

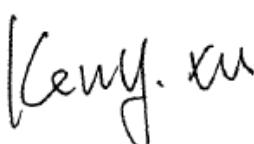
Report No.: SZEM191001915801
Page: 1 of 30

TEST REPORT

Application No.: SZEM1910019158CR
Applicant: Qualcomm Atheros, Inc.
Address of Applicant: 1700 Technology Drive, San Jose, CA 95110
Manufacturer: Qualcomm Atheros, Inc.
Address of Manufacturer: 1700 Technology Drive, San Jose, CA 95110
Equipment Under Test (EUT):
EUT Name: 2x2 802.11A/B/G/N/AC WiFi + Bluetooth Module
Model No.: QCNFA324
Trade mark: Qualcomm
FCC ID: PPD-QCNFA324
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2019-10-11
Date of Test: 2019-10-24 to 2019-12-07
Date of Issue: 2020-01-14

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2019-12-10		Original
02		2020-01-14		Added description for RE above 1G

Authorized for issue by:			
			
		Damon Su /Project Engineer	
			
		Eric Fu /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 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

Internal Source	Upper Frequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 3.85V from internal rechargeable battery or from AC/DC adapter Model No.: SC-41 AC Input: 100-240V 50/60Hz 0.3A DC Output: DC 5V 2A
Cable:	USB cable: 100cm shielded
Product Description of Host:	Portable Tablet Computer
Model No. of Host:	Lenovo CT-X636F
Trade Mark of Host:	Lenovo

Battery			
Battery	Lenovo(SCUD)	L19D1P31	3.85V; 7000mAh/27Wh/2cell
USB Cable			
USB Cable1	Lenovo(LiQi)	-	1.0m shielded cable without core
USB Cable2	Lenovo(Saibao)	-	1.0m shielded cable without core
Adapter			
Adapter1 (US)	Lenovo(Salom)	SC-41	I/P: 100-240 Vac, 300mA ,50/60HZ O/P: 5Vdc 2000mA
Adapter2 (US)	Lenovo(Acbel)	SC-41	I/P: 100-240 Vac, 300mA ,50/60HZ O/P: 5Vdc 2000mA
Keyboard			
Keyboard	Lenovo	Lenovo Chromebook Keyboard Pack	I/P: 3.3Vdc 30mA
Dongle			
Dongle	Lenovo(Linxee)	Lenovo AD-11X	I/P:USB-C UFP 5V-2A USB-C DFP 20V-3.5A(Max) O/P:USB-C UFP 20V-3.25A(Max) USB-A DFP 5V-1.5A(Max)

Remark:

According to the declaration from manufacturer and pre-test, EUT1 is selected for main testing, others for spot check, only EUT1~EUT4 show in this report. For the detail description, please refer to "Declaration of Identity".

This is to request a Class II permissive change for 2x2 802.11a/b/g/n/ac + Bluetooth Module, Model Name: QCNFA324, FCC ID: PPD-QCNFA324.

The major change filed under this application is:

- The subject approved module is being used in a specific host (portable category configuration, brand name/model: Lenovo/Lenovo CT-X636F).
- Power reduction in order to comply with SAR and RSE requirements.

Conducted Emissions and Radiated Emissions has been retested with this specific host.



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4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Earphone	PHILIPS	SHE6000	REF. No. SEA1000
Laptop	Lenovo	L480	PF-1N6C3V
Mouse	Lenovo	M-U0025-O	REF. No.: SEA2400
Router	NETGEAR	DGN2200	REF. No. SEA2200
TF Card	Kingston	SDC8GB	REF. No. SEA0400

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.5dB (30MHz-1GHz)
		± 4.8dB (1GHz-6GHz)
3	Temperature test	± 1 °C
4	Humidity test	± 3%

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4.4 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

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	GB-88	SEM001-06	2019-06-13	2022-06-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2019-07-11	2020-07-10
LISN	Rohde & Schwarz	ENV216	SEM007-01	2019-09-24	2020-09-23
LISN	ETS-LINDGREN	3816/2	SEM007-02	2019-04-01	2020-03-31
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2019-04-01	2020-03-31

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2019-07-11	2020-07-10
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2019-04-01	2020-03-31
Trilog-Broadband Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2019-04-12	2020-04-11

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23



General used equipment

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2019-04-04	2020-04-03

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6 Emission Test Results

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

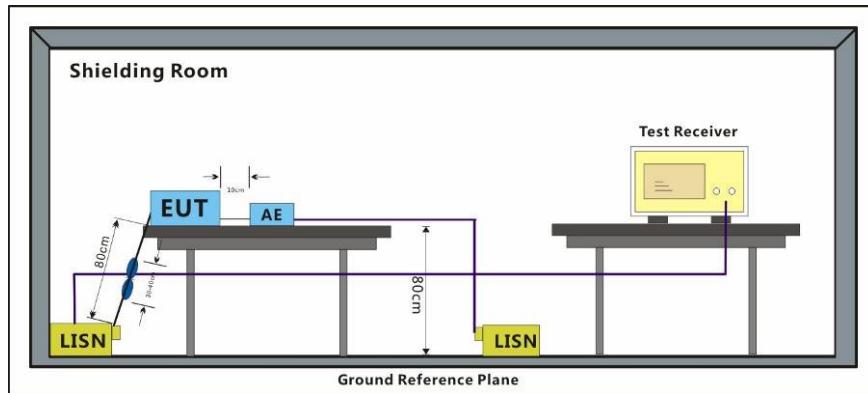
Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature:	21.9 °C	Humidity:	51.3 % RH	Atmospheric Pressure:	1015 mbar
Pretest these modes to find the worst case:	i: Transfer data between the EUT1 and the PC+Cable1				
	k: BT+WLAN+ playing MP4+battery(EUT1)+ Cable(worst)+adapter1				
	l: BT+WLAN+ playing MP4+battery(EUT2)+ Cable(worst)+adapter2				
	m: BT+WLAN+ playing MP4+battery(EUT3)+ Cable(worst)+adapter(worst)				
	n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable(worst)+adapter(worst)				
	q: BT+WLAN+ playing MP4+battery(EUT worst)+ Keyboard+ adapter(worst)				
	r: BT+WLAN+ camera(Front)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)				
	s: BT+WLAN+ camera(Back)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)				
The worst case for final test:	n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable1+adapter1				
	q: BT+WLAN+ playing MP4+battery(EUT 4)+ Keyboard+ adapter1				
	r: BT+WLAN+ camera(Front)+battery(EUT 4)+ Cable1+Keyboard+ adapter1				



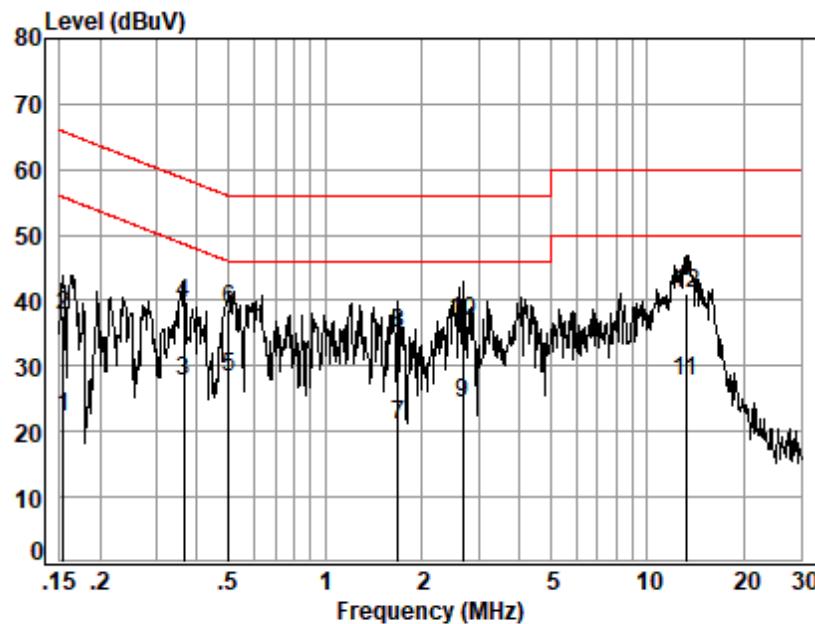
6.1.2 Test Setup Diagram**6.1.3 Measurement Data**

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.

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Mode:n; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 19158CR

Test mode: n

Freq	Cable	LISN	Read	Limit	Over	Remark		
	MHz	Loss	Factor	Level	Level	Line	Limit	
1	0.15	0.01	9.48	12.65	22.14	55.78	-33.64	Average
2	0.15	0.01	9.48	28.14	37.63	65.78	-28.15	QP
3	0.36	0.05	9.57	18.09	27.71	48.65	-20.94	Average
4	0.36	0.05	9.57	29.81	39.43	58.65	-19.22	QP
5	0.50	0.06	9.59	18.67	28.32	46.00	-17.68	Average
6	0.50	0.06	9.59	29.10	38.75	56.00	-17.25	QP
7	1.69	0.14	9.64	11.27	21.05	46.00	-24.95	Average
8	1.69	0.14	9.64	25.20	34.98	56.00	-21.02	QP
9	2.68	0.16	9.66	14.40	24.22	46.00	-21.78	Average
10	2.68	0.16	9.66	27.09	36.91	56.00	-19.09	QP
11	13.20	0.20	9.88	17.48	27.56	50.00	-22.44	Average
12	13.20	0.20	9.88	30.98	41.06	60.00	-18.94	QP

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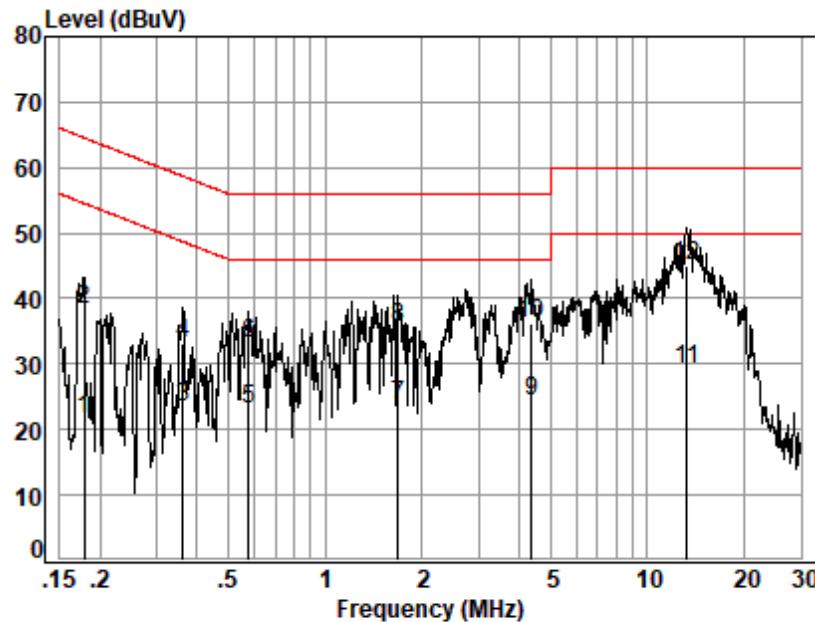
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Mode:n; Line:Neutral Line



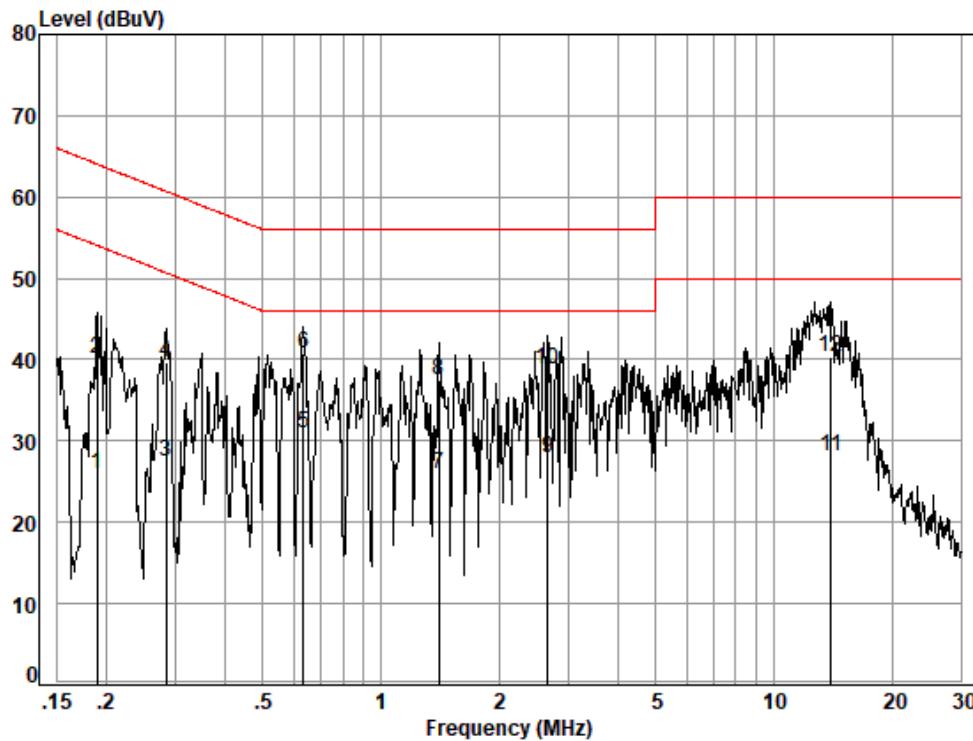
Site : Shielding Room
Condition: Neutral
Job No. : 19158CR
Test mode: n

	Freq	Cable Loss	ESDN Factor	Read Level	Limit Level	Line Limit	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.18	0.02	9.44	12.01	21.47	54.55	-33.08	Average
2	0.18	0.02	9.44	28.88	38.34	64.55	-26.21	QP
3	0.36	0.05	9.52	13.79	23.36	48.69	-25.33	Average
4	0.36	0.05	9.52	23.53	33.10	58.69	-25.59	QP
5	0.58	0.07	9.60	13.40	23.07	46.00	-22.93	Average
6	0.58	0.07	9.60	23.54	33.21	56.00	-22.79	QP
7	1.69	0.14	9.69	13.98	23.81	46.00	-22.19	Average
8	1.69	0.14	9.69	25.73	35.56	56.00	-20.44	QP
9	4.38	0.16	9.74	14.48	24.38	46.00	-21.62	Average
10	4.38	0.16	9.74	26.42	36.32	56.00	-19.68	QP
11	13.27	0.20	9.99	19.09	29.28	50.00	-20.72	Average
12	13.27	0.20	9.99	34.69	44.88	60.00	-15.12	QP

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Mode:q; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 19158CR

Test mode: q

Freq	Cable	LISN	Read	Limit		Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	0.19	0.02	9.59	16.35	25.96	54.06	-28.10 Average
2	0.19	0.02	9.59	30.52	40.13	64.06	-23.93 QP
3	0.28	0.04	9.59	17.85	27.48	50.68	-23.20 Average
4	0.28	0.04	9.59	30.12	39.75	60.68	-20.93 QP
5	0.63	0.07	9.60	21.31	30.98	46.00	-15.02 Average
6	0.63	0.07	9.60	31.00	40.67	56.00	-15.33 QP
7	1.40	0.12	9.61	16.13	25.86	46.00	-20.14 Average
8	1.40	0.12	9.61	27.73	37.46	56.00	-18.54 QP
9	2.66	0.16	9.65	18.00	27.81	46.00	-18.19 Average
10	2.66	0.16	9.65	29.01	38.82	56.00	-17.18 QP
11	13.99	0.20	10.05	17.81	28.06	50.00	-21.94 Average
12	13.99	0.20	10.05	30.01	40.26	60.00	-19.74 QP

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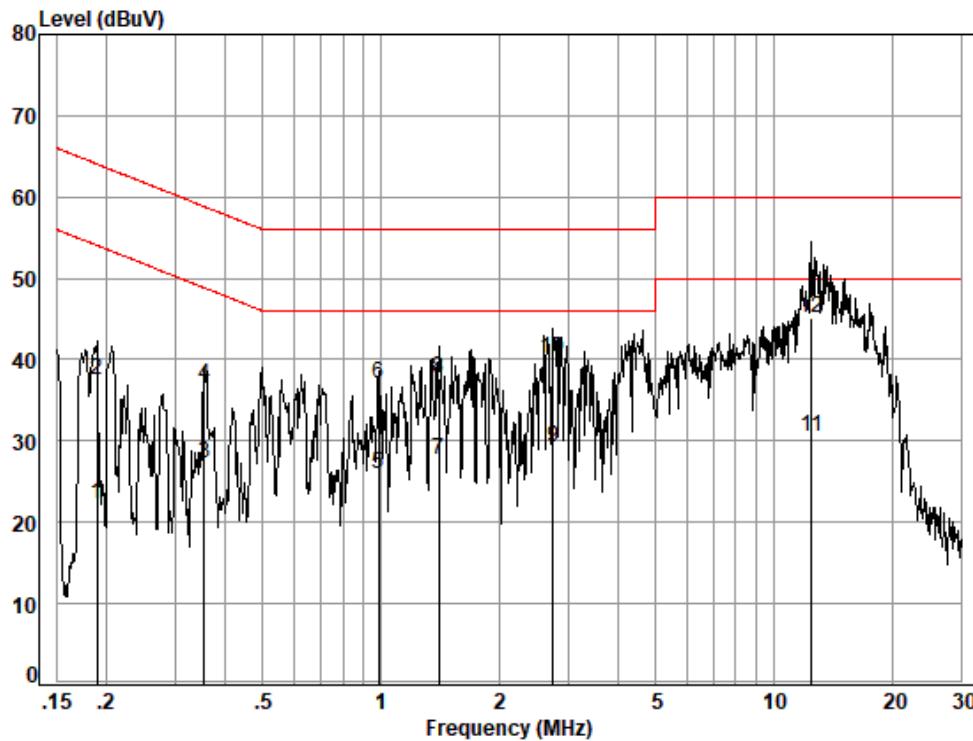


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Mode:q; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 19158CR

Test mode: q

Freq	Cable	LISN	Read	Limit		Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	0.19	0.02	9.55	12.70	22.27	54.06	-31.79 Average
2	0.19	0.02	9.55	27.99	37.56	64.06	-26.50 QP
3	0.36	0.05	9.54	17.65	27.24	48.83	-21.59 Average
4	0.36	0.05	9.54	27.14	36.73	58.83	-22.10 QP
5	0.99	0.09	9.55	16.27	25.91	46.00	-20.09 Average
6	0.99	0.09	9.55	27.32	36.96	56.00	-19.04 QP
7	1.40	0.12	9.56	17.94	27.62	46.00	-18.38 Average
8	1.40	0.12	9.56	28.06	37.74	56.00	-18.26 QP
9	2.74	0.16	9.57	19.40	29.13	46.00	-16.87 Average
10	2.74	0.16	9.57	30.36	40.09	56.00	-15.91 QP
11	12.45	0.19	10.08	20.22	30.49	50.00	-19.51 Average
12	12.45	0.19	10.08	34.86	45.13	60.00	-14.87 QP

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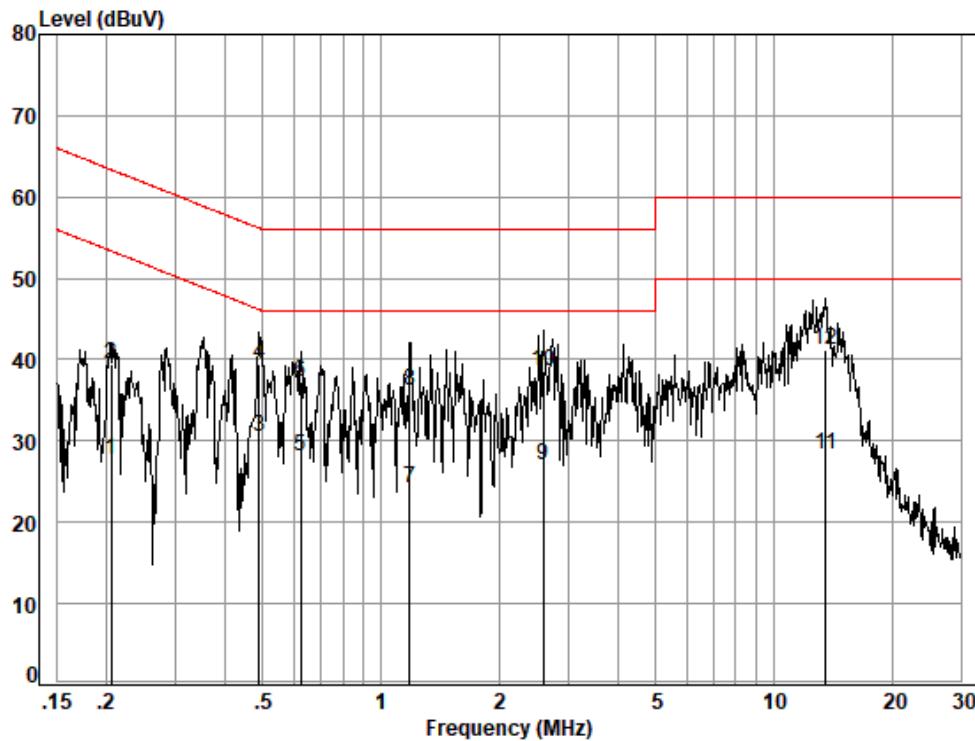


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Mode:r; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 19158CR

Test mode: r

Freq	Cable	LISN	Read	Limit		Over	Remark
	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.21	0.02	9.59	18.12	27.73	53.36	-25.63 Average
2	0.21	0.02	9.59	29.86	39.47	63.36	-23.89 QP
3	0.49	0.06	9.59	20.79	30.44	46.19	-15.75 Average
4	0.49	0.06	9.59	29.85	39.50	56.19	-16.69 QP
5	0.62	0.07	9.60	18.39	28.06	46.00	-17.94 Average
6	0.62	0.07	9.60	27.69	37.36	56.00	-18.64 QP
7	1.18	0.11	9.60	14.39	24.10	46.00	-21.90 Average
8	1.18	0.11	9.60	26.56	36.27	56.00	-19.73 QP
9	2.59	0.16	9.65	17.14	26.95	46.00	-19.05 Average
10	2.59	0.16	9.65	28.78	38.59	56.00	-17.41 QP
11	13.55	0.20	10.03	18.12	28.35	50.00	-21.65 Average
12	13.55	0.20	10.03	30.88	41.11	60.00	-18.89 QP

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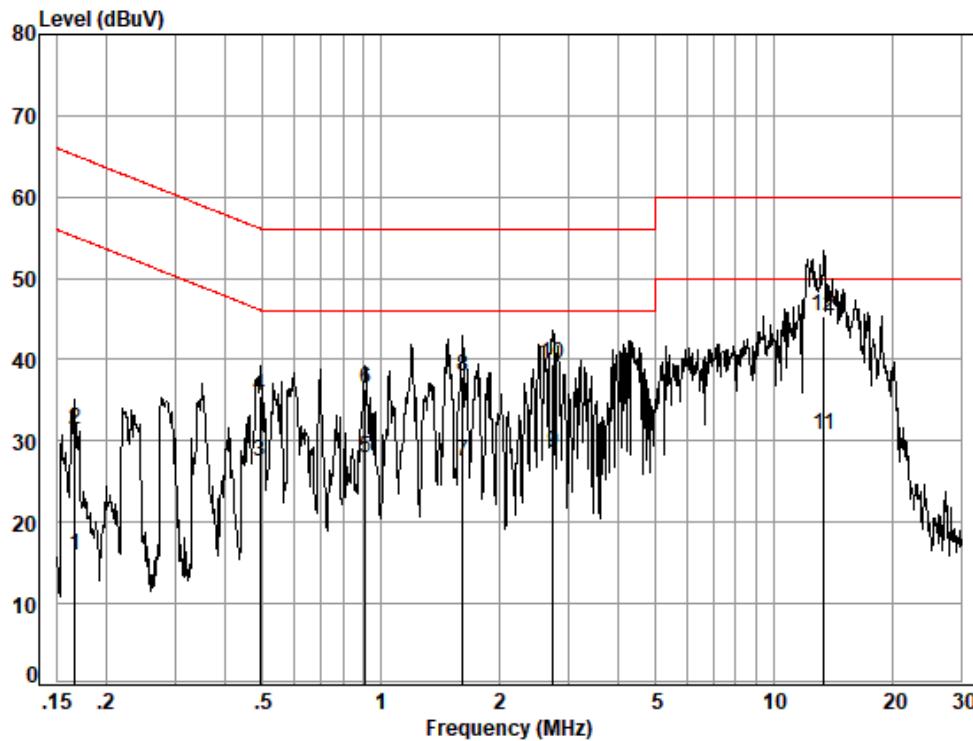
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Mode:r; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 19158CR

Test mode: r

Freq	Cable	LISN	Read	Limit		Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	0.17	0.01	9.55	6.40	15.96	55.12	-39.16 Average
2	0.17	0.01	9.55	21.77	31.33	65.12	-33.79 QP
3	0.49	0.06	9.54	17.95	27.55	46.14	-18.59 Average
4	0.49	0.06	9.54	26.01	35.61	56.14	-20.53 QP
5	0.91	0.09	9.55	18.17	27.81	46.00	-18.19 Average
6	0.91	0.09	9.55	26.71	36.35	56.00	-19.65 QP
7	1.62	0.14	9.56	17.76	27.46	46.00	-18.54 Average
8	1.62	0.14	9.56	28.19	37.89	56.00	-18.11 QP
9	2.74	0.16	9.57	18.74	28.47	46.00	-17.53 Average
10	2.74	0.16	9.57	29.65	39.38	56.00	-16.62 QP
11	13.41	0.20	10.16	20.32	30.68	50.00	-19.32 Average
12	13.41	0.20	10.16	34.94	45.30	60.00	-14.70 QP

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6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Frequency Range: 30MHz to 1GHz

Measurement Distance: 10m

Limit:

30MHz -88MHz 29.5(dB μ V/m) quasi-peak88MHz-216MHz 33.1(dB μ V/m) quasi-peak216MHz-960MHz 35.6(dB μ V/m) quasi-peak960MHz-1000MHz 43.5(dB μ V/m) quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1015 mbar

Pretest these i: Transfer data between the EUT1 and the PC+Cable1

modes to find j: Transfer data between the EUT1 and the PC+Cable2

the worst case: k: BT+WLAN+ playing MP4+battery(EUT1)+ Cable(worst)+adapter1

l: BT+WLAN+ playing MP4+battery(EUT2)+ Cable(worst)+adapter2

m: BT+WLAN+ playing MP4+battery(EUT3)+ Cable(worst)+adapter(worst)

n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable(worst)+adapter(worst)

p: BT+WLAN+ playing MP4+battery(EUT worst)+ Earphone

q: BT+WLAN+ playing MP4+battery(EUT worst)+ Keyboard+ adapter(worst)

r: BT+WLAN+ camera(Front)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)

s: BT+WLAN+ camera(Back)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)

n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable1+adapter1

r: BT+WLAN+ camera(Front)+battery(EUT 4)+ Cable1+Keyboard+ adapter1

The worst case for final test:

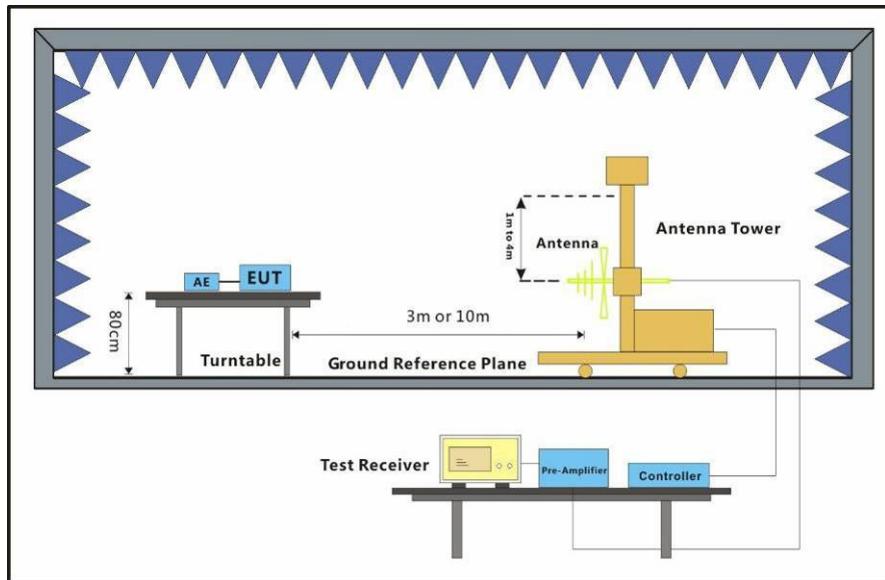
n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable1+adapter1

r: BT+WLAN+ camera(Front)+battery(EUT 4)+ Cable1+Keyboard+ adapter1

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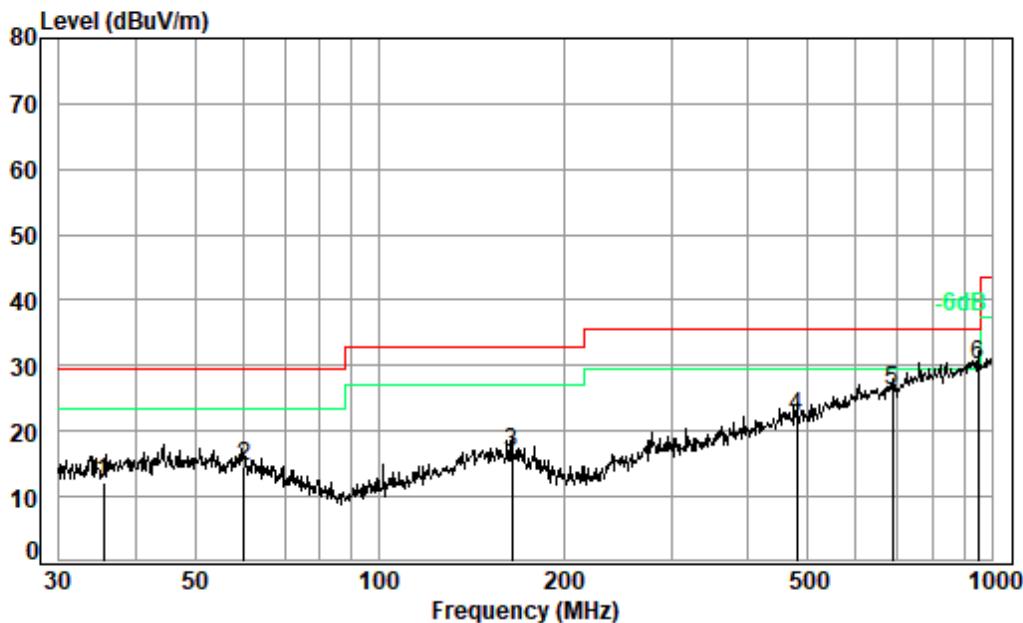
6.2.2 Test Setup Diagram**6.2.3 Measurement Data**

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

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Mode:n; Polarization:Horizontal

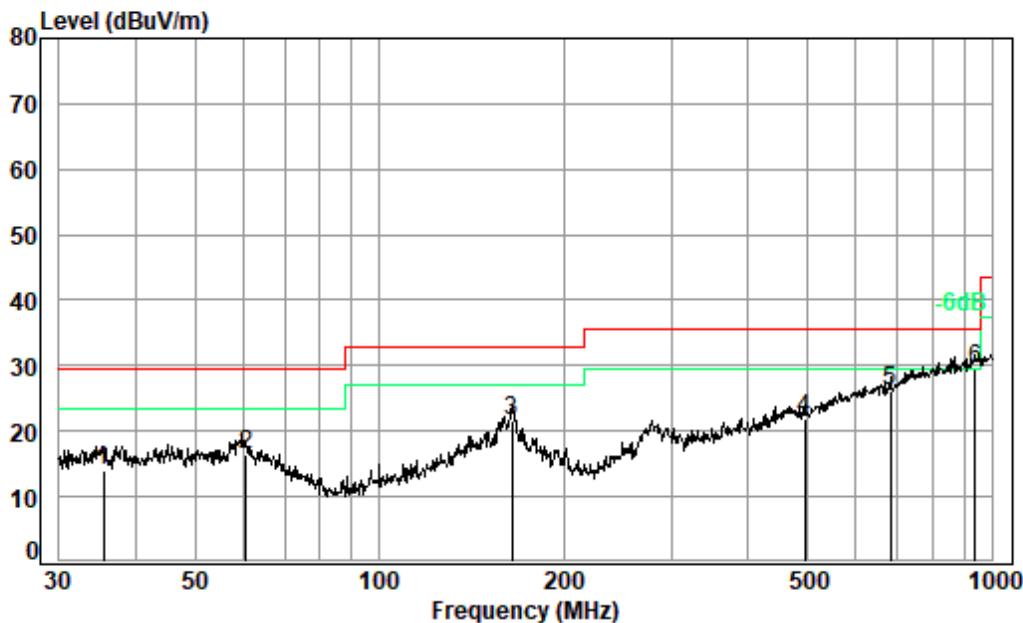
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Mode:n; Polarization:Vertical



Condition: 10m VERTICAL

Job No. : 19158CR

Test Mode: n

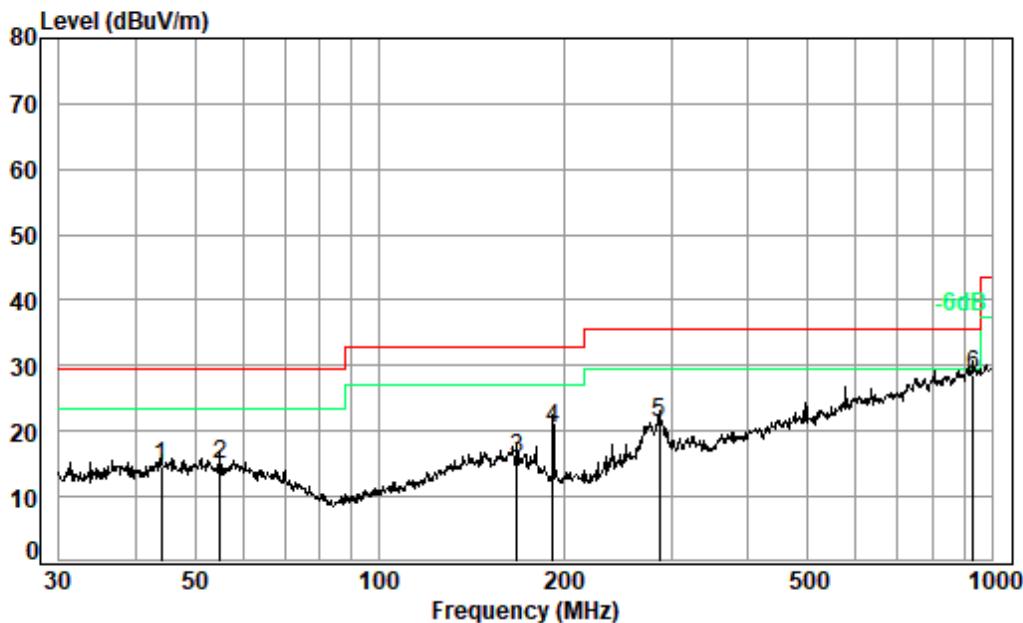
Freq	Cable	Ant	Preamp	Read	Limit	Over	
	Loss	Factor	Factor	Level			Line
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 35.499	0.89	19.48	32.41	26.15	14.11	29.50	-15.39
2 60.492	1.04	19.10	32.42	28.64	16.36	29.50	-13.14
3 164.908	1.51	19.55	32.30	32.82	21.58	33.00	-11.42
4 494.199	2.90	23.94	32.45	27.63	22.02	35.60	-13.58
5 682.348	3.23	26.85	32.21	28.29	26.16	35.60	-9.44
6 pp 938.833	3.47	29.80	31.31	27.64	29.60	35.60	-6.00

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Mode:r; Polarization:Horizontal



Condition: 10m HORIZONTAL

Job No. : 19158CR

Test Mode: r

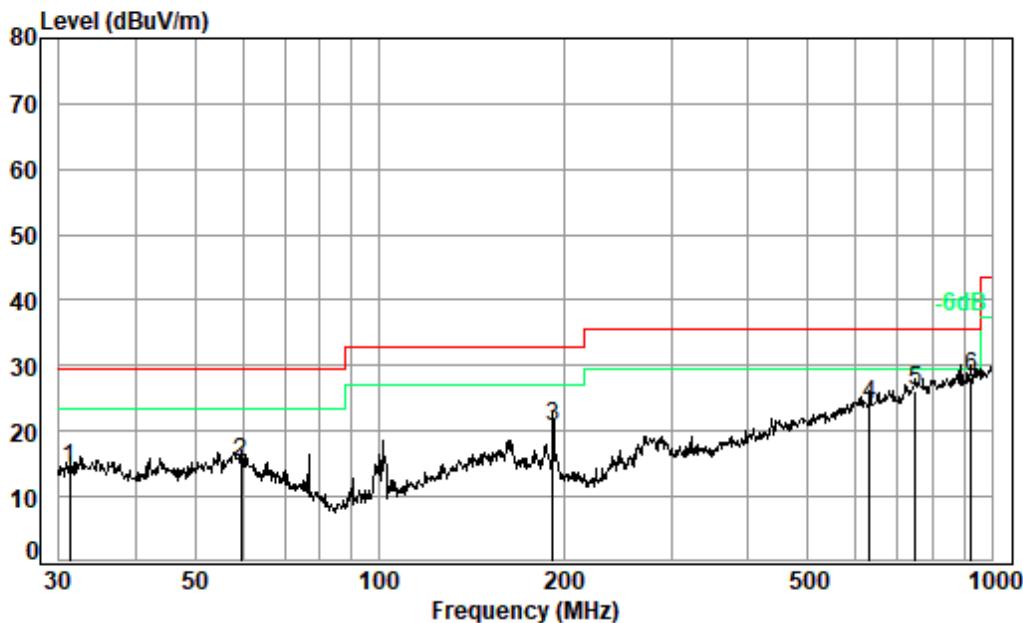
Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	44.120	0.95	20.31	32.44	25.72	14.54	29.50 -14.96 QP
2	55.027	1.02	19.79	32.44	26.50	14.87	29.50 -14.63 QP
3	167.824	1.52	19.41	32.30	27.23	15.86	33.00 -17.14 QP
4	191.745	1.59	16.55	32.29	34.57	20.42	33.00 -12.58 QP
5	286.982	2.04	19.34	32.31	32.08	21.15	35.60 -14.45 QP
6 pp	932.272	3.46	29.80	31.35	26.82	28.73	35.60 -6.87 QP

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Mode:r; Polarization:Vertical



Condition: 10m VERTICAL

Job No. : 19158CR

Test Mode: r

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 31.289	0.86	18.67	32.39	27.09	14.23	29.50	-15.27 QP
2 59.441	1.04	19.27	32.42	27.22	15.11	29.50	-14.39 QP
3 191.745	1.59	16.55	32.29	34.98	20.83	33.00	-12.17 QP
4 631.688	3.19	26.22	32.10	26.76	24.07	35.60	-11.53 QP
5 750.108	3.27	28.30	32.08	26.60	26.09	35.60	-9.51 QP
6 pp 925.756	3.45	29.80	31.38	26.33	28.20	35.60	-7.40 QP

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6.3 Radiated Emissions (above 1GHz)

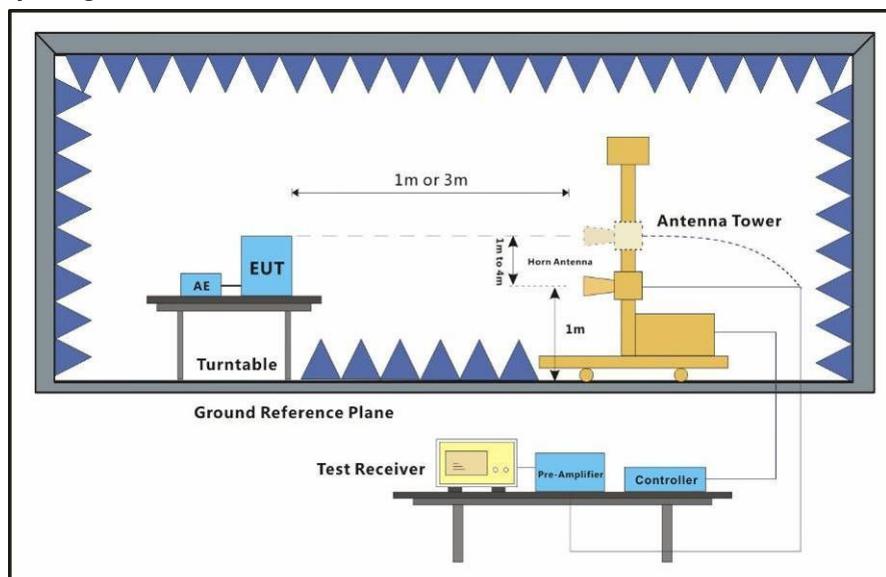
Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: Above 1GHz
Measurement Distance: 3m
Limit:
Above 1GHz 74(dB μ V/m) peak, 54(dB μ V/m) average
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 56.3 % RH Atmospheric Pressure: 1015 mbar
Pretest these modes to find the worst case:
i: Transfer data between the EUT1 and the PC+Cable1
j: Transfer data between the EUT1 and the PC+Cable2
k: BT+WLAN+ playing MP4+battery(EUT1)+ Cable(worst)+adapter1
l: BT+WLAN+ playing MP4+battery(EUT2)+ Cable(worst)+adapter2
m: BT+WLAN+ playing MP4+battery(EUT3)+ Cable(worst)+adapter(worst)
n: BT+WLAN+ playing MP4+battery(EUT4)+ Cable(worst)+adapter(worst)
p: BT+WLAN+ playing MP4+battery(EUT worst)+ Earphone
q: BT+WLAN+ playing MP4+battery(EUT worst)+ Keyboard+ adapter(worst)
r: BT+WLAN+ camera(Front)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)
s: BT+WLAN+ camera(Back)+battery(EUT worst)+ Cable(worst)+Keyboard+ adapter(worst)
The worst case for final test:
q: BT+WLAN+ playing MP4+battery(EUT 1)+ Keyboard+ adapter1
s: BT+WLAN+ camera(Back)+battery(EUT 1)+ Cable1+Keyboard+ adapter1

6.3.2 Test Setup Diagram



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6.3.3 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.

Remark:

The disturbance Above 6GHz was very low, so only the disturbance below had been displayed.



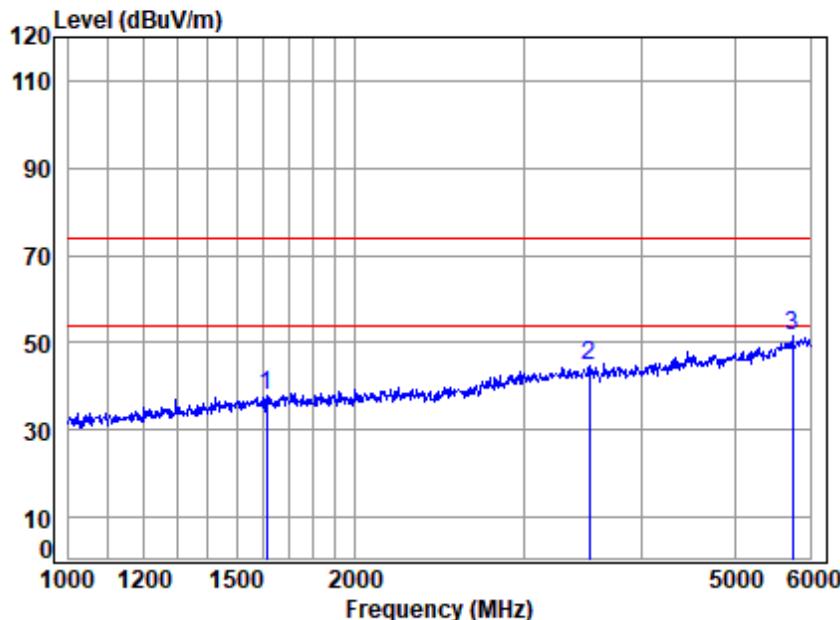
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Mode:q; Polarization:Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19158CR
Mode : q

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Line Limit	Over Limit	Remark
	MHz	dB	dB/m		dBuV	dBuV/m	dBuV/m	dB	
1	1613.490	5.33	26.31	40.58	46.94	38.00	74.00	-36.00	Peak
2	3517.727	6.48	31.74	41.73	48.23	44.72	74.00	-29.28	Peak
3	5747.456	9.72	34.85	42.40	49.39	51.56	74.00	-22.44	Peak

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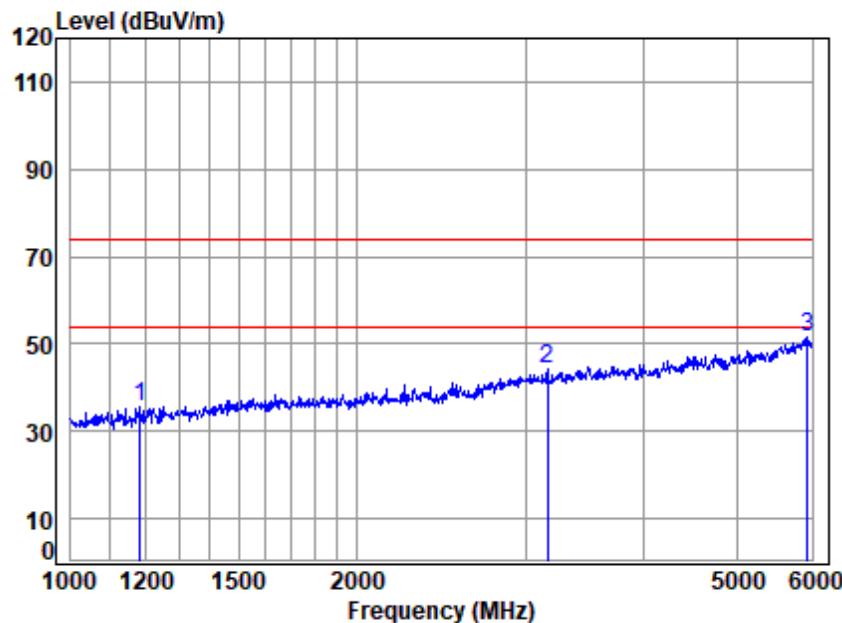
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Mode:q; Polarization:Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 19158CR
Mode : q

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Line	Over Limit	Over Remark
				Level			
MHz	dB	dB/m		dBuV	dBuV/m	dBuV/m	dB
1 1181.321	4.34	24.50	40.27	47.02	35.59	74.00	-38.41 Peak
2 3164.836	6.15	31.18	41.38	48.19	44.14	74.00	-29.86 Peak
3 5935.842	10.36	35.04	42.28	48.57	51.69	74.00	-22.31 Peak

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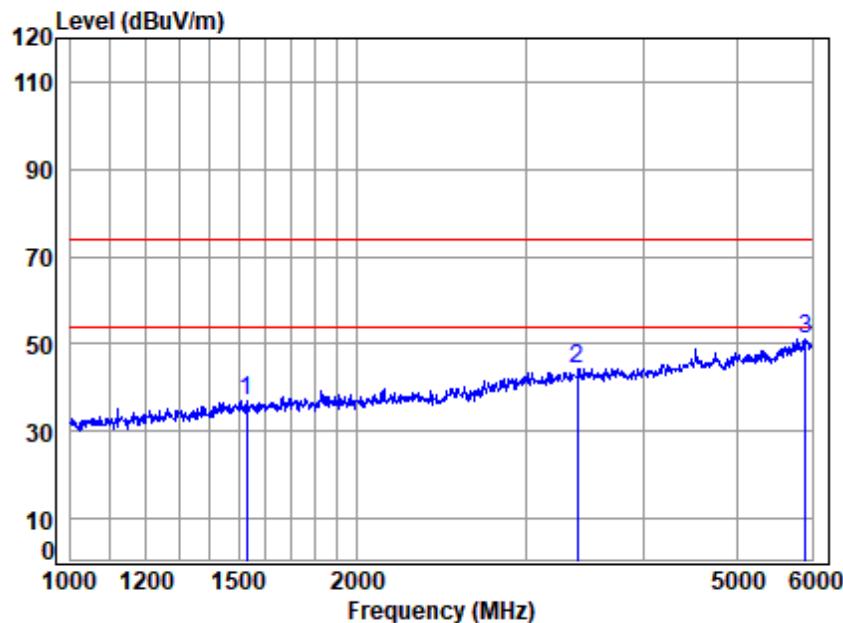
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Mode:s; Polarization:Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19158CR
Mode : s

1	Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
		MHz	Loss	Factor	Level	dBuV	dBuV/m	
1	1529.051	5.44	25.93	40.53	46.15	36.99	74.00	-37.01 Peak
2	3406.085	6.38	31.56	41.62	47.96	44.28	74.00	-29.72 Peak
3	5904.021	10.25	35.01	42.30	48.29	51.25	74.00	-22.75 Peak



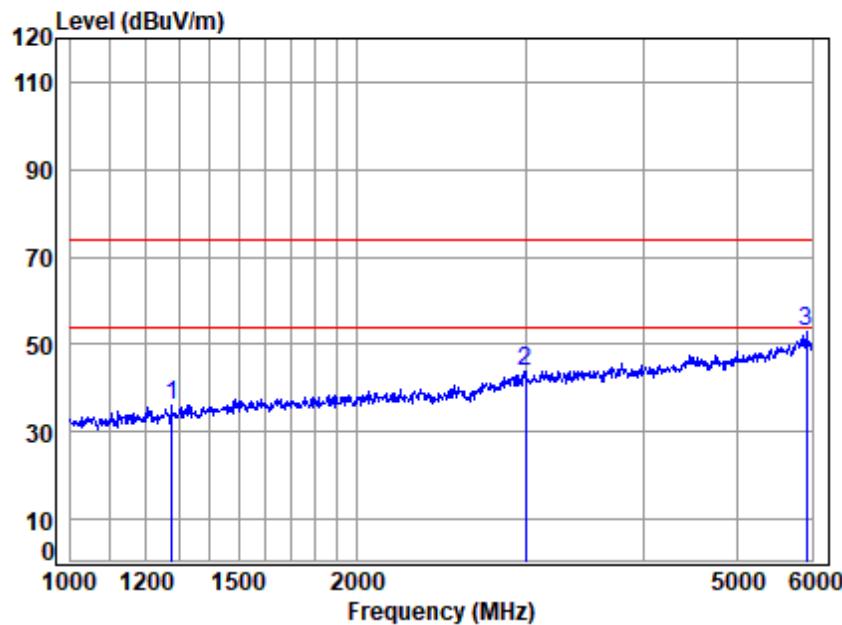
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Mode:s; Polarization:Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 19158CR
Mode : s

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Level	Line Level	Over Limit	Remark	
				dB	dB/m	dB	dBuV	dBuV/m	dBuV/m
MHz	dB	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1275.935	4.71	24.92	40.34	46.66	35.95	74.00	-38.05	Peak
2	2999.209	5.98	30.90	41.20	48.23	43.91	74.00	-30.09	Peak
3	5914.609	10.29	35.02	42.29	49.70	52.72	74.00	-21.28	Peak

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7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please refer to external and internal photos for details.

- End of the Report -



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