



SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technological
Development District, Guangzhou, China 510663
Telephone: +86 (0) 20 82155555
Fax: +86 (0) 20 82075059
Email: ee.guangzhou@sgs.com

Report No.: GZEM190801493802
Page: 1 of 37

TEST REPORT

Application No.:	GZEM1908014938HS
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:	Guangdong Galanz Microwave Electrical Appliances Manufacturing Co., Ltd.
Address of Factory:	3 Xingpu Avenue, Huangpu, Zhongshan, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	Microwave Oven
Model No.:	RED560JAH-PAHH0A, RED560JAH-PAHH1A, RED560JAH-PAHH2A, RED560JAH-PAHH4A, RED560(X)H-(Y) series
	Variable (X): It represents the differences of the appearance, including combination of letters and/or numbers.
	Variable (Y): may compose by one to six characters from A to Z and/or numbers from 0 to 9. ☐
☒	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:	2019-08-08
Date of Test:	2019-08-13 to 2019-08-17
Date of Issue:	2019-09-09
Test Result:	Pass*

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

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.

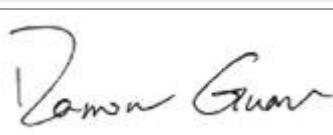
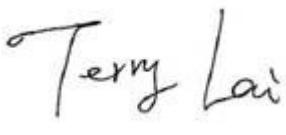
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-09-09		Original

Authorized for issue by:			
Tested By		 Damon_Guan	2019-08-13 to 2019-08-17
		Damon_Guan /Project Engineer	Date
Checked By		 Terry_Lai	2019-08-28
		Terry_Lai /Reviewer	Date

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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	N/A	Pass
RF Output Power Measurement	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Operating Frequency	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
Radiated Emissions (Magnetic field Strength) (9kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	N/A	Pass
N/A:Not Applicable.				

☒ Declaration of EUT Family Grouping:

Model No.: RED560JAH-PAHH0A, RED560JAH-PAHH1A, RED560JAH-PAHH2A, RED560JAH-PAHH4A, RED560(X)H-(Y) series

Variable (X): It represents the differences of the appearance, including combination of letters and/or numbers.

Variable (Y): may compose by one to six characters from A to Z and/or numbers from 0 to 9.

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.

Therefore only one model **RED560JAH-PAHH0A** was tested in this report.



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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

Description	Manufacturer	Model No.	Serial No.
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	Radiated Emissions	±5.0dB (30MHz-1GHz)
		±5.0dB (1GHz-6GHz)
3	Temperature	±0.4°C
4	Humidity	±1.3%
5	DC power	±0.5 %

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.

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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	Zhong Yu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Netwok	R&S	ENV216	EMC0118	2019-01-11	2020-01-10
LISN	R&S	ENV216	EMC2135	2018-09-21	2019-09-20
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2018-11-19	2019-11-18
Coaxial Cable	HangTianXing	2m	EMC0107	2018-09-20	2020-09-19
Voltage Probe	SGS	N/A	EMC0106	2018-04-04	2020-04-03
Conical Metal Housing	SGS-EMC	N/A	EMC0167	2018-04-19	2020-04-18
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	N/A	N/A

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-11	2020-01-10
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
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	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-07	2020-01-08
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
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	2019-01-20	2020-01-19
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2019-01-20	2020-01-19
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2019-01-11	2020-01-10
Amplifier	HP	8447F	EMC2065	2019-05-29	2020-05-28
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2020-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2019-01-11	2020-01-10
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2019-01-11	2020-01-10
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2018-12-08	2019-12-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2019-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
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	2019-07-16	2020-07-15
DMM	Fluke	73	EMC0007	2019-07-16	2020-07-15

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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

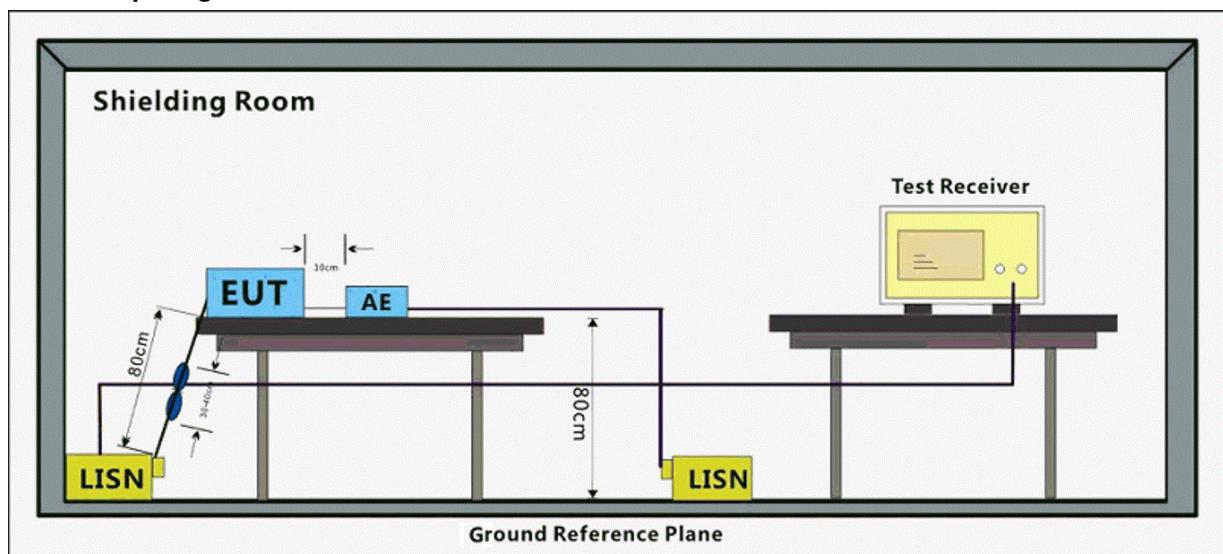
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 70.9 % RH Atmospheric Pressure: 1020 mbar

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

6.1.2 Test Setup Diagram



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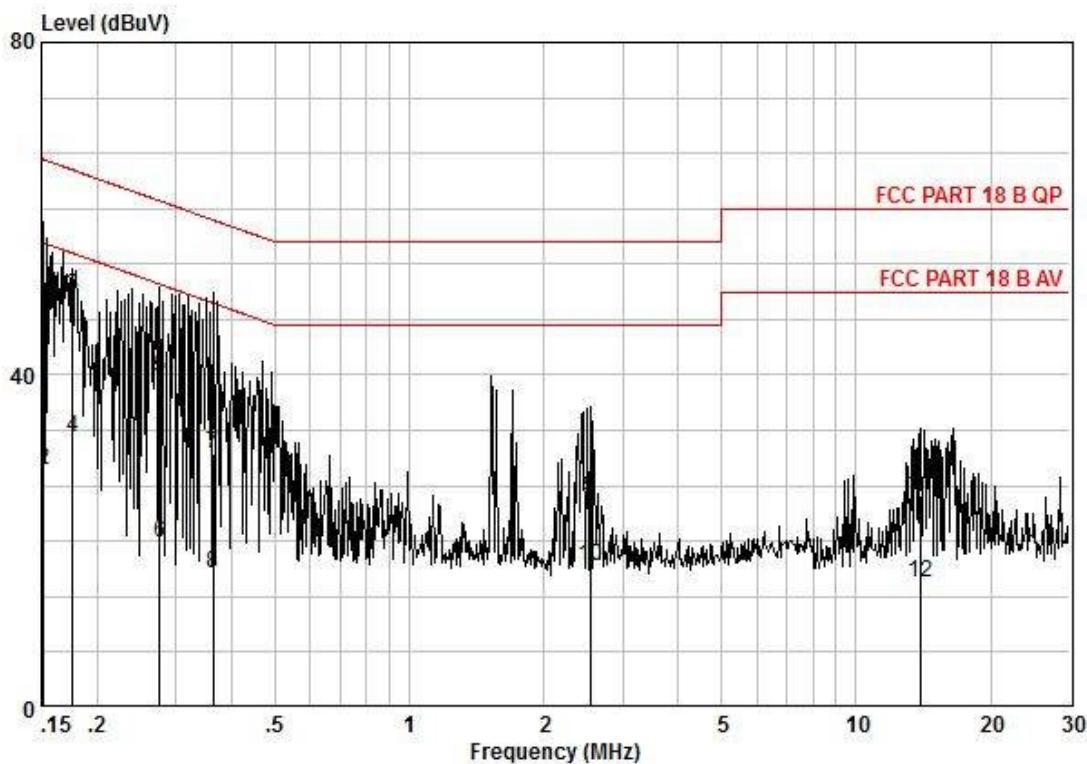
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6.1.3 Measurement Data

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

Mode:a; Line:Live Line



Pol :LIVE
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.15	37.83	0.07	9.67	47.57	65.91	-18.34	QP
0.15	18.72	0.07	9.67	28.46	55.91	-27.45	AVERAGE
0.18	39.72	0.10	9.66	49.48	64.68	-15.20	QP
0.18	22.69	0.10	9.66	32.45	54.68	-22.23	AVERAGE
0.28	29.82	0.10	9.67	39.59	60.94	-21.35	QP
0.28	10.17	0.10	9.67	19.94	50.94	-31.00	AVERAGE
0.36	20.82	0.07	9.66	30.55	58.65	-28.10	QP
0.36	6.92	0.07	9.66	16.05	48.65	-32.60	AVERAGE
2.54	15.50	0.11	9.69	25.30	56.00	-30.70	QP
2.54	7.19	0.11	9.69	16.99	46.00	-29.01	AVERAGE
13.91	15.41	0.25	9.78	25.44	60.00	-34.56	QP
13.91	5.05	0.25	9.78	15.08	50.00	-34.92	AVERAGE

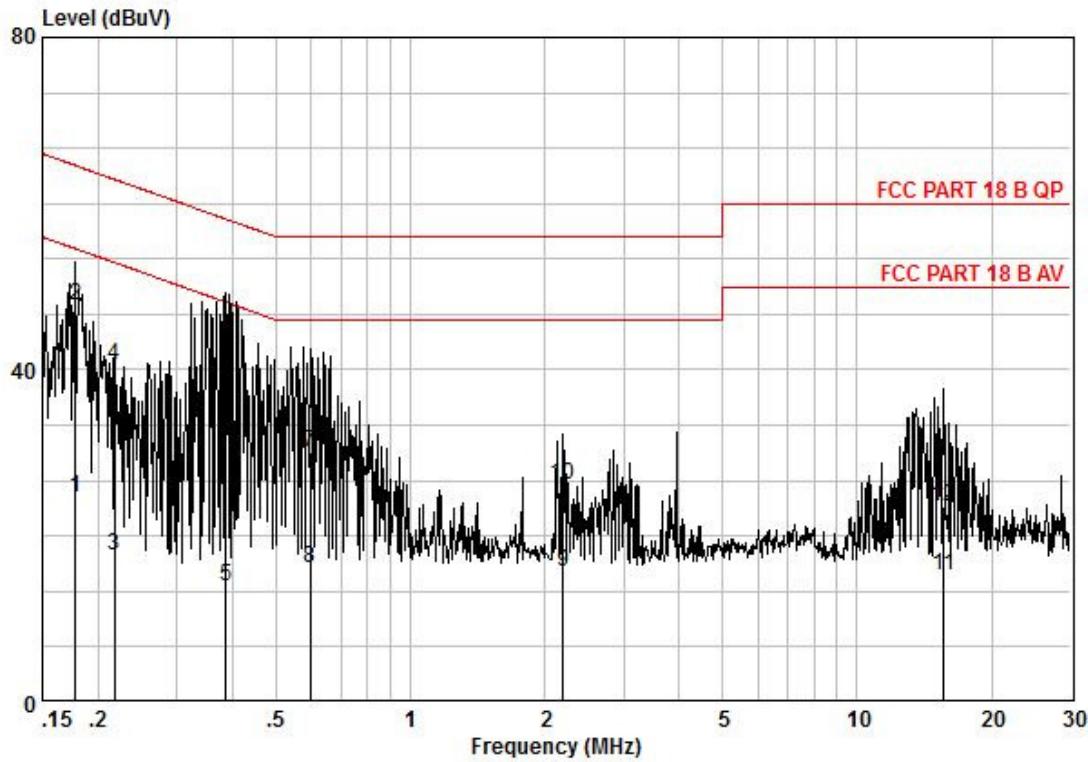
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Mode:a; Line:Neutral Line



Pol : NEUTRAL
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISM dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.18	14.94	0.10	9.60	24.64	54.59	-29.95	AVERAGE
0.18	38.10	0.10	9.60	47.80	64.59	-16.79	QP
0.22	7.86	0.12	9.60	17.57	52.92	-35.35	AVERAGE
0.22	30.93	0.12	9.60	40.64	62.92	-22.28	QP
0.39	4.31	0.06	9.59	13.96	48.12	-34.16	AVERAGE
0.39	24.48	0.06	9.59	34.13	58.12	-23.99	QP
0.60	20.37	0.07	9.60	30.04	56.00	-25.96	QP
0.60	6.36	0.07	9.60	16.03	46.00	-29.97	AVERAGE
2.20	5.96	0.07	9.62	15.65	46.00	-30.35	AVERAGE
2.20	16.54	0.07	9.62	26.23	56.00	-29.77	QP
15.63	5.15	0.36	9.84	15.35	50.00	-34.65	AVERAGE
15.63	13.35	0.36	9.84	23.55	60.00	-36.45	QP

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6.2 RF Output Power Measurement

Test Requirement: 47 CFR Part 18

Test Method: FCC OST/MP-5:1986

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C Humidity: 52.5 % RH Atmospheric Pressure: 1011 mbar

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

6.2.2 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	23.6	10.5	20.5	42	960.5

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 grams

m_c is the mass of the container, in grams

T_0 is the ambient temperature, in degrees Celsius

T_1 is the initial temperature of the water, in degrees Celsius

T_2 is the final temperature of the water, in degrees Celsius

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

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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($2450\text{MHz} \pm 50\text{MHz}$)

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	$25 * \sqrt{\text{power}/500}$

Power =960.5 W according to clause 6.2.2

Limit= $20\lg(25 * \sqrt{\text{power}/500}) + 20\lg(300/3) = 30.79 + 40 = 70.79 \text{dBuV/m} @ 3\text{m distance.}$

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	$\pm 15.0\text{kHz}$
13.56MHz	$\pm 7.0\text{kHz}$
27.12MHz	$\pm 163.0\text{kHz}$
40.68MHz	$\pm 20.0\text{kHz}$
915MHz	$\pm 13.0\text{MHz}$
2450MHz	$\pm 50.0\text{MHz}$
5800MHz	$\pm 75.0\text{MHz}$
24125MHz	$\pm 125.0\text{MHz}$
61.25GHz	$\pm 250.0\text{MHz}$
122.5GHz	$\pm 500.0\text{MHz}$
245.00GHz	$\pm 1.0\text{GHz}$

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 55.7 % RH Atmospheric Pressure: 1019 mbar

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

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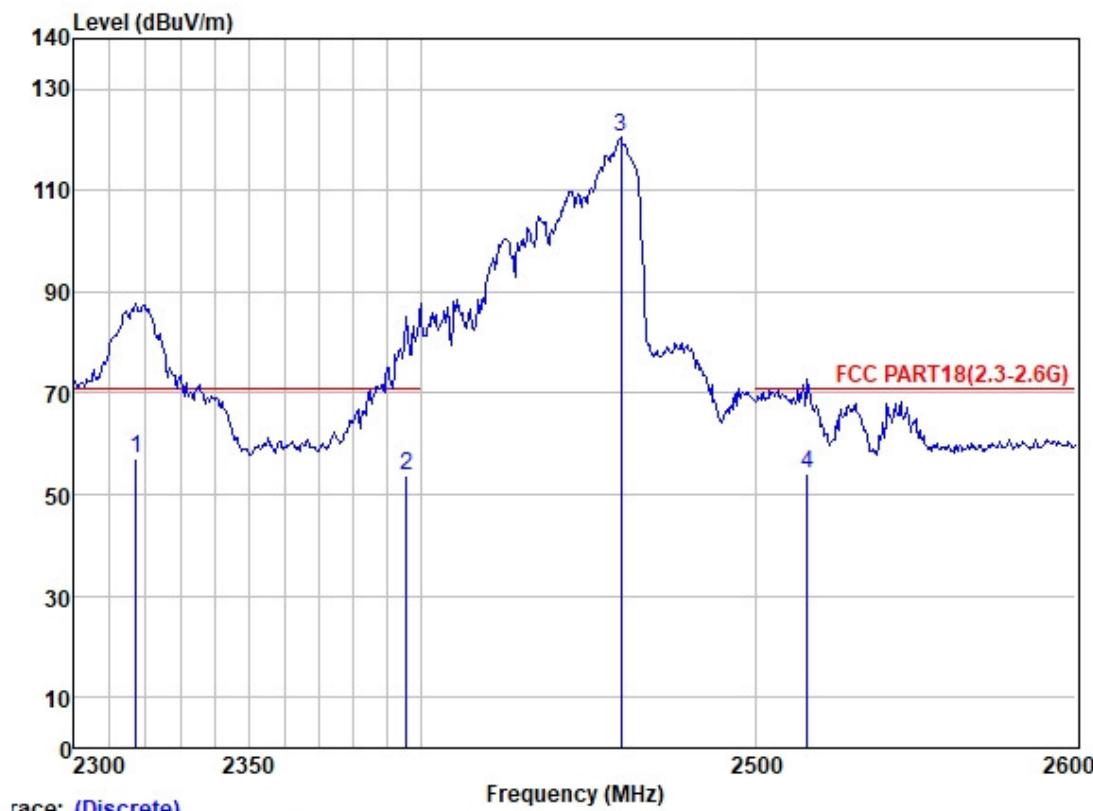


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6.3.2 Measurement Data

Polarization	ISM Frequency (MHz)	Tolerance (MHz)	Measurement Data (MHz)
Horizontal	2450	±50	2459
Vertical	2450	±50	2462

Mode:a; Polarization:Horizontal



Race: (Discrete)	ReadAntenna		Cable Preamp		Limit Level	Over Line Limit	Over Pol/Phase	Remark
	Freq	Level Factor	Loss Factor	Preamp				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2317.550	27.57	26.27	3.33	0.00	57.17	70.79	-13.62 HORIZONTAL Average
2	2395.551	23.69	26.44	3.49	0.00	53.62	70.79	-17.17 HORIZONTAL Average
3	2459.234	90.45	26.54	3.45	0.00	120.44	-----	----- HORIZONTAL Peak
4	2515.959	24.18	26.62	3.41	0.00	54.21	70.79	-16.58 HORIZONTAL Average

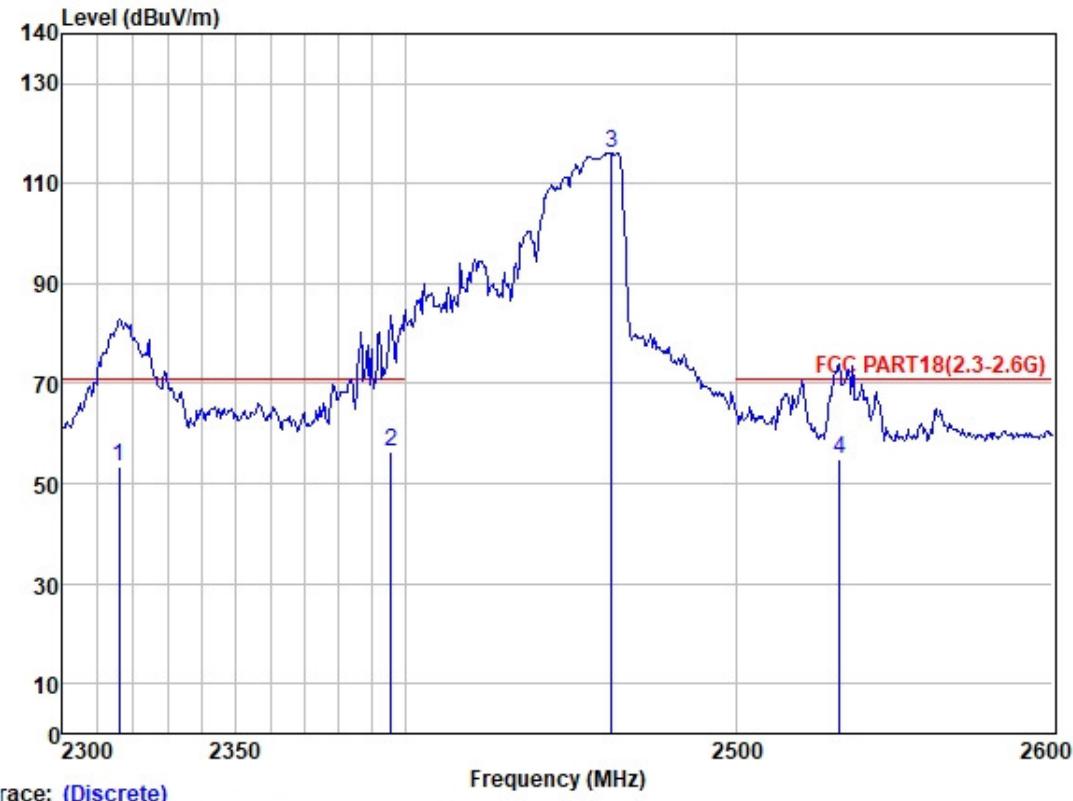
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Mode:a; Polarization: Vertical



Race: (Discrete)	Frequency (MHz)									
	Freq	ReadAntenna 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	2316.129	23.65	26.27	3.33	0.00	53.25	70.79	-17.54	VERTICAL	Average
2	2395.551	26.53	26.44	3.49	0.00	56.46	70.79	-14.33	VERTICAL	Average
3	2461.647	86.22	26.55	3.50	0.00	116.27	-----	-----	VERTICAL	Peak
4	2532.050	24.68	26.65	3.43	0.00	54.76	70.79	-16.03	VERTICAL	Average

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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*SQRT(power/500)

Power =960.5 W according to clause 6.2.2

Limit=20lg(25*SQRT(power/500))+20lg(300/3)=30.79+40=70.79dBuV/m
 @ 3m distance.

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 55.5 % RH Atmospheric Pressure: 1020 mbar

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

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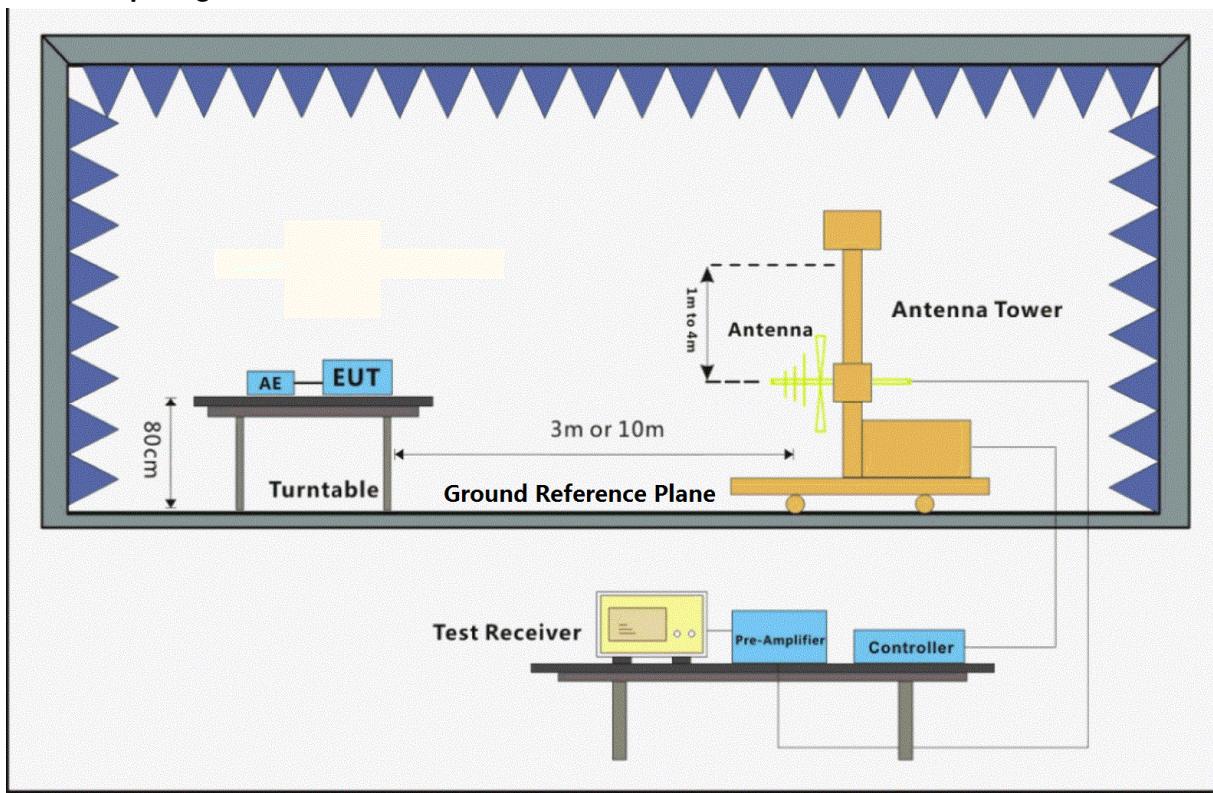
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6.4.2 Test Setup Diagram



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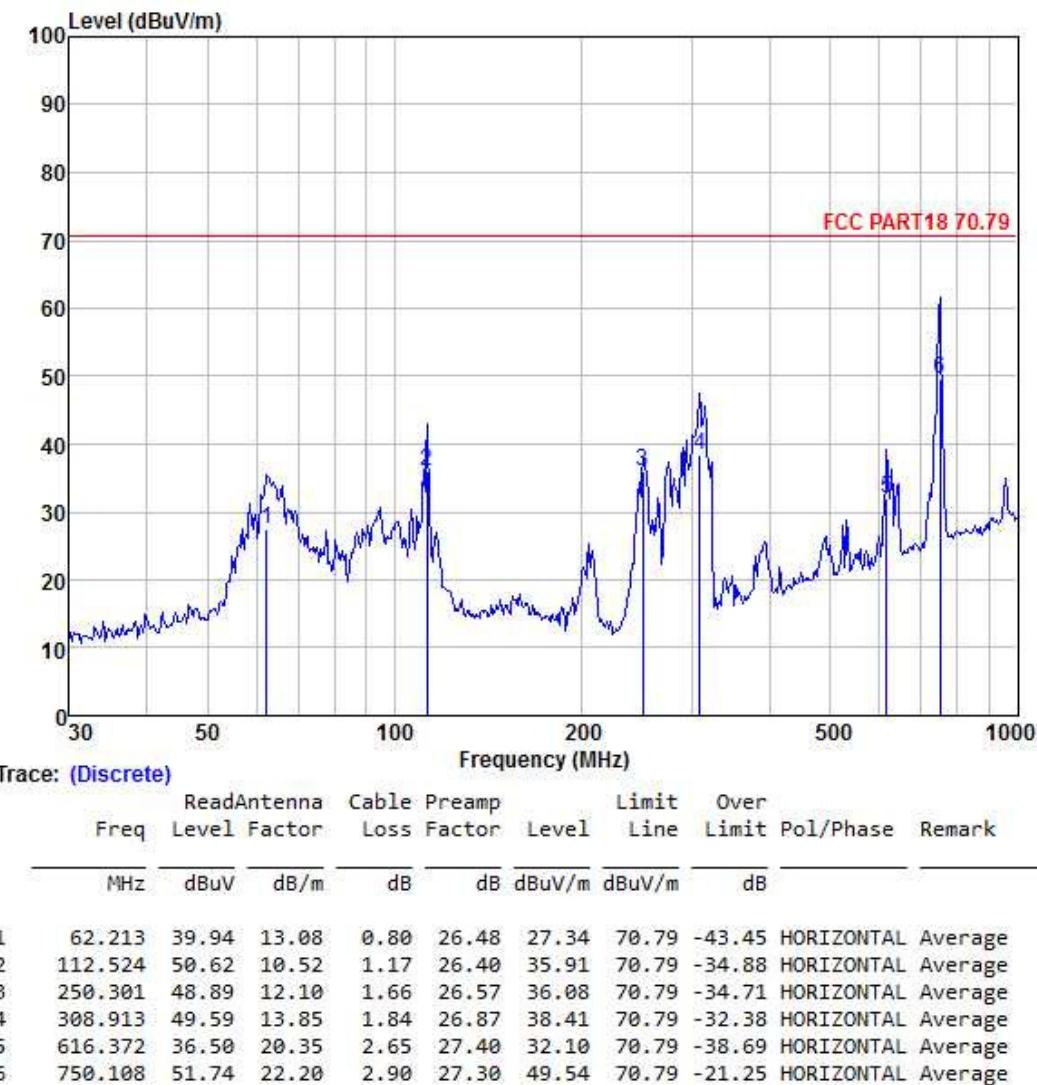
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6.4.3 Measurement Data

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

Mode:a; Polarization:Horizontal



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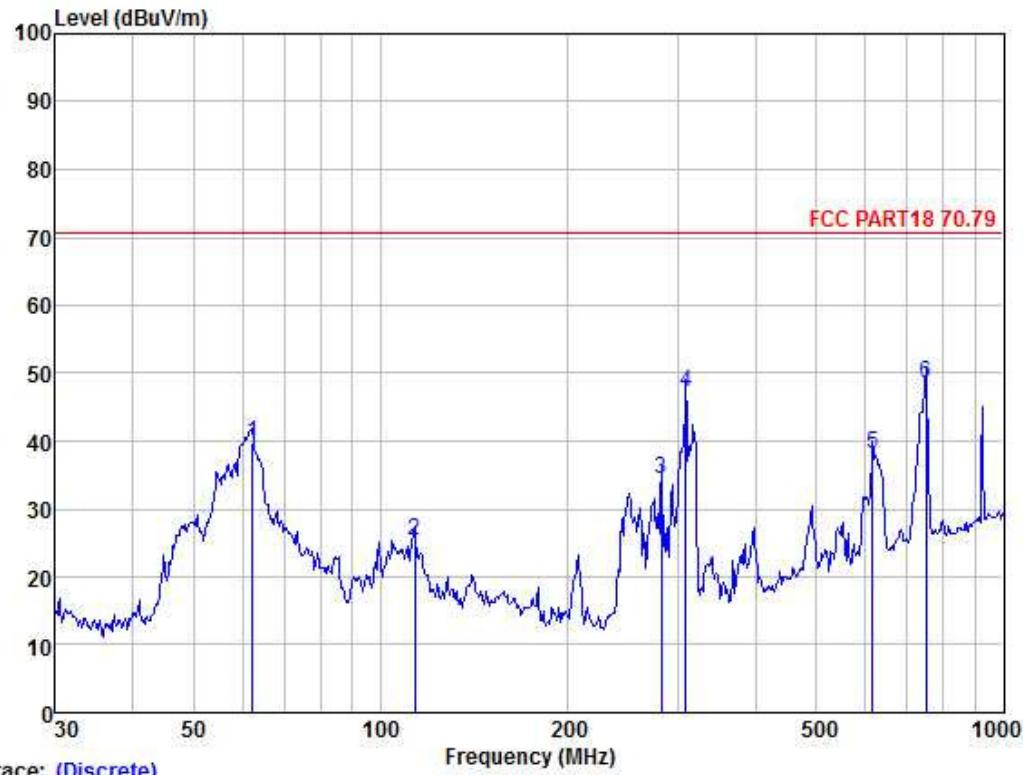
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Mode:a; Polarization:Vertical



Trace: (Discrete)

Freq	ReadAntenna		Cable Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB				
1	62.213	52.36	13.08	0.80	26.48	39.76	70.79	-31.03 VERTICAL Average
2	113.316	40.03	10.57	1.17	26.40	25.37	70.79	-45.42 VERTICAL Average
3	281.995	46.04	13.23	1.74	26.68	34.33	70.79	-36.46 VERTICAL Average
4	308.913	58.25	13.85	1.84	26.87	47.07	70.79	-23.72 VERTICAL Average
5	616.372	42.49	20.35	2.65	27.40	38.09	70.79	-32.70 VERTICAL Average
6	750.108	50.76	22.20	2.90	27.30	48.56	70.79	-22.23 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 (1 MHz Resolution Bandwidth for 1,000MHz to 25,000MHz)
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*SQRT(power/500)

Power =960.5 W according to clause 6.2.2

Limit=20lg(25*SQRT (power/500))+20lg(300/3)=30.79+40=70.79dBuV/m
@ 3m distance.

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.7 °C Humidity: 55.5 % RH Atmospheric Pressure: 1020 mbar

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

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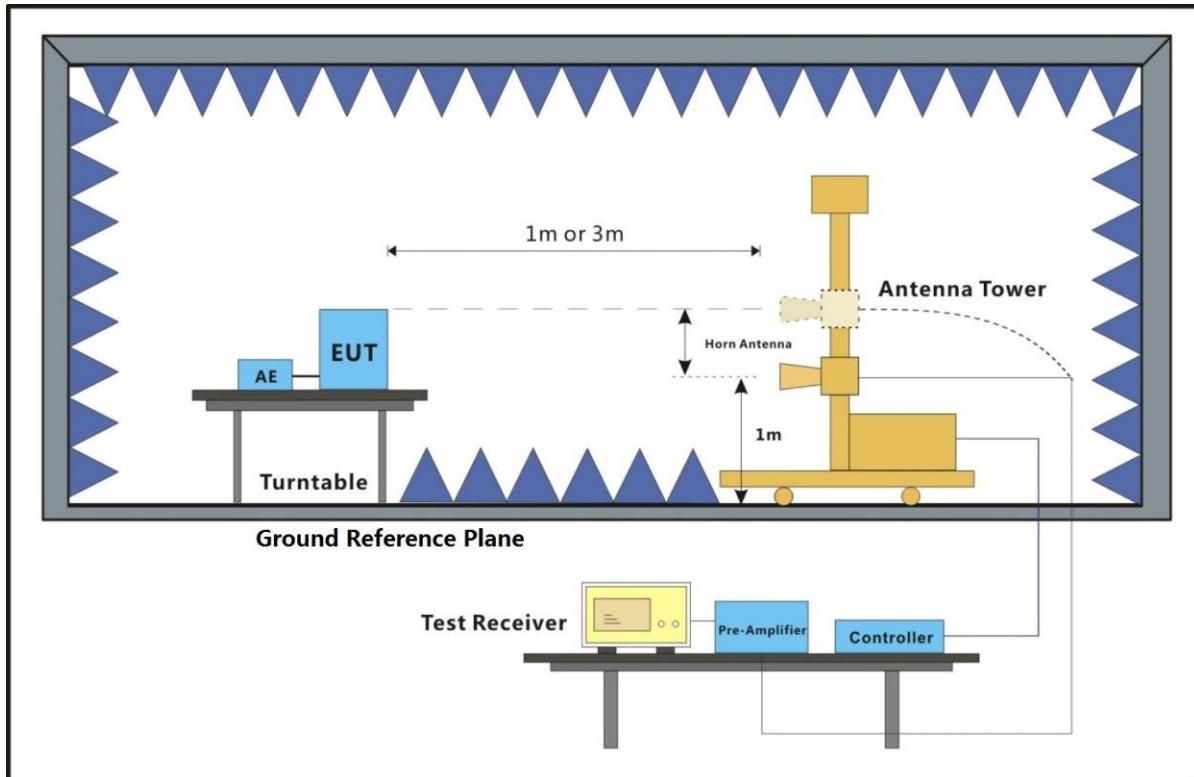
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6.5.2 Test Setup Diagram



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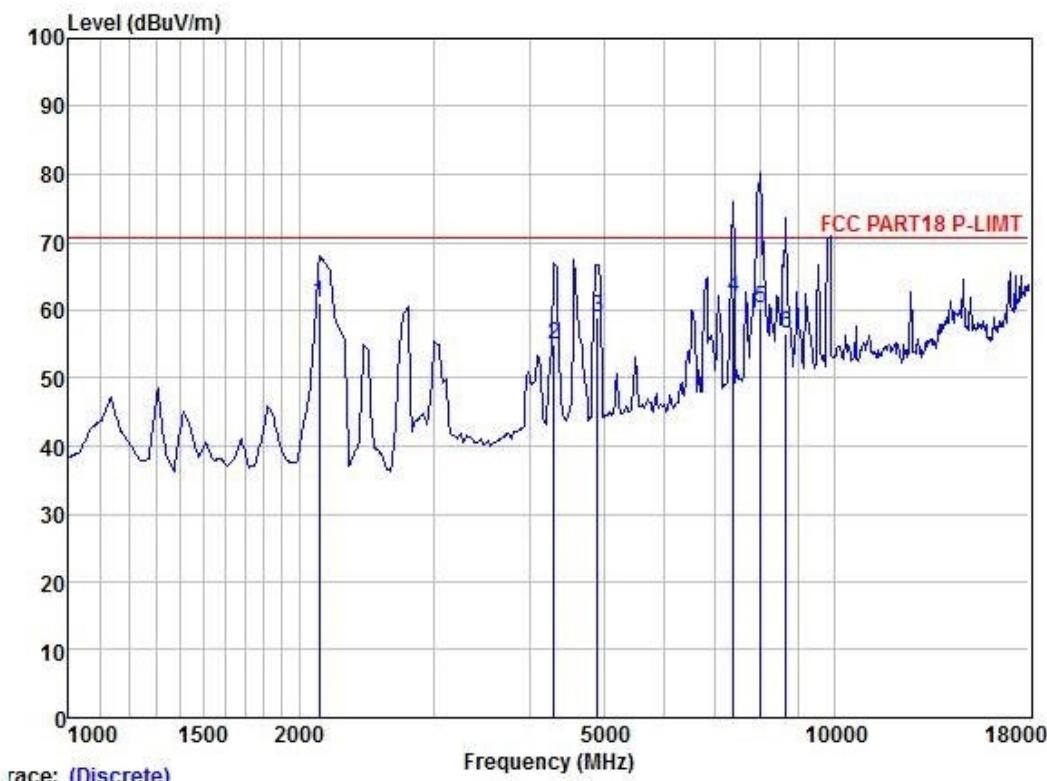
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6.5.3 Measurement Data

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

Mode:a; Polarization:Horizontal



Index	Freq	Read		Antenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
		Antenna	Level	Antenna	Factor	Cable	Loss	Preamp	Level					
	MHz	dBuV	dB/m		dB		dBuV/m	dBuV/m						
1	2126.308	69.88	25.46	3.17	37.48	61.03	70.79	-9.76	HORIZONTAL	Average				
2	4304.400	57.20	29.91	4.65	36.91	54.85	70.79	-15.94	HORIZONTAL	Average				
3	4914.252	59.23	30.99	5.58	36.95	58.85	70.79	-11.94	HORIZONTAL	Average				
4	7384.846	56.78	35.85	6.19	36.92	61.90	70.79	-8.90	HORIZONTAL	Average				
5	8013.020	54.37	36.49	6.17	36.90	60.13	70.79	-10.67	HORIZONTAL	Average				
6	8663.404	50.43	36.22	6.97	36.96	56.66	70.79	-14.13	HORIZONTAL	Average				

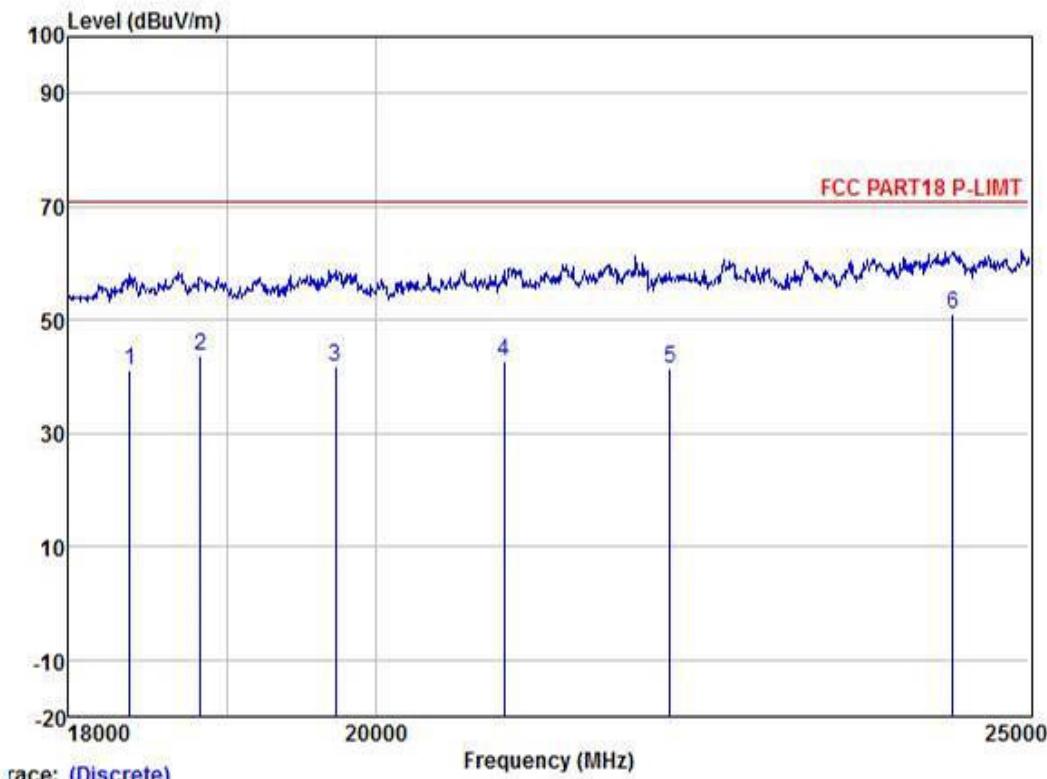
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Mode:a; Polarization:Horizontal



race: (Discrete)	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
	Freq	Level Factor	Loss Factor	Level					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	18382.440	22.14	37.93	16.62	35.60	41.09	70.79	-29.70	HORIZONTAL Average
2	18828.600	24.32	37.99	16.86	35.60	43.57	70.79	-27.22	HORIZONTAL Average
3	19721.230	22.21	38.00	17.22	35.60	41.83	70.79	-28.96	HORIZONTAL Average
4	20888.190	22.41	37.91	17.95	35.47	42.80	70.79	-27.99	HORIZONTAL Average
5	22109.680	19.76	38.32	18.65	35.32	41.41	70.79	-29.38	HORIZONTAL Average
6	24351.550	27.05	39.51	20.62	36.11	51.07	70.79	-19.72	HORIZONTAL Average

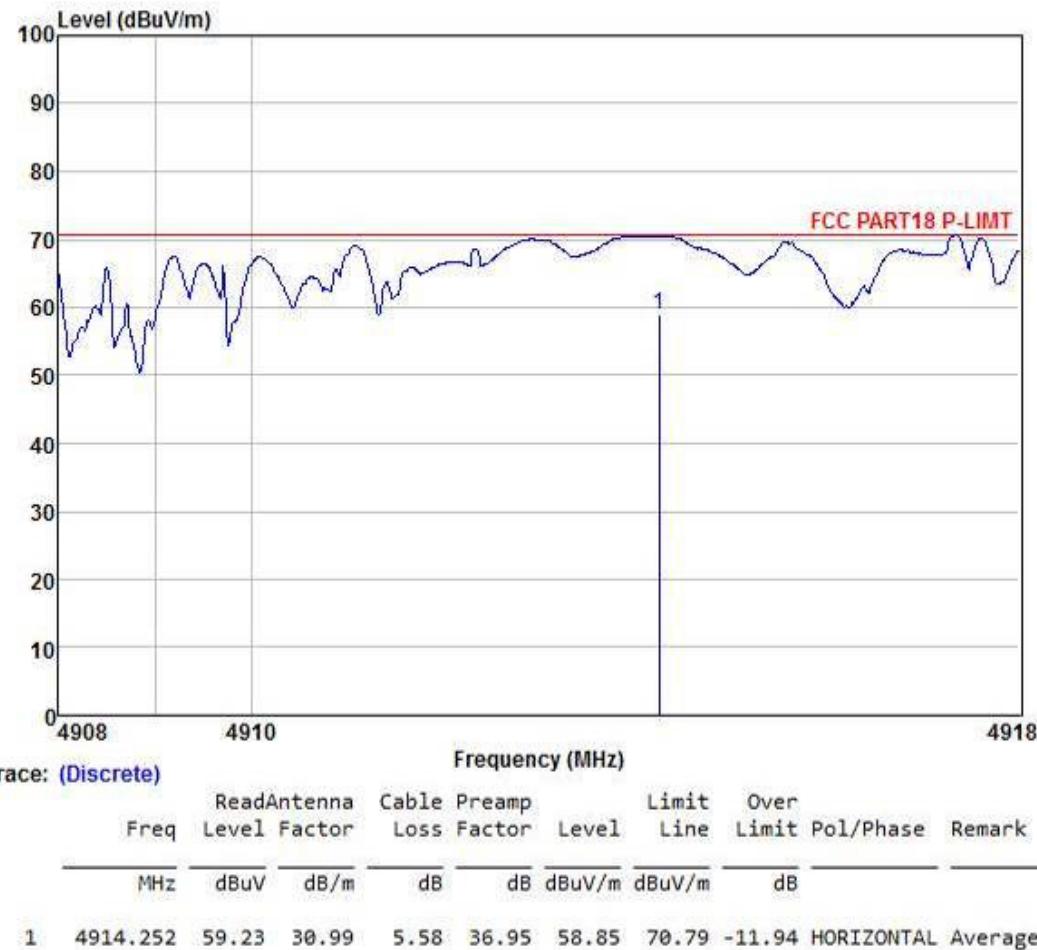
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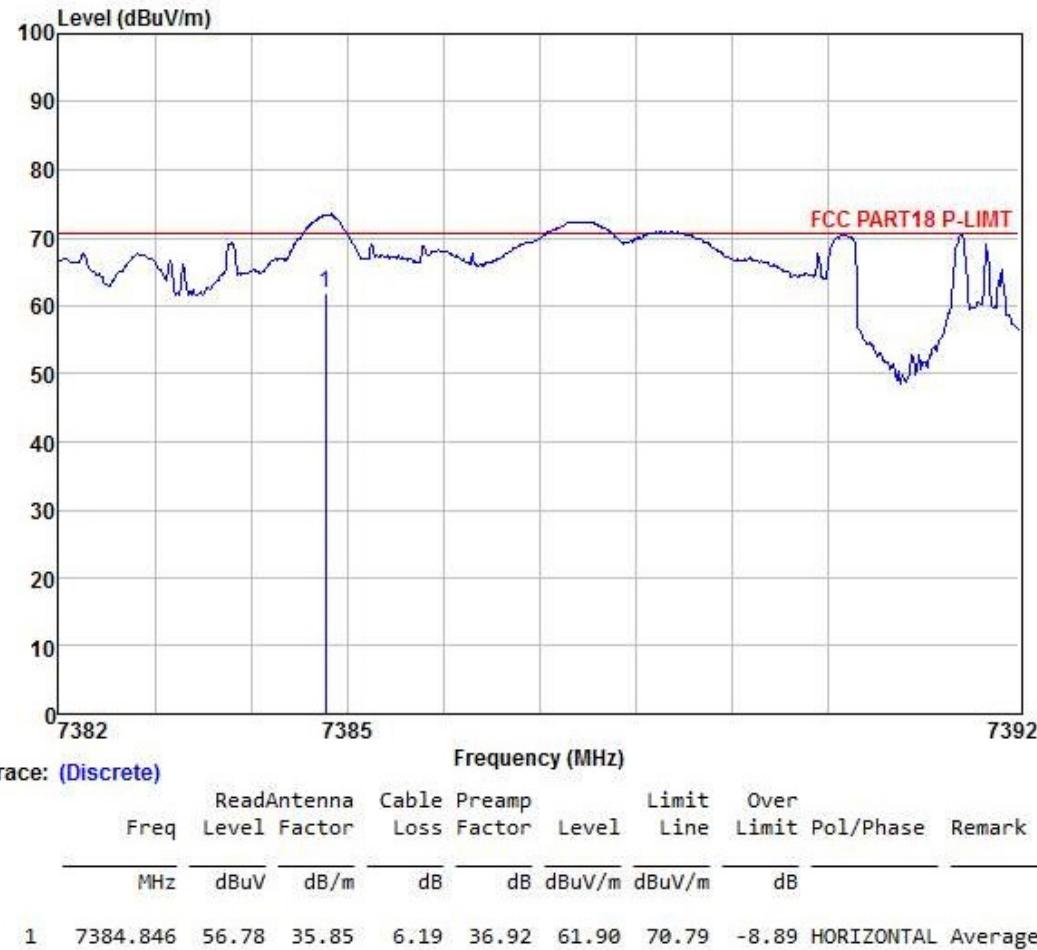
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Mode:a; Polarization:Horizontal



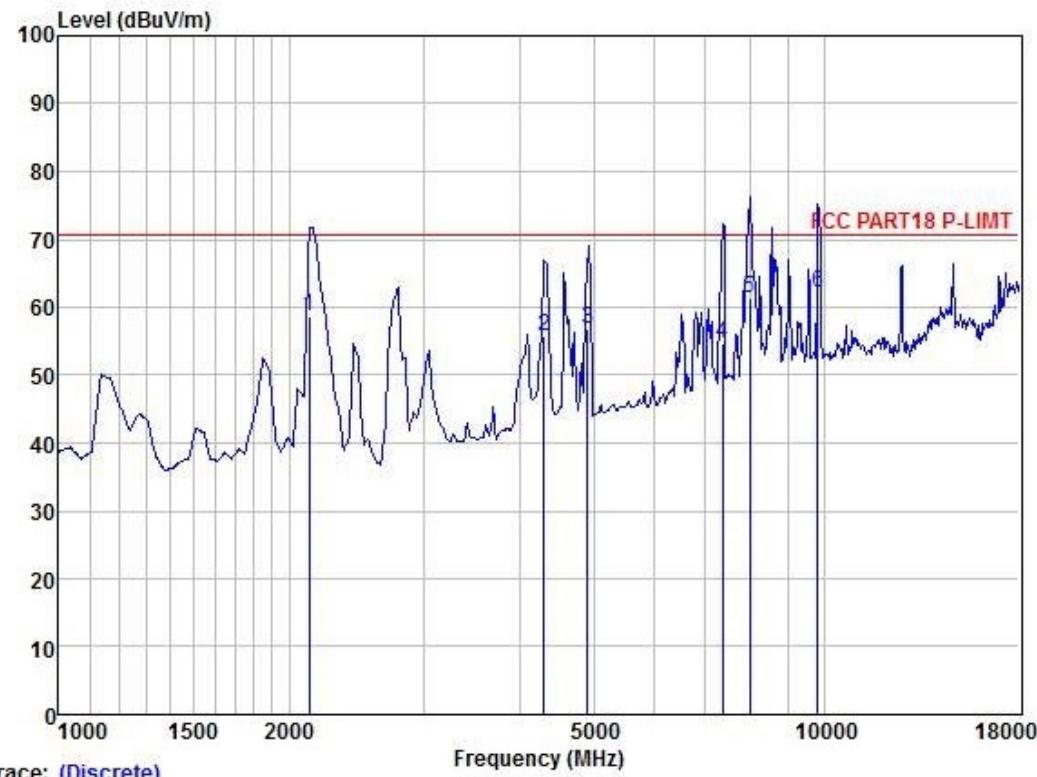
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Mode:a; Polarization:Vertical



Race: (Discrete)	Read Antenna		Cable Preamp		Limit Line	Over Limit Pol/Phase	Remark	
	Freq	Level Factor	Loss	Preamp Factor				
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	2126.308	67.60	25.46	3.17	37.48	58.75	70.79	-12.04 VERTICAL Average
2	4304.400	58.18	29.91	4.65	36.91	55.83	70.79	-14.96 VERTICAL Average
3	4915.735	57.25	30.99	5.58	36.95	56.87	70.79	-13.92 VERTICAL Average
4	7372.175	49.62	35.82	6.17	36.92	54.69	70.79	-16.10 VERTICAL Average
5	7989.893	55.47	36.50	6.15	36.90	61.22	70.79	-9.57 VERTICAL Average
6	9809.916	54.46	37.79	7.00	37.09	62.16	70.79	-8.63 VERTICAL Average

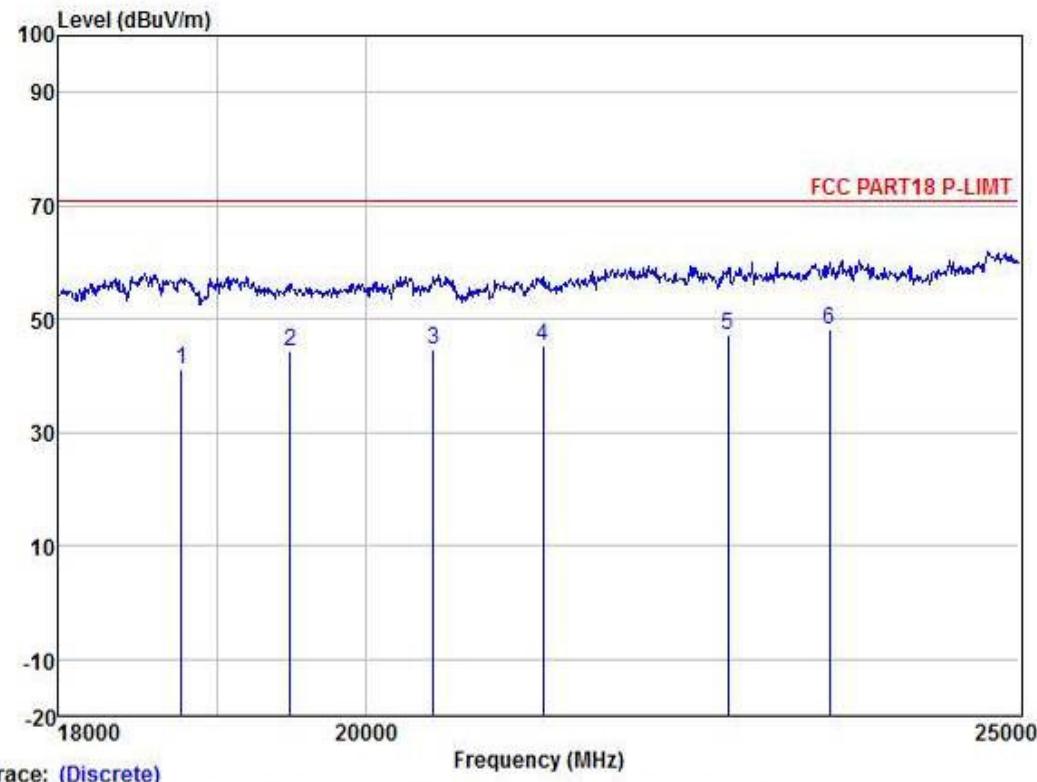
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Mode:a; Polarization:Vertical



Marker	Freq	ReadAntenna		Cable		Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		Freq	Level	Factor	dB						
	MHz	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dBuV/m	dB		
1	18773.010	21.84	37.99	16.84	35.60	41.07	70.79	-29.72	VERTICAL	Average	
2	19482.980	24.80	38.00	17.09	35.60	44.29	70.79	-26.50	VERTICAL	Average	
3	20460.340	24.49	37.95	17.60	35.55	44.49	70.79	-26.30	VERTICAL	Average	
4	21241.100	24.62	37.96	18.10	35.39	45.29	70.79	-25.50	VERTICAL	Average	
5	22631.420	24.49	39.18	19.03	35.51	47.19	70.79	-23.60	VERTICAL	Average	
6	23425.660	24.82	39.60	19.65	35.93	48.14	70.79	-22.65	VERTICAL	Average	

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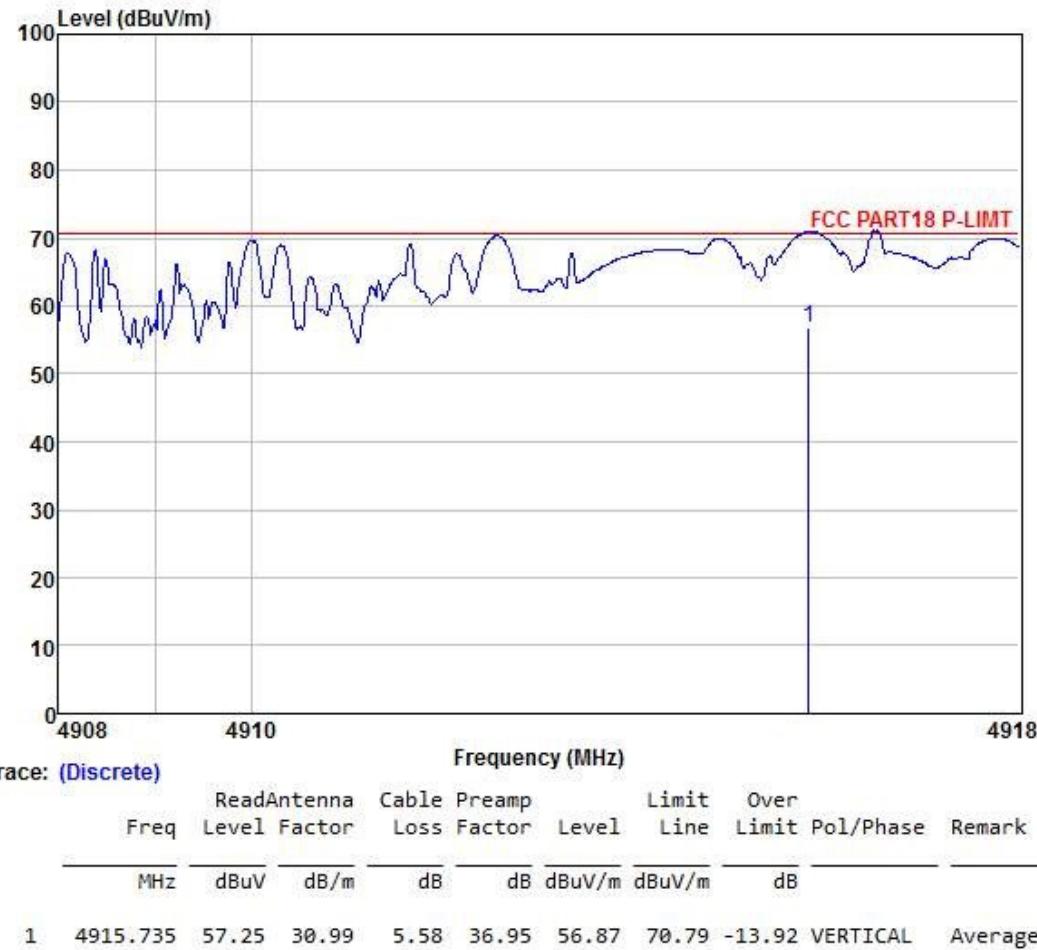


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Mode:a; Polarization:Vertical



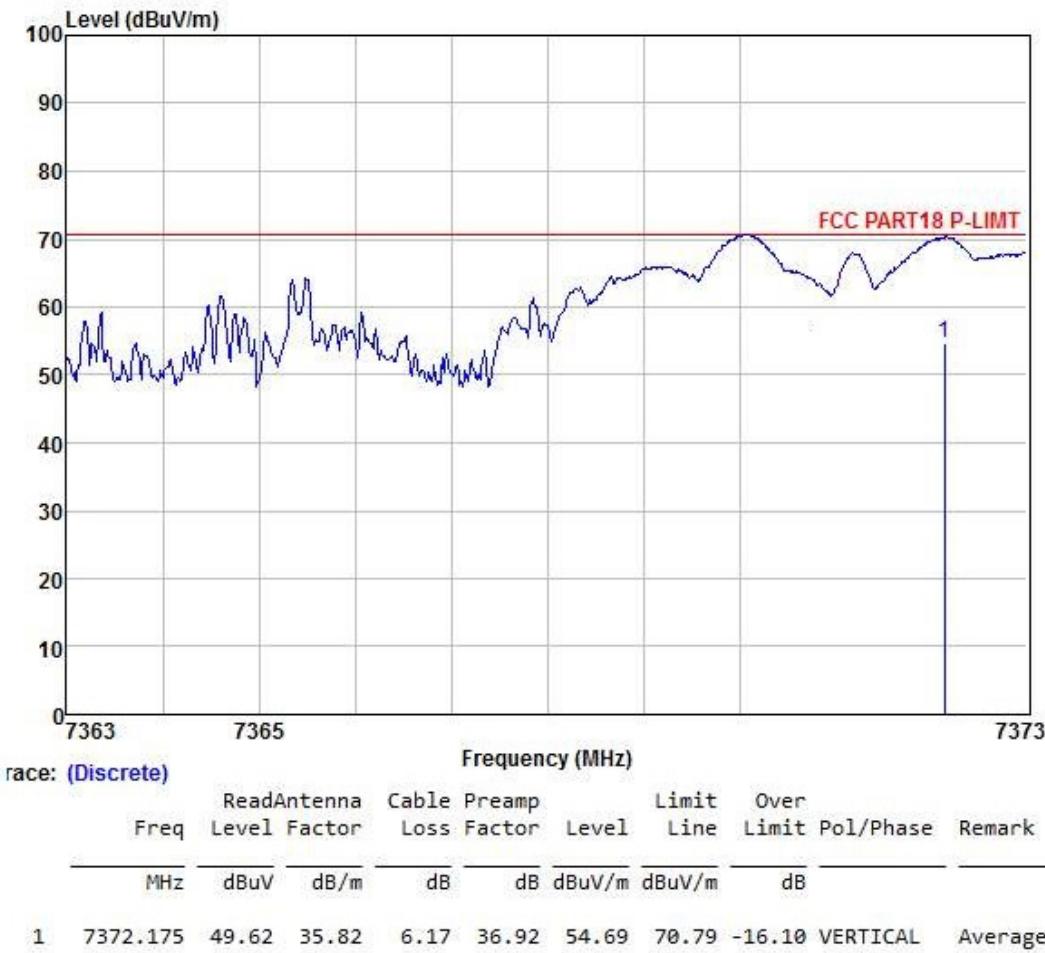
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6.6 Radiated Emissions (Magnetic field Strength) (9kHz-30MHz)

- 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
 (200 Hz Resolution Bandwidth for 9 kHz to 150 kHz
 9 kHz Resolution Bandwidth for 150 kHz to 30 MHz)
- 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 =960.5 W according to clause 6.2.2

Limit=20lg(25*SQRT(power/500))+20lg(300/10)=30.80+29.54=60.34dBuV/
 m @ 10m distance.

6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 55.5 % RH Atmospheric Pressure: 1020 mbar

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

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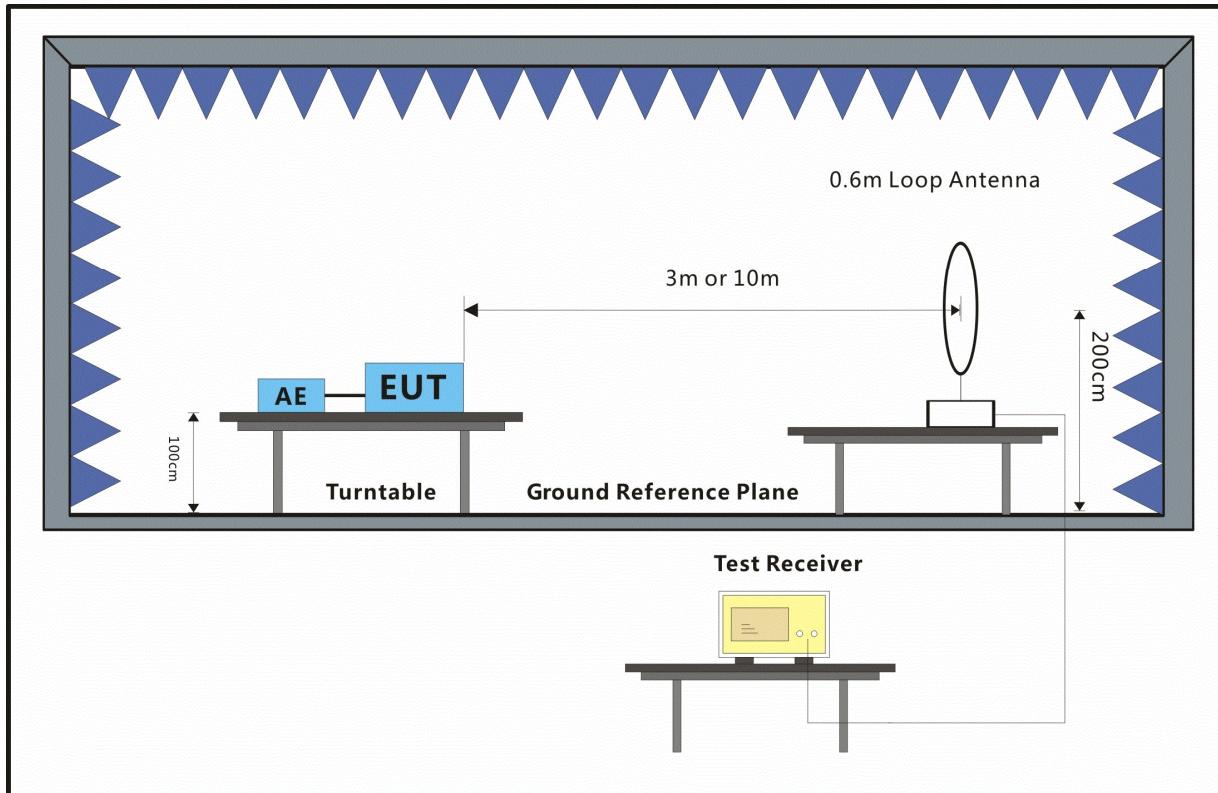
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6.6.2 Test Setup Diagram



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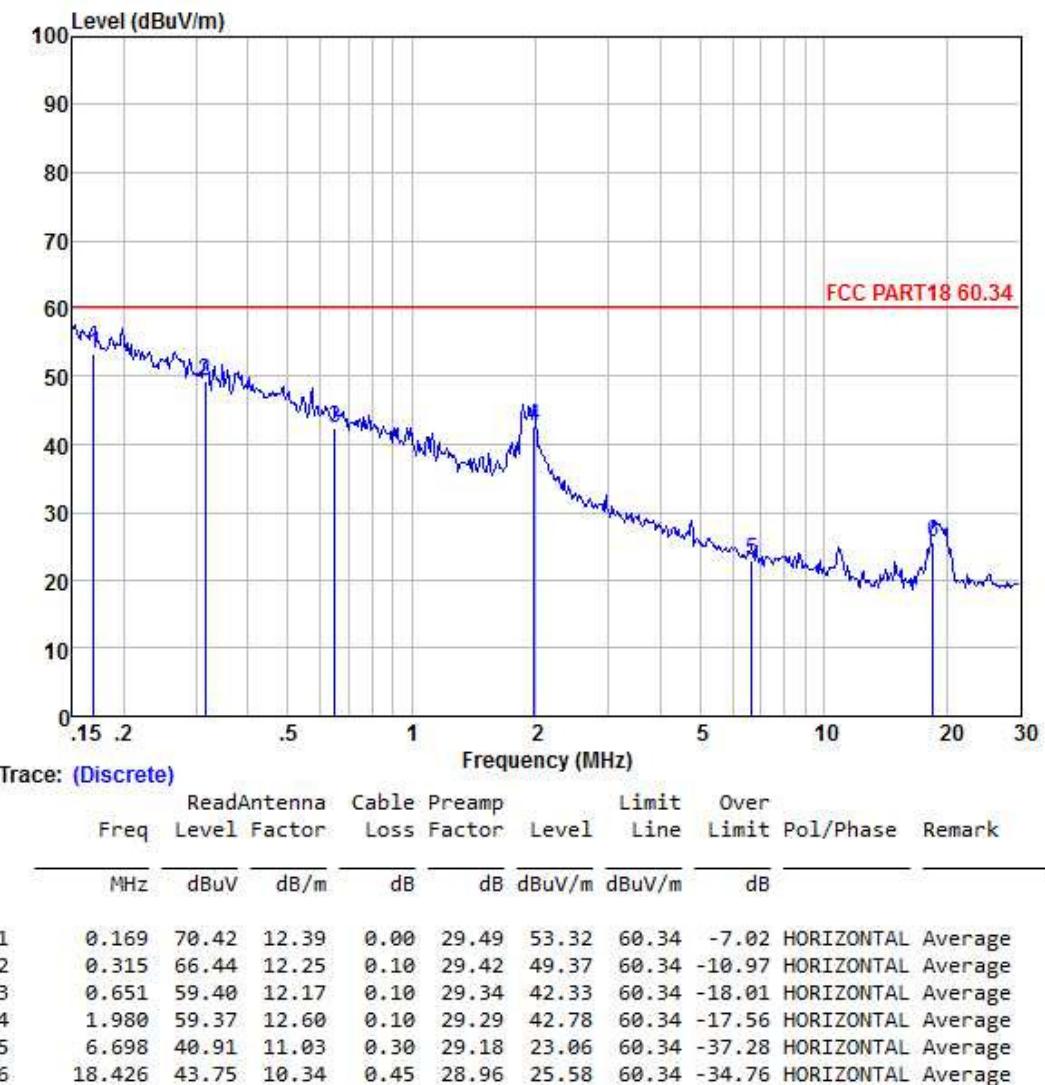
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6.6.3 Measurement Data

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 BiConiLog antenna with 2 orthogonal polarities.

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

Mode:a; Polarization:Horizontal



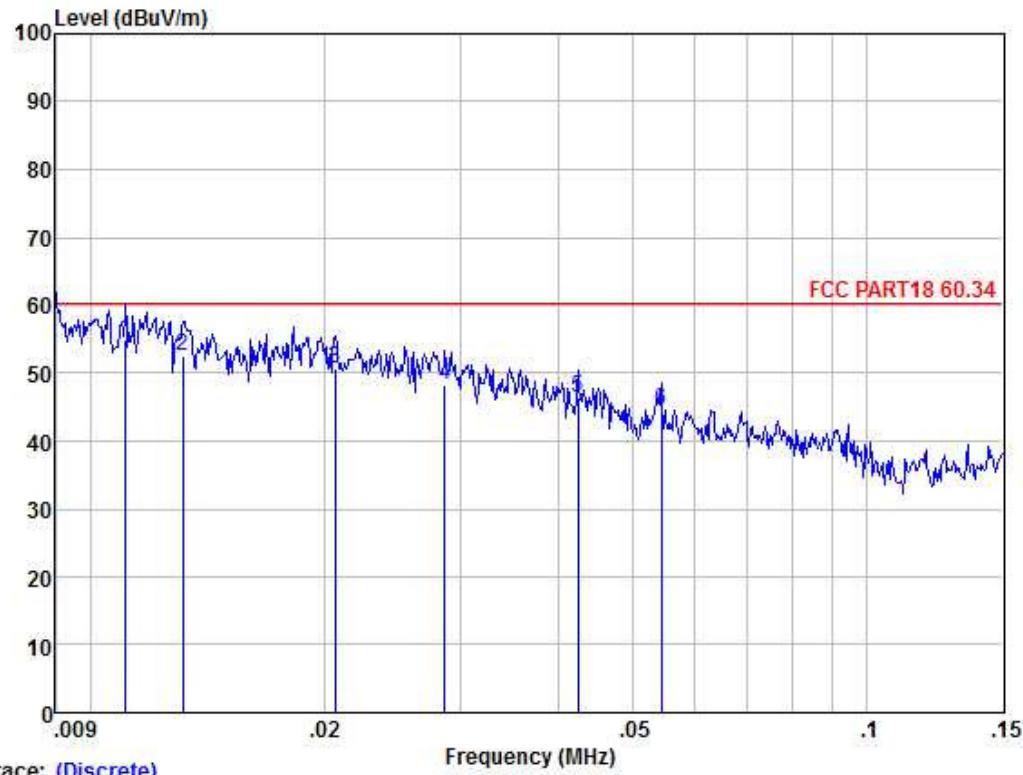
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Mode:a; Polarization:Horizontal



Trace: (Discrete)

Freq	ReadAntenna		Cable Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	Freq	Level	Factor	Loss				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	0.011	63.34	21.14	0.00	29.50	54.98	60.34	-5.36 HORIZONTAL Average
2	0.013	62.05	20.02	0.00	29.50	52.57	60.34	-7.77 HORIZONTAL Average
3	0.021	63.93	16.14	0.00	29.48	50.59	60.34	-9.75 HORIZONTAL Average
4	0.029	62.65	15.08	0.00	29.47	48.26	60.34	-12.08 HORIZONTAL Average
5	0.042	62.97	12.84	0.00	29.44	46.37	60.34	-13.97 HORIZONTAL Average
6	0.054	61.43	12.48	0.00	29.43	44.48	60.34	-15.86 HORIZONTAL Average

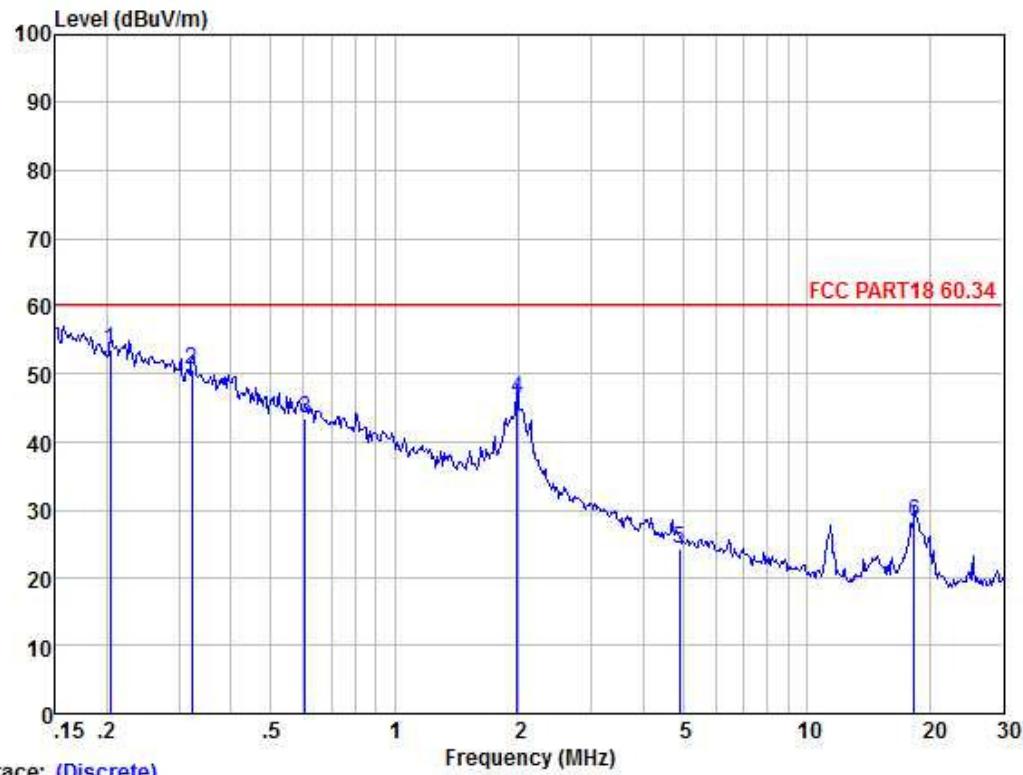
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Mode:a; Polarization:Vertical



Trace: (Discrete)

Freq	ReadAntenna		Cable Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.204	70.73	12.33	0.01	29.50	53.57	60.34	-6.77 VERTICAL Average
2	0.322	67.79	12.25	0.10	29.41	50.73	60.34	-9.61 VERTICAL Average
3	0.604	60.61	12.15	0.10	29.34	43.52	60.34	-16.82 VERTICAL Average
4	1.980	63.12	12.60	0.10	29.29	46.53	60.34	-13.81 VERTICAL Average
5	4.900	41.97	11.23	0.20	29.23	24.17	60.34	-36.17 VERTICAL Average
6	18.232	46.52	10.35	0.42	28.96	28.33	60.34	-32.01 VERTICAL Average

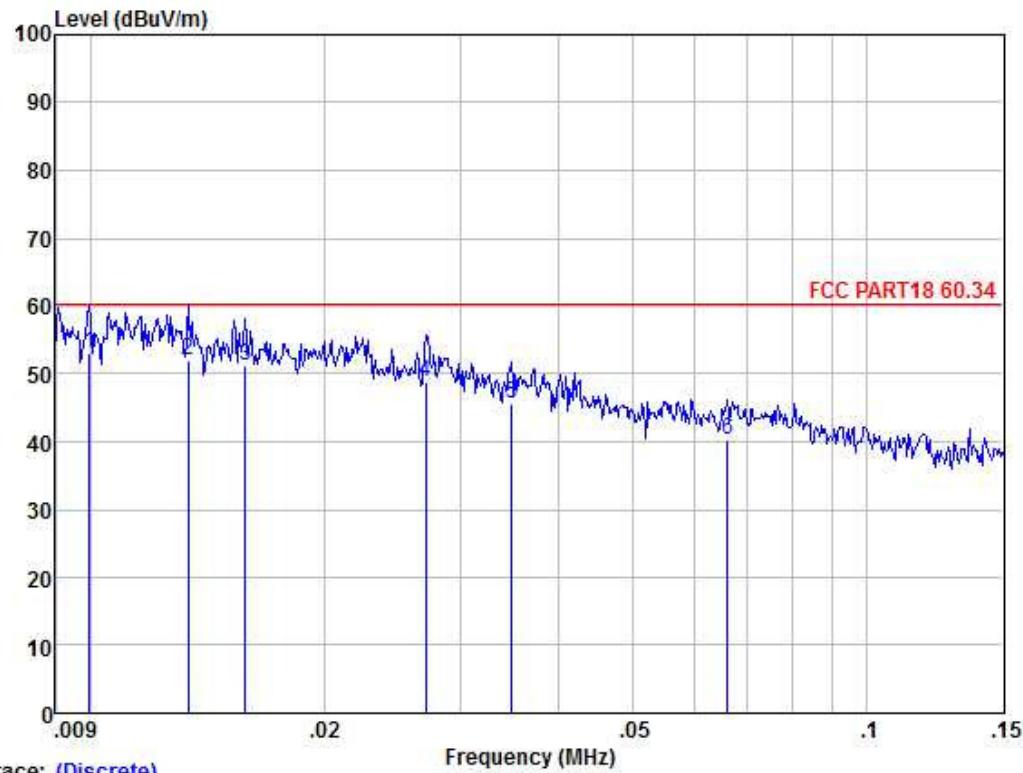
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Mode:a; Polarization:Vertical



Trace: (Discrete)

Freq	ReadAntenna		Cable Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	Freq	Level	Factor	Loss				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	0.010	60.84	21.60	0.00	29.50	52.94	60.34	-7.40 VERTICAL Average
2	0.013	61.62	19.76	0.00	29.49	51.89	60.34	-8.45 VERTICAL Average
3	0.016	63.15	17.54	0.00	29.49	51.20	60.34	-9.14 VERTICAL Average
4	0.027	62.86	15.36	0.00	29.47	48.75	60.34	-11.59 VERTICAL Average
5	0.035	61.57	13.54	0.00	29.44	45.67	60.34	-14.67 VERTICAL Average
6	0.066	57.26	12.42	0.00	29.43	40.25	60.34	-20.09 VERTICAL Average

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