MEASUREMENT REPORT

FCC Part 15 Subpart B

Applicant:	AXENT Corporation Ltd.
Address:	3 Musick Irvine, CA 92618, United States
Product:	AXENT.ONE PLUS
Model Number:	E310-E2
Trade Name:	AXENT
FCC Rule Part(s):	FCC Part 15 Subpart B: 2018
Test Procedure(s):	ANSI C63.4: 2014
Test Date:	May 31 ~ June 04, 2019

Reviewed By: (Kevin Guo)

Approved By: (Robin Wu)

Revision History

Report No.	Version	Description	Issue Date	Note
1905WSU016-U3	Rev. 01	Initial Report	07-23-2019	Invalid
1905WSU016-U3	Rev. 02	Change Model name	08-21-2019	Valid

CONTENTS

§2.1033 General Information

Applicant:	AXENT Corporation Ltd.
Applicant Address:	3 Musick Irvine, CA 92618, United States
Manufacturer:	AXENT Corporation Ltd.
Manufacturer Address:	3 Musick Irvine, CA 92618, United States
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.**

1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	AXENT.ONE PLUS
Model No.:	E310-E2
Brand Name:	AXENT
Bluetooth Specification:	BLE
Working Voltage:	AC 120V/60Hz

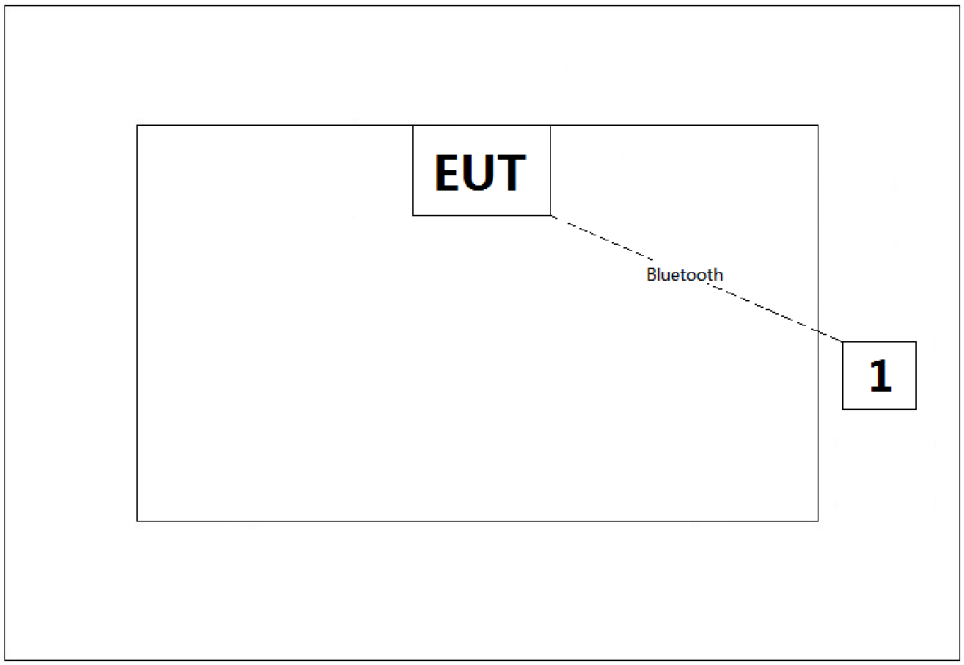
2.2. Test Mode

Test Mode
Mode 1: Make the EUT power by AC 120V/60Hz & Connect to the phone via Bluetooth & Configure the EUT to keep the normal operation

2.3. Configuration of Tested System

The **AXENT.ONE PLUS** was tested per the guidance FCC Part 15 Subpart B: 2018 and ANSI C63.4: 2014 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

Connection Diagram



2.4. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Mobile Phone OPPO R9	OPPO	X9009	N/A	N/A

2.5. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical Equipment in the Range of 9kHz to 18GHz (ANSI C63.4-2014) was used in the measurement of the device.

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150 kHz to 30 MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or resolution, clock or data exchange speed, scrolling H pattern to the EUT and/or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30 MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30 MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB beam-width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2019/06/14
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2019/06/14
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2019/08/14
Shielding Chamber	MIX-BEP	Chamber-SR2	MRTSUE06214	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2019/08/13
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2019/09/25
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2019/10/19
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2019/06/12
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2019/08/14
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06213	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2019/08/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2019/10/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2019/11/09
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2019/06/12
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2019/12/13
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Software	Version	Function
e3	V8.3.5	EMI Test Software

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~1GHz: 4.07dB 1GHz~18GHz: 4.16dB Vertical: 30MHz~1GHz: 4.18dB 1GHz~18GHz: 4.76dB
Radiated Emission Measurement – AC2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~1GHz: 3.75dB 1GHz~18GHz: 4.28dB Vertical: 30MHz~1GHz: 3.86dB 1GHz~18GHz: 4.33dB

6. TEST RESULT

6.1. Summary

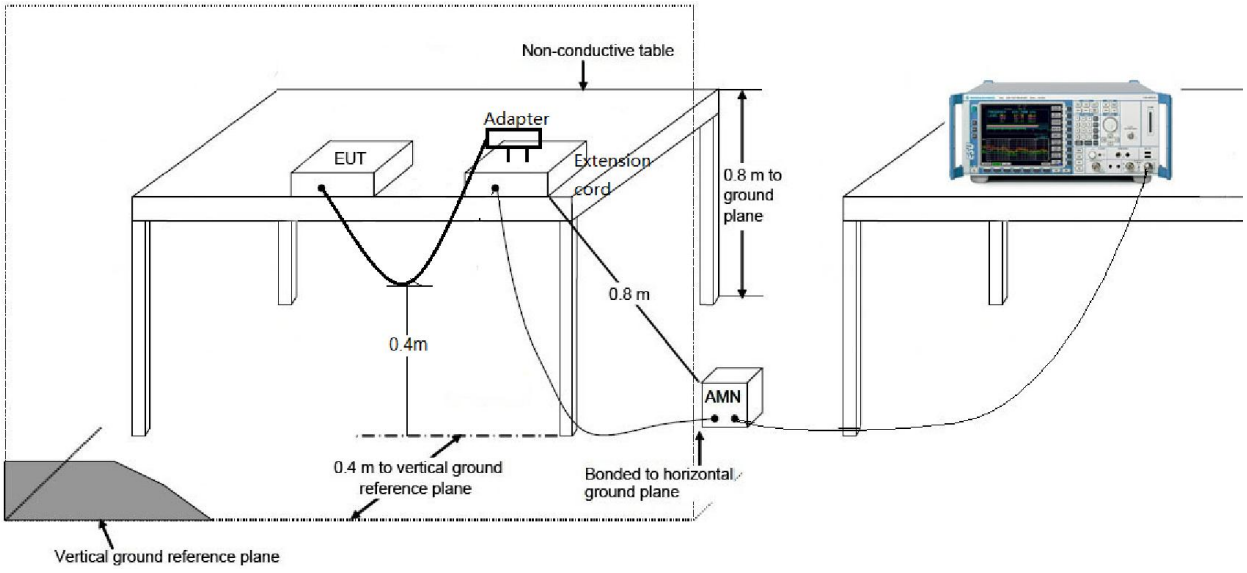
FCC Part Section(s)	Test Description	Test Result (Pass/Fail)
15.107	Conducted Emission	Pass
15.109	Radiated Emission	Pass

6.2. Conducted Emission Measurement

6.2.1.Test Limit

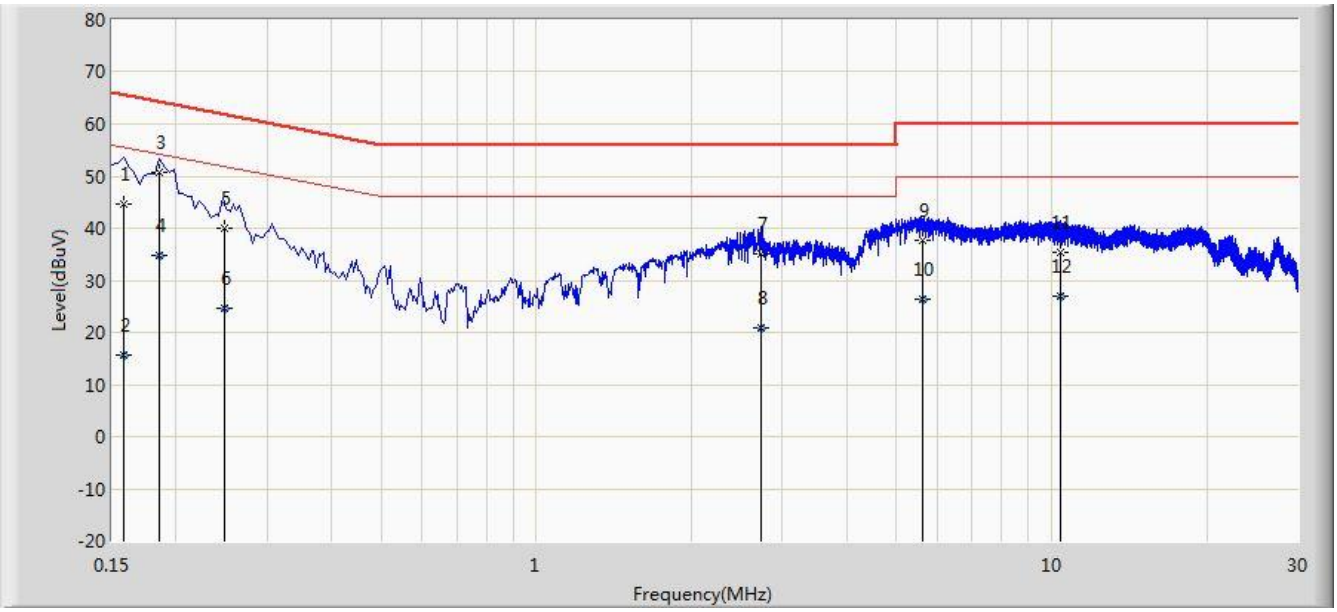
FCC Part 15.107 Limits		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.2.2.Test Setup



6.2.3.Test Result of Conducted Emissions

Site: SR2	Time: 2019/06/03 - 14:55
Limit: FCC_Part15.107_CE_AC Power_ClassB	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	

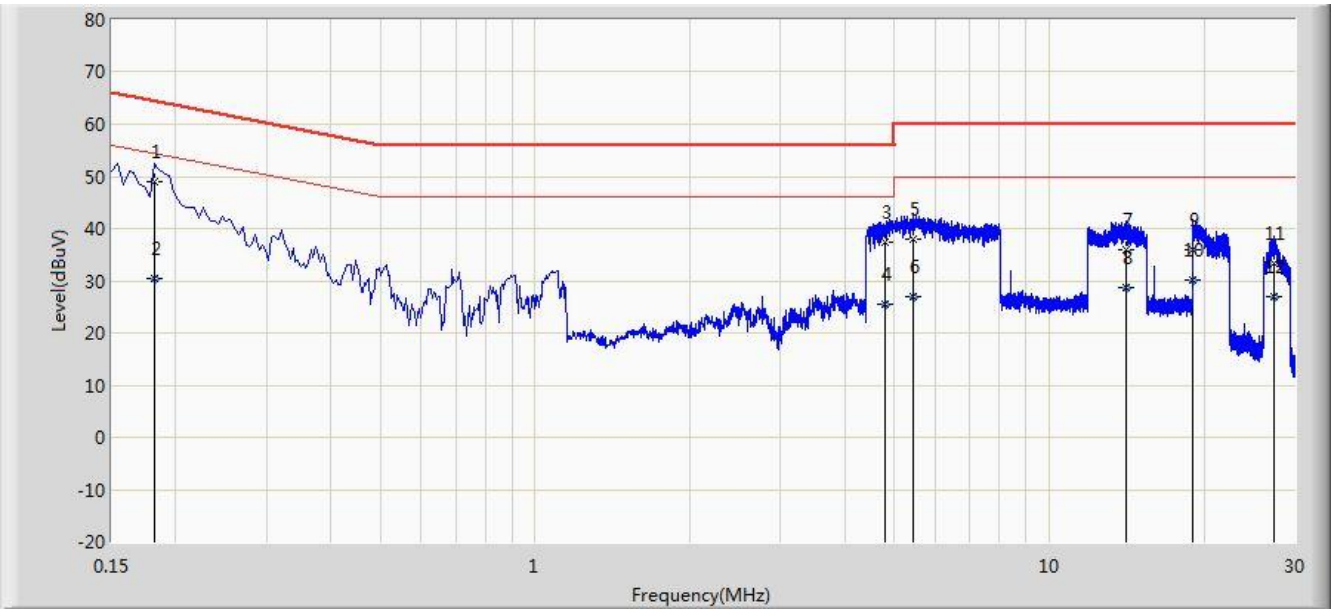


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.158	44.732	34.421	-20.837	65.568	10.311	QP
2			0.158	15.670	5.359	-39.898	55.568	10.311	AV
3			0.186	50.649	40.610	-13.565	64.213	10.039	QP
4		*	0.186	34.739	24.701	-19.474	54.213	10.039	AV
5			0.248	40.062	30.100	-21.761	61.824	9.962	QP
6			0.248	24.662	14.700	-27.161	51.824	9.962	AV
7			2.722	35.150	25.300	-20.850	56.000	9.850	QP
8			2.722	20.750	10.900	-25.250	46.000	9.850	AV
9			5.634	37.687	27.600	-22.313	60.000	10.087	QP
10			5.634	26.487	16.400	-23.513	50.000	10.087	AV
11			10.366	35.416	25.281	-24.584	60.000	10.135	QP
12			10.366	27.080	16.945	-22.920	50.000	10.135	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2019/06/03 - 15:05
Limit: FCC_Part15.107_CE_AC Power_ClassB	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.182	48.942	38.900	-15.452	64.394	10.042	QP
2		*	0.182	30.342	20.300	-24.052	54.394	10.042	AV
3			4.777	37.331	27.300	-18.669	56.000	10.031	QP
4			4.777	25.631	15.600	-20.369	46.000	10.031	AV
5			5.436	38.083	28.000	-21.917	60.000	10.083	QP
6			5.436	26.983	16.900	-23.017	50.000	10.083	AV
7			14.062	35.943	25.834	-24.057	60.000	10.109	QP
8			14.062	28.794	18.686	-21.206	50.000	10.109	AV
9			19.046	35.828	25.688	-24.172	60.000	10.141	QP
10			19.046	30.044	19.903	-19.956	50.000	10.141	AV
11			27.430	33.477	23.100	-26.523	60.000	10.377	QP
12			27.430	26.877	16.500	-23.123	50.000	10.377	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

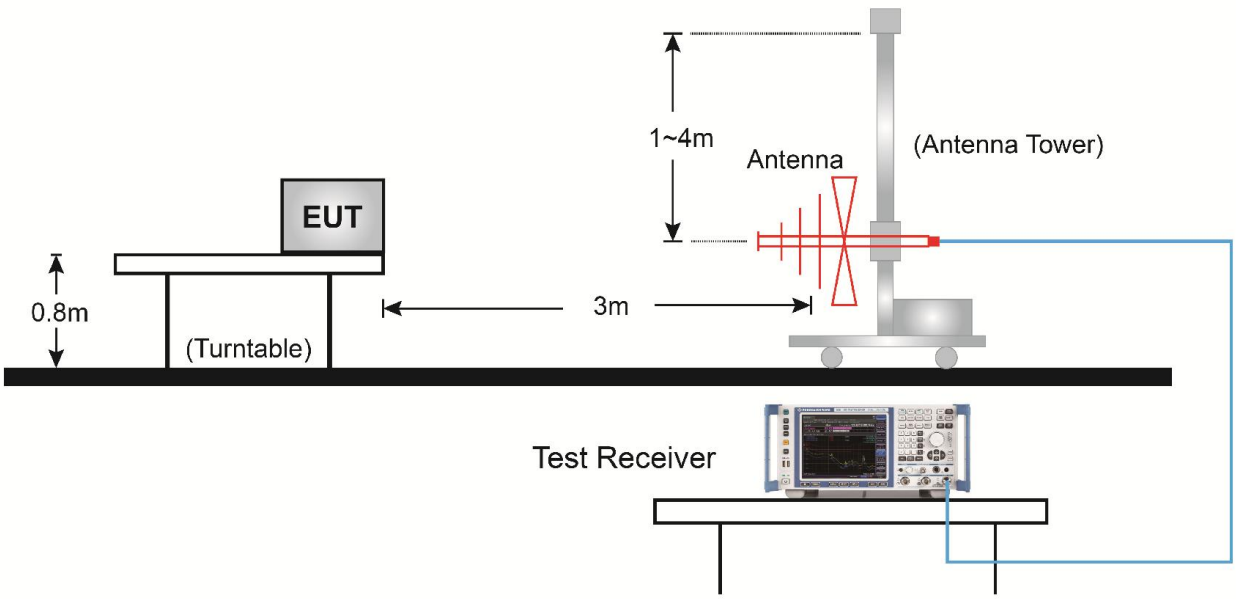
6.3. Radiated Emission Measurement

6.3.1.Test Limit

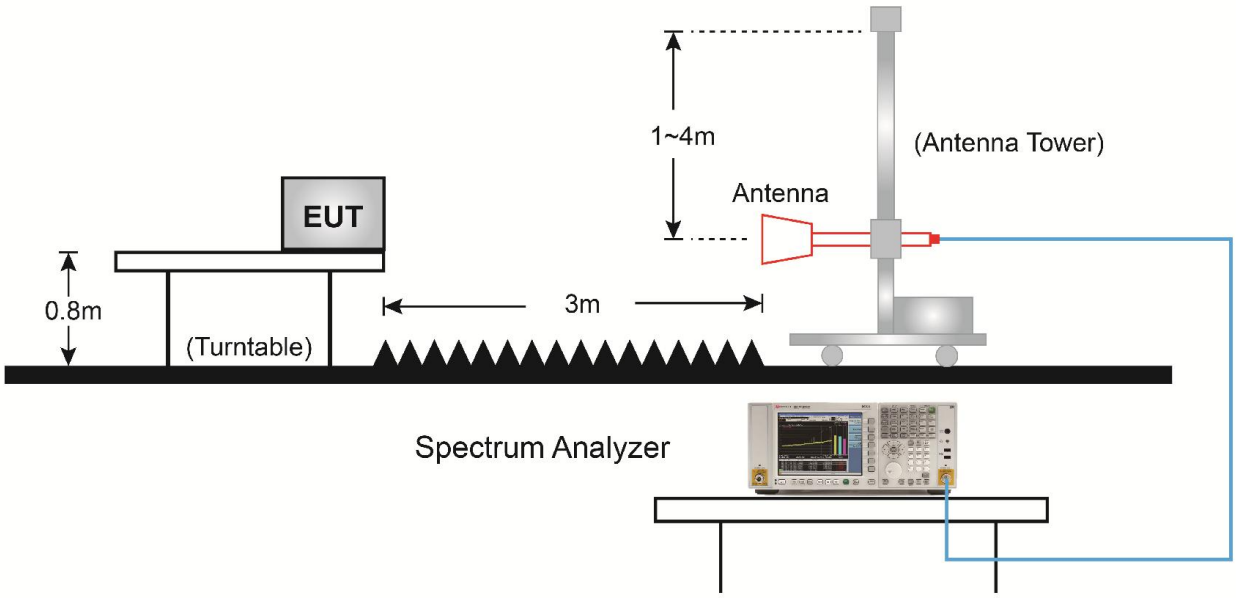
FCC Part 15.109 Limits		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)		

6.3.2.Test Setup

30MHz ~ 1GHz Test Setup:

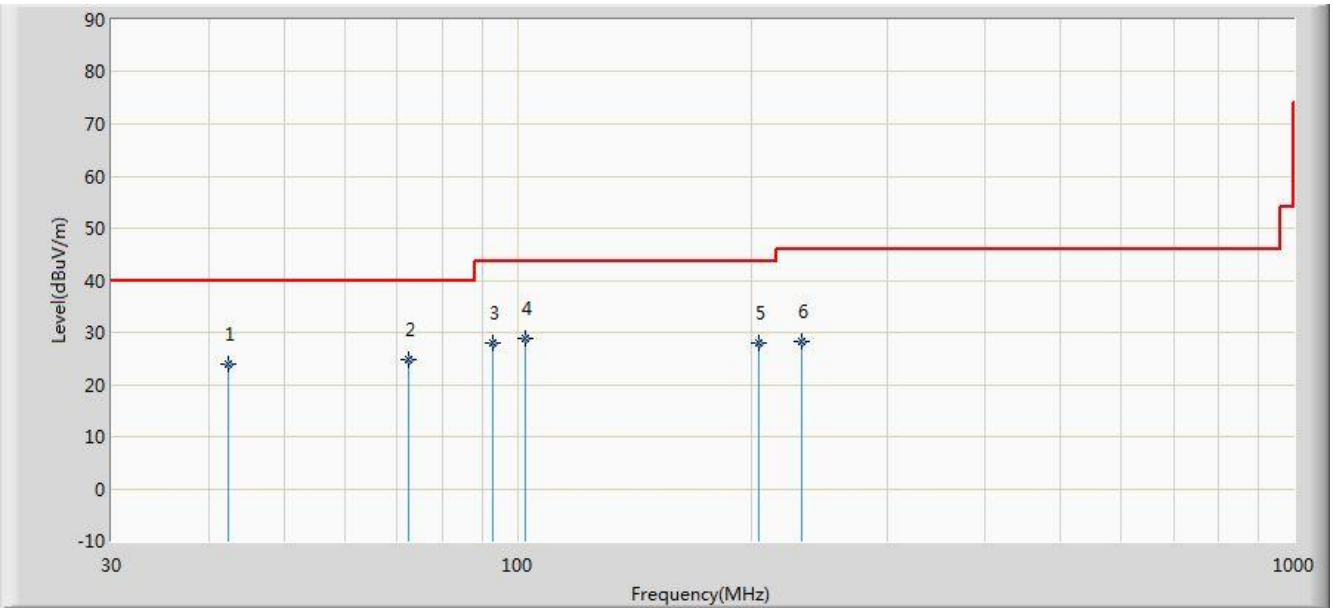


1GHz ~18GHz Test Setup:



6.3.3.Test Result of Radiated Emissions

Site: AC1	Time: 2019/06/04 - 11:02
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: David Lv
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	

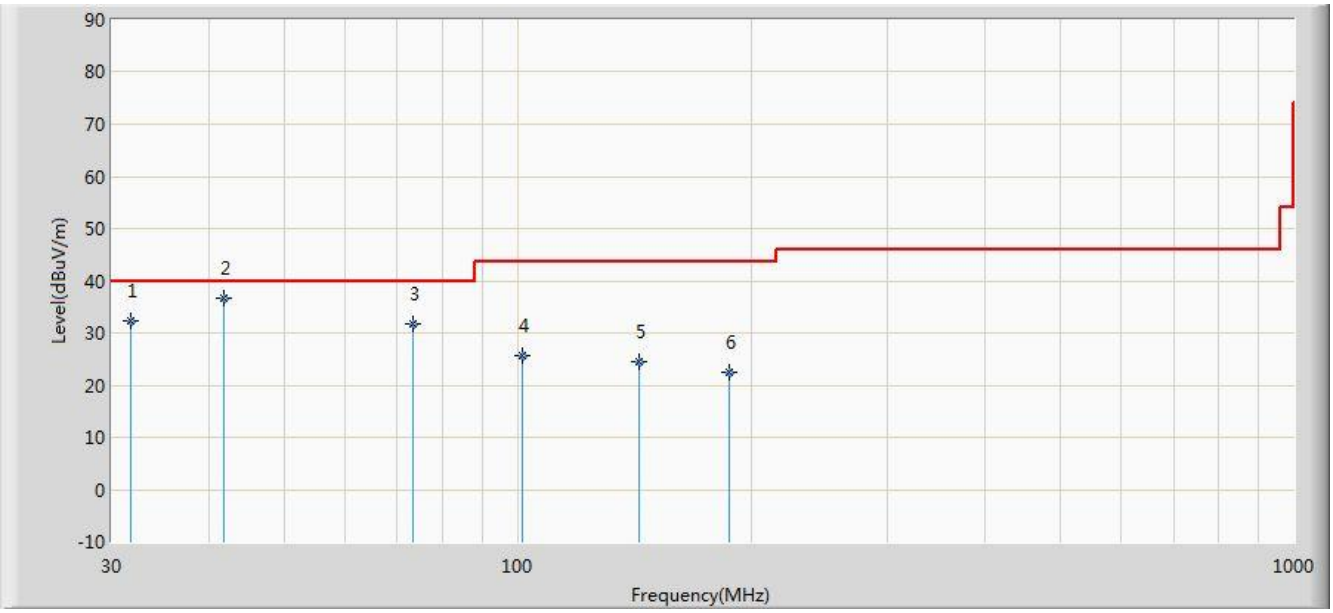


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor （dB）	Type
1		*	42.454	23.985	9.453	-16.015	40.000	14.532	QP
2			72.453	24.762	13.456	-15.238	40.000	11.306	QP
3			92.749	28.059	17.454	-15.441	43.500	10.606	QP
4			102.451	28.858	17.450	-14.642	43.500	11.409	QP
5			204.480	27.861	16.450	-15.639	43.500	11.411	QP
6			232.485	28.248	15.451	-17.752	46.000	12.798	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2019/06/04 - 11:02
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: David Lv
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	

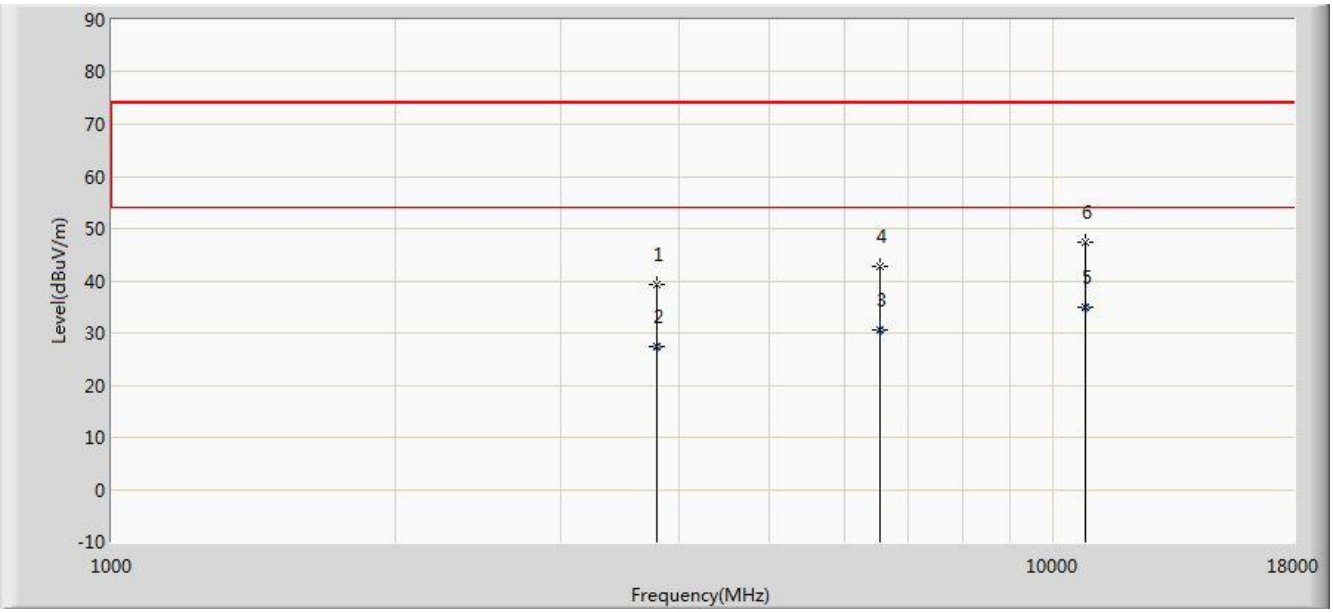


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor （dB）	Type
1			31.754	32.288	18.424	-7.712	40.000	13.864	QP
2			41.887	36.661	22.100	-3.339	40.000	14.561	QP
3		*	73.452	31.616	20.456	-8.384	40.000	11.160	QP
4			101.454	25.766	14.459	-17.734	43.500	11.307	QP
5			143.456	24.366	9.423	-19.134	43.500	14.942	QP
6			187.450	22.600	10.450	-20.900	43.500	12.151	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC1	Time: 2019/06/04 - 11:02
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	

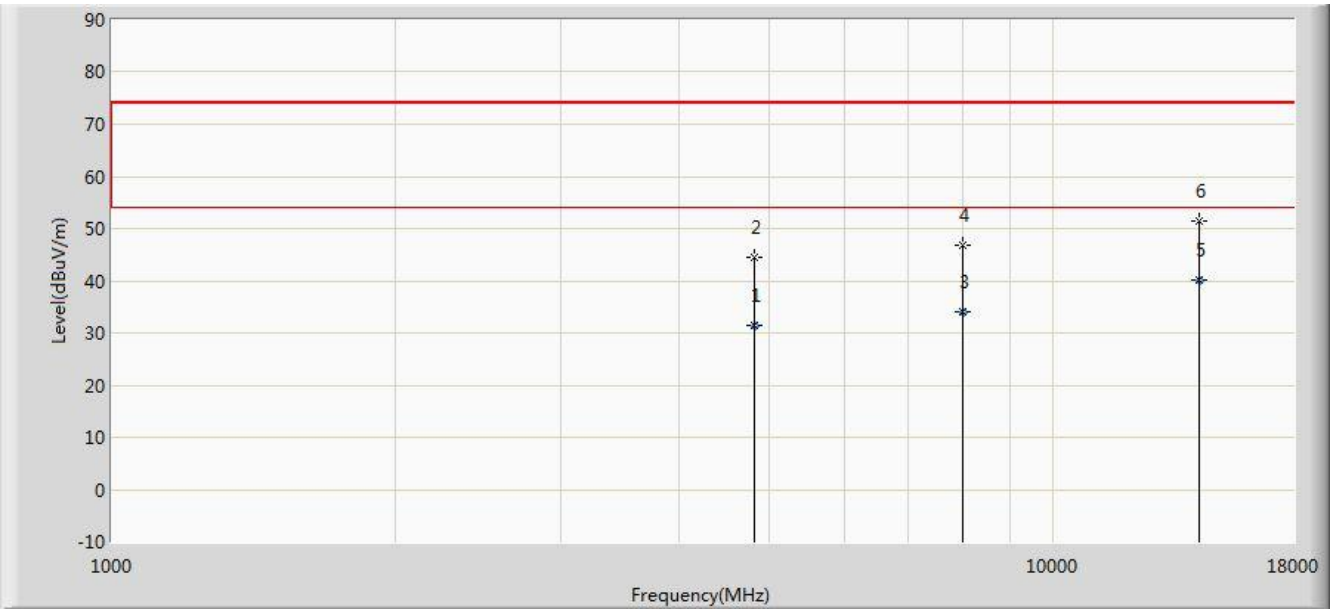


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor （dB）	Type
1			3788.000	39.252	37.396	-34.748	74.000	1.856	PK
2			3788.120	27.308	25.452	-26.692	54.000	1.856	AV
3			6533.452	30.720	21.120	-23.280	54.000	9.601	AV
4			6533.500	42.677	33.077	-31.323	74.000	9.601	PK
5			10834.120	34.796	17.120	-19.204	54.000	17.675	AV
6		*	10834.500	47.454	29.777	-26.546	74.000	17.677	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

Site: AC1	Time: 2019/06/04 - 11:02
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: AXENT.ONE PLUS	Power: AC 120V/60Hz
Test Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor （dB）	Type
1			4816.452	31.587	26.011	-22.413	54.000	5.576	AV
2			4816.500	44.494	38.918	-29.506	74.000	5.575	PK
3			8012.450	34.123	21.454	-19.877	54.000	12.669	AV
4			8012.500	46.945	34.277	-27.055	74.000	12.668	PK
5			14268.120	40.260	19.145	-13.740	54.000	21.115	AV
6		*	14268.500	51.390	30.276	-22.610	74.000	21.114	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **AXENT.ONE PLUS** has been tested to comply with the requirements specified in §15.107 and §15.109 of the FCC.

The End

Appendix A - Test Setup Photograph

Refer to “1905WSU016-UT” file.

Appendix B - EUT Photograph

Refer to “1905WSU016-UE” file.