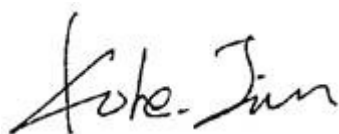


TEST REPORT

Application No.: GZEM2101000263HS
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
Equipment Under Test (EUT):
EUT Name: Microwave Oven
Model No.: P90D25AL-HP7, P90D25(X)-Y, WMC30309LB, WMC30309LS, YWMC30309LS, WMC30309LB**, WMC30309LS**, YWMC30309LS**
 P: with microwave function only
 90: denote the output power is 900W
 D25: denote different cavity in 25 liters.
 Variable (X) may be
 L, P, SL, SP, TL, TP, AL, AP, ASL, ASP, ATL, ATP, EL, EP, ESL, ESP, ETL, ETP, ML, MP, MSL, MSP, MTL, MTP, MYL.
 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.
 ** may be letters or alphanumeric characters designating different model name
 ☐
 ☐ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: Galanz
Standard(s): 47 CFR Part 18
Date of Receipt: 2021-01-13
Date of Test: 2021-01-10 to 2021-01-24
Date of Issue: 2021-02-19

Test Result:	Pass*
---------------------	--------------

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




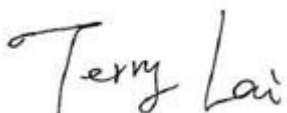
Kobe Jian
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-02-19		Original

Authorized for issue by:			
Tested By			
	Damon_Guan /Project Engineer		
Reviewed By			
	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
Output Power Measurement	47 CFR Part 18	FCC OST/MP-5:1986	FCC OST/MP-5:1986 Clause 4.3	Pass
Operating Frequency Measurement	47 CFR Part 18	FCC OST/MP-5:1986	18.301	Pass
Radiation Hazard Test	47 CFR Part 18	FCC OST/MP-5:1986	1 mW/cm ²	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	18.305	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	18.305	Pass
Radiated Emissions (Magnetic field Strength) (9kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	18.305	Pass

Declaration of EUT Family Grouping:

Models: P90D25AL-HP7, P90D25(X)-Y, WMC30309LB, WMC30309LS, YWMC30309LS, WMC30309LB**, WMC30309LS**, YWMC30309LS**

P: with microwave function only

90: denote the output power is 900W

D25: denote different cavity in 25 liters.

Variable (X) may be

L, P, SL, SP, TL, TP, AL, AP, ASL, ASP, ATL, ATP, EL, EP, ESL, ESP, ETL, ETP, ML, MP, MSL, MSP, MTL, MTP, MYL.

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.

** may be letters or alphanumeric characters designating different model name

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 P90D25AL-HP7 was tested in this report.



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Guangzhou Branch Testing Center EEC Laboratory. 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

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4 General Information

4.1 Details of E.U.T.

Power Supply: AC 120V 60Hz
 Test Voltage: AC 120V 60Hz
 Cable: About 1.0m x 3 wires unscreened AC mains cable.

4.2 Description of Support Units

Load for microwave ovens for testing:

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

No.	Item	Measurement Uncertainty
1	Conducted Disturbance Voltage at Mains Terminals	3.63dB (9kHz to 150kHz)
		3.22dB (150kHz to 30MHz)
2	Disturbance Power	3.78dB
3	Radiated Emissions	5.0dB (9kHz-30MHz)
		5.0dB (30MHz-1GHz)
		5.2dB (1GHz-6GHz)
		5.5dB (6GHz-25GHz)

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
 Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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4.5 Test Facility

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

● NVLAP (Lab Code: 200611-0)

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

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.

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● 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.

● CNAS (Lab Code: L0167)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

● FCC Recognized 2.948 Listed Test Firm (Registration No.: 282399)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● 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, Jul 13, 2017.

● Industry Canada (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-10449 and T-11179)

The 10m Semi-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-10449 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 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Network	Rohde & Schwarz	ENV216	EMC0118	2021-01-08	2022-01-07
LISN	Rohde & Schwarz	ENV216	EMC2135	2020-09-25	2021-09-24
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2020-11-13	2021-11-12
Coaxial Cable	HangTianXing	2m	EMC0107	2020-09-09	2022-09-08
Voltage Probe	SGS-EMC	N/A	EMC0106	2019-05-10	2021-05-09
Conical Metal Housing	SGS-EMC	N/A	EMC0167	2020-04-19	2022-04-18
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	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	2020-05-29	2021-05-28

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-03	2022-01-02
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Bi-log Type Antenna	Schaffner Chase	CBL6143	EMC0519	2020-06-08	2023-06-07
Horn Antenna 1GHz-18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-13	2021-11-12
Active Loop Antenna	ETS-Lindgren	6502	EMC2190	2019-12-27	2021-12-26
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-19	2023-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



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Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-03	2022-01-02
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner Chase	CBL6143	EMC0519	2020-06-08	2023-06-07
Horn Antenna	SCHWARZBECKME SS-ELEKTRONIK	BBHA 9120D	EMC2016	2019-09-25	2022-09-24
Horn Antenna 1GHz-18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-13	2021-11-12
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2021-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-19	2023-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



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Radiated Emissions (Magnetic field Strength) (9kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2021-01-03	2022-01-02
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Bi-log Type Antenna	Schaffner Chase	CBL6143	EMC0519	2020-06-08	2023-06-07
Horn Antenna 1GHz-18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-13	2021-11-12
Active Loop Antenna	ETS-Lindgren	6502	EMC2190	2019-12-27	2021-12-26
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-19	2023-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2020-07-09	2021-07-08
DMM	Fluke	73	EMC0007	2020-07-09	2021-07-08



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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
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: 23 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

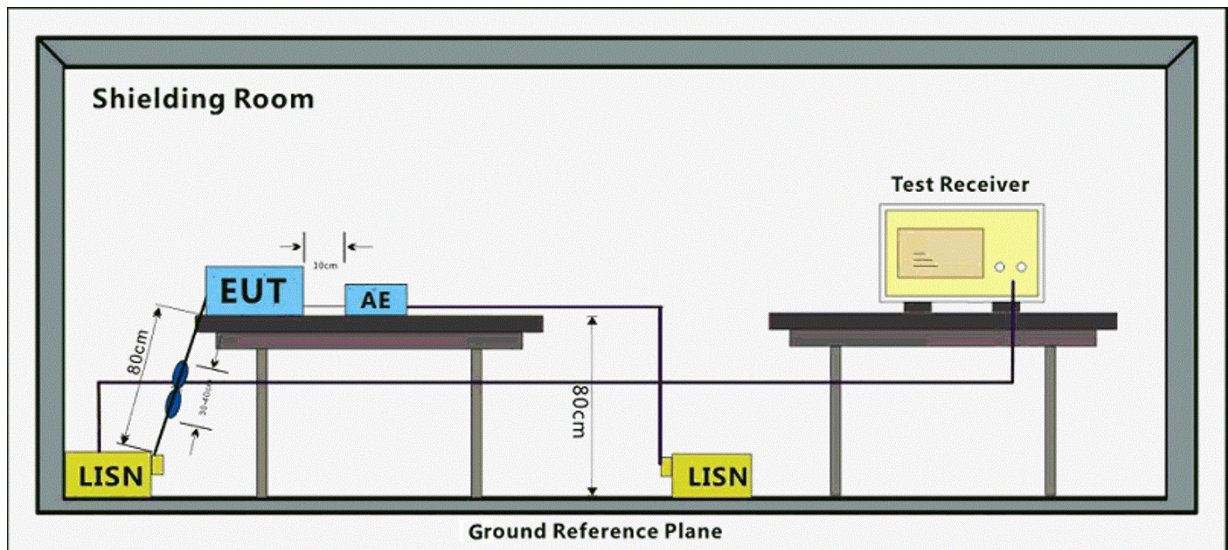
Pretest these modes to find the worst case:

- Test the EUT in microwave mode with maximum power.
- Test the EUT in microwave mode with middle power.
- Test the EUT in microwave mode with lowest power.

The worst case for final test:

- Test the EUT in microwave mode with maximum power.

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.

Measured Level = Read level + Cable Loss + LISN Factor



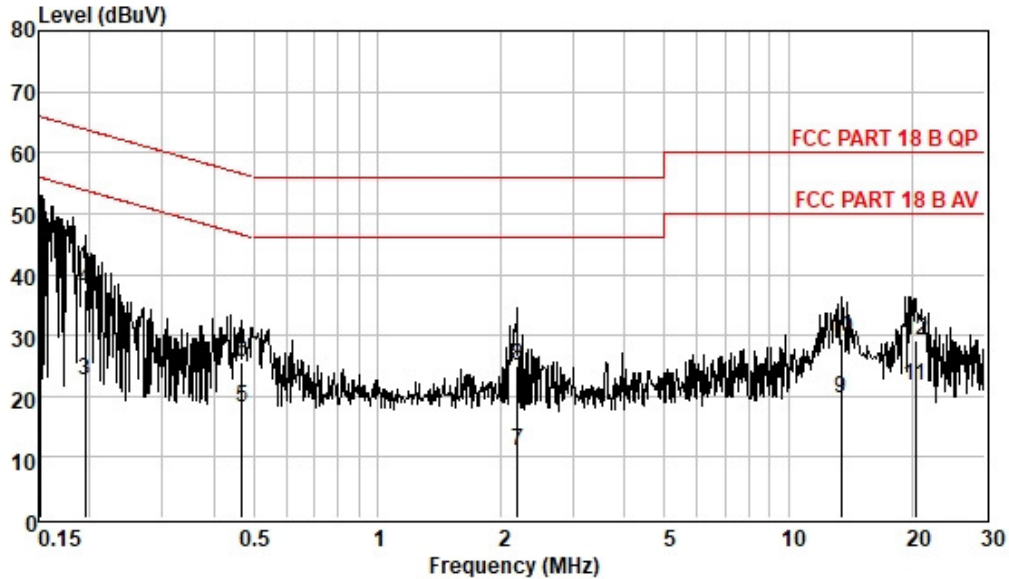
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Mode:a; Line:Live Line



Pol :LINE
Mode :
Model :

Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.15	15.36	0.06	9.62	25.04	55.96	-30.92	Average
0.15	35.59	0.06	9.62	45.27	65.96	-20.69	QP
0.19	13.04	0.06	9.63	22.73	53.84	-31.11	Average
0.19	27.78	0.06	9.63	37.47	63.84	-26.37	QP
0.47	8.50	0.07	9.63	18.20	46.54	-28.34	Average
0.47	15.89	0.07	9.63	25.59	56.54	-30.95	QP
2.19	1.28	0.13	9.62	11.03	46.00	-34.97	Average
2.19	15.32	0.13	9.62	25.07	56.00	-30.93	QP
13.41	9.66	0.29	9.73	19.68	50.00	-30.32	Average
13.41	19.36	0.29	9.73	29.38	60.00	-30.62	QP
20.38	11.62	0.37	9.77	21.76	50.00	-28.24	Average
20.38	19.12	0.37	9.77	29.26	60.00	-30.74	QP



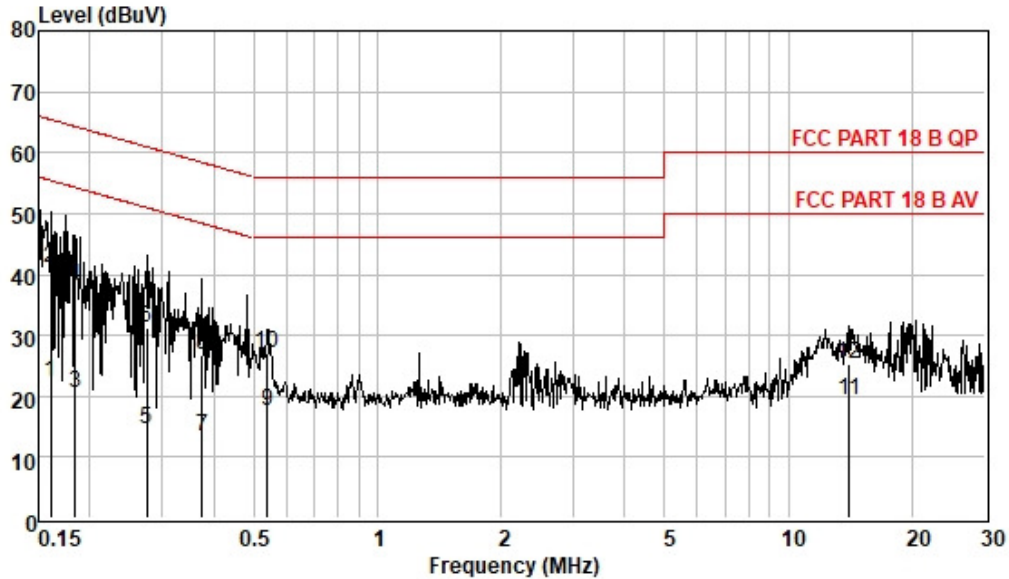
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Mode:a; Line:Neutral Line

Pol :NEUTRAL
Mode :
Model :

Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.16	12.75	0.06	9.55	22.36	55.43	-33.07	Average
0.16	31.58	0.06	9.55	41.19	65.43	-24.24	QP
0.18	10.79	0.06	9.55	20.40	54.28	-33.88	Average
0.18	28.46	0.06	9.55	38.07	64.28	-26.21	QP
0.27	4.98	0.06	9.55	14.59	50.98	-36.39	Average
0.27	21.73	0.06	9.55	31.34	60.98	-29.64	QP
0.38	3.69	0.06	9.55	13.30	48.39	-35.09	Average
0.38	17.30	0.06	9.55	26.91	58.39	-31.48	QP
0.54	7.98	0.07	9.55	17.60	46.00	-28.40	Average
0.54	17.34	0.07	9.55	26.96	56.00	-29.04	QP
14.06	9.45	0.30	9.63	19.38	50.00	-30.62	Average
14.06	15.21	0.30	9.63	25.14	60.00	-34.86	QP



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6.1 Output Power Measurement

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 20.2 °C Humidity: 50.4 % RH Atmospheric Pressure: 1019 mbar

Test mode a: Test the EUT in microwave mode with maximum power.

6.1.2 Measurement Data

Mass of water (g)	Mass of the container (g)	Ambient temperature (°C)	Initial temperature (°C)	Final temperature (°C)	Heating time(s)	Power output (watts)
1000	410	20.2	9.9	19.9	48	870.9

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

m_w is the mass of the water, in gramsm_c is the mass of the container, in gramsT₀ is the ambient temperature, in degrees CelsiusT₁ is the initial temperature of the water, in degrees CelsiusT₂ is the final temperature of the water, in degrees Celsius

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

6.1.3 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.

Input Voltage (V)	Input Current (A)	Power Factor	Measured input power (W)	Rated input power (W)
120.02	11.94	0.931	1334	1350



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6.2 Radiation Hazard Test

Test Requirement: 47 CFR Part 18
Test Method: FCC OST/MP-5:1986
Test distance: Five centimeters from the oven surface

6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 22.2 °C Humidity: 51.3 % RH Atmospheric Pressure: 1021 mbar
Test mode a: Test the EUT in microwave mode with maximum power.

6.2.2 Measurement Data

Maximum measure level (mW/cm ²)	Limit (mW/cm ²)	Pass/Fail
0.094	1.00	Pass



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6.3 Operating Frequency

Test Requirement: 47 CFR Part 18
 Test Method: FCC OST/MP-5:1986
 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 = 870.9 W according to clause 6.1.2

Limit = $20\lg(25 \cdot \sqrt{\text{power}/500}) + 20\lg(300/3) = 70.37 \text{ dBuV/m @ 3m distance.}$

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

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.2 °C Humidity: 51.4 % RH Atmospheric Pressure: 1022 mbar

Pretest these modes to find the worst case:
 a: Test the EUT in microwave mode with maximum power.
 b: Test the EUT in microwave mode with middle power.
 c: Test the EUT in microwave mode with lowest power.

The worst case for final test:
 a: Test the EUT in microwave mode with maximum power.



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6.3.2 Measurement Data

1) 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	2474

2) 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.

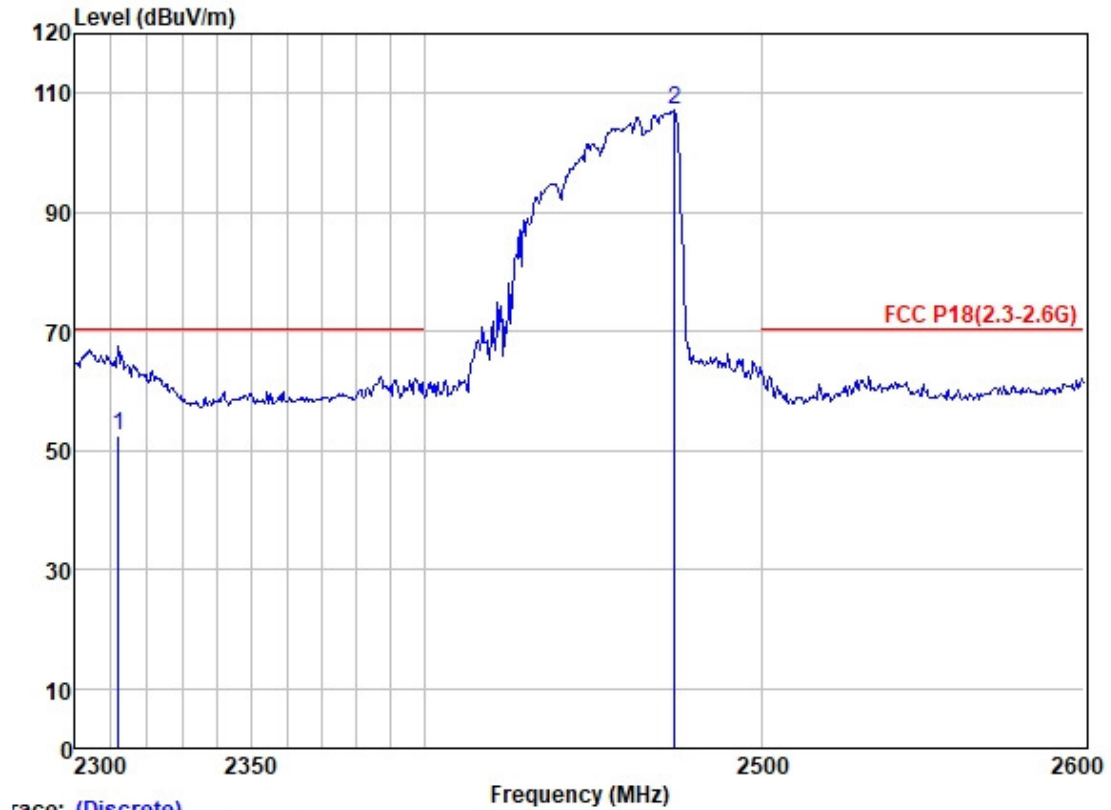
ISM frequency(MHz)	Tolerance(MHz)	Measurement Data(MHz)
2450	±50	2473



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1)The variation of frequency with time



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2312.157	22.03	27.15	3.32	0.00	52.50	70.37	-17.87	VERTICAL Average
2	2473.749	76.26	27.46	3.55	0.00	107.27	-----	-----	VERTICAL Peak



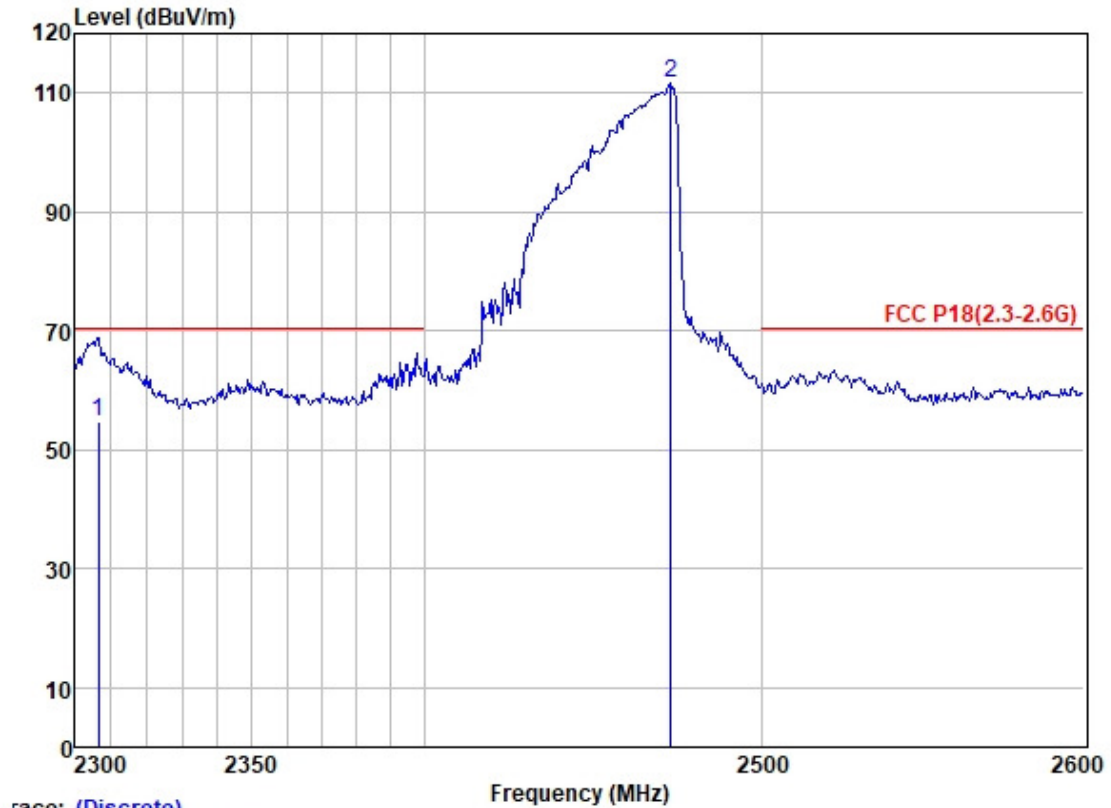
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2)The variation of frequency with line voltage



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 2306.495	24.21	27.13	3.31	0.00	54.65	70.37	-15.72	HORIZONTAL	Average
2 2472.536	80.51	27.46	3.55	0.00	111.52	-----	-----	HORIZONTAL	Peak



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6.4 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 18
 Test Method: FCC OST/MP-5:1986
 Frequency Range: 30MHz to 1GHz
 Measurement Distance: 3m
 Detector: Peak for pre-scan, Average for the final result
 (100 kHz Resolution Bandwidth for 30MHz to 1,000MHz)
 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	$25 \times \text{SQRT}(\text{power}/500)$

Power =870.9 W according to clause 6.1.2

Limit= $20\lg(25 \times \text{SQRT}(\text{power}/500)) + 20\lg(300/3) = 70.37\text{dBuV/m @ 3m distance.}$

6.4.1 E.U.T. Operation

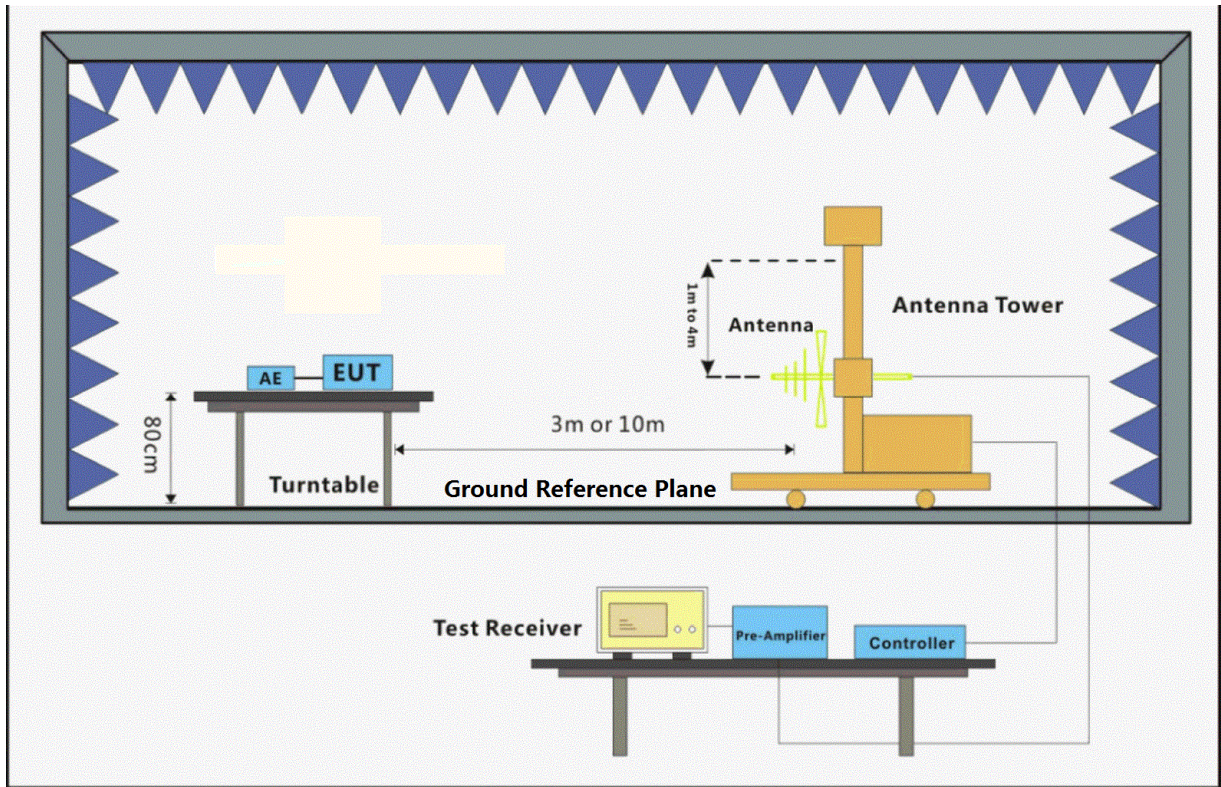
Operating Environment:
 Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar
 Pretest these modes to find the worst case:
 a: Test the EUT in microwave mode with maximum power.
 b: Test the EUT in microwave mode with middle power.
 c: Test the EUT in microwave mode with lowest power.
 The worst case for final test:
 a: Test the EUT in microwave mode with maximum power.



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6.4.2 Test Setup Diagram



6.4.3 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.

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



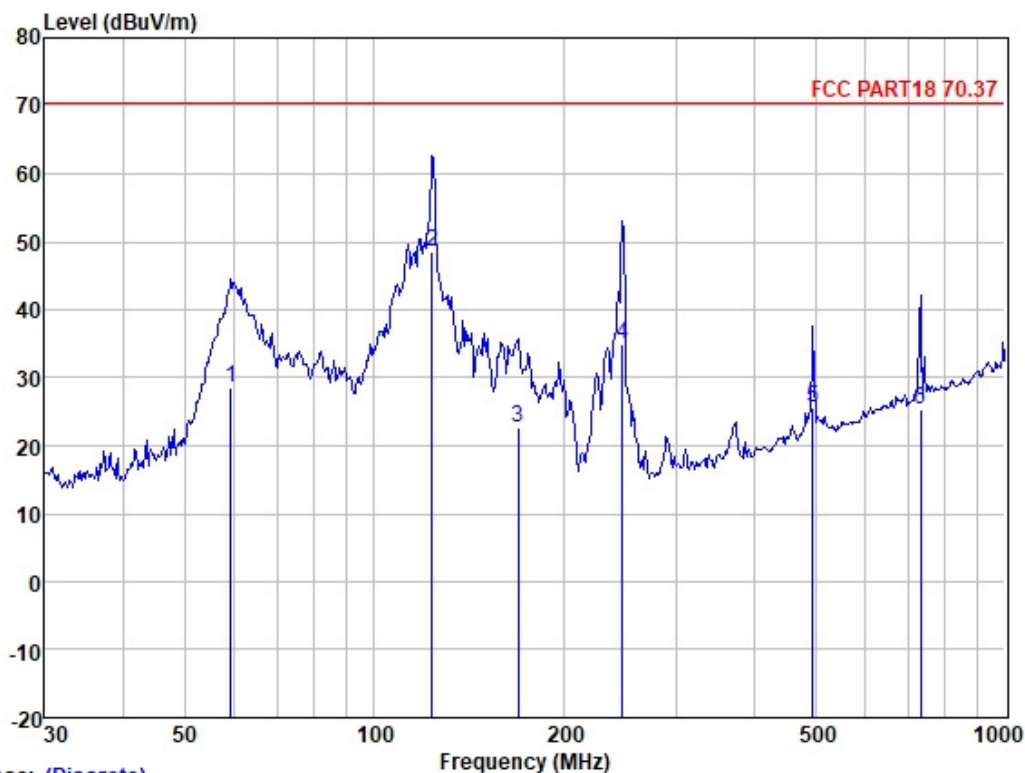
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Mode:a; Polarization:Horizontal



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 70.37 3m HORIZONTAL

Job :

Model :

Power :

Test Mode:

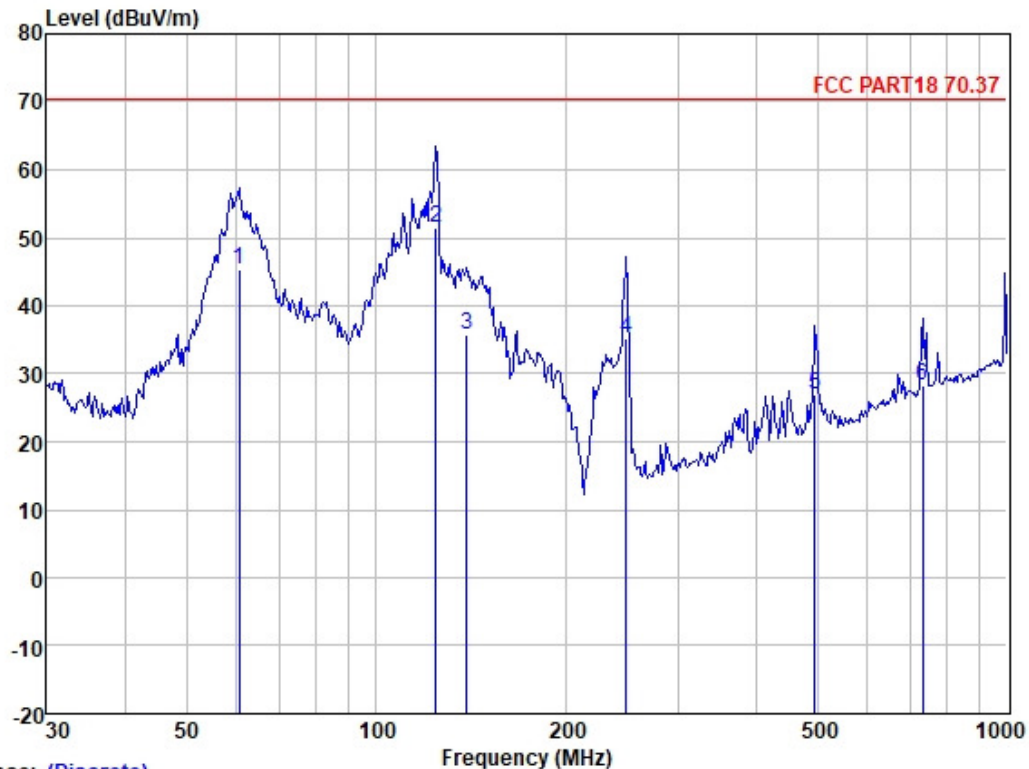
	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	59.232	40.99	13.48	1.25	27.16	28.56	70.37	-41.81	HORIZONTAL Average
2	123.266	62.38	11.30	1.90	27.02	48.56	70.37	-21.81	HORIZONTAL Average
3	169.005	33.93	13.20	2.39	26.77	22.75	70.37	-47.62	HORIZONTAL Average
4	246.815	46.68	12.03	2.90	26.63	34.98	70.37	-35.39	HORIZONTAL Average
5	495.934	31.24	17.90	4.39	27.97	25.56	70.37	-44.81	HORIZONTAL Average
6	734.491	25.57	21.90	5.89	28.12	25.24	70.37	-45.13	HORIZONTAL Average



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Mode:a; Polarization:Vertical



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 70.37 3m VERTICAL

Job :

Model :

Power :

Test Mode:

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	60.492	57.93	13.33	1.27	27.16	45.37	70.37	-25.00	VERTICAL	Average
2	124.133	65.20	11.40	1.90	27.02	51.48	70.37	-18.89	VERTICAL	Average
3	138.874	47.35	13.15	2.07	26.94	35.63	70.37	-34.74	VERTICAL	Average
4	248.552	46.85	12.07	2.90	26.62	35.20	70.37	-35.17	VERTICAL	Average
5	495.934	32.67	17.90	4.39	27.97	26.99	70.37	-43.38	VERTICAL	Average
6	734.491	28.58	21.90	5.89	28.12	28.25	70.37	-42.12	VERTICAL	Average



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6.5 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 18
 Test Method: FCC OST/MP-5:1986
 Frequency Range: Above 1GHz
 Measurement Distance: 3m
 Detector: Peak for pre-scan, Average for the final result
 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 =870.9 W according to clause 6.1.2

Limit=20lg(25*SQRT(power/500))+20lg(300/3)=**70.37dBuV/m @ 3m**
 distance.

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Pretest these modes to find the worst case:
 a: Test the EUT in microwave mode with maximum power.
 b: Test the EUT in microwave mode with middle power.
 c: Test the EUT in microwave mode with lowest power.

The worst case for final test:
 a: Test the EUT in microwave mode with maximum power.



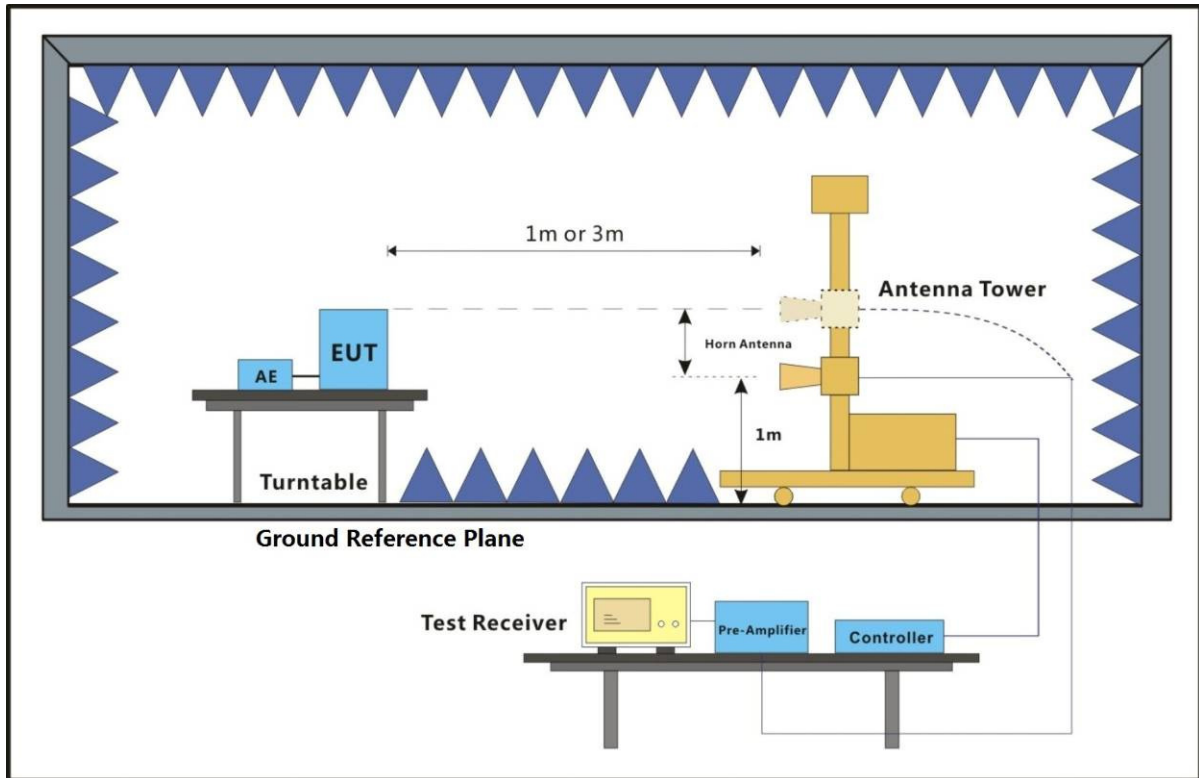
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6.5.2 Test Setup Diagram



6.5.3 Measurement Data

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.

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



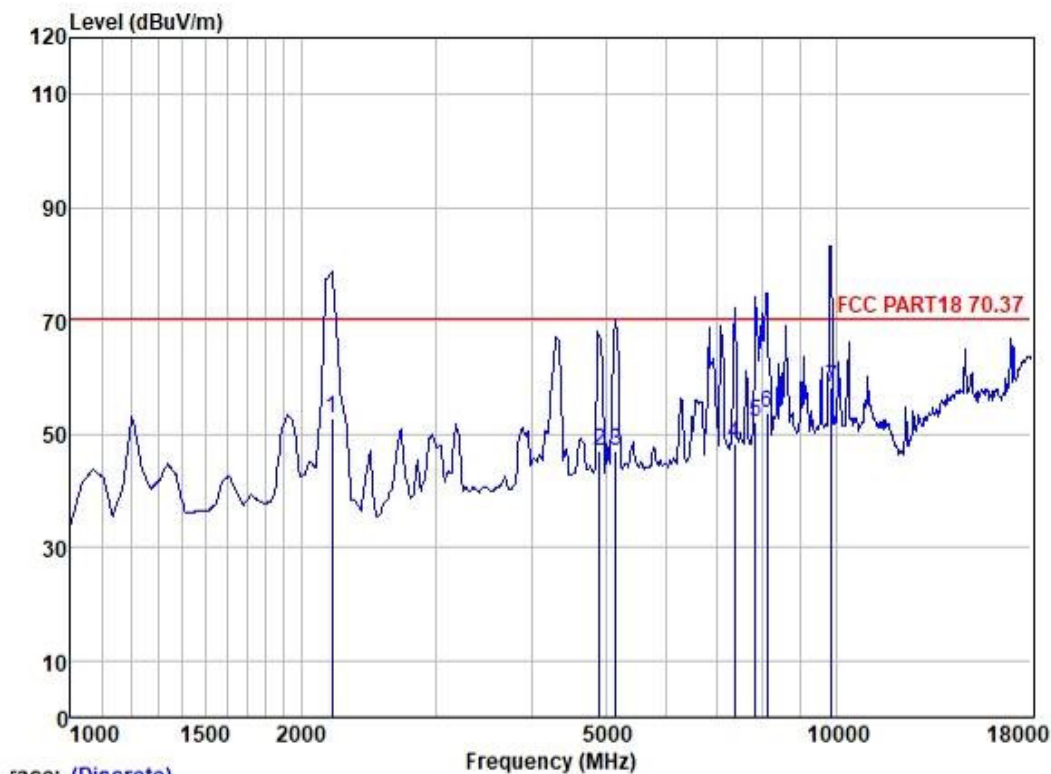
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Mode:a; Polarization:Horizontal



Trace: (Discrete)

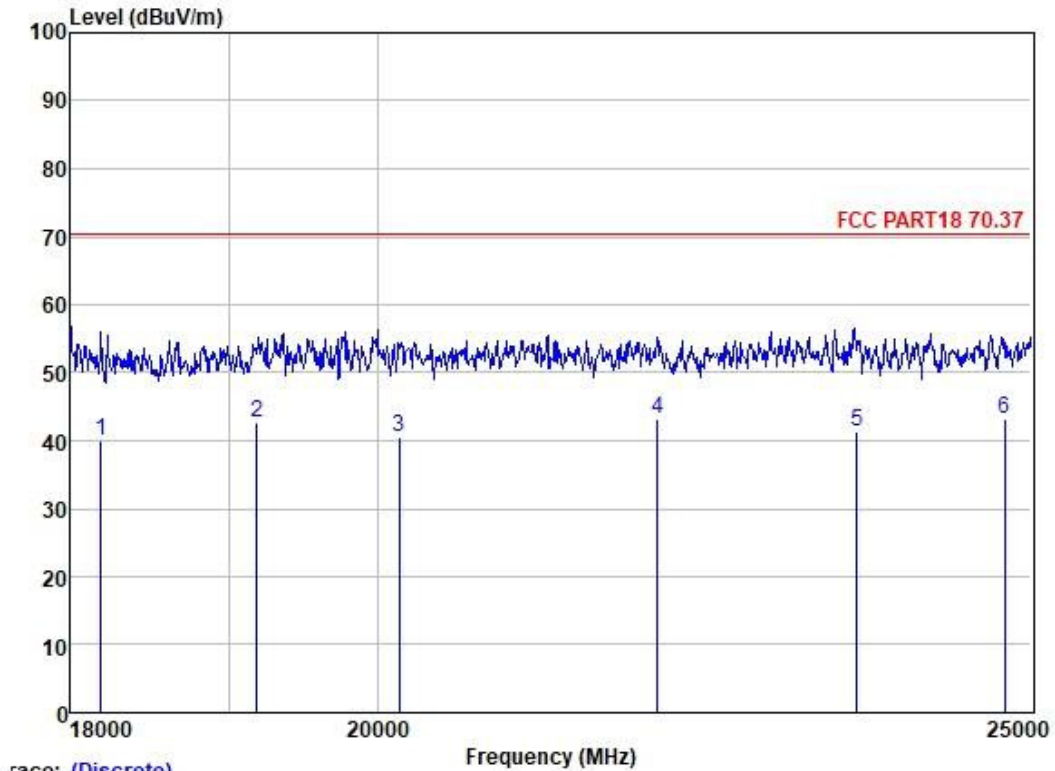
	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2194.998	60.58	26.59	3.20	37.65	52.72	70.37	-17.65	HORIZONTAL Average
2	4912.900	46.76	31.60	5.58	36.84	47.10	70.37	-23.27	HORIZONTAL Average
3	5149.197	46.67	31.72	5.62	36.86	47.15	70.37	-23.22	HORIZONTAL Average
4	7378.371	43.43	36.12	6.17	37.45	48.27	70.37	-22.10	HORIZONTAL Average
5	7852.524	46.89	36.79	6.17	37.57	52.28	70.37	-18.09	HORIZONTAL Average
6	8129.664	48.23	36.95	6.27	37.59	53.86	70.37	-16.51	HORIZONTAL Average
7	9866.789	50.13	38.60	6.98	37.41	58.30	70.37	-12.07	HORIZONTAL Average



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Mode:a; Polarization:Horizontal



Trace: (Discrete)

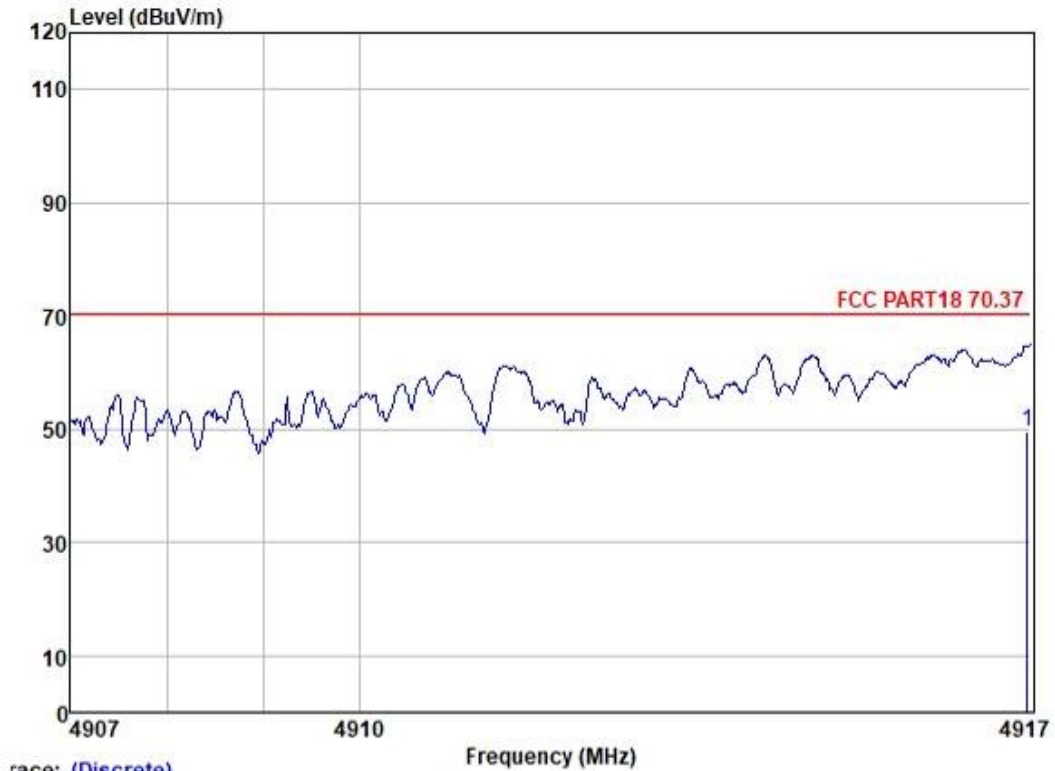
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	18190.220	21.22	37.91	16.55	35.60	40.08	70.37	-30.29	HORIZONTAL Average
2	19184.480	23.20	38.00	16.95	35.60	42.55	70.37	-27.82	HORIZONTAL Average
3	20140.250	20.74	37.99	17.36	35.58	40.51	70.37	-29.86	HORIZONTAL Average
4	22001.000	21.69	38.22	18.60	35.30	43.21	70.37	-27.16	HORIZONTAL Average
5	23549.110	17.80	39.60	19.92	35.98	41.34	70.37	-29.03	HORIZONTAL Average
6	24771.100	19.00	39.35	21.08	36.13	43.30	70.37	-27.07	HORIZONTAL Average



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Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	4916.960	49.31	31.60	5.58	36.84	49.65	70.37	-20.72	HORIZONTAL Average



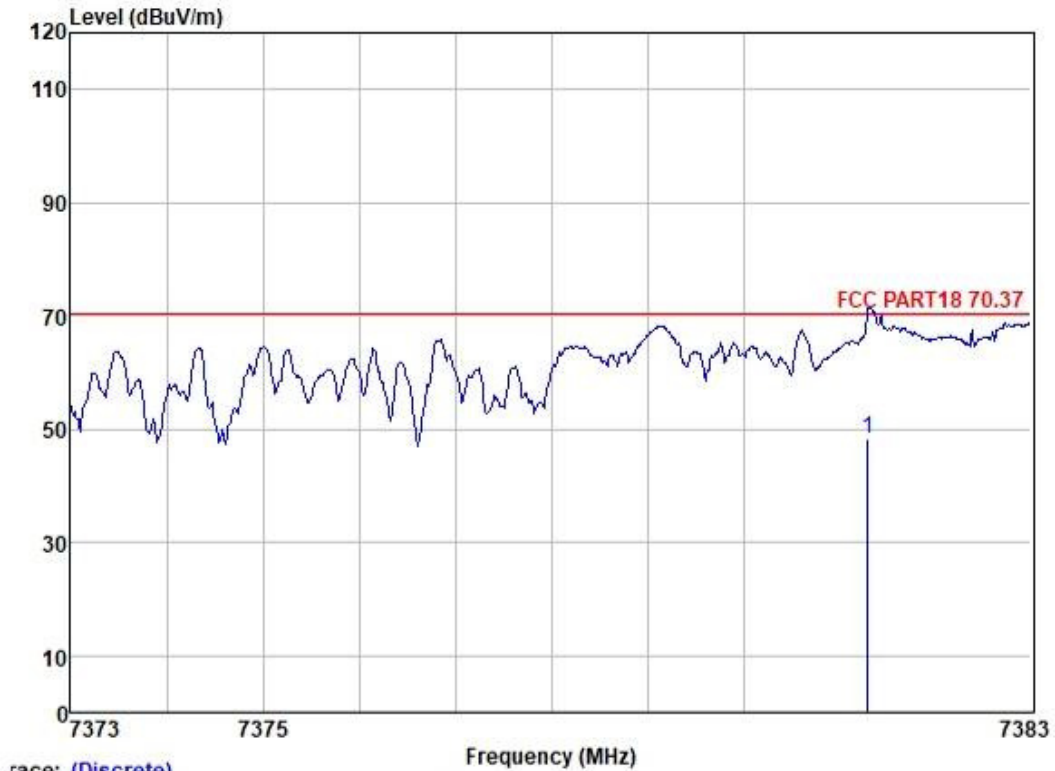
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Mode:a; Polarization:Horizontal



Trace: (Discrete)

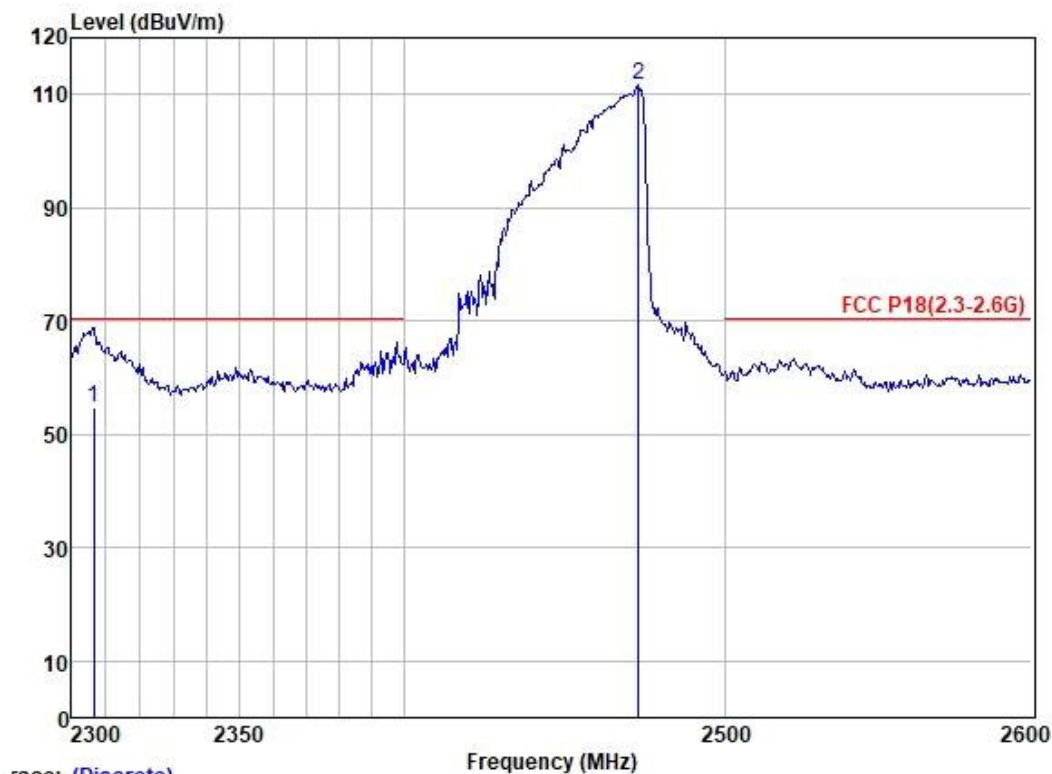
	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 7381.299	43.47	36.17	6.19	37.45	48.38	70.37	-21.99	HORIZONTAL	Average



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Mode:a; Polarization:Horizontal



Trace: (Discrete)

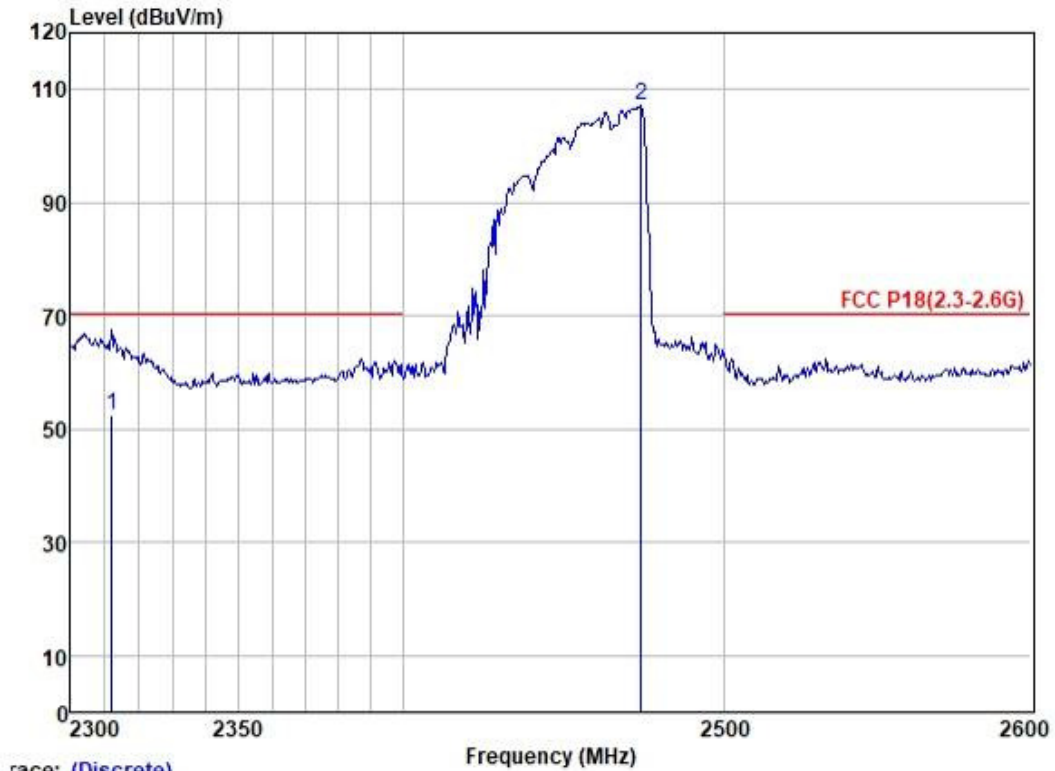
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Loss	Factor	dBuV/m	Line	Limit	Pol/Phase	Remark
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2306.495	24.21	27.13	3.31	0.00	54.65	70.37	-15.72	HORIZONTAL Average
2	2472.536	80.51	27.46	3.55	0.00	111.52	-----	-----	HORIZONTAL Peak



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Mode:a; Polarization:Vertical



Trace: (Discrete)

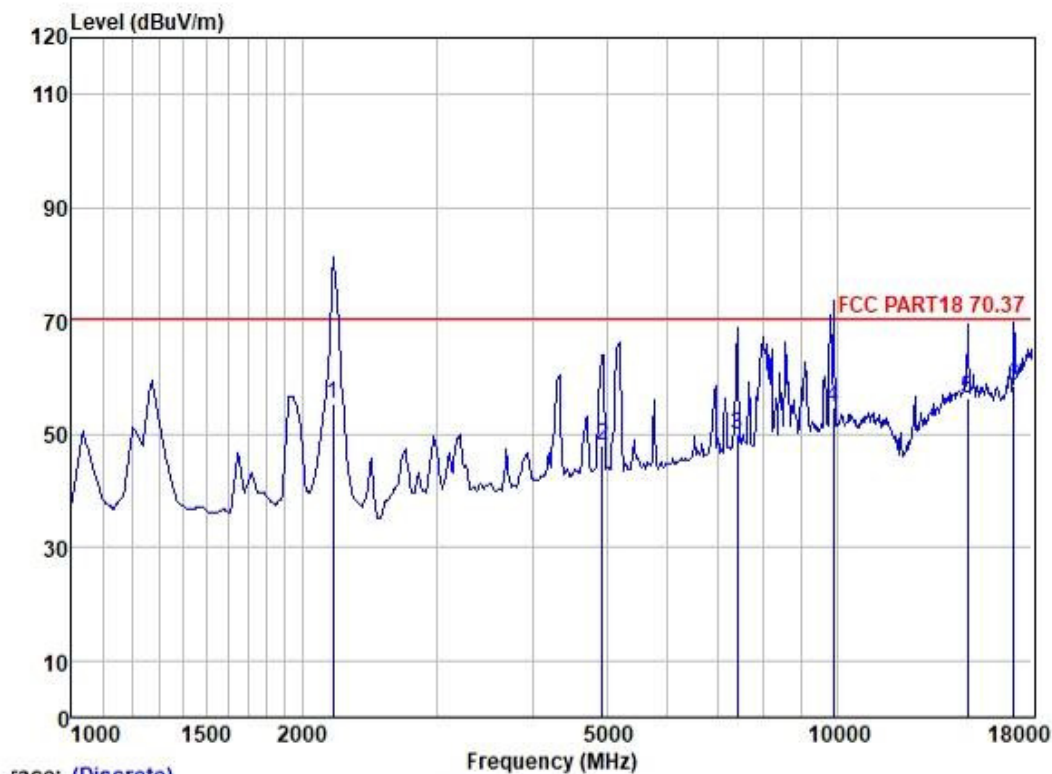
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Loss	Factor	dBuV/m	Line	Limit	Pol/Phase	Remark
		dBuV	dB/m	dB	dB	dBuV/m	dB		
1	2312.157	22.03	27.15	3.32	0.00	52.50	70.37	-17.87	VERTICAL Average
2	2473.749	76.26	27.46	3.55	0.00	107.27	-----	-----	VERTICAL Peak



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Mode:a; Polarization:Vertical



Trace: (Discrete)

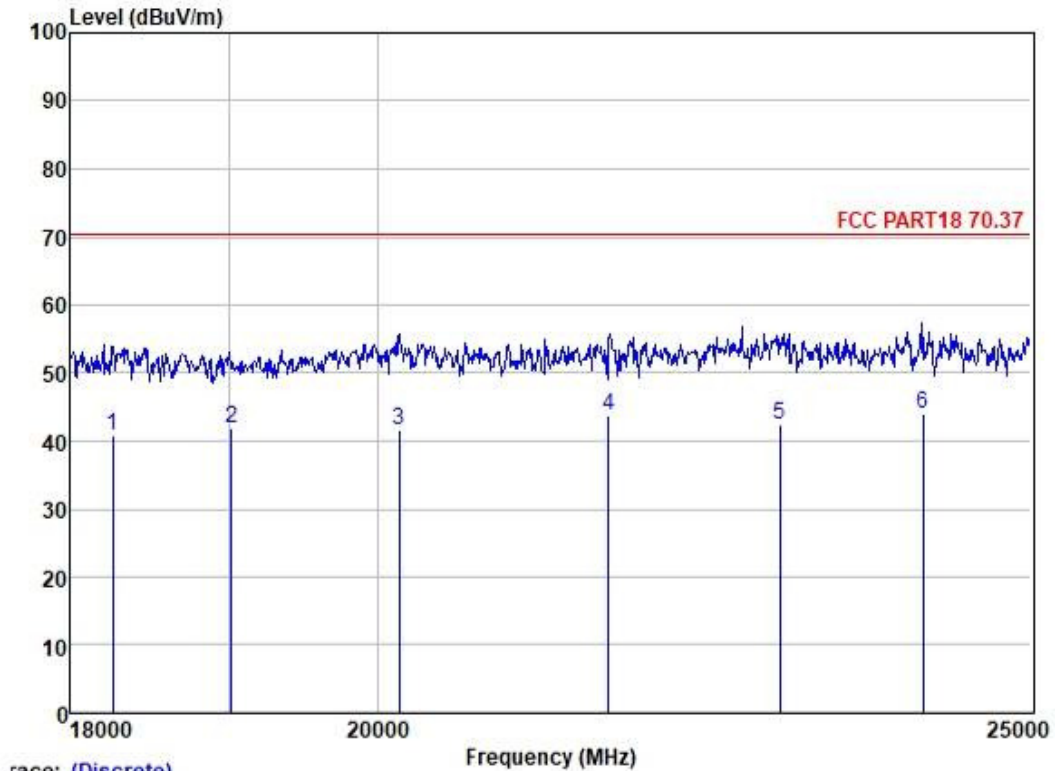
	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2194.998	63.15	26.59	3.20	37.65	55.29	70.37	-15.08	VERTICAL	Average
2	4940.700	47.73	31.64	5.62	36.84	48.15	70.37	-22.22	VERTICAL	Average
3	7414.657	44.99	36.22	6.20	37.47	49.94	70.37	-20.43	VERTICAL	Average
4	9895.349	46.43	38.63	6.97	37.41	54.62	70.37	-15.75	VERTICAL	Average
5	14830.960	42.22	40.88	8.53	35.33	56.30	70.37	-14.07	VERTICAL	Average
6	17038.150	42.47	42.05	9.51	35.34	58.69	70.37	-11.68	VERTICAL	Average



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Mode:a; Polarization:Vertical



Trace: (Discrete)

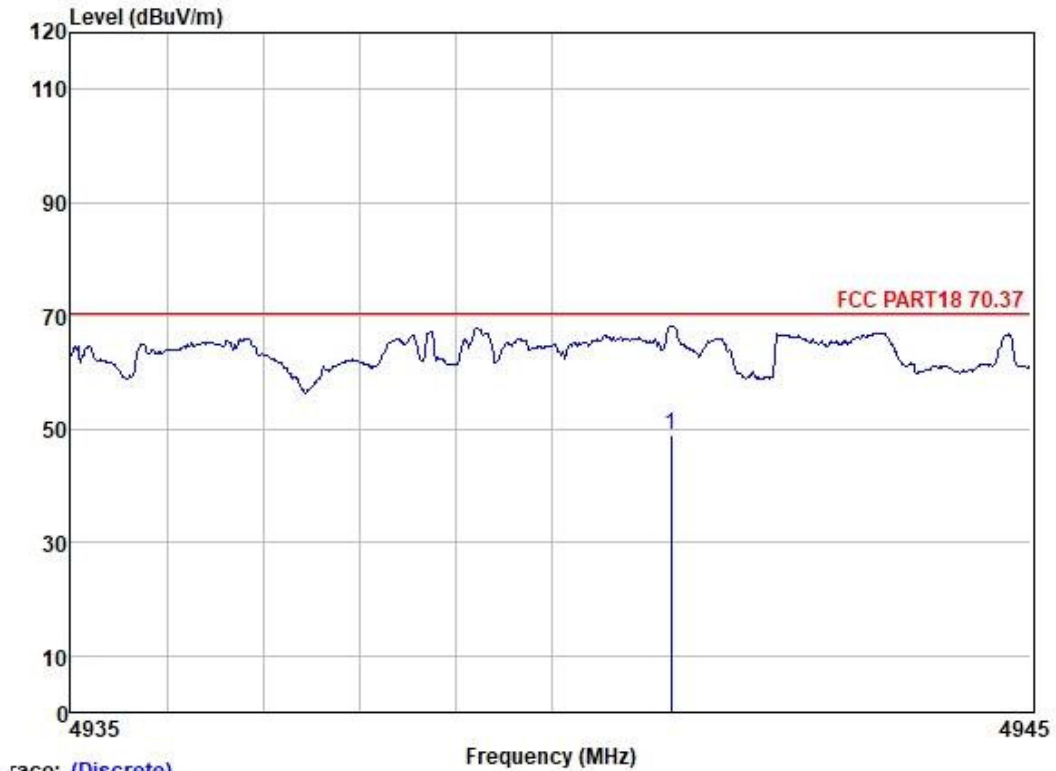
	Freq	ReadAntenna	Cable	Preamplifier	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	18262.060	21.98	37.92	16.57	35.60	40.87	70.37	-29.50	VERTICAL Average
2	19015.070	22.50	38.00	16.90	35.60	41.80	70.37	-28.57	VERTICAL Average
3	20140.250	21.94	37.99	17.36	35.58	41.71	70.37	-28.66	VERTICAL Average
4	21635.470	22.41	38.12	18.43	35.34	43.62	70.37	-26.75	VERTICAL Average
5	22938.290	19.35	39.54	19.18	35.70	42.37	70.37	-28.00	VERTICAL Average
6	24088.990	20.21	39.58	20.45	36.11	44.13	70.37	-26.24	VERTICAL Average



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Mode:a; Polarization:Vertical



race: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 4941.248	48.62	31.64	5.62	36.84	49.04	70.37	-21.33	VERTICAL	Average



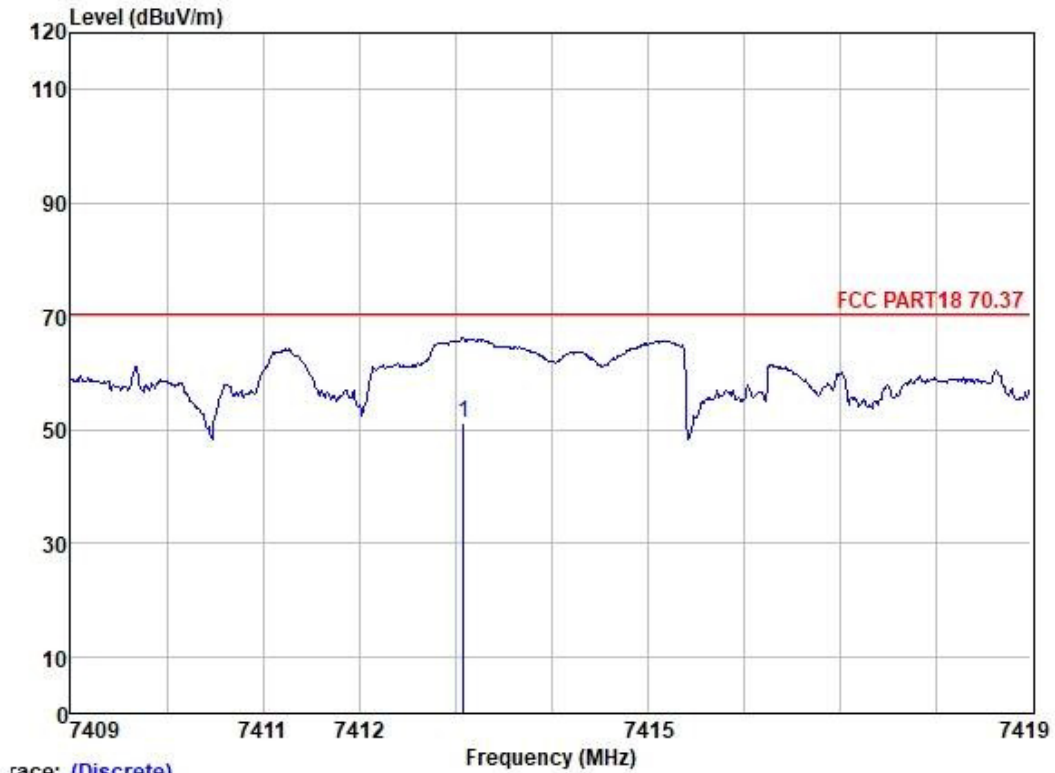
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Mode:a; Polarization:Vertical



race: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	7413.088	46.19	36.22	6.20	37.47	51.14	70.37	-19.23	VERTICAL Average



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

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

Frequency Range: 9kHz to 30MHz

Measurement Distance: 10m

Detector: Peak for pre-scan, Average for the final result
 (200Hz Resolution Bandwidth for 9kHz to 150kHz;
 9kHz Resolution Bandwidth for 150kHz to 30MHz)

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 =870.9 W according to clause 6.1.2

Limit=20lg(25*SQRT(power/500))+20lg(300/10)=**59.91dBuV/m @ 10m**
 distance.

6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Pretest these modes to find the worst case:
 a: Test the EUT in microwave mode with maximum power.
 b: Test the EUT in microwave mode with middle power.
 c: Test the EUT in microwave mode with lowest power.

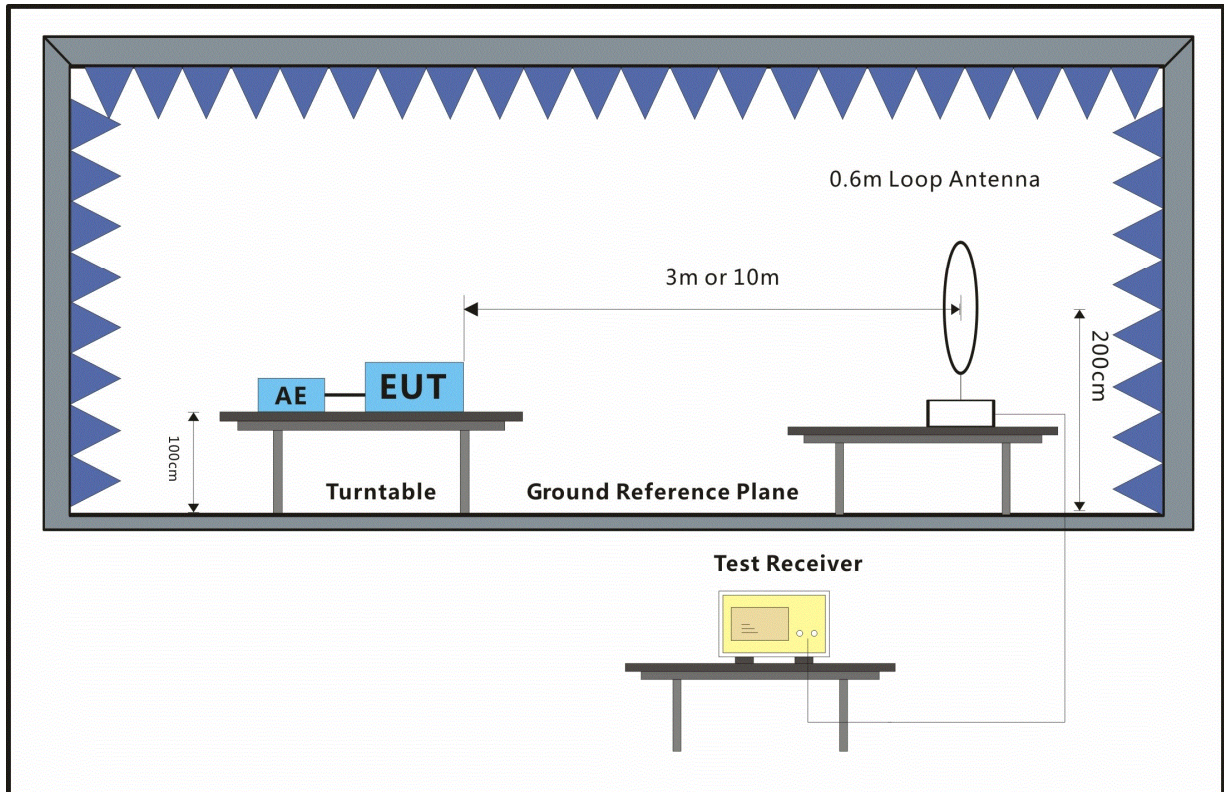
The worst case for final test: a: Test the EUT in microwave mode with maximum power.



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6.6.2 Test Setup Diagram



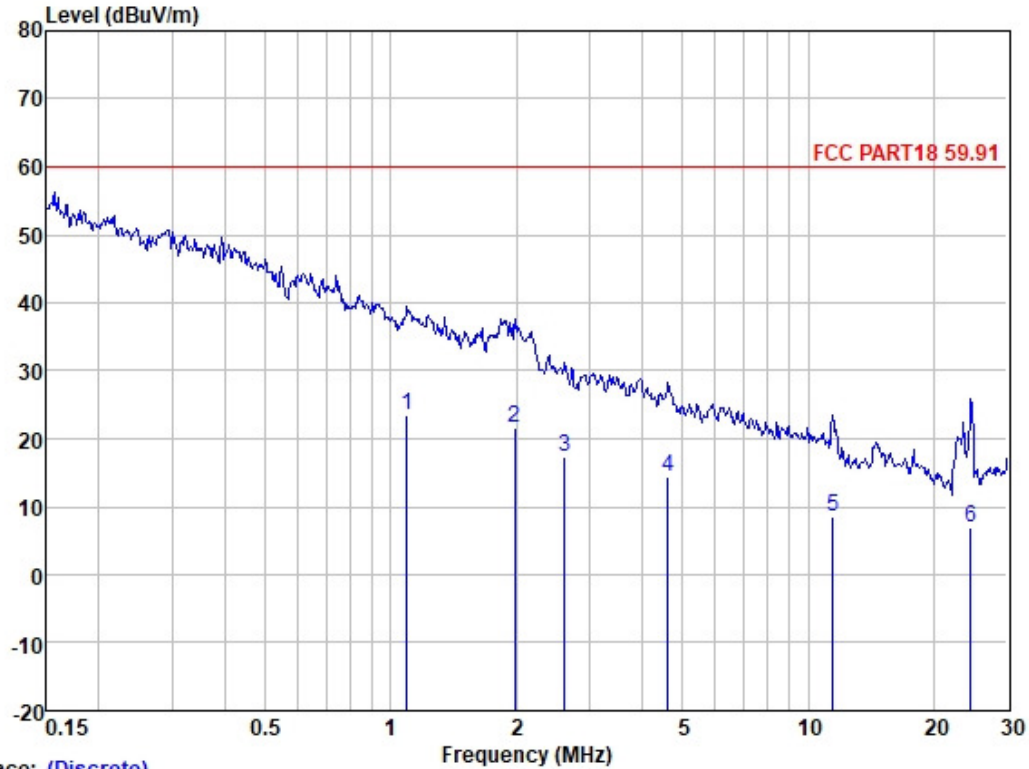
6.6.3 Measurement Data

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 loop antenna with 2 orthogonal polarities.

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



Mode:a; Polarization:Horizontal



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 59.91 10m HORIZONTAL

Job :

Model :

Power :

Test Mode:

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1.094	42.26	10.44	0.14	29.41	23.43	59.91	-36.48	HORIZONTAL Average
2	1.980	39.68	11.00	0.20	29.38	21.50	59.91	-38.41	HORIZONTAL Average
3	2.608	35.39	10.91	0.29	29.37	17.22	59.91	-42.69	HORIZONTAL Average
4	4.622	32.83	10.52	0.35	29.33	14.37	59.91	-45.54	HORIZONTAL Average
5	11.438	27.56	9.76	0.54	29.28	8.58	59.91	-51.33	HORIZONTAL Average
6	24.529	26.75	8.31	0.92	29.15	6.83	59.91	-53.08	HORIZONTAL Average



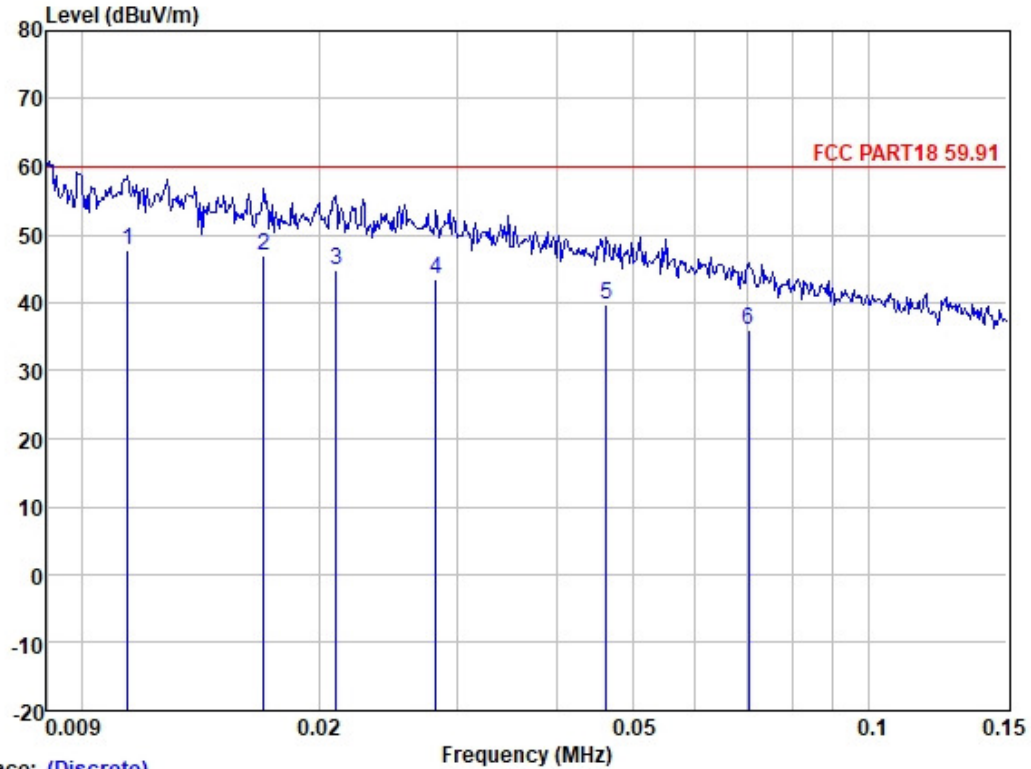
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Mode:a; Polarization:Horizontal



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 59.91 10m HORIZONTAL

Job :

Model :

Power :

Test Mode:

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.011	60.28	15.50	0.05	28.20	47.63	59.91	-12.28	HORIZONTAL Average
2	0.017	61.69	13.41	0.05	28.31	46.84	59.91	-13.07	HORIZONTAL Average
3	0.021	60.17	12.97	0.05	28.41	44.78	59.91	-15.13	HORIZONTAL Average
4	0.028	59.50	12.71	0.05	28.67	43.59	59.91	-16.32	HORIZONTAL Average
5	0.046	56.90	11.94	0.05	29.25	39.64	59.91	-20.27	HORIZONTAL Average
6	0.070	54.12	11.15	0.05	29.39	35.93	59.91	-23.98	HORIZONTAL Average



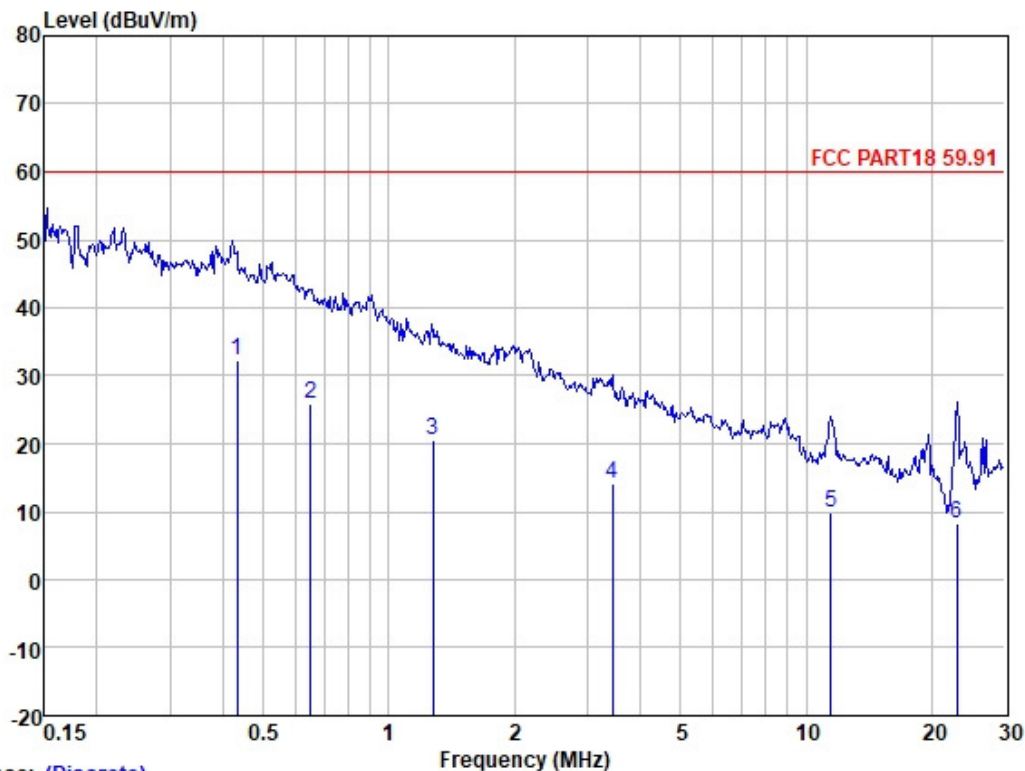
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Mode:a; Polarization:Vertical



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 59.91 10m VERTICAL

Job :

Model :

Power :

Test Mode:

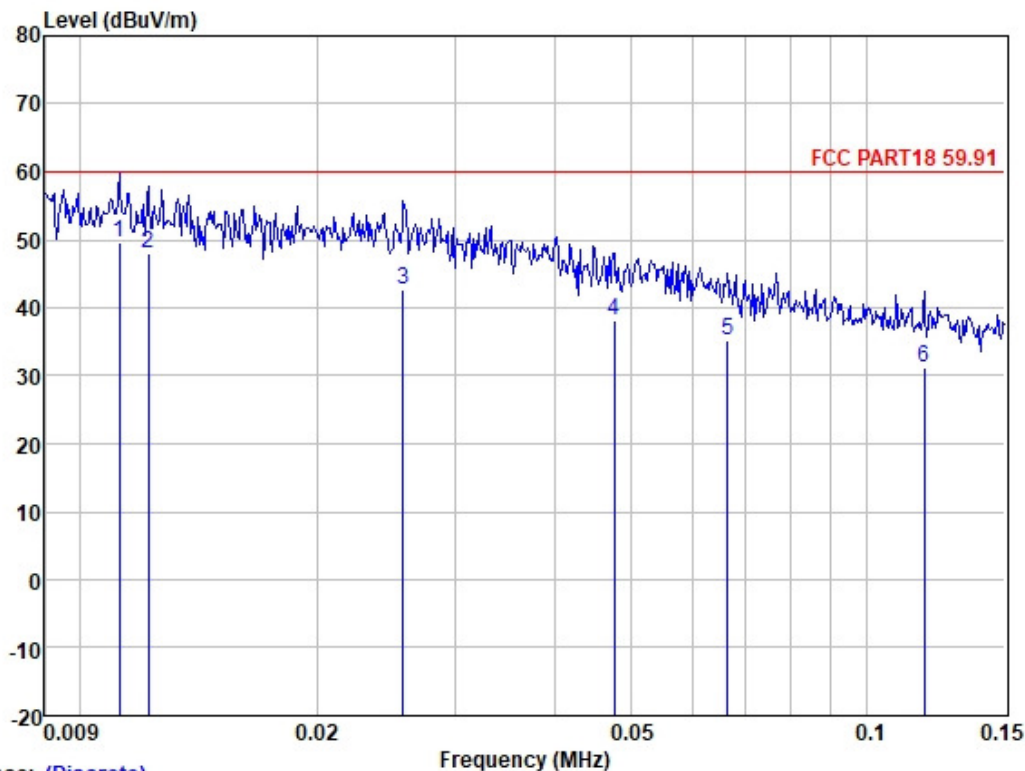
	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.433	50.93	10.71	0.07	29.42	32.29	59.91	-27.62	VERTICAL Average
2	0.651	44.44	10.61	0.11	29.42	25.74	59.91	-34.17	VERTICAL Average
3	1.276	39.32	10.55	0.15	29.40	20.62	59.91	-39.29	VERTICAL Average
4	3.436	32.60	10.65	0.32	29.35	14.22	59.91	-45.69	VERTICAL Average
5	11.438	28.94	9.76	0.54	29.28	9.96	59.91	-49.95	VERTICAL Average
6	23.018	28.21	8.34	0.86	29.17	8.24	59.91	-51.67	VERTICAL Average



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Mode:a; Polarization:Vertical



Trace: (Discrete)

Site : SGS

Condition: FCC PART18 59.91 10m VERTICAL

Job :

Model :

Power :

Test Mode:

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	0.011	62.32	15.54	0.05	28.19	49.72	59.91	-10.19	VERTICAL	Average
2	0.012	60.85	15.29	0.05	28.21	47.98	59.91	-11.93	VERTICAL	Average
3	0.026	58.29	12.82	0.05	28.56	42.60	59.91	-17.31	VERTICAL	Average
4	0.048	55.31	11.92	0.05	29.27	38.01	59.91	-21.90	VERTICAL	Average
5	0.067	53.03	11.39	0.05	29.38	35.09	59.91	-24.82	VERTICAL	Average
6	0.118	50.24	10.46	0.05	29.47	31.28	59.91	-28.63	VERTICAL	Average

--End of Report--

