanz Microwave Oven and Electrical Appliances Manufacturing Co., Ltd.
Address of Factory:	1. 3 Xingpu Avenue, Huangpu, Zhongshan, Guangdong, China. 2. 25 Ronggui Nan Road, Shunde, Foshan, Guangdong, China
Product Name:	Microwave oven
Model No.:	P70B20CP-SU(L2), P70B20(X)-(Y), P70B20(X)-(Y)(L2), WMCS3018RB, WMCS3018RW, GLCMKA07BER-07A, GLCMKA07BER-07, GLCMKA07CMR-07, GLCMKA07YWR-07, GLCMKA07RDR-07, GLCMKA07**R-07(**may be A - Z,a-z,0-9 or blank), NS-MW07WH0, NS-MW07BK0, NS-MW07XXXXX(X may be A - Z,a-z,0-9 or blank) Variable (X) may be L, P, SL, SP, TL, TP, AL, AP, ASL, ASP, ATL, ATP, EL, EP, ESL, ESP, ETL, ETP, CP, CSP, CTP. Variable (Y) may compose by one to five characters from A to Z and/or numbers from 0 to 9. It represents the differences of the appearance. ♣
♣	Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.
Trade Mark:	GALANZ, Whirlpool
Standard(s) :	47 CFR Part 18
Date of Receipt:	2024-01-04
Date of Test:	2024-01-06 to 2024-01-10
Date of Issue:	2024-01-23
Test Result:	**Pass***

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

Ricky Liu
Manager

Revision Record			
Version	**Report No.**	**Date**	**Remark**
01	GZEM240100010202	2024-01-23	Original

Authorized for issue by:				
		Damon Guan/Project Engineer		
		Terry Lai/Reviewer		

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2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 18	FCC/OST MP-5:1986	18.307	Pass
Radiated Emissions (Magnetic field Strength)(9kHz-30MHz)		FCC/OST MP-5:1986	18.305(b)	Pass
Radiated Emissions (30MHz-1GHz)		FCC/OST MP-5:1986	18.305(b)	Pass
Radiated Emissions (above 1GHz)		FCC/OST MP-5:1986	18.305(c)	Pass
Output Power Measurement		FCC OST/MP-5:1986	FCC OST/MP-5:1986 Clause 4.3	Pass
Operating Frequency Measurement		FCC OST/MP-5:1986	18.301	Pass
Radiation Hazard Test		FCC OST/MP-5:1986	1 mW/cm^2	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

♣Declaration of EUT Family Grouping:

Model No.:

P70B20CP-SU(L2), P70B20(X)-(Y), P70B20(X)-(Y)(L2), WMCS3018RB, WMCS3018RW, GLCMKA07BER-07A, GLCMKA07BER-07, GLCMKA07CMR-07, GLCMKA07YWR-07, GLCMKA07RDR-07, GLCMKA07**R-07(**may be A - Z,a-z,0-9 or blank), NS-MW07WH0, NS-MW07BK0, NS-MW07XXXXX(X may be A - Z,a-z,0-9 or blank)

Variable (X) may be L, P, SL, SP, TL, TP, AL, AP, ASL, ASP, ATL, ATP, EL, EP, ESL, ESP, ETL, ETP, CP, CSP, CTP.

Variable (Y) may compose by one to five characters from A to Z and/or numbers from 0 to 9. It represents the differences of the appearance.

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 appearance and model name.

Therefore only one model P70B20CP-SU(L2) was tested in this report.

3 Contents

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4 General Information

4.1 Details of E.U.T.

Power supply: AC 120V, 60Hz
Test voltage: AC 120V
Microwave frequency: 2450MHz±50MHz
Cable(s): About 1.0m x 3 wires unscreened AC mains cable.

4.2 Description of Support Units

1000mL of water in the beaker for power output and frequency measurement.
One of 700 and the other of 300mL of water for second and third harmonic radiation measurement.
700mL of water for all other measurement

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at Mains Terminals (150kHz-30MHz)	2.76dB (150kHz to 30MHz)
Radiated Emissions (30MHz-1GHz)	5.00dB (30MHz-1GHz):3m; 4.38dB (30MHz-1GHz):10m
Radiated Emissions (above 1GHz)	5.12dB (1GHz-6GHz); 5.38dB (6GHz-18GHz); 5.61dB (18GHz-40GHz)
Remark: The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.	

4.4 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059
No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Coaxial Cable	HangTianXing	2m	EMC0107	2023-08-04	2024-08-03
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2022-10-16	2025-10-15
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2023-09-08	2024-09-07
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2023-05-19	2024-05-18
Test Software E3r	Audix	Ver.6.11812	GZE100-77	N/A	N/A
Artificial Mains Network (LISN)	AFJ Instruments	LT32C	EMC2046	2023-10-20	2024-10-19

Radiated Emissions (Magnetic field Strength)(9kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Coaxial Cable (RE 2m Loop)	INFINITE	CC223N-10	EMC0703	2023-06-25	2025-06-24
2m Large Loop Antenna System (ZN3040)	ZHINAN	ZN3040	EMC2187	2022-03-26	2024-03-25
Amplifier(9k-1000MHz)	SONOMA	310	EMC2237	2023-04-13	2024-04-12
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2022-04-06	2024-04-05
EMI Test Receiver (1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2229	2023-02-20	2024-02-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
966 Anechoic Chamber	Shenzhen C.R.T	CRTSGSSAC966	EMC2230	2022-04-12	2025-04-11
Coaxial Cable	Mirco-COAX UTIFLEX ve	LA2-C125-8000	EMC2239	2023-06-14	2025-06-13

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
966 Anechoic Chamber	Shenzhen C.R.T	CRTSGSSAC966	EMC2230	2022-04-12	2025-04-11
EMI Test Receiver(1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2229	2023-02-20	2024-02-19
Amplifier(9k-1000MHz)	SONOMA	310	EMC2237	2023-04-13	2024-04-12
TRILOG Broadband Antenna（25M-2GHz)	SCHWRZBECK	VULB 9168	EMC2238	2022-04-20	2025-04-19
Coaxial Cable	Mirco-COAX UTIFLEX ve	LA2-C125-8000	EMC2239	2023-06-14	2025-06-13
Test Software E3	Audix	Ver.6.191211	GZE100-81	N/A	N/A

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Radiated Emissions (above 1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2023-11-10	2024-11-09
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2023-12-15	2024-12-14
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2022-08-24	2024-08-23
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2023-11-10	2024-11-09
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2023-08-23	2024-08-22
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Output Power Measurement					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Digital thermometer	FLUKE	51_2	EMC2200	2023-07-25	2024-07-24
Digital power analyzer for harmonics & flicker testing	EMTEST	DPA 500N	EMC2235	2023-04-21	2024-04-20
Programmable multifunctional ac/dc power source	EMTEST	NETWAVE 7-400	EMC2234	2023-04-21	2024-04-20
NET.Control	EMTEST	Ver 3.2.3	GZE100-80	N/A	N/A

Operating Frequency Measurement					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2023-12-15	2024-12-14
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2022-08-24	2024-08-23
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiation Hazard Test					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Electric Field Probe(100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2023-05-11	2024-05-10

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General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2023-06-11	2024-06-10

6 Emission Test Results

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

Test Requirement: 47 CFR Part 18
Test Method: FCC/OST MP-5:1986
Limit:
Frequency Range: 150kHz to 30MHz
0.15 to 0.5 MHz: 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5 to 5 MHz: 56dB(μV) quasi-peak, 46dB(μV) average
5 to 30 MHz: 60dB(μV) quasi-peak, 50dB(μV) average
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

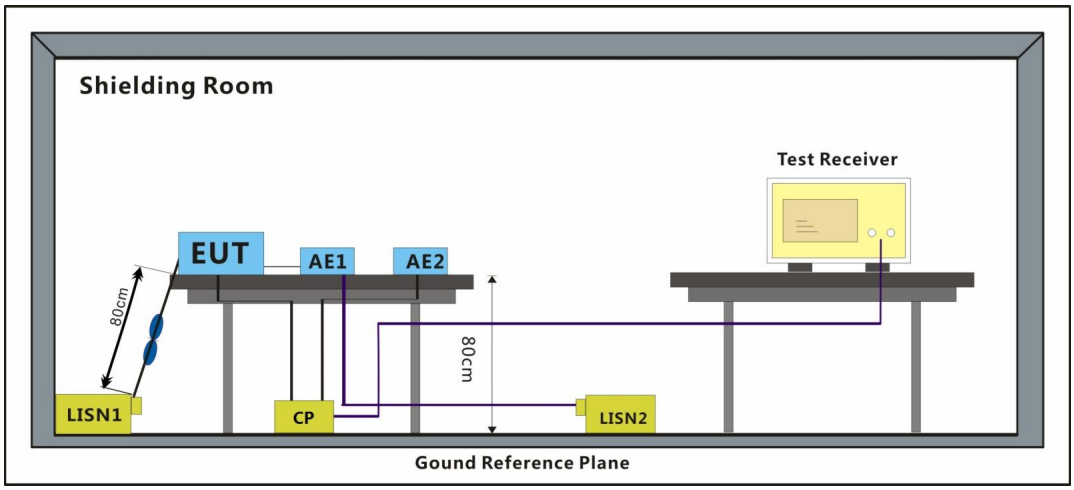
6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 22.7 °C Humidity: 52.0 % RH Atmospheric Pressure: 1021 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

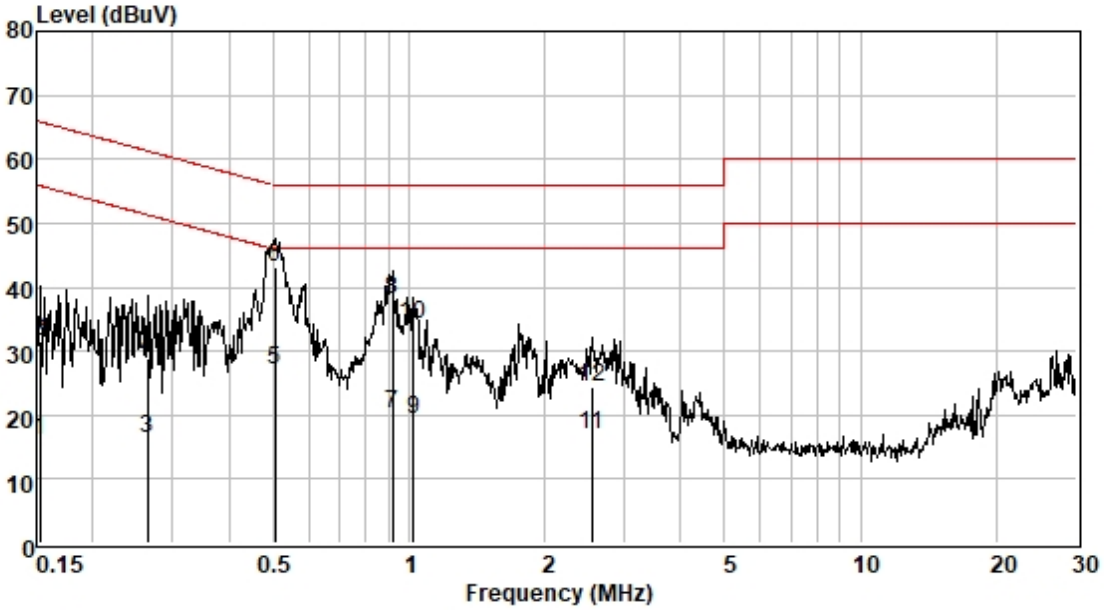
Frequency range: 150KHz-30MHz

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.

The red line show in graphic is the limit in standard used in this section.

Measured Level = Read level + Cable Loss + LISN Factor

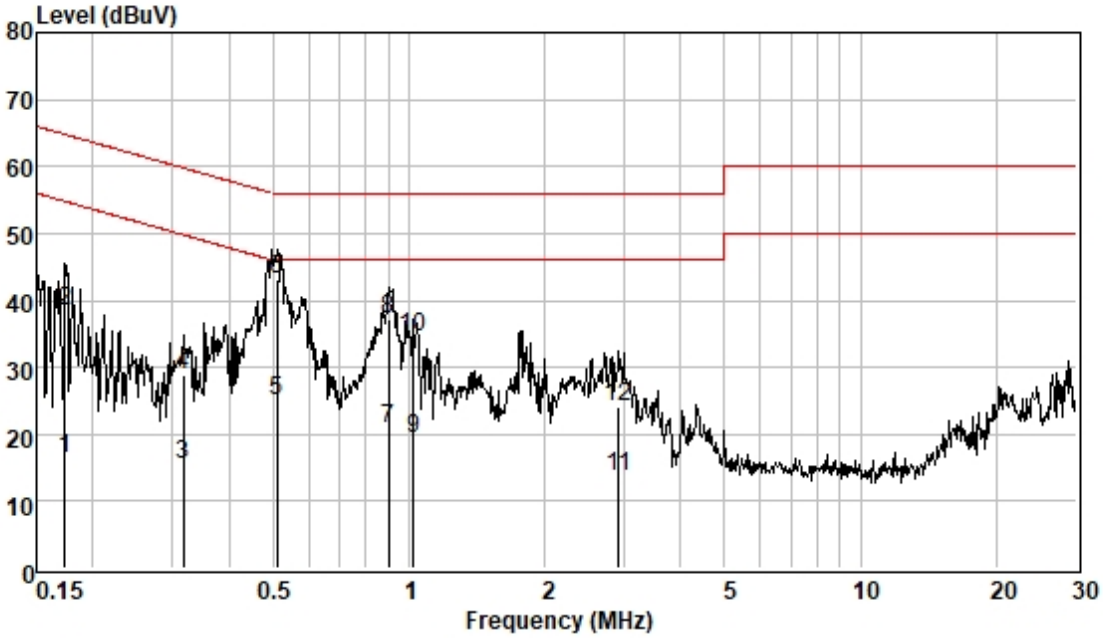
Test Mode: 00; Line: Live line



Pol :LINE
Mode :
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.152	6.40	0.04	9.55	15.99	55.87	-39.88	Average
2	0.152	21.79	0.04	9.55	31.38	65.87	-34.49	QP
3	0.264	6.62	0.04	9.56	16.22	51.29	-35.07	Average
4	0.264	19.11	0.04	9.56	28.71	61.29	-32.58	QP
5	0.505	17.35	0.05	9.56	26.96	46.00	-19.04	Average
6	0.505	33.40	0.05	9.56	43.01	56.00	-12.99	QP
7	0.918	10.51	0.07	9.57	20.15	46.00	-25.85	Average
8	0.918	28.31	0.07	9.57	37.95	56.00	-18.05	QP
9	1.027	9.56	0.07	9.57	19.20	46.00	-26.80	Average
10	1.027	24.57	0.07	9.57	34.21	56.00	-21.79	QP
11	2.540	7.20	0.14	9.57	16.91	46.00	-29.09	Average
12	2.540	14.54	0.14	9.57	24.25	56.00	-31.75	QP

Test Mode: 00; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :
Power :

	Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.173	6.88	0.04	9.52	16.44	54.81	-38.37	Average
2	0.173	28.69	0.04	9.52	38.25	64.81	-26.56	QP
3	0.317	5.99	0.04	9.53	15.56	49.80	-34.24	Average
4	0.317	19.19	0.04	9.53	28.76	59.80	-31.04	QP
5	0.510	15.46	0.05	9.54	25.05	46.00	-20.95	Average
6	0.510	33.68	0.05	9.54	43.27	56.00	-12.73	QP
7	0.904	11.10	0.07	9.55	20.72	46.00	-25.28	Average
8	0.904	27.60	0.07	9.55	37.22	56.00	-18.78	QP
9	1.027	9.70	0.07	9.55	19.32	46.00	-26.68	Average
10	1.027	24.79	0.07	9.55	34.41	56.00	-21.59	QP
11	2.915	3.87	0.15	9.57	13.59	46.00	-32.41	Average
12	2.915	14.30	0.15	9.57	24.02	56.00	-31.98	QP

6.2 Radiated Emissions (Magnetic field Strength)(9kHz-30MHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC/OST MP-5:1986
Limit:
Measurement Distance: 3 m
Frequency Range: 9kHz to 30MHz
Detector: Peak for pre-scan, Average for the final result
(200Hz Resolution Bandwidth for 9kHz to 150kHz;
9kHz Resolution Bandwidth for 150kHz to 30MHz)

Equipment:	Operating frequency:	RF Power generated by equipment (watts):	Limit dB(uV/m) average:
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	**673.8**	Limit=20lg(25*SQRT(**673.8**/500))+20lg(300/3)=**69.25 dBuV/m** @ 3m distance.

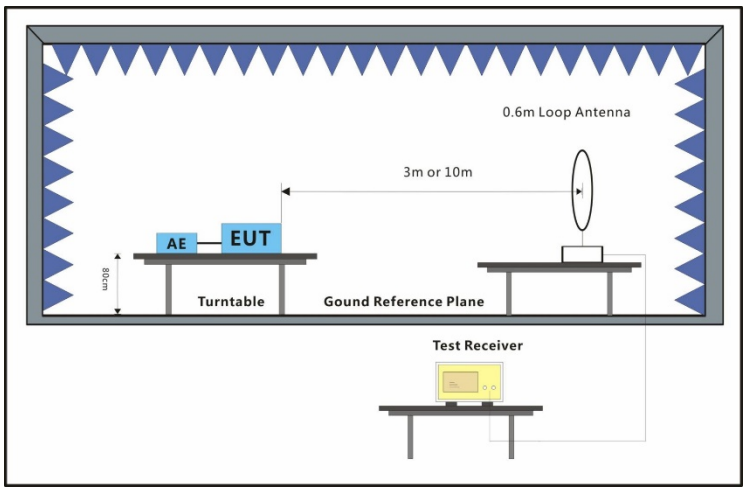
6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 22.4 °C Humidity: 53.1 % RH Atmospheric Pressure: 1021 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

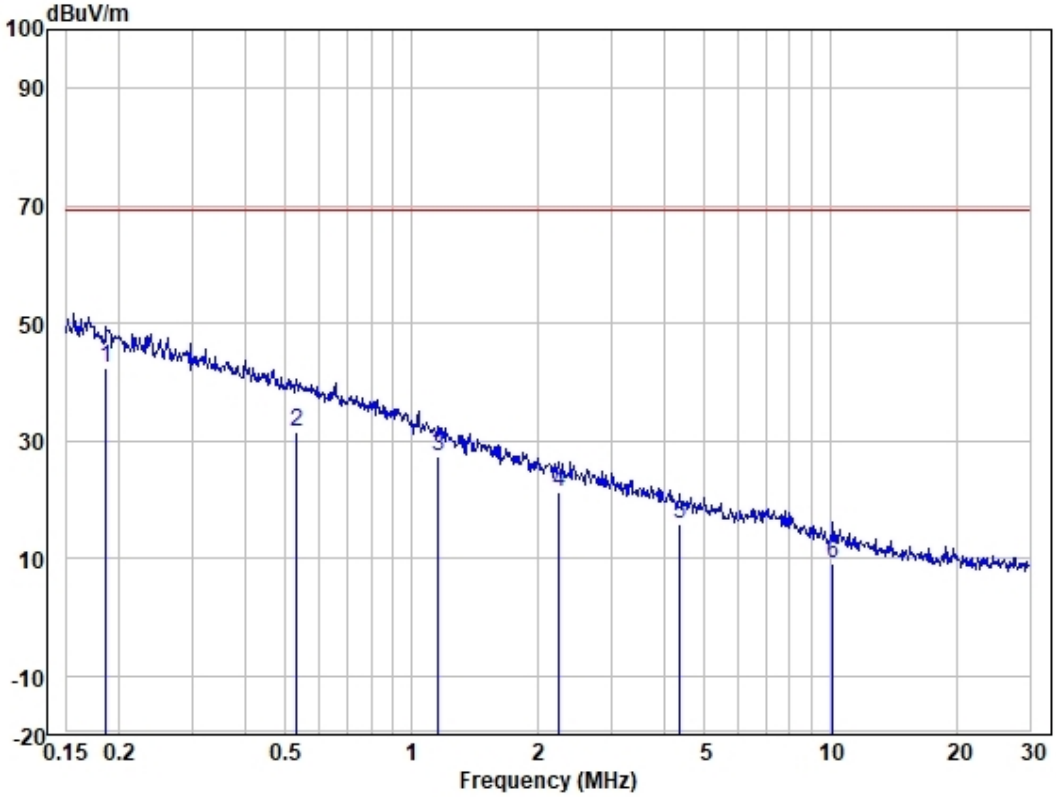
Frequency range: 9KHz-30MHz

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

The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

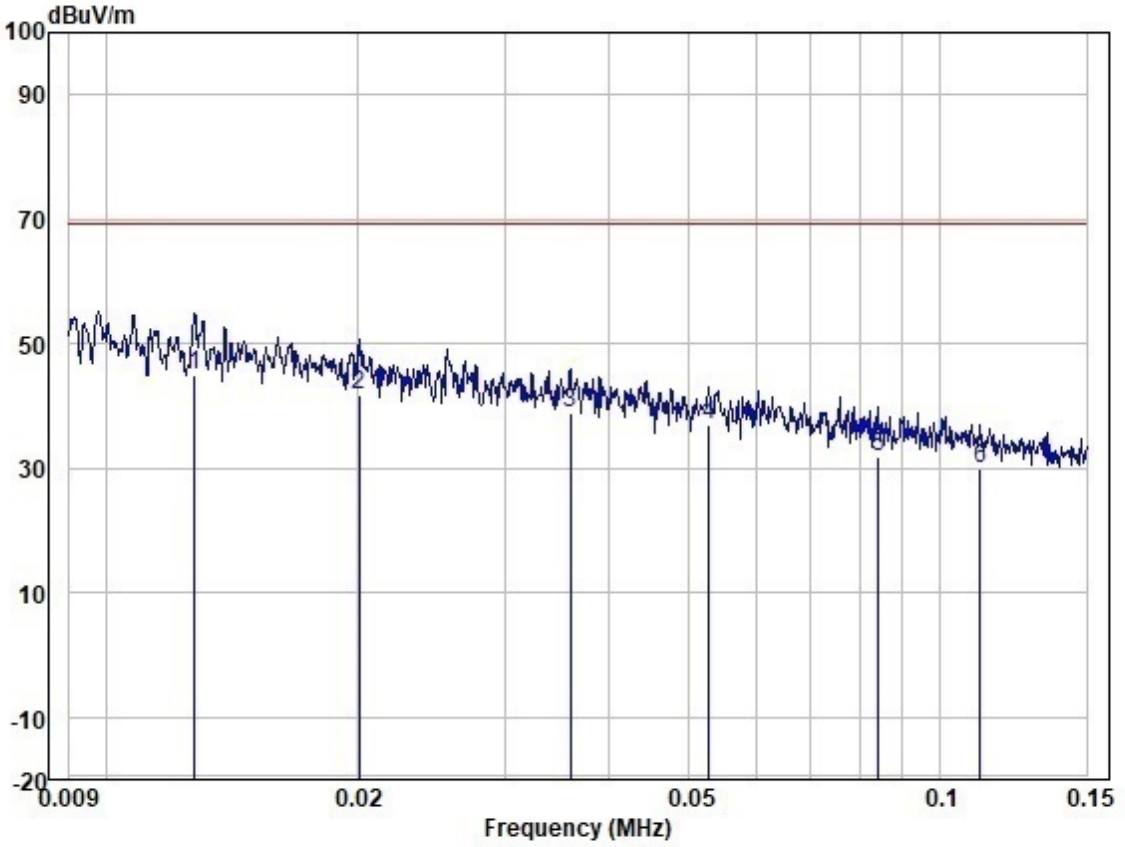
Test Mode: 00; Polarity: Horizontal



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.186	63.54	11.86	0.01	32.90	42.51	69.25	-26.74	HORIZONTAL	Average
2	0.532	52.43	11.80	0.05	32.90	31.38	69.25	-37.87	HORIZONTAL	Average
3	1.160	48.36	11.84	0.05	32.90	27.35	69.25	-41.90	HORIZONTAL	Average
4	2.249	42.30	11.84	0.06	32.90	21.30	69.25	-47.95	HORIZONTAL	Average
5	4.384	37.10	11.58	0.08	32.90	15.86	69.25	-53.39	HORIZONTAL	Average
6	10.125	31.40	10.52	0.17	32.90	9.19	69.25	-60.06	HORIZONTAL	Average

Test Mode: 00; Polarity: Horizontal



Site : 966 chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.013	60.63	17.21	0.01	32.90	44.95	69.25	-24.30	HORIZONTAL	Average
2	0.020	60.52	14.20	0.01	32.90	41.83	69.25	-27.42	HORIZONTAL	Average
3	0.036	59.25	12.59	0.01	32.90	38.95	69.25	-30.30	HORIZONTAL	Average
4	0.053	57.76	12.17	0.01	32.90	37.04	69.25	-32.21	HORIZONTAL	Average
5	0.084	52.89	11.97	0.01	32.90	31.97	69.25	-37.28	HORIZONTAL	Average
6	0.112	50.79	11.94	0.01	32.90	29.84	69.25	-39.41	HORIZONTAL	Average

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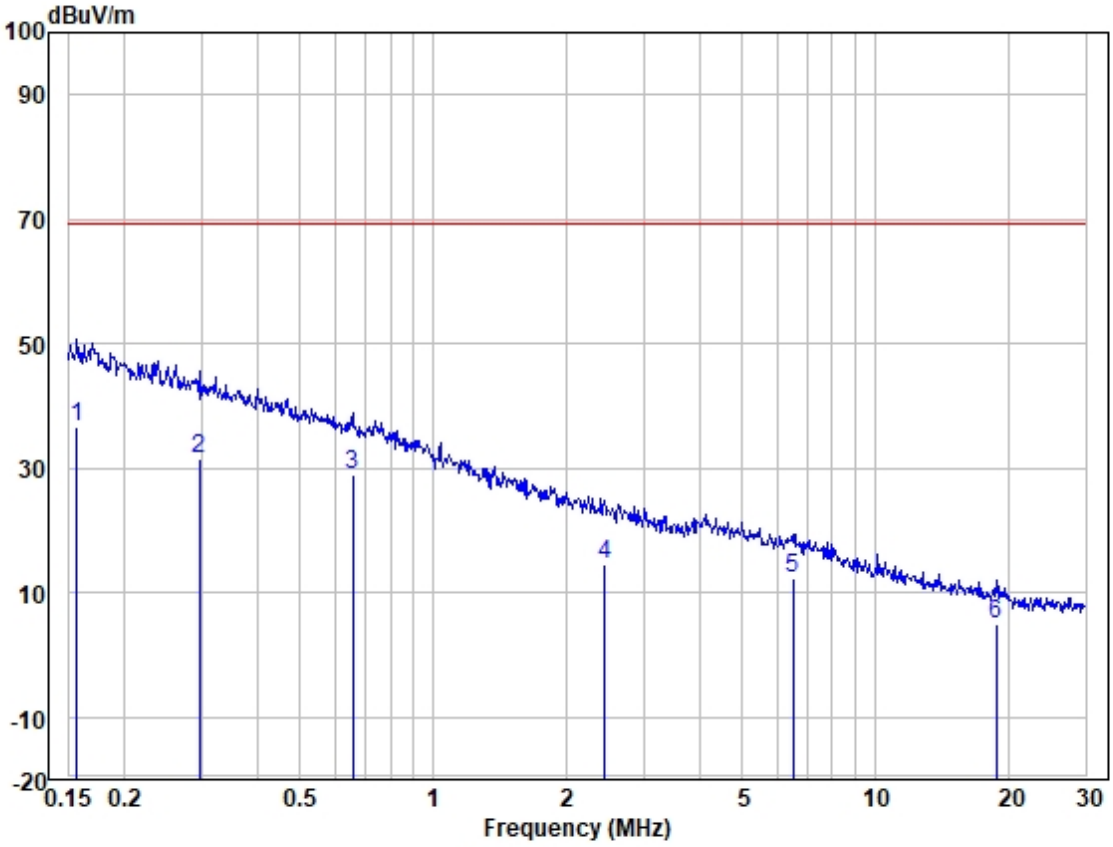
Test Mode: 00; Polarity: Vertical



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.156	57.71	11.88	0.01	32.90	36.70	69.25	-32.55	VERTICAL	Average
2	0.296	52.61	11.87	0.01	32.90	31.59	69.25	-37.66	VERTICAL	Average
3	0.658	49.84	11.82	0.05	32.90	28.81	69.25	-40.44	VERTICAL	Average
4	2.448	35.51	11.84	0.06	32.90	14.51	69.25	-54.74	VERTICAL	Average
5	6.523	33.63	11.50	0.13	32.90	12.36	69.25	-56.89	VERTICAL	Average
6	18.820	28.89	8.83	0.23	32.90	5.05	69.25	-64.20	VERTICAL	Average

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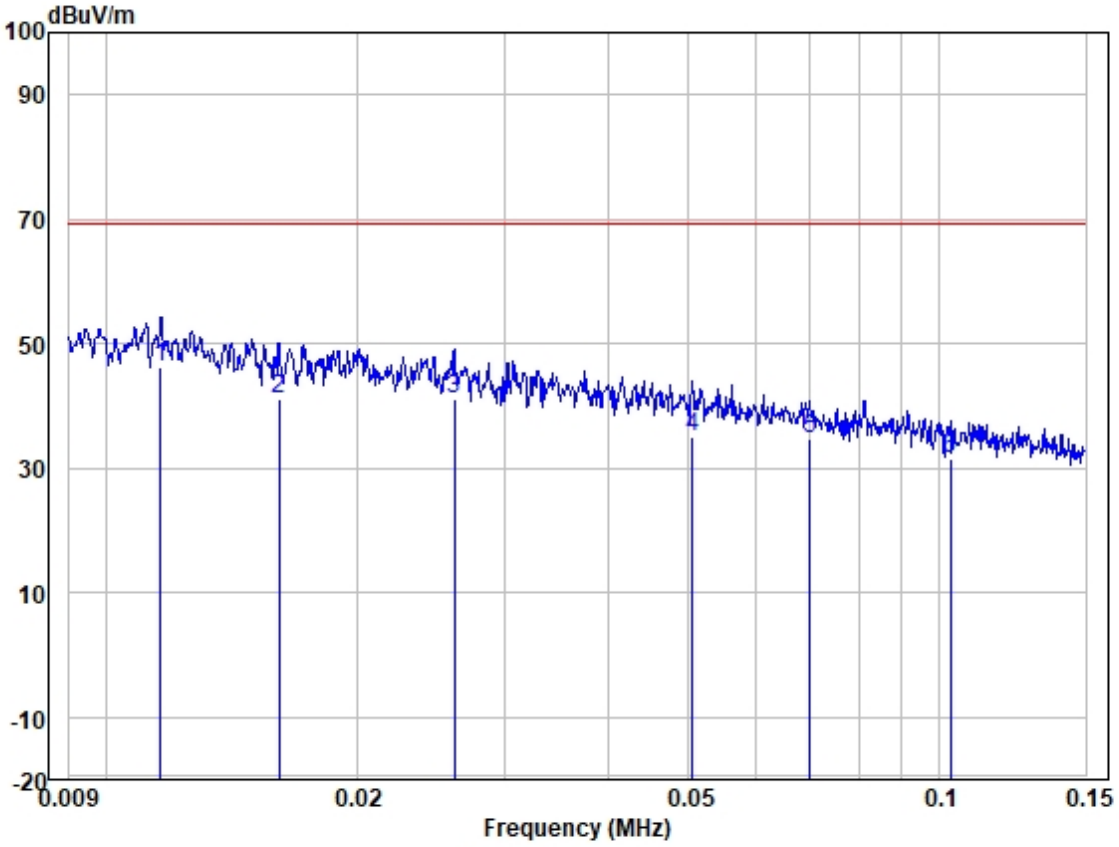
Test Mode: 00; Polarity: Vertical



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.012	61.19	17.96	0.01	32.90	46.26	69.25	-22.99	VERTICAL	Average
2	0.016	58.99	14.99	0.01	32.90	41.09	69.25	-28.16	VERTICAL	Average
3	0.026	60.70	13.28	0.01	32.90	41.09	69.25	-28.16	VERTICAL	Average
4	0.050	55.61	12.19	0.01	32.90	34.91	69.25	-34.34	VERTICAL	Average
5	0.070	55.76	12.01	0.01	32.90	34.88	69.25	-34.37	VERTICAL	Average
6	0.103	52.42	11.95	0.01	32.90	31.48	69.25	-37.77	VERTICAL	Average

6.3 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC/OST MP-5:1986
Limit:
Measurement Distance: 3 m
Frequency Range: 30 MHz to 1 GHz
Detector: Peak for pre-scan, average for the final result
(120 kHz Resolution Bandwidth for 30 MHz to 1 GHz)

Equipment:	Operating frequency:	RF Power generated by equipment (watts):	Limit dB(uV/m) average:
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	**673.8**	Limit=20lg(25*SQRT(**673.8**/500))+20lg(300/3)=**69.25 dBuV/m** @ 3m distance.

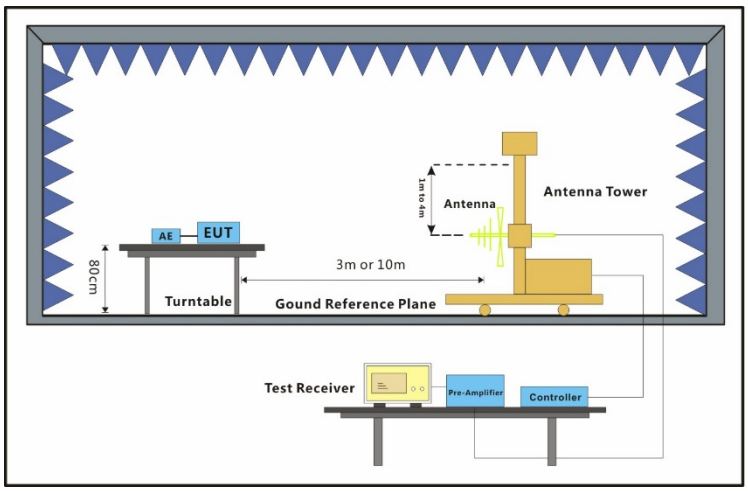
6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 23.4 °C Humidity: 52.7 % RH Atmospheric Pressure: 1021 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

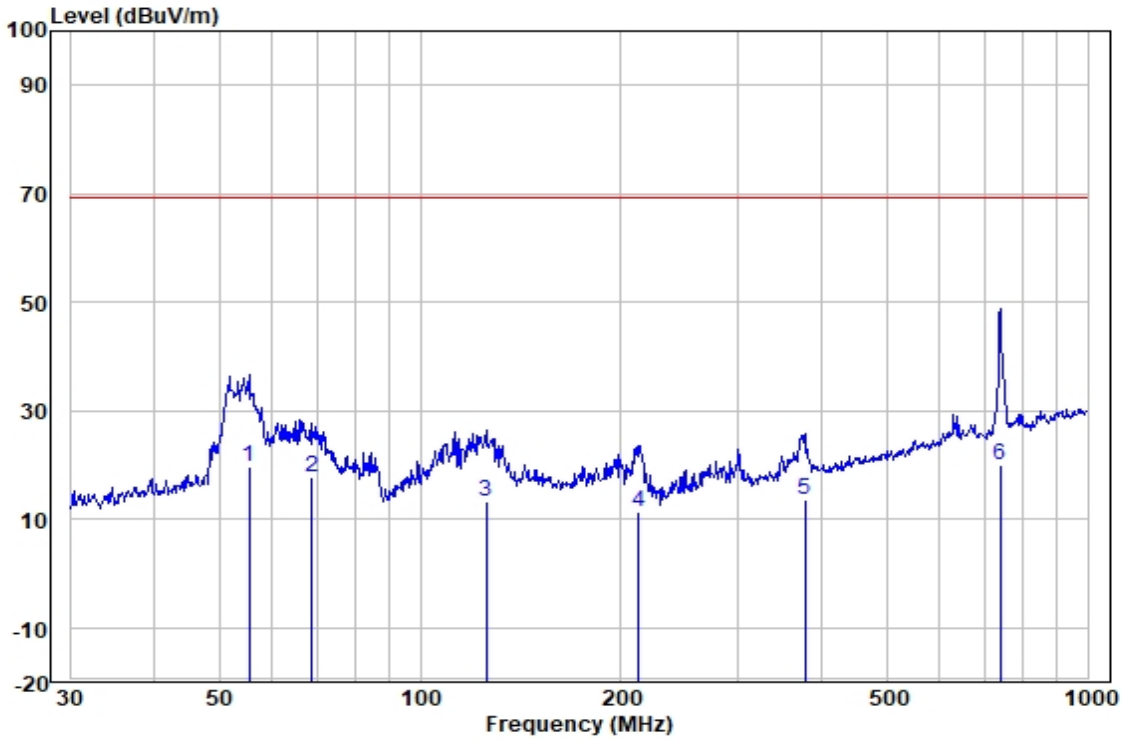
Frequency range: 30MHz-1GHz

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.

The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Test Mode: 00; Polarity: Horizontal



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	55.415	32.71	19.28	0.40	32.80	19.59	69.25	-49.66	HORIZONTAL	Average
2	68.872	32.80	17.37	0.46	32.80	17.83	69.25	-51.42	HORIZONTAL	Average
3	125.446	27.90	17.69	0.61	32.80	13.40	69.25	-55.85	HORIZONTAL	Average
4	212.270	27.79	15.65	0.80	32.80	11.44	69.25	-57.81	HORIZONTAL	Average
5	377.259	24.47	20.90	1.14	32.80	13.71	69.25	-55.54	HORIZONTAL	Average
6	739.661	23.25	27.71	1.58	32.58	19.96	69.25	-49.29	HORIZONTAL	Average

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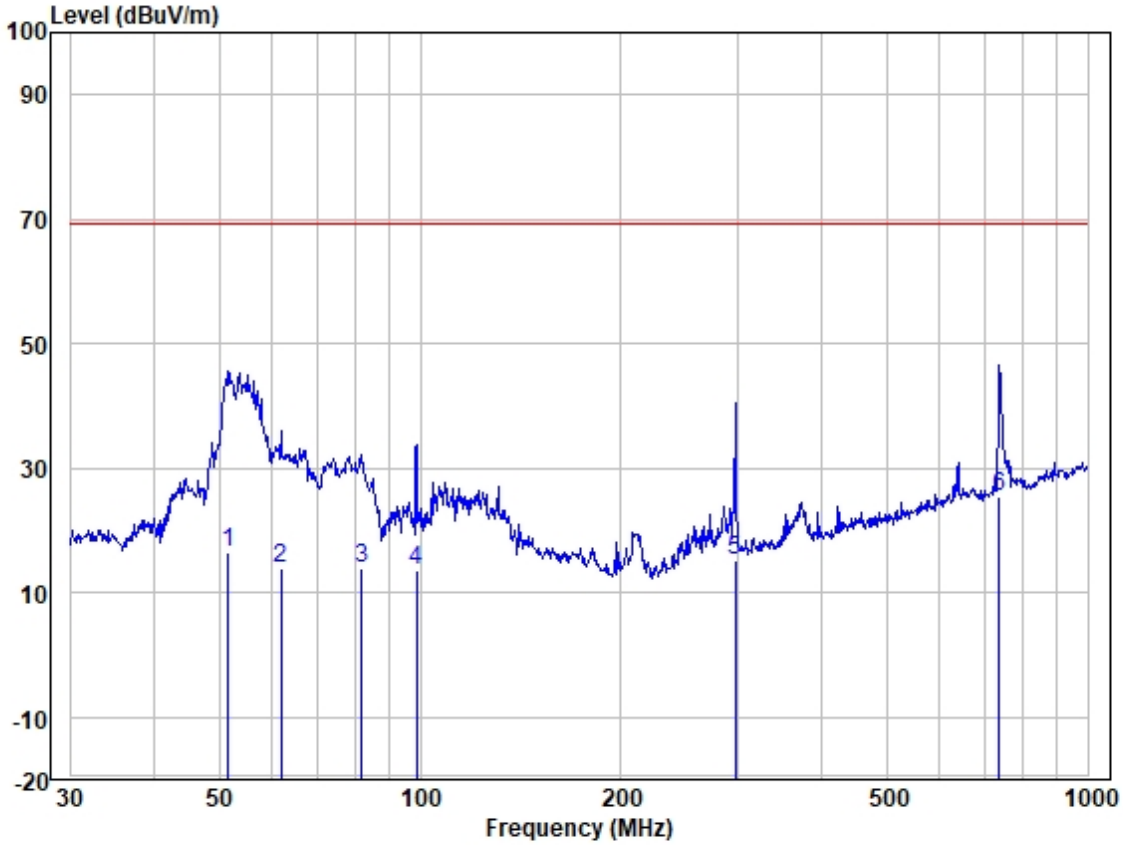
Test Mode: 00; Polarity: Vertical



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	51.662	29.50	19.50	0.39	32.80	16.59	69.25	-52.66	VERTICAL	Average
2	61.995	27.84	18.47	0.42	32.80	13.93	69.25	-55.32	VERTICAL	Average
3	81.783	31.35	14.98	0.50	32.80	14.03	69.25	-55.22	VERTICAL	Average
4	98.833	31.49	14.41	0.54	32.80	13.64	69.25	-55.61	VERTICAL	Average
5	296.184	27.98	19.18	0.98	32.80	15.34	69.25	-53.91	VERTICAL	Average
6	737.071	28.90	27.61	1.57	32.59	25.49	69.25	-43.76	VERTICAL	Average

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6.4 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 18
Test Method: FCC/OST MP-5:1986
Limit:
Measurement Distance: 3 m
Frequency Range: Above 1GHz
Detector: Peak for pre-scan, Average for the final result
(1MHz Resolution Bandwidth for 1000MHz Above)

Equipment:	Operating frequency:	RF Power generated by equipment (watts):	Limit dB(uV/m) average:
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	**673.8**	Limit=20lg(25*SQRT(**673.8**/500))+20lg(300/3)=**69.25 dBuV/m** @ 3m distance.

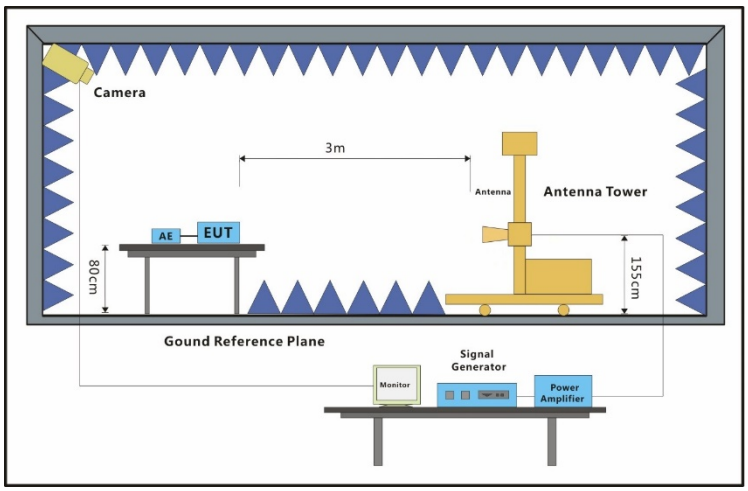
6.4.1 E.U.T. Operation

Operating Environment:
Temperature: 22.8 °C Humidity: 59.8 % RH Atmospheric Pressure: 1021 mbar

6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

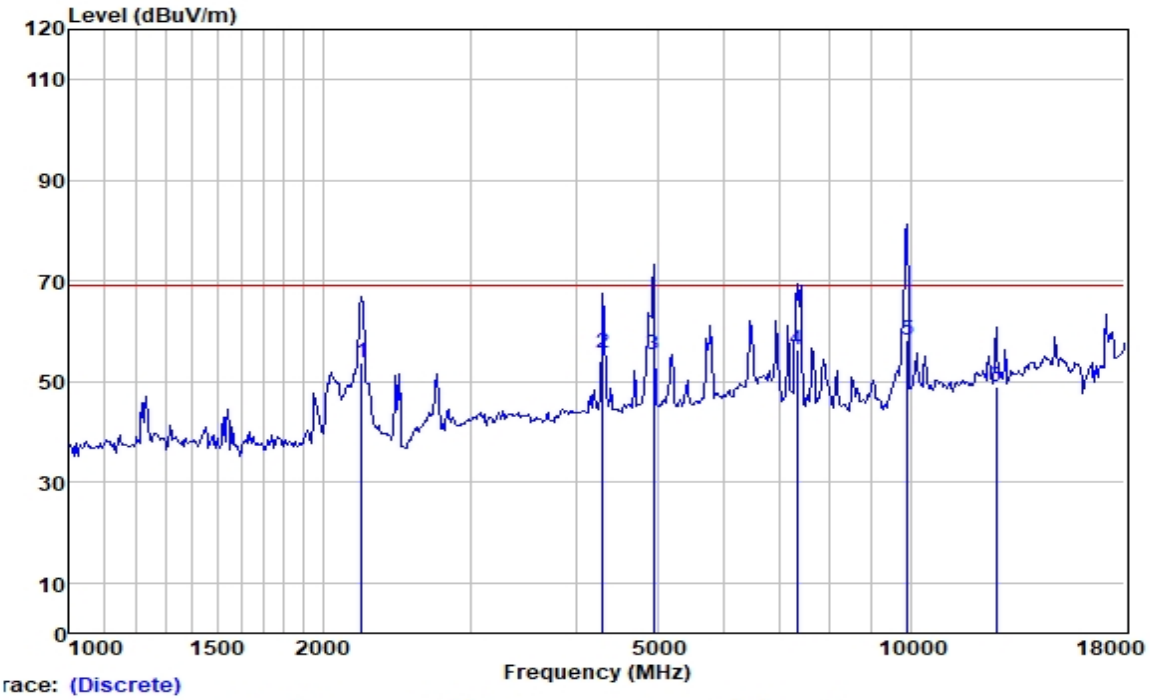
Frequency range: Above 1GHz

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

The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

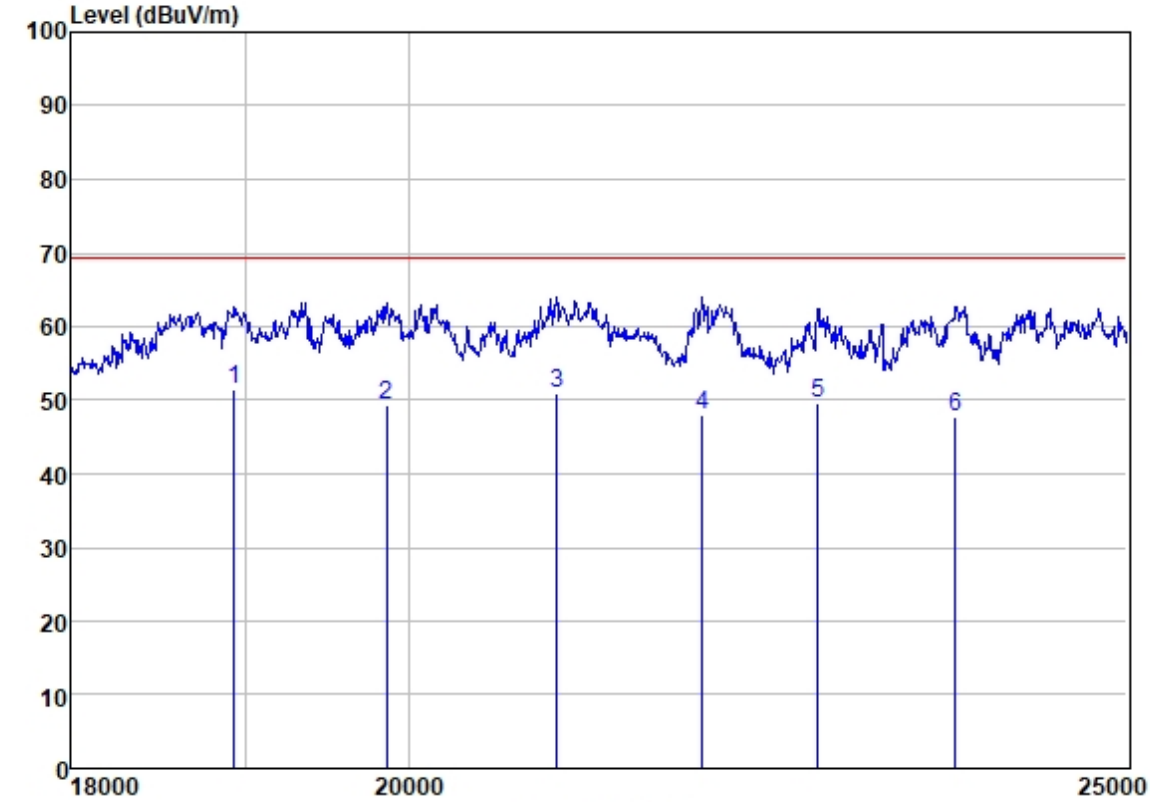
Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2226.950	60.02	27.43	3.57	37.26	53.76	69.25	-15.49	HORIZONTAL	Average
2	4304.400	55.76	31.60	4.81	36.62	55.55	69.25	-13.70	HORIZONTAL	Average
3	4944.993	53.69	33.03	5.27	36.69	55.30	69.25	-13.95	HORIZONTAL	Average
4	7326.267	49.85	36.61	6.81	36.95	56.32	69.25	-12.93	HORIZONTAL	Average
5	9923.991	48.92	38.34	7.67	36.80	58.13	69.25	-11.12	HORIZONTAL	Average
6	12651.130	36.18	39.39	9.59	36.31	48.85	69.25	-20.40	HORIZONTAL	Average

Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	18934.040	32.31	38.00	16.88	35.60	51.59	69.25	-17.66	HORIZONTAL	Average
2	19857.750	29.57	38.00	17.27	35.60	49.24	69.25	-20.01	HORIZONTAL	Average
3	20936.280	30.61	37.90	17.97	35.45	51.03	69.25	-18.22	HORIZONTAL	Average
4	21907.240	26.67	38.18	18.57	35.31	48.11	69.25	-21.14	HORIZONTAL	Average
5	22705.880	26.64	39.31	19.08	35.54	49.49	69.25	-19.76	HORIZONTAL	Average
6	23696.550	24.07	39.60	20.12	36.03	47.76	69.25	-21.49	HORIZONTAL	Average

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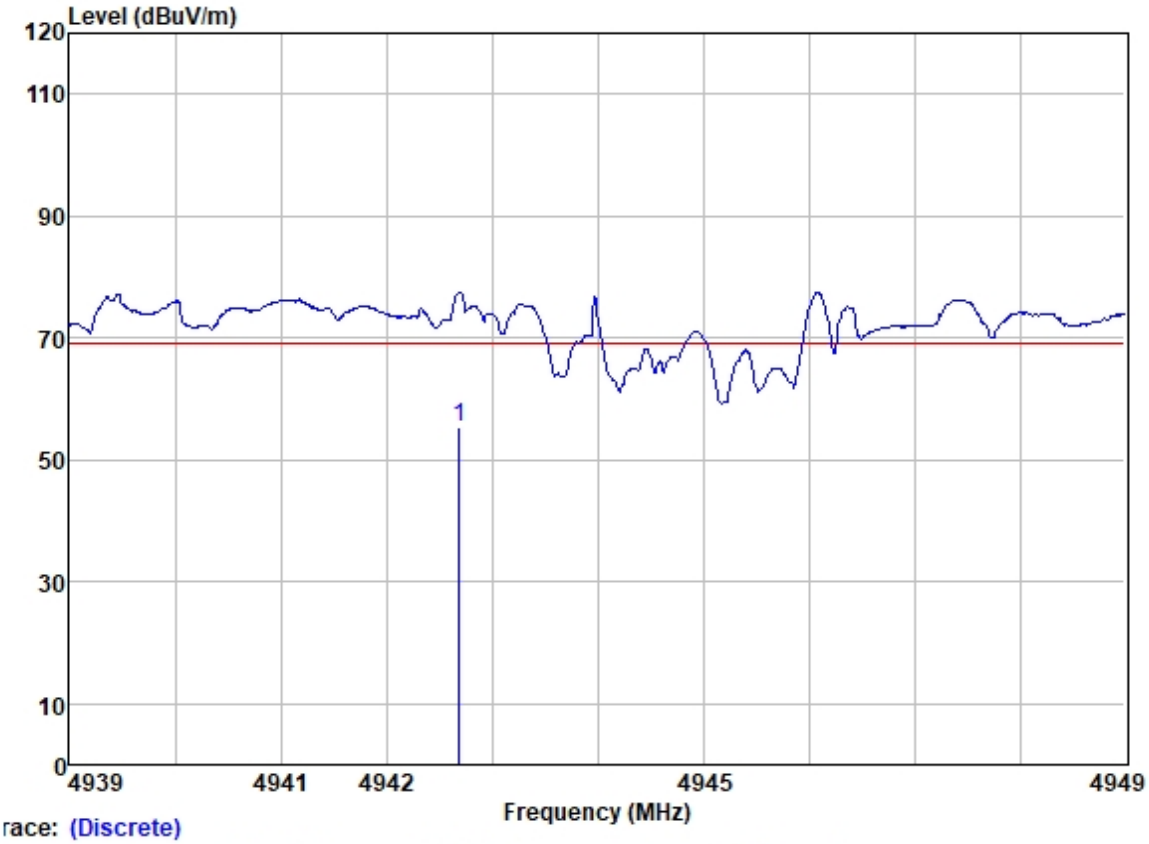
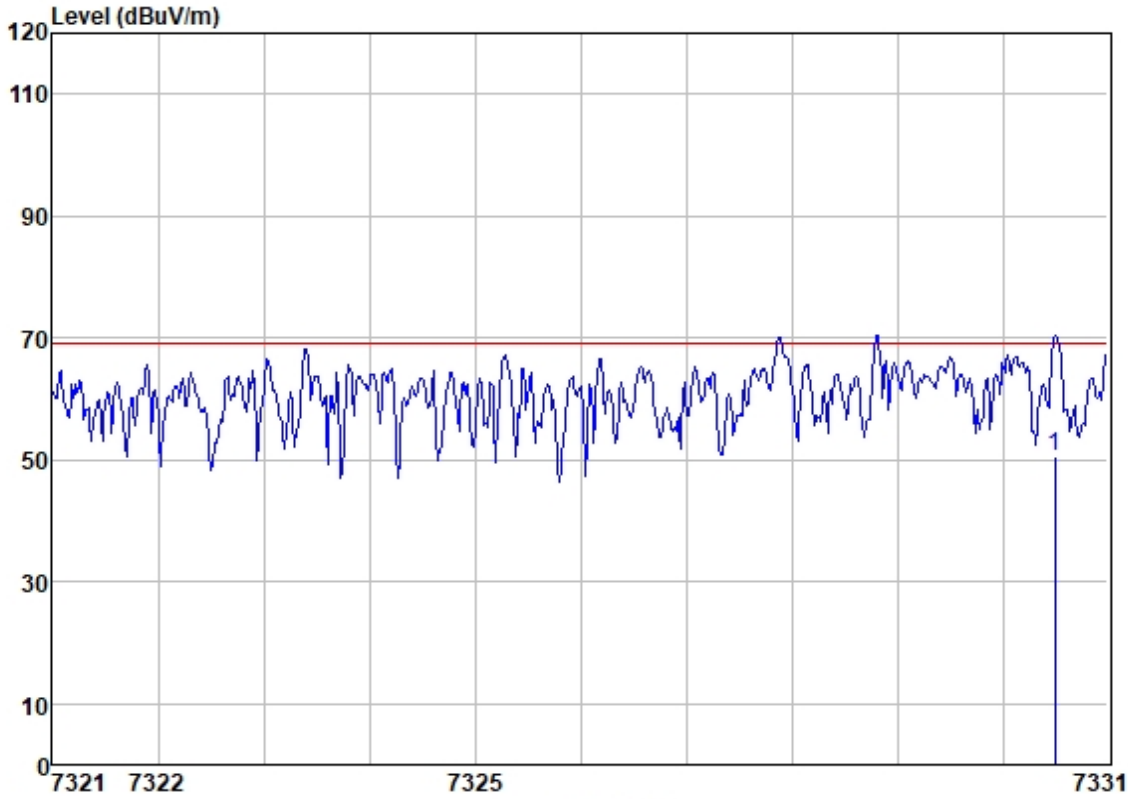
Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4942.688	53.88	33.03	5.27	36.69	55.49	69.25	-13.76	HORIZONTAL	Average

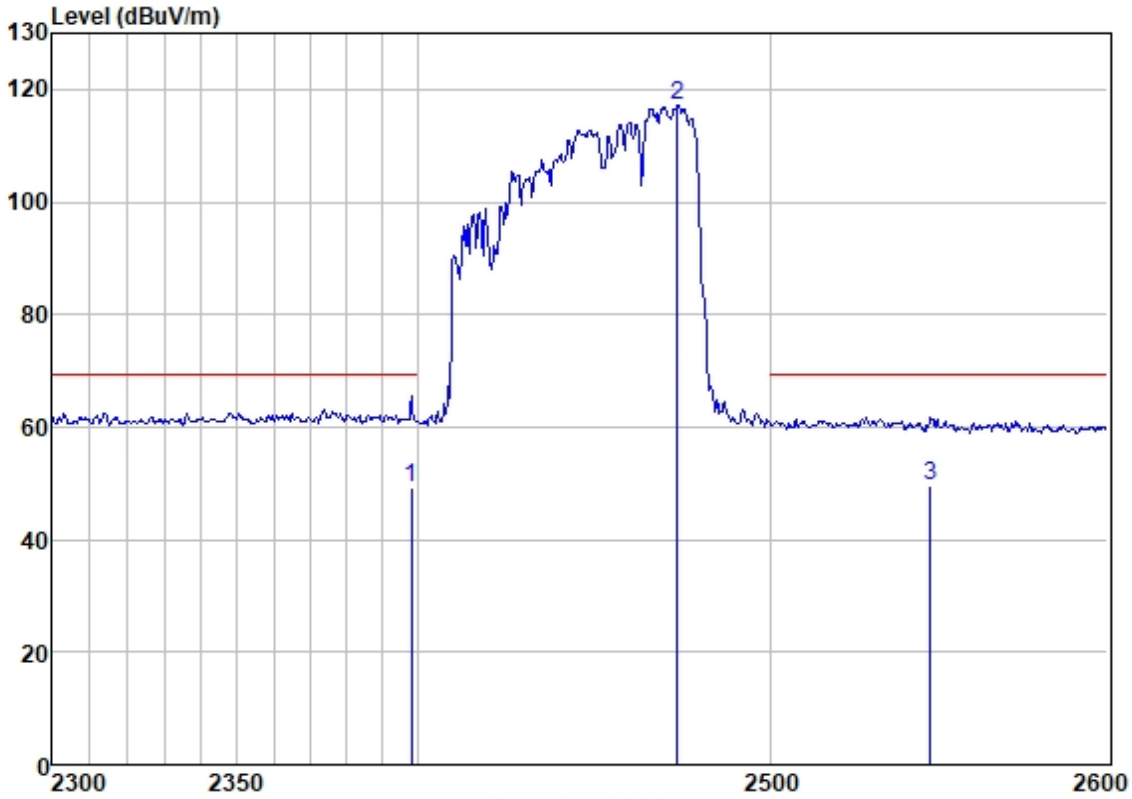
Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	7330.500	44.02	36.61	6.81	36.95	50.49	69.25	-18.76	HORIZONTAL	Average

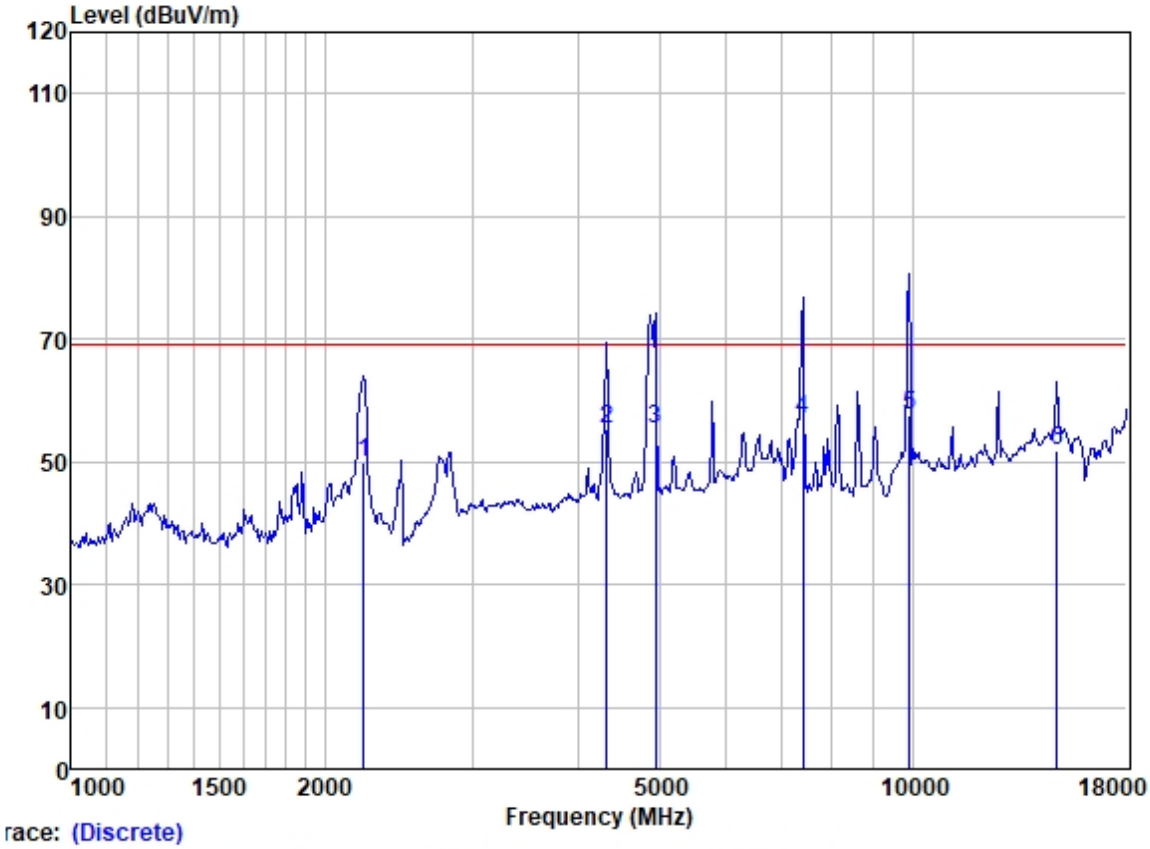
Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2397.901	17.81	27.46	4.11	0.00	49.38	69.25	-19.87	HORIZONTAL	Average
2	2473.143	85.79	27.75	3.57	0.00	117.11	------	------	HORIZONTAL	Peak
3	2546.995	18.87	27.99	2.77	0.00	49.63	69.25	-19.62	HORIZONTAL	Average

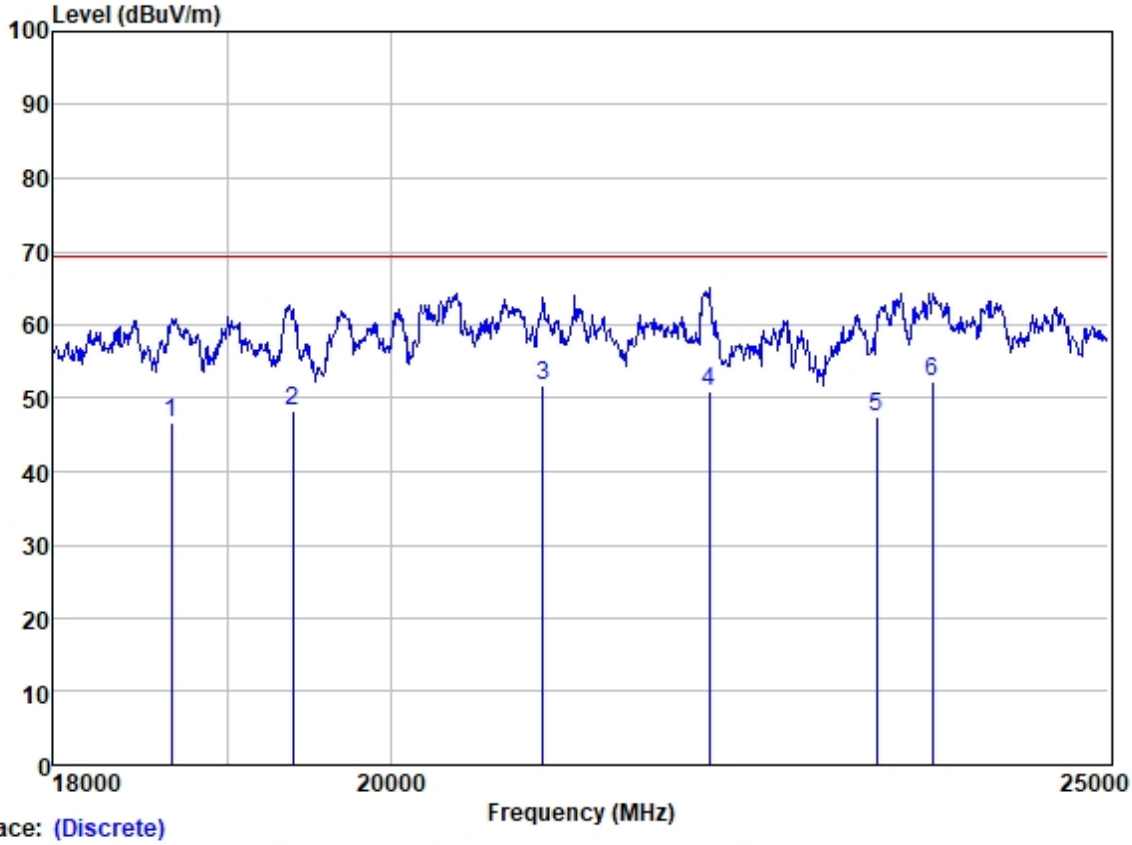
Test Mode: 00; Polarity: Vertical



race: (Discrete)

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2226.950	56.14	27.43	3.57	37.26	49.88	69.25	-19.37	VERTICAL	Average
2	4329.354	55.50	31.64	4.81	36.62	55.33	69.25	-13.92	VERTICAL	Average
3	4944.993	53.72	33.03	5.27	36.69	55.33	69.25	-13.92	VERTICAL	Average
4	7411.461	50.76	36.36	6.74	36.96	56.90	69.25	-12.35	VERTICAL	Average
5	9923.991	48.42	38.34	7.67	36.80	57.63	69.25	-11.62	VERTICAL	Average
6	14873.890	37.13	39.97	10.71	35.88	51.93	69.25	-17.32	VERTICAL	Average

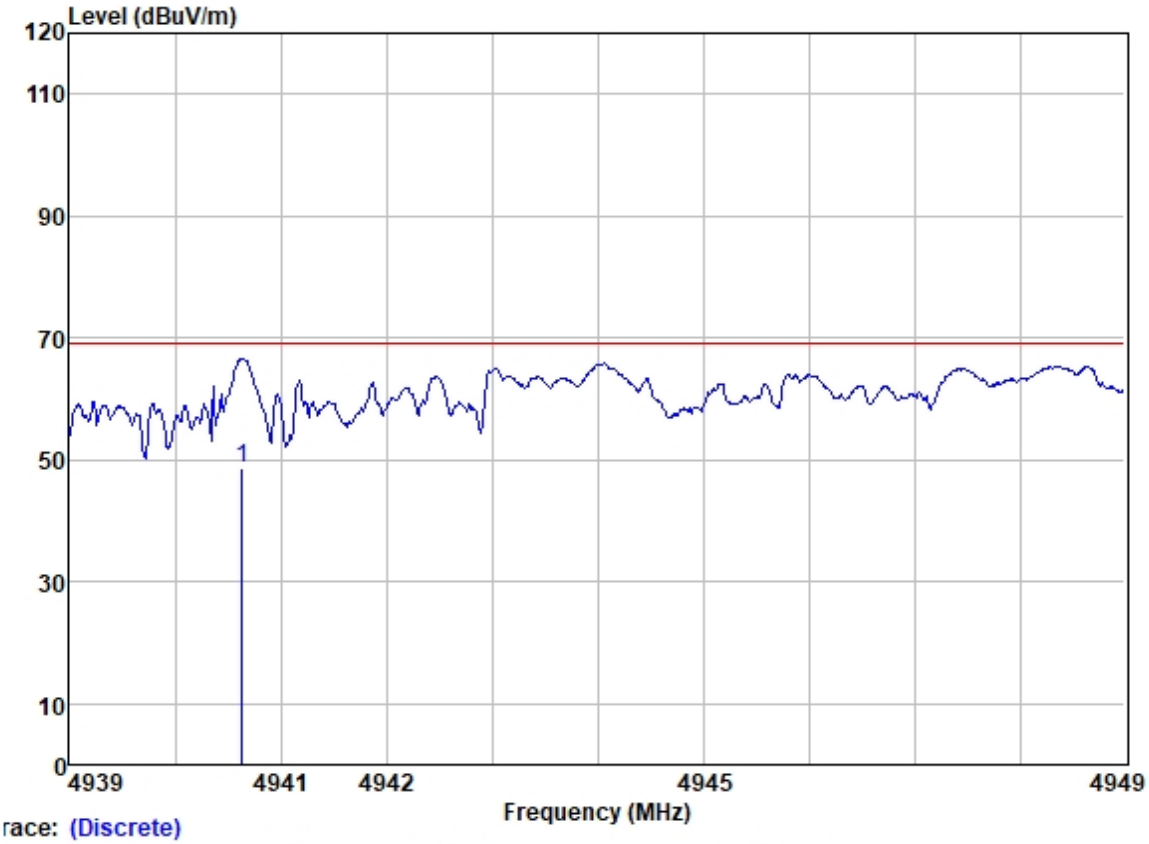
Test Mode: 00; Polarity: Vertical



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	18674.600	27.52	37.97	16.81	35.60	46.70	69.25	-22.55	VERTICAL	Average
2	19393.580	28.82	38.00	17.03	35.60	48.25	69.25	-21.00	VERTICAL	Average
3	20963.810	31.18	37.90	17.99	35.45	51.62	69.25	-17.63	VERTICAL	Average
4	22073.390	29.49	38.28	18.62	35.32	51.07	69.25	-18.18	VERTICAL	Average
5	23256.970	24.29	39.60	19.42	35.86	47.45	69.25	-21.80	VERTICAL	Average
6	23665.440	28.60	39.60	20.10	36.01	52.29	69.25	-16.96	VERTICAL	Average

Test Mode: 00; Polarity: Vertical



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	4940.639	47.02	33.03	5.27	36.69	48.63	69.25	-20.62	VERTICAL	Average

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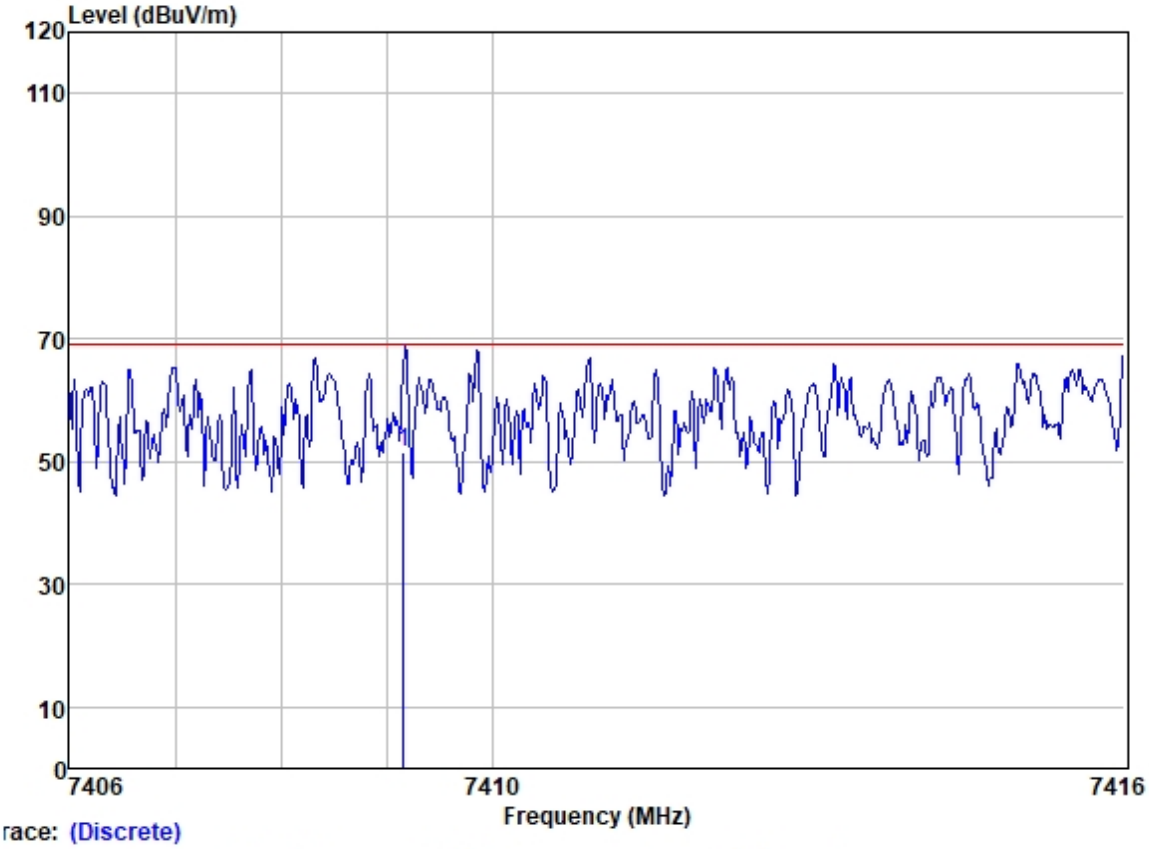
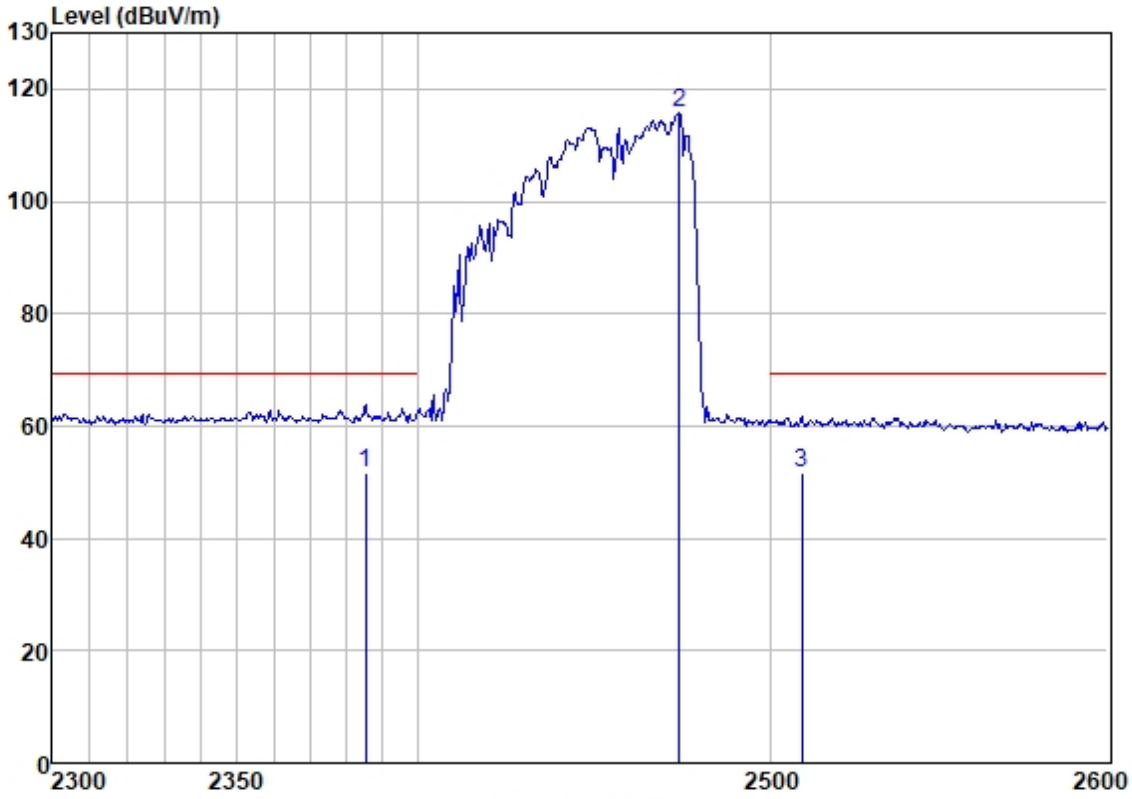
Test Mode: 00; Polarity: Vertical



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	7409.168	45.52	36.36	6.74	36.96	51.66	69.25	-17.59	VERTICAL	Average

Test Mode: 00; Polarity: Vertical



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2385.293	20.14	27.45	4.22	0.00	51.81	69.25	-17.44	VERTICAL	Average
2	2473.749	84.45	27.75	3.57	0.00	115.77	------	------	VERTICAL	Peak
3	2509.182	20.56	27.87	3.14	0.00	51.57	69.25	-17.68	VERTICAL	Average

6.5 Output Power Measurement

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

Limit:

Power output Measurement:

Formula:

$$P = \frac{4{,}187 \cdot m_w (T_2 - T_1) + 0{,}55 \cdot m_c (T_2 - T_0)}{t}$$

NOTE :

P is the microwave power output, in watts

mw is the mass of the water, in grams

mc is the mass of the container, in grams

T0 is the ambient temperature, in degrees Celsius

T1 is the initial temperature of the water, in degrees Celsius

T2 is the final temperature of the water, in degrees Celsius

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

Input Power Measurement:

The EUT was set up according to the MP-5 for input power measurement, the input power and current was measured using a power analyzer. Water load in a beaker was located in the center of the oven and the microwave oven was set to maximum power.

Base on the measured input power it was found that the microwave oven can operating as the user manual's specifications.

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 52.4 % RH Atmospheric Pressure: 1021 mbar

6.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.5.3 Measurement Procedure and Data

Mass of water (g)	Mass of the container (g)	Ambient temperature (℃)	Initial temperature (℃)	Final temperature (℃)	Heating time (s)	Power output (W)
1003	422	20.1	10.0	19.5	59	673.8

Input Voltage (V)	Input Current (A)	Power Factor	Measured input power (W)	Rated input power (W)
120.02	9.04	0.933	1012	1050

6.6 Operating Frequency Measurement

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

Limit:

Frequency Range: 2400-2500 MHz

Detector: Average for the final result for outside ISM band(2450MHz±50MHz)

Outside band limit: (a) ISM equipment operation on a frequency specified in §18.301 is permitted unlimited radiated energy in the band specified for that frequency.

(b) The field strength levels of emissions which lie outside the bands specified in §18.301,unless otherwise indicated, shall not exceed the following:

RF Power generated by equipment(watts)	Field strength Limit(uV/m) @300m
Below 500	25
500 or more	25*SQRT(power/500)

Power =673.8 W according to clause 6.1.2

Limit**=20lg(25*SQRT(power/500))+20lg(300/3)=69.25dBuV/m @ 3m distance.**

ISM band: ISM equipment may be operated on any frequency above 9 kHz.

And the frequency band 2400-2500MHz is allocated for use by ISM equipment.

(§18.301)

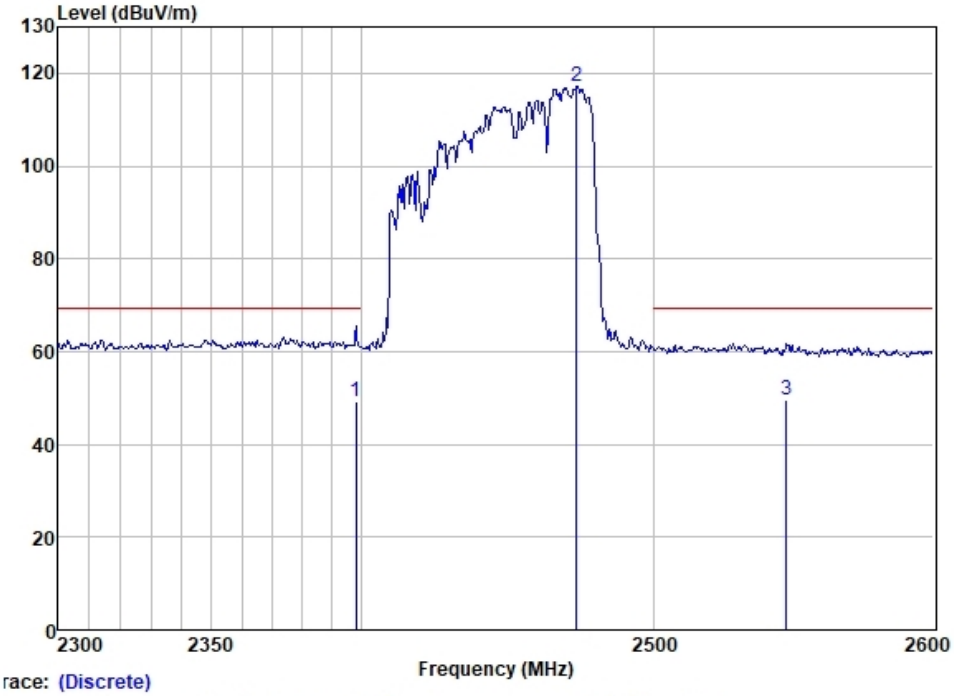
ISM frequency	Tolerance
6.78MHz	±15.0kHz
13.56MHz	±7.0kHz
27.12MHz	±163.0kHz
40.68MHz	±20.0kHz
915MHz	±13.0MHz
2450MHz	**±50.0MHz**
5800MHz	±75.0MHz
24125MHz	±125.0MHz
61.25GHz	±250.0MHz
122.5GHz	±500.0MHz
245.00GHz	±1.0GHz

6.6.1 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.6.2 Measurement Procedure and Data

Test Mode: 00; The variation of frequency with time



race: (Discrete)

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2397.901	17.81	27.46	4.11	0.00	49.38	69.25	-19.87	HORIZONTAL	Average
2	2473.143	85.79	27.75	3.57	0.00	117.11	------	------	HORIZONTAL	Peak
3	2546.995	18.87	27.99	2.77	0.00	49.63	69.25	-19.62	HORIZONTAL	Average

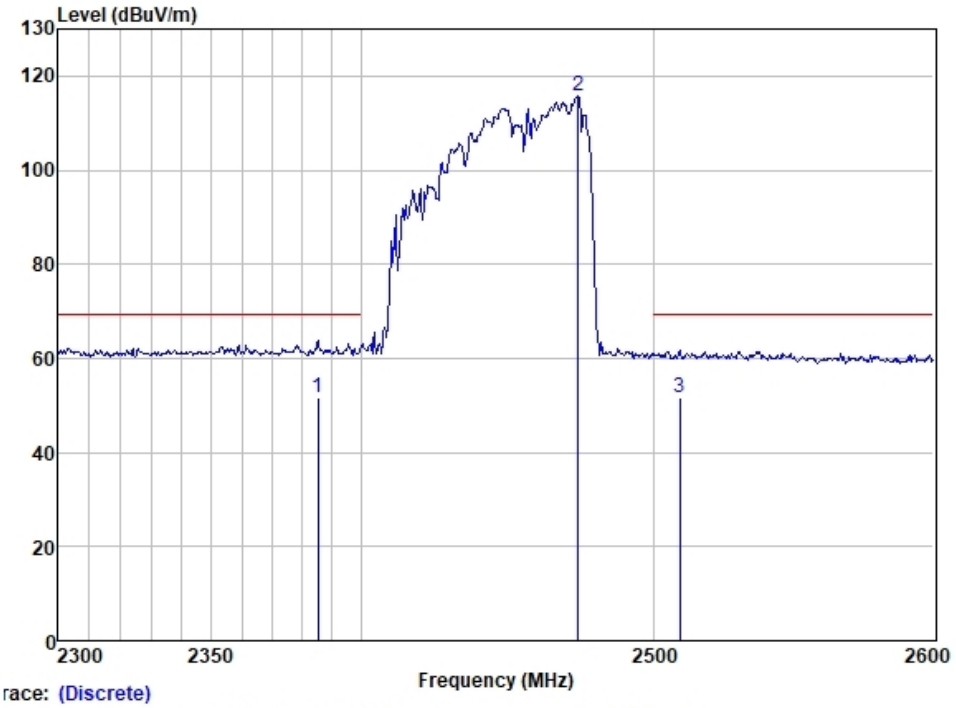
The variation of frequency with time

The operating frequency was measured using a spectrum analyzer, the supply voltage was setting at the rated AC voltage, measured was start with EUT at room temperature, the operating frequency was monitored until the water load was reduced to 20 percent of the original quantity.

Test record was found the worst situation is when the water load is reduced to 20 percent of the original quantity.

ISM frequency(MHz)	Tolerance(MHz)	Measurement Data(MHz)
2450	±50	2473

Test Mode: 00; The variation of frequency with line voltage



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2385.293	20.14	27.45	4.22	0.00	51.81	69.25	-17.44	VERTICAL	Average
2	2473.749	84.45	27.75	3.57	0.00	115.77	------	------	VERTICAL	Peak
3	2509.182	20.56	27.87	3.14	0.00	51.57	69.25	-17.68	VERTICAL	Average

The variation of frequency with line voltage.

The operating frequency was measured using a spectrum analyzer, the supply voltage was setting at the rated AC voltage, measured was start with EUT at room temperature. The EUT was started to warm by at least 10 minutes, the operating frequency was monitored as the rated voltage was varied from 80% to 125%.

Test record was found the worst situation is when the line voltage is 125% of rated AC voltage.

ISM frequency(MHz)	Tolerance(MHz)	Measurement Data(MHz)
2450	±50	2474

6.7 Radiation Hazard Test

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

6.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C Humidity: 52.5 % RH Atmospheric Pressure: 1021 mbar

6.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Test the EUT in microwave mode with maximum power.
Pre-scan	01	Test the EUT in microwave mode with middle power.
Pre-scan	02	Test the EUT in microwave mode with lowest power.

6.7.3 Measurement Procedure and Data

Maximum measure level (mW/cm²)	Limit (mW/cm²)	Test Result
0.019	1	Pass

7 Test Setup Photo

Refer to Appendix - Test Setup Photo for GZEM240100010202

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8 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZEM2401000102HS

- End of the Report -

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