

# Test Report

## FCC Part15 Subpart C & Industry Canada RSS-247 Issue 1

Product Name : UMA  
Model No. : UMA  
FCC ID : 2AGV2UMA  
IC : 20979-UMA

Applicant : Pablo Inc.

Address : 888 Marin St. San Francisco, CA 94124, USA

Date of Receipt : Apr. 19, 2016

Issued Date : Jun. 02, 2016

Report No. : 1642074R-RF-US-P06V02

Report Version : V 1.1



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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## Test Report Certification

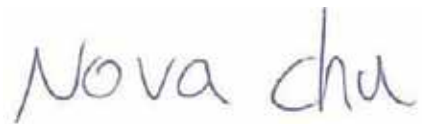
Issued Date : Jun. 02, 2016


Report No. : 1642074R-RF-US-P06V02



Product Name : UMA  
Applicant : Pablo Inc.  
Address : 888 Marin St. San Francisco, CA 94124, USA  
Manufacturer : Pablo Inc.  
Address : 888 Marin St. San Francisco, CA 94124, USA  
Model No. : UMA  
FCC ID : 2AGV2UMA  
IC : 20979-UMA  
Brand Name : Pablo  
EUT Voltage : AC 100- 240V ,50Hz/60Hz  
(Power adaptor Voltage)  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2015  
ANSI C63.4:2014; ANSI C63.10:2013;  
KDB 558074 D01v03r05  
Industry Canada RSS-Gen Issue 4 / RSS-247 Issue 1  
Test Result : Complied  
Performed Location : Quietek Corporation (Linkou Laboratory)  
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FCC Registration Number: 92195; IC Lab Code: 4075A

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## Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>BSMI, NCC, TAF</b>
<b>USA</b>	<b>:</b>	<b>FCC</b>
<b>Japan</b>	<b>:</b>	<b>VCCI</b>

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://www.quietek.com/english/about/certificates.aspx?bval=5>  
The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : [http://www.quietek.com/index\\_en.aspx](http://www.quietek.com/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## TABLE OF CONTENTS

Description	Page
1. General Information .....	7
1.1. EUT Description .....	7
1.2. Working Frequency of Each Channel: .....	7
1.3. Antenna information .....	8
1.4. Mode of Operation .....	8
1.5. Tested System Details .....	8
1.6. Configuration of Tested System .....	9
1.7. EUT Exercise Software .....	11
2. Technical Test .....	12
2.1. Summary of Test Result .....	12
2.2. Test Frequency configuration: .....	13
2.3. Test Environment .....	14
2.4. Measurement Uncertainty .....	14
3. AC Power Line Conducted Emission .....	15
3.1. Test Equipment .....	15
3.2. Test Setup .....	15
3.3. Limit .....	16
3.4. Test Procedure .....	16
3.5. Test Result .....	17
4. Emissions in restricted frequency bands .....	19
4.1. Test Equipment .....	19
4.2. Test Setup .....	20
4.3. Limit .....	21
4.4. Test Procedure .....	23
4.5. EUT test Axis definition .....	24
4.6. Test Result .....	25
5. Emissions in non-restricted frequency bands .....	28
5.1. Test Equipment .....	28
5.2. Test Setup .....	29
5.3. Limit .....	30
5.4. Test Procedure .....	31
5.5. EUT test Axis definition .....	32
5.6. Test Result .....	33
6. Radiated Emission Band Edge .....	34
6.1. Test Equipment .....	34
6.2. Test Setup .....	35
6.3. Limit .....	35

6.4.	Test Procedure .....	36
6.5.	EUT test definition .....	37
6.6.	Duty Cycle .....	38
6.7.	Test Result.....	39
7.	Occupied Bandwidth .....	47
7.1.	Test Equipment.....	47
7.2.	Test Setup.....	47
7.3.	Limit.....	48
7.4.	Test Procedure .....	48
7.5.	EUT test definition .....	49
7.6.	Test Result.....	50
8.	Fundamental emission output power .....	51
8.1.	Test Equipment.....	51
8.2.	Test Setup.....	51
8.3.	Limit.....	52
8.4.	Test Procedure .....	53
8.5.	EUT test definition .....	54
8.6.	Test Result.....	55
9.	Power Spectral Density .....	56
9.1.	Test Equipment.....	56
9.2.	Test Setup.....	56
9.3.	Limit.....	56
9.4.	Test Procedure .....	57
9.5.	EUT test definition .....	58
9.6.	Test Result.....	59

## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1642074R-RF-US-P06V02	V1.0	Initial Issued Report	May. 25, 2016
1642074R-RF-US-P06V02	V1.1	Added RSS-247 in the title	Jun. 02, 2016

## 1. General Information

### 1.1. EUT Description

Product Name	UMA
Brand Name	Pablo
Model No.	UMA
EUT Voltage (Power adaptor Voltage)	AC 100-240V,50Hz/60Hz
Bluetooth Specification	V3.0+V4.1
Frequency Range	2402- 2480 MHz
Channel Number	V3.0: 79 V4.1: 40
Channel Separation	V3.0: 1MHz V4.1: 2MHz
Type of Modulation	V3.0: GFSK, Pi/4 DQPSK, 8DPSK V4.1: GFSK
Data Rate	V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.1: 1Mbps(GFSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

### 1.2. Working Frequency of Each Channel:

Bluetooth Working Frequency of Each Channel: (For V4.1)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

### 1.3. Antenna information

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	<input checked="" type="checkbox"/>	1*TX+1*RX	<input type="checkbox"/>	2*TX+2*RX	<input type="checkbox"/>	3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/>	SISO				
	<input type="checkbox"/>	MIMO	<input type="checkbox"/>	Basic		
			<input type="checkbox"/>	CDD		
			<input type="checkbox"/>	Beam-forming		
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/>	Dipole		
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/>	PIFA		
			<input checked="" type="checkbox"/>	PCB		
			<input type="checkbox"/>	Ceramic Chip Antenna		
			<input type="checkbox"/>	Metal plate type F antenna		
Antenna Gain	-0.53dBi					

### 1.4. Mode of Operation

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

### 1.5. Tested System Details

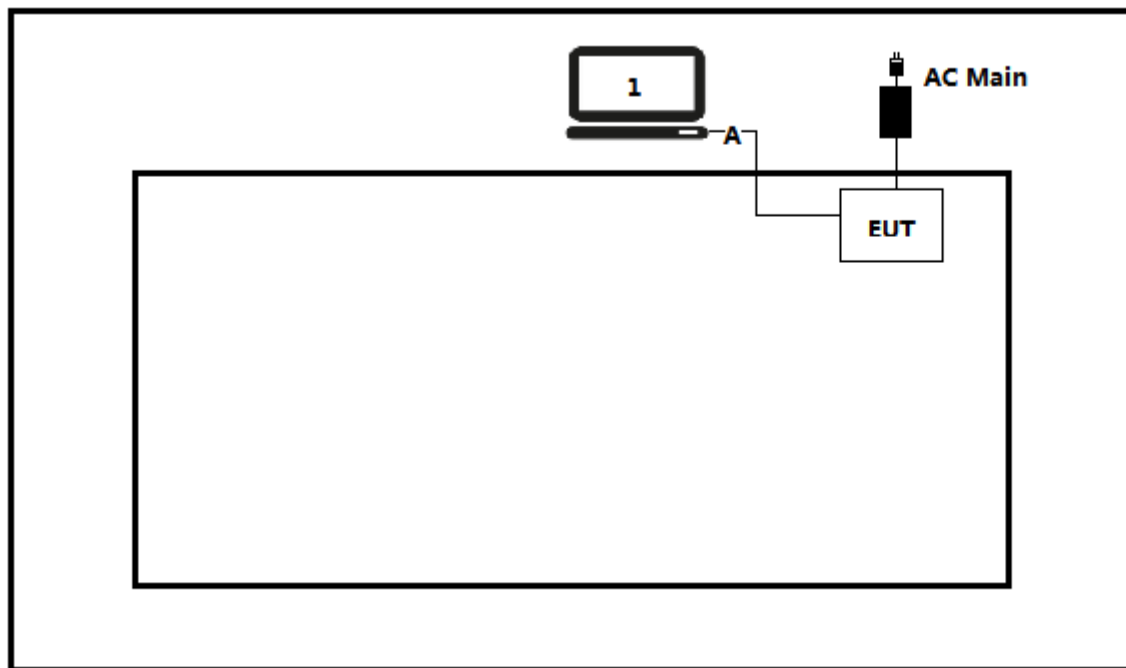
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter

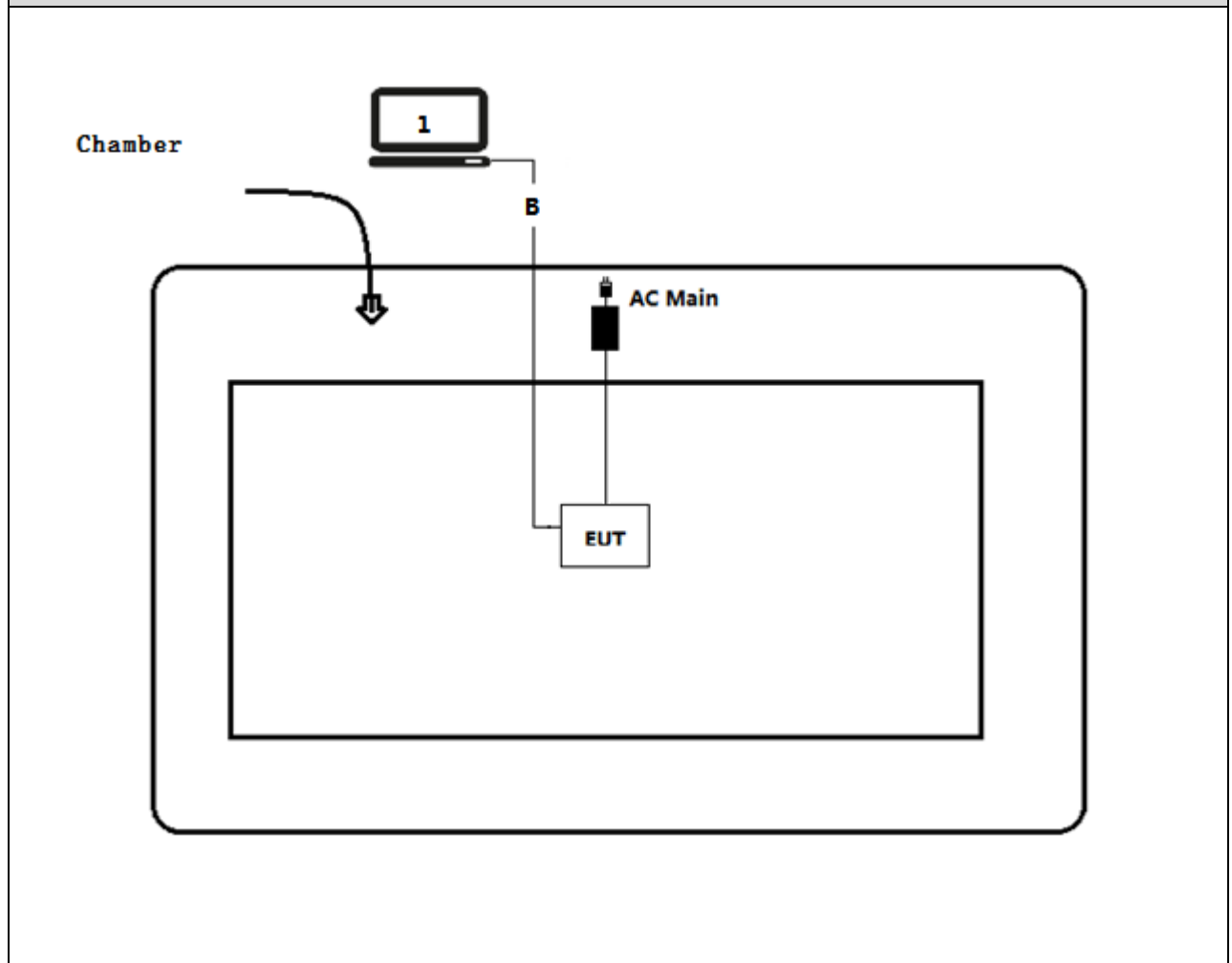


## 1.6. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



### 1.7. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run the RF test software(Blue Test 3 V2.4), and set the test mode and channel, then press OK to start continue receive.

## 2. Technical Test

### 2.1. Summary of Test Result

Performed Test Item	Normative References	Worst case mode	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Mode 1	FCC 15.207	PASS
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Mode 1	FCC 15.209	PASS
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(d)	Mode 1	20dBc	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Mode 1	FCC 15.209	PASS
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(2)	Mode 1	500kHz	PASS
Fundamental emission output power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	Mode 1	30dBm	PASS
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(e)	Mode 1	8dBm/3kHz	PASS

Performed Test Item	Normative References	Worst case mode	Limit	Result
AC Power Line Conducted Emission	RSS-Gen Issue 4 Section 8.8	Mode 1	RSS-Gen	PASS
Emissions in restricted frequency bands	RSS-Gen Issue 4 Section 8.9	Mode 1	RSS-Gen	PASS
Emissions in non-restricted frequency bands	RSS-247 Issue 1 Section A5.5	Mode 1	20dBc	PASS
Radiated Emission Band Edge	RSS-247 Issue 1 Section A5.5	Mode 1	RSS-247	PASS
Occupied Bandwidth	RSS-Gen Issue 4 Section 6.6 RSS-247 Issue 1 Section A5.2(1)	Mode 1	500kHz	PASS
Fundamental emission output power	RSS-247 Issue 1 Section A5.4(4)	Mode 1	30dBm	PASS
Power Spectral Density	RSS-247 Issue 1 Section A5.2(2)	Mode 1	8dBm/3kHz	PASS

**2.2. Test Frequency configuration:**

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
BLE	00	2402 MHz	19	2440 MHz	39	2480MHz

### 2.3. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

### 2.4. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

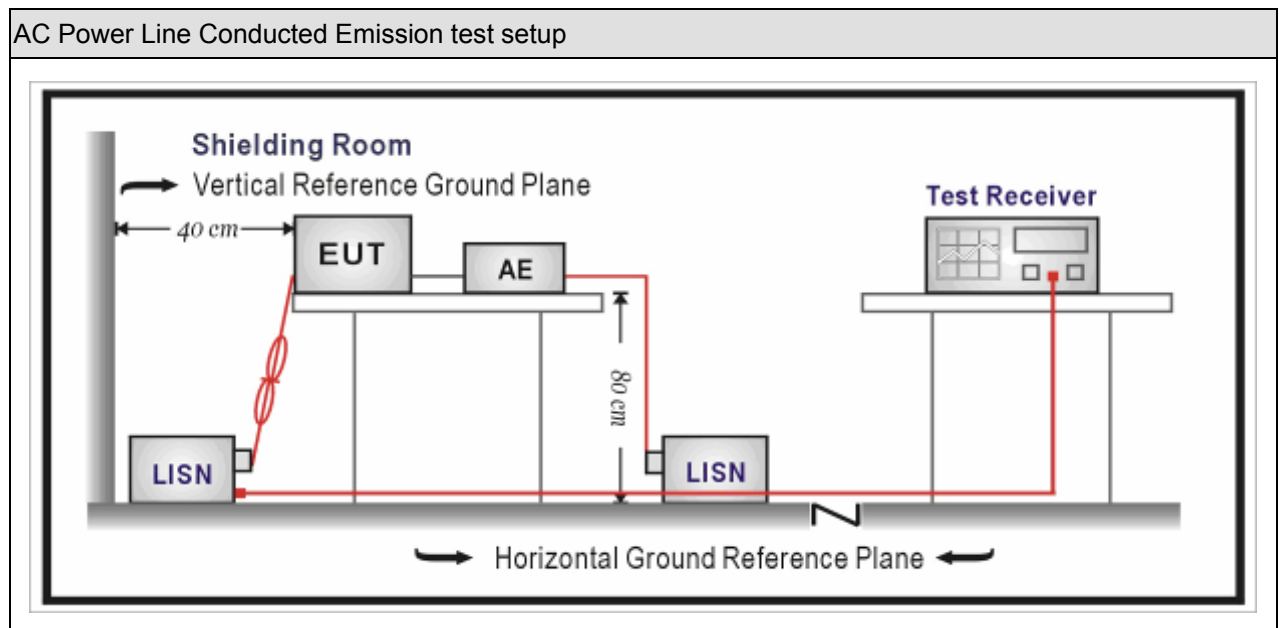
### 3. AC Power Line Conducted Emission

#### 3.1. Test Equipment

AC Power Line Conducted Emission / SR8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2016.03.05	2017.03.04
Two-Line V-Network	R&S	ENV216	100043	2015.03.29	2017.03.28
Two-Line V-Network	R&S	ENV216	100044	2015.09.17	2016.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.02	2017.03.01
50ohm Termination	SHX	TF2	07081401	2015.09.17	2016.09.16

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

#### 3.2. Test Setup



### 3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	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 0.15 MHz to 0.5 MHz.		

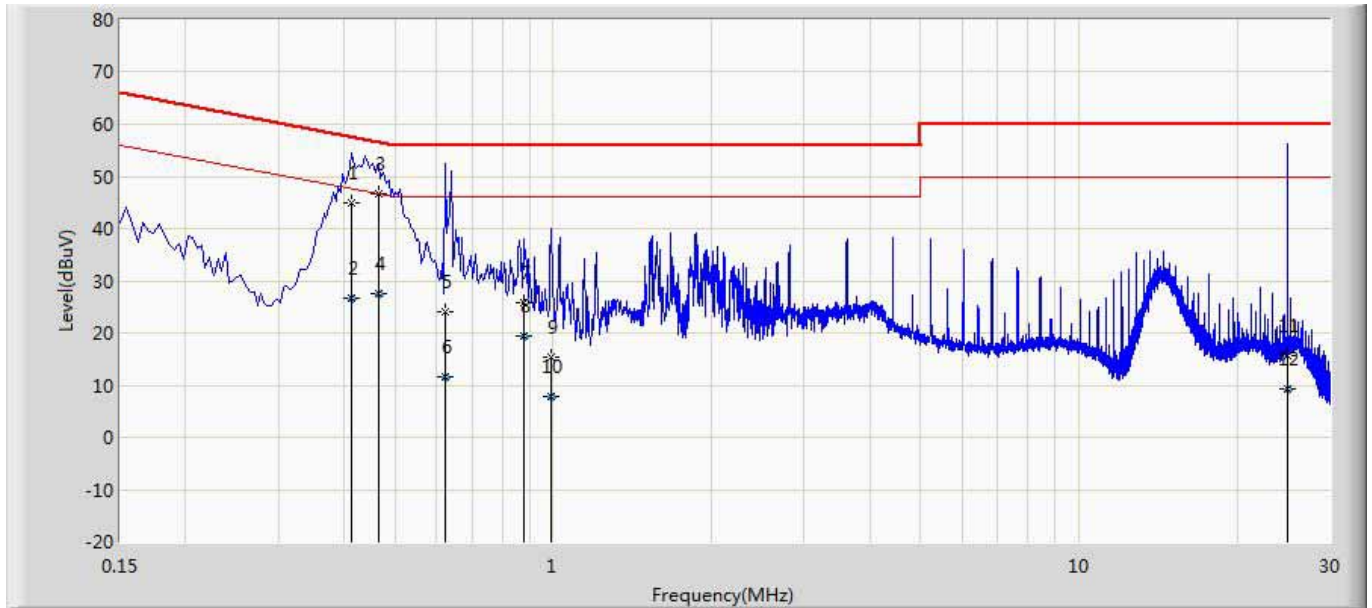
### 3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices
<input checked="" type="checkbox"/>	ANSI C63.4-2014	7	AC power-line conducted emission measurements



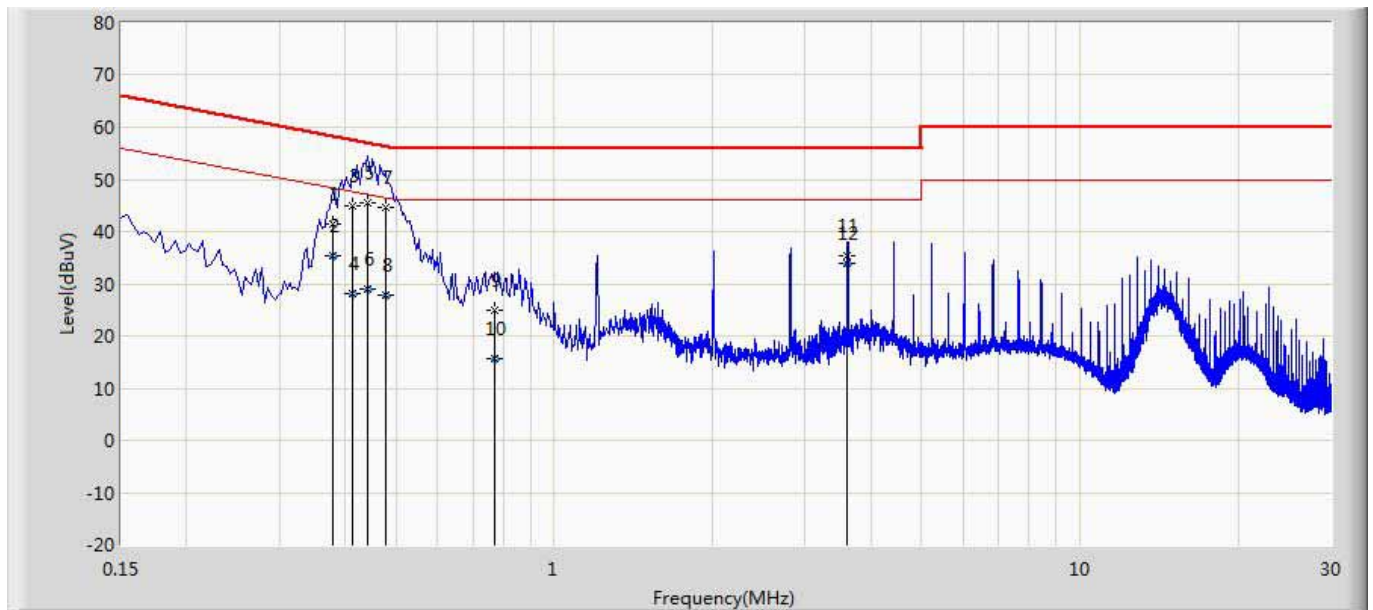
### 3.5. Test Result

Site: SR8	Time: 2016/05/04
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: UMA	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.414	45.038	35.335	-12.530	57.568	9.635	0.068	0.000	QP
2		0.414	26.531	16.828	-21.037	47.568	9.635	0.068	0.000	AV
3	*	0.466	46.745	37.045	-9.840	56.585	9.630	0.070	0.000	QP
4		0.466	27.440	17.740	-19.145	46.585	9.630	0.070	0.000	AV
5		0.622	24.014	14.324	-31.986	56.000	9.620	0.070	0.000	QP
6		0.622	11.644	1.954	-34.356	46.000	9.620	0.070	0.000	AV
7		0.878	25.755	16.051	-30.245	56.000	9.630	0.074	0.000	QP
8		0.878	19.414	9.710	-26.586	46.000	9.630	0.074	0.000	AV
9		0.990	15.302	5.592	-40.698	56.000	9.630	0.080	0.000	QP
10		0.990	7.829	-1.881	-38.171	46.000	9.630	0.080	0.000	AV
11		24.926	15.567	5.107	-44.433	60.000	9.890	0.570	0.000	QP
12		24.926	9.327	-1.133	-40.673	50.000	9.890	0.570	0.000	AV

Site: SR8	Time: 2016/05/04
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: UMA	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.378	41.365	31.665	-16.958	58.323	9.640	0.060	0.000	QP
2		0.378	35.239	25.539	-13.084	48.323	9.640	0.060	0.000	AV
3		0.414	44.931	35.223	-12.637	57.568	9.640	0.068	0.000	QP
4		0.414	28.173	18.465	-19.395	47.568	9.640	0.068	0.000	AV
5	*	0.442	45.483	35.777	-11.541	57.024	9.636	0.070	0.000	QP
6		0.442	28.905	19.199	-18.119	47.024	9.636	0.070	0.000	AV
7		0.478	44.517	34.817	-11.857	56.374	9.630	0.070	0.000	QP
8		0.478	27.686	17.986	-18.688	46.374	9.630	0.070	0.000	AV
9		0.770	25.038	15.328	-30.962	56.000	9.640	0.070	0.000	QP
10		0.770	15.636	5.926	-30.364	46.000	9.640	0.070	0.000	AV
11		3.614	35.305	25.515	-20.695	56.000	9.660	0.130	0.000	QP
12		3.614	33.973	24.183	-12.027	46.000	9.660	0.130	0.000	AV

## 4. Emissions in restricted frequency bands

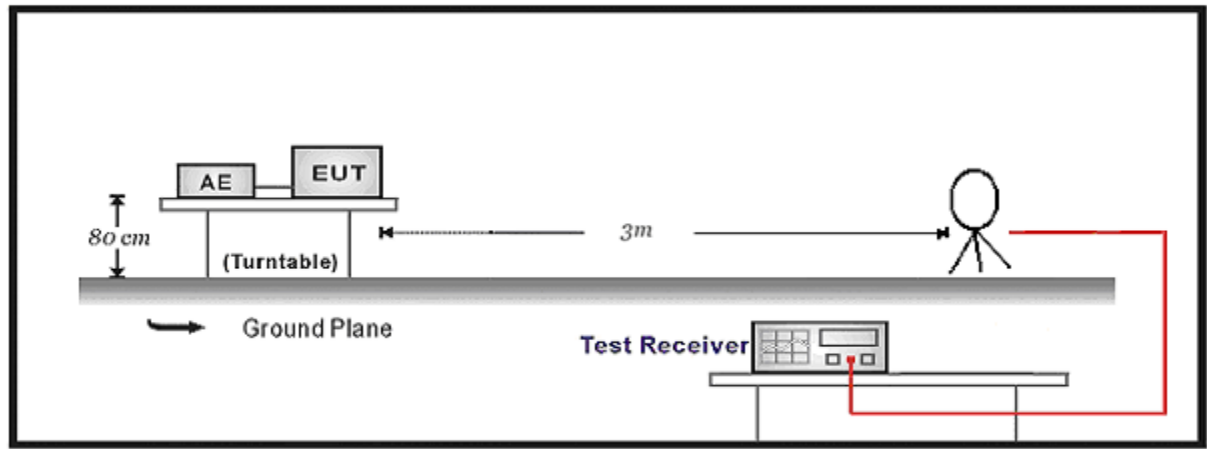
### 4.1. Test Equipment

Radiated Emission(Below 1GHz) / CB7					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.05	2017.03.04
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.16	2016.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2015.10.16	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.02	2017.03.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

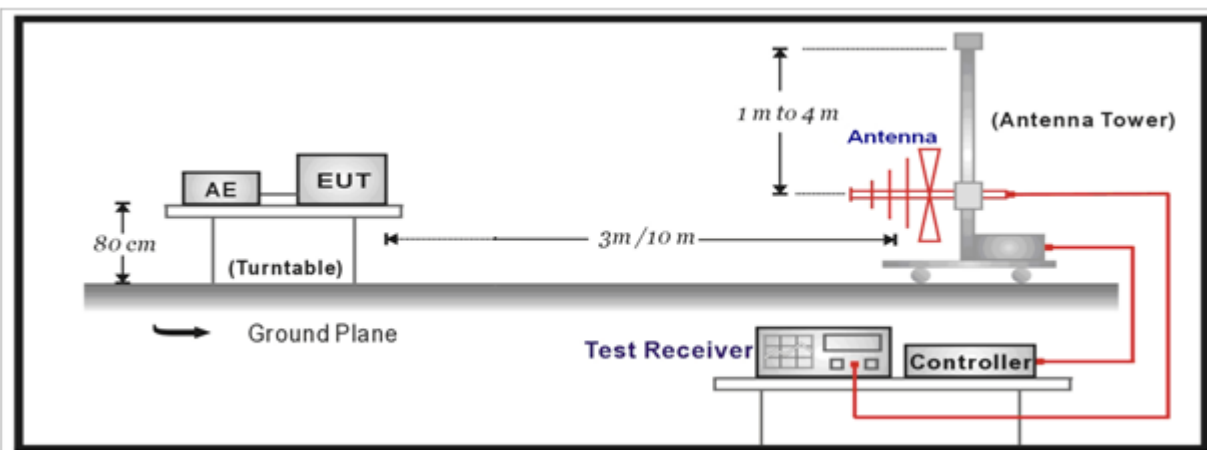
Radiated Emission(Above 1GHz) / CB7					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2015.05.06	2017.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2015.05.06	2017.05.03
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.06.10	2016.06.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

## 4.2. Test Setup

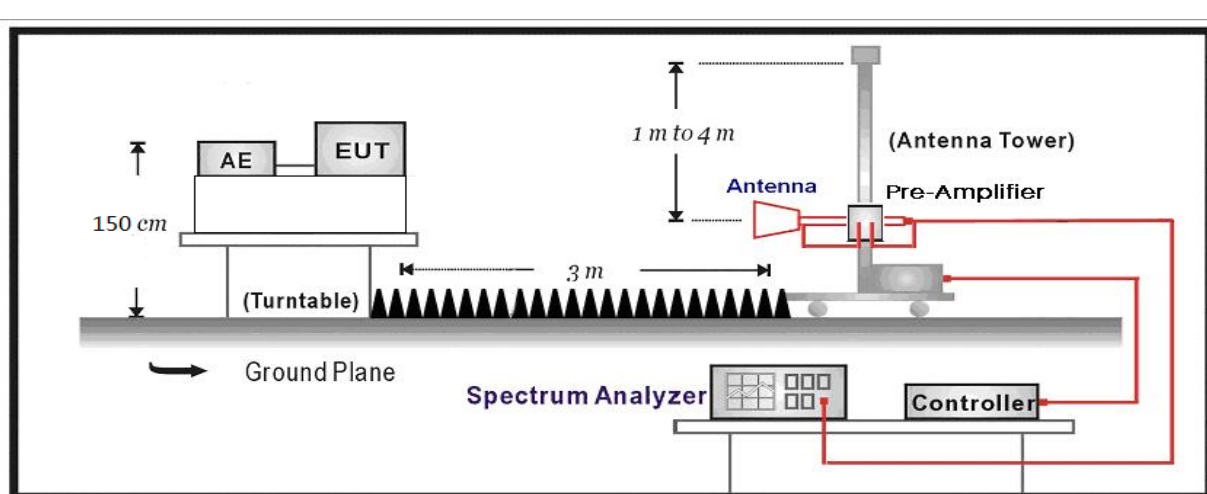
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



### 4.3. Limit

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength ( $\mu$ V/m)	Field strength (dB $\mu$ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 <sub>(Note 1)</sub>
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3 <sub>(Note 2)</sub>
216 - 960	200	46	3 <sub>(Note 2)</sub>
Above 960	500	54	3 <sub>(Note 2)</sub>

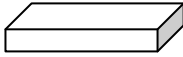
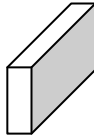
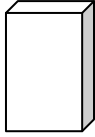
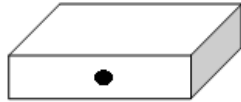


Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

#### 4.4. Test Procedure

Test Method						
	References Rule		Chapter	Description		
<input type="checkbox"/>	ANSI C63.10		11.11	Emissions in non-restricted frequency bands		
	<input type="checkbox"/>	ANSI C63.10	11.11.2	Reference level measurement		
	<input type="checkbox"/>	ANSI C63.10	11.11.3	Emission level measurement		
<input checked="" type="checkbox"/>	ANSI C63.10		11.12	Emissions in restricted frequency bands		
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.1	Radiated emission measurements		
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.7	Radiated spurious emission test		
		<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
		<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
		<input checked="" type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2	Antenna-port conducted measurements		
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.4	Peak power measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5	Average power measurement procedures	
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
			<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

#### 4.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input checked="" type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				



#### 4.6. Test Result

Product Name	:	UMA	Power	:	AC 120V
Test Mode	:	Mode 1	Test Site	:	CB7

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dB $\mu$ V/m)	Factor (dB)	Measure Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
Ant 0	00	H	4804.0	50.2	-6.2	44.0	54(Note2)	10.0	PK
		V	4804.0	50.6	-6.3	44.3	54(Note2)	9.7	PK
		H	7206.0	44.7	-1.7	43.0	54(Note2)	11.0	PK
		V	7206.0	44.5	-1.7	42.8	54(Note2)	11.2	PK
		H	9608.0	37.4	4.9	42.3	54(Note2)	11.7	PK
		V	9608.0	37.3	4.9	42.2	54(Note2)	11.8	PK
	19	H	4880.0	50.2	-6.2	44.0	54(Note2)	10.0	PK
		V	4880.0	50.3	-6.2	44.1	54(Note2)	9.9	PK
		H	7320.0	43.9	-1.4	42.5	54(Note2)	11.5	PK
		V	7320.0	43.2	-1.4	41.8	54(Note2)	12.2	PK
		H	9760.0	36.4	5.1	41.5	54(Note2)	12.5	PK
		V	9760.0	36.4	5.2	41.6	54(Note2)	12.4	PK
	39	H	4960.0	50.2	-6.3	43.9	54(Note2)	10.1	PK
		V	4960.0	50.6	-6.1	44.5	54(Note2)	9.5	PK
		H	7440.0	44.3	-0.8	43.5	54(Note2)	10.5	PK
		V	7440.0	44.2	-0.8	43.4	54(Note2)	10.6	PK
		H	9920.0	36.7	5.5	42.2	54(Note2)	11.8	PK
		V	9920.0	36.8	5.5	42.3	54(Note2)	11.7	PK

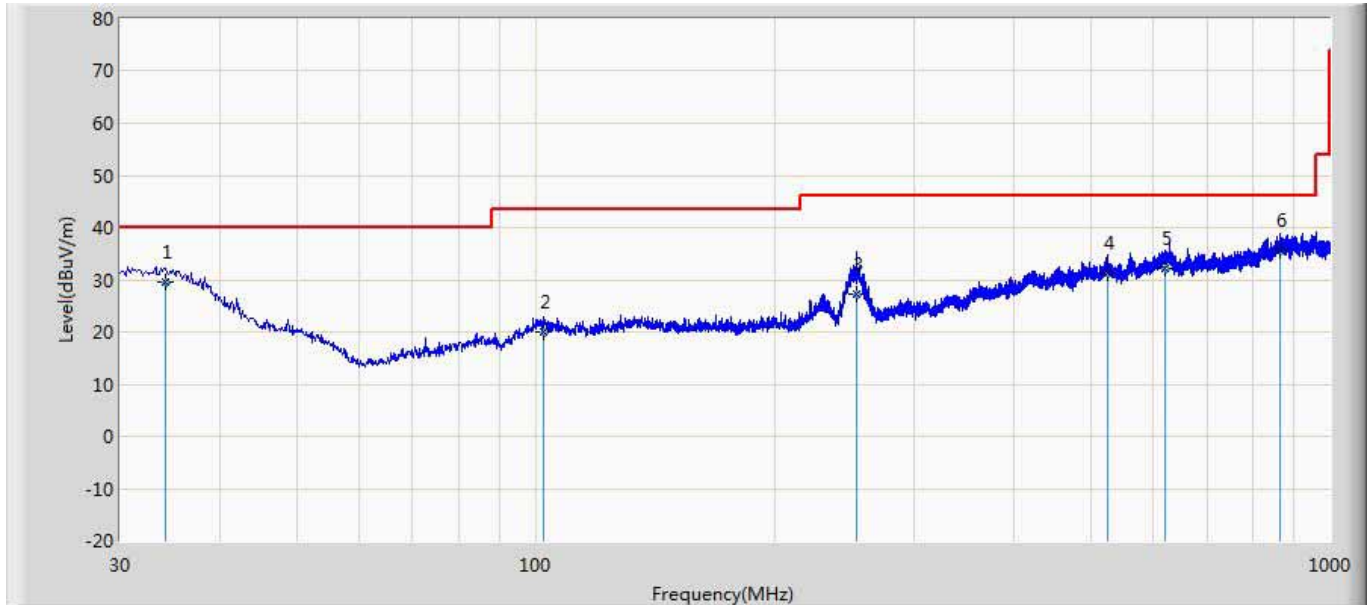
Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

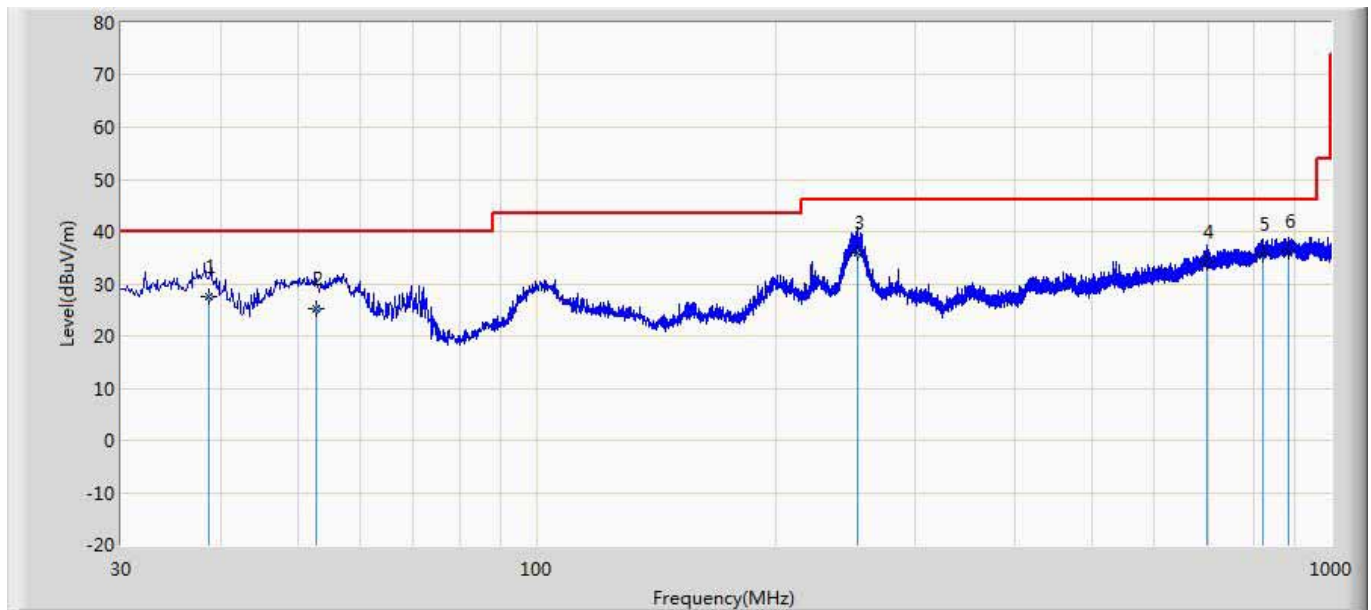
## The worst case of Radiated Emission below 1GHz:

Site: CB7	Time: 2016/05/04
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Horizontal
EUT: UMA	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		34.260	29.454	35.648	-10.546	40.000	16.329	0.634	23.158	100	90	QP
2		102.565	19.879	30.586	-23.621	43.500	11.357	1.098	23.162	100	265	QP
3		253.865	27.160	35.573	-18.840	46.000	13.179	1.710	23.302	200	360	QP
4		524.236	31.231	33.139	-14.769	46.000	18.382	2.480	22.770	200	38	QP
5		620.235	32.235	33.100	-13.765	46.000	19.000	2.730	22.595	100	315	QP
6	*	865.155	35.778	34.708	-10.222	46.000	20.430	3.240	22.600	200	56	QP

Site: CB7	Time: 2016/05/04 - 11:45
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Vertical
EUT: UMA	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		38.632	27.666	36.422	-12.334	40.000	13.794	0.679	23.229	100	155	QP
2		52.875	25.249	39.764	-14.751	40.000	7.711	0.790	23.016	100	159	QP
3		253.955	35.973	44.371	-10.027	46.000	13.193	1.710	23.301	200	47	QP
4		699.366	34.287	34.976	-11.713	46.000	18.901	2.940	22.530	200	254	QP
5		819.388	35.513	34.598	-10.487	46.000	20.155	3.150	22.390	200	345	QP
6	*	882.861	36.140	35.107	-9.860	46.000	20.465	3.270	22.702	100	56	QP

## 5. Emissions in non-restricted frequency bands

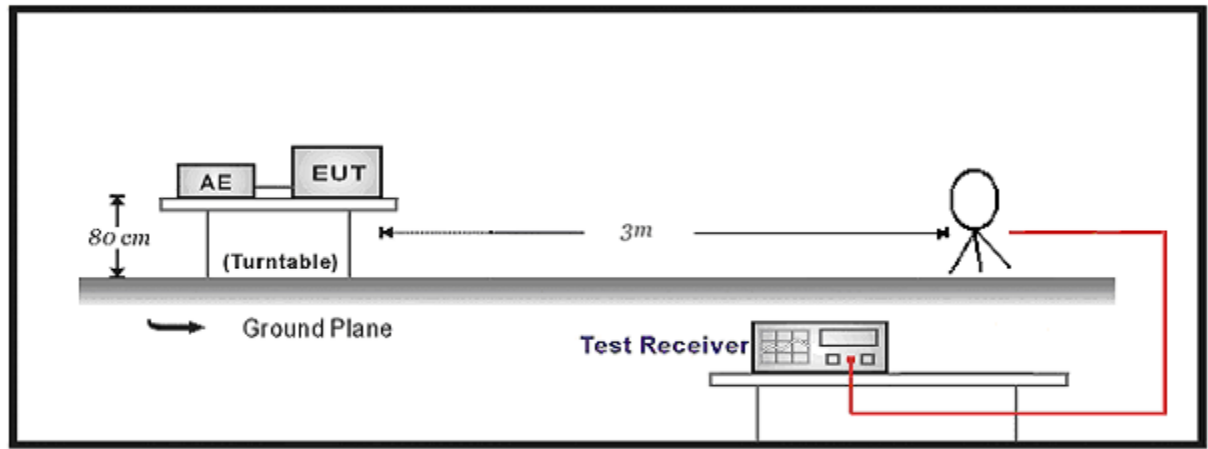
### 5.1. Test Equipment

Radiated Emission(Below 1GHz) / CB7					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.05	2017.03.04
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.16	2016.11.17
Bilog Chainenna	Teseq GmbH	CBL6112D	27611	2015.10.16	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.02	2017.03.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

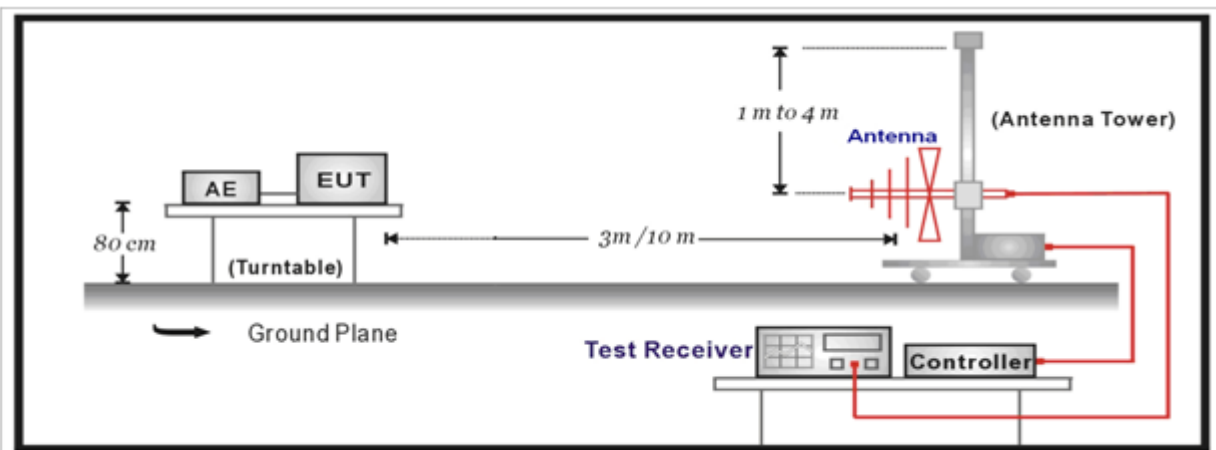
Radiated Emission(Above 1GHz) / CB7					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.05	2017.03.04
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2015.05.06	2017.05.03
Preamplifier	Quietek	AP-040G	CHM-0906001	2015.05.06	2017.05.03
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.06.10	2016.06.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

## 5.2. Test Setup

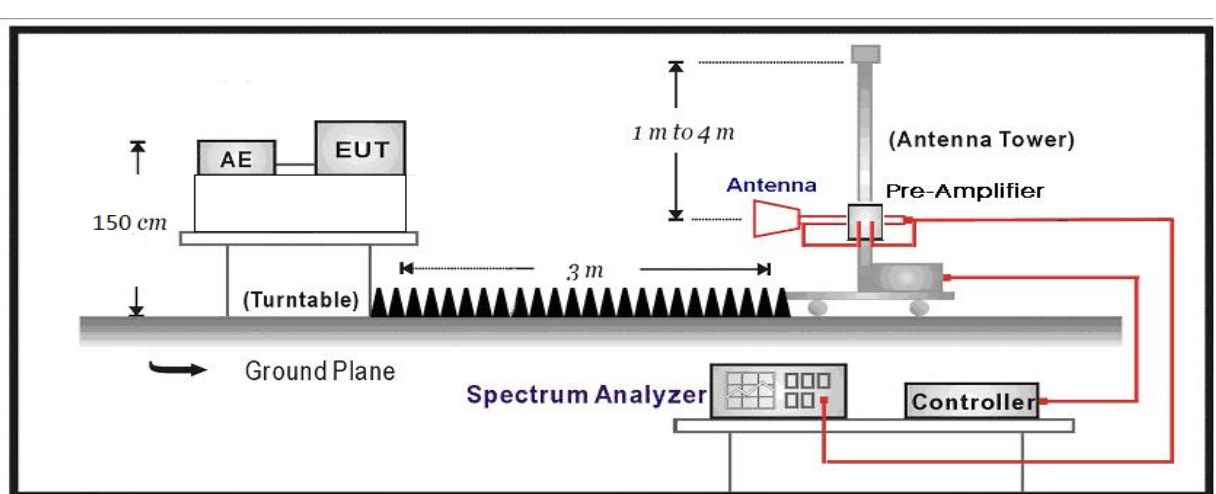
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



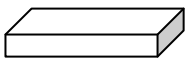
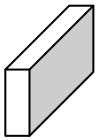
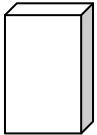

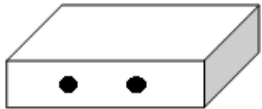

### 5.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
<p>Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).</p> <p>Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).</p>	

## 5.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.11	Emissions in non-restricted frequency bands
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.2	Reference level measurement
	<input checked="" type="checkbox"/>	ANSI C63.10	11.11.3	Emission level measurement
<input type="checkbox"/>	ANSI C63.10		11.12	Emissions in restricted frequency bands
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.1	Radiated emission measurements
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.7	Radiated spurious emission test
<input checked="" type="checkbox"/>	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input checked="" type="checkbox"/>	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input checked="" type="checkbox"/>	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
	<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2	Antenna-port conducted measurements
	<input type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure
		<input checked="" type="checkbox"/>	ANSI C63.10	Peak power measurement procedure
		<input type="checkbox"/>	ANSI C63.10	Average power measurement procedures
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1 Trace averaging with continuous EUT transmission at full power
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2 Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
		<input type="checkbox"/>	ANSI C63.10	11.12.2.5.3 Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

## 5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				



## 5.6. Test Result

Product Name	:	UMA	Test Power	:	AC 120V
Test Site	:	CB7			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	3.16	2400.00	-42.43	45.39	>20	Pass
1	39	2480	3.16	2483.50	-32.46	35.62	>20	Pass

Note: The worst case of Emissions in non-restricted frequency bands as below:

Mode 1 CH01(2412MHz)



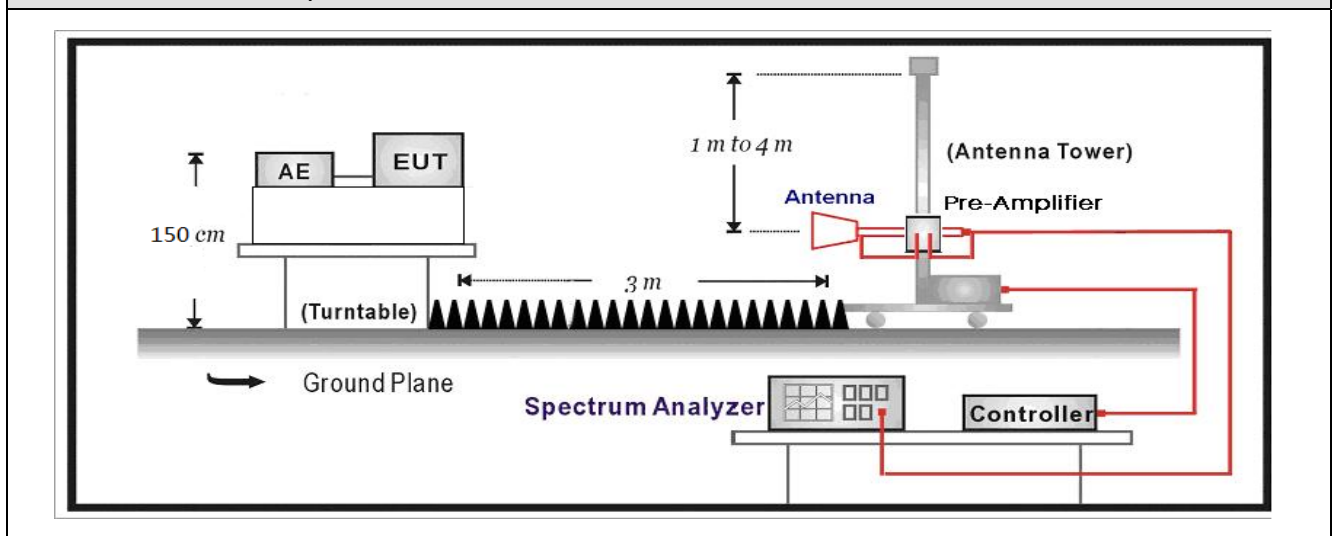
## 6. Radiated Emission Band Edge

### 6.1. Test Equipment

Radiated Emission(Above 1GHz) / CB7					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2015.05.06	2017.05.03
Preamplifier	Quietek	AP-040G	CHM-0906001	2015.05.06	2017.05.03
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.06.10	2016.06.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

## 6.2. Test Setup

Above 1GHz Test Setup:



## 6.3. Limit

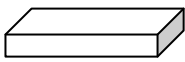
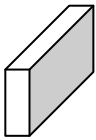
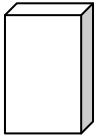

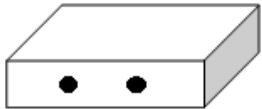

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB $\mu$ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

## 6.4. Test Procedure

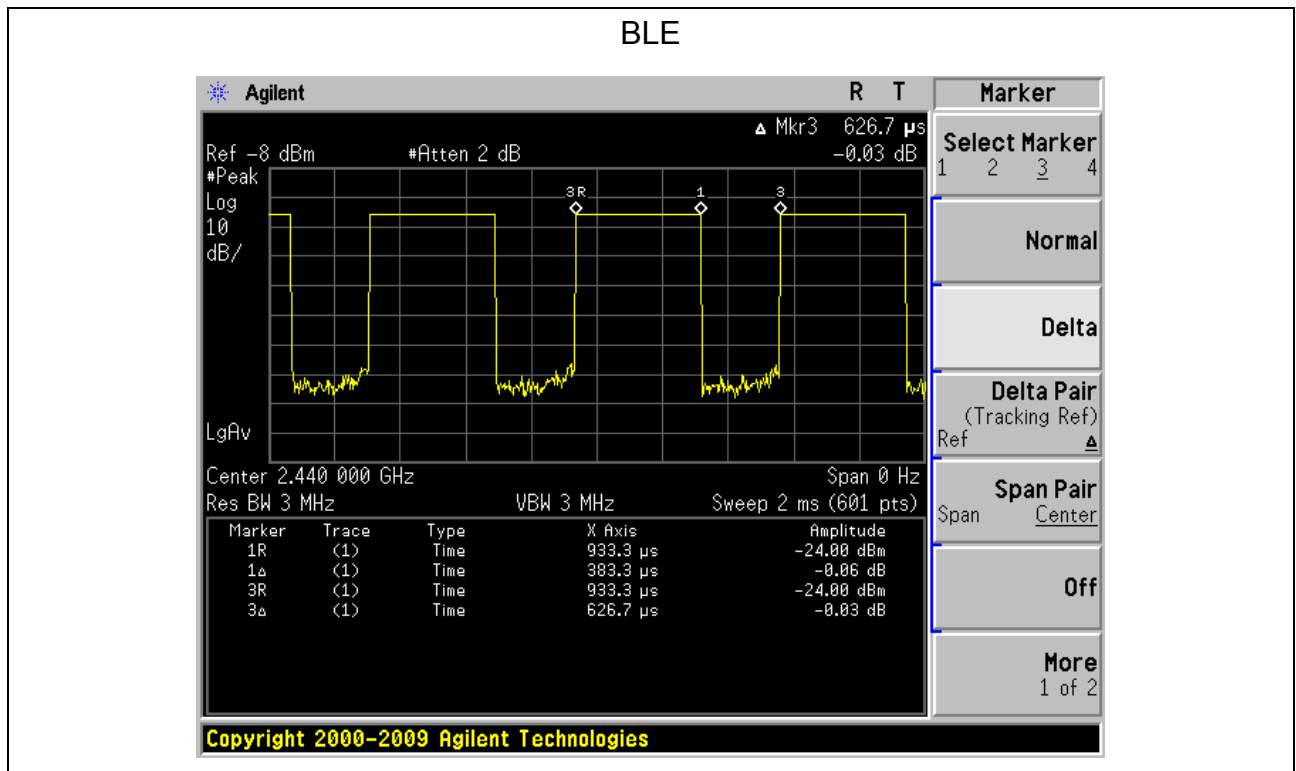
Test Method						
	References Rule			Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10			6.10	Band-edge testing	
	<input checked="" type="checkbox"/>	ANSI C63.10		6.10.5	Restricted-band band-edge measurements	
	<input type="checkbox"/>	ANSI C63.10		6.10.6	Marker-delta method	
<input checked="" type="checkbox"/>	ANSI C63.10			11.12	Emissions in restricted frequency bands	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.12.1	Radiated emission measurements	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.12.2.7	Radiated spurious emission test	
<input type="checkbox"/>	ANSI C63.10			6.4	Radiated emissions from unlicensed wireless devices below 30 MHz	
<input type="checkbox"/>	ANSI C63.10			6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz	
<input checked="" type="checkbox"/>	ANSI C63.10			6.6	Radiated emissions from unlicensed wireless devices above 1 GHz	
	<input type="checkbox"/>	ANSI C63.10		11.12.2	Antenna-port conducted measurements	
		<input type="checkbox"/>	ANSI C63.10	11.12.2.3	Quasi-peak measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.4	Peak power measurement procedure	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5	Average power measurement procedures	
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.1	Trace averaging with continuous EUT transmission at full power
			<input type="checkbox"/>	ANSI C63.10	11.12.2.5.2	Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction
			<input checked="" type="checkbox"/>	ANSI C63.10	11.12.2.5.3	Reduced VBW averaging across ON and OFF times of the EUT transmissions with max hold

## 6.5. EUT test definition

Item	Emissions in non-restricted frequency bands			
Device Category	<input checked="" type="checkbox"/>	Fixed position use		
	<input type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input checked="" type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

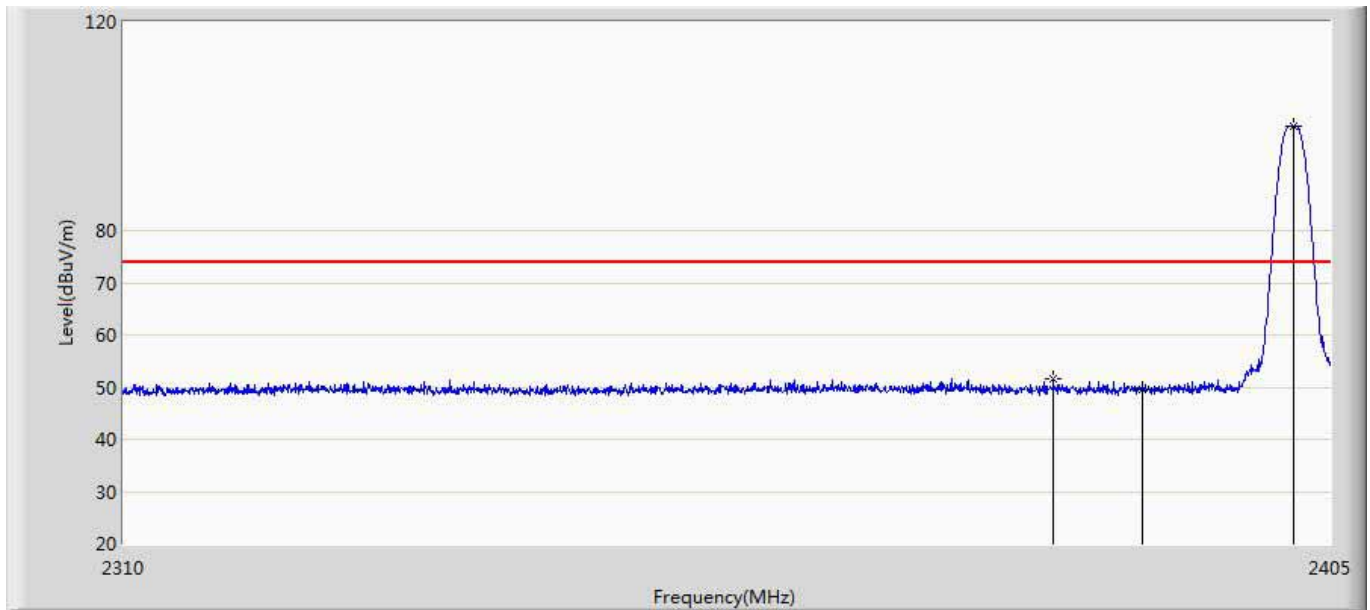
## 6.6. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	VBW (kHz)	Tx On + Tx Off (ms)	Duty Cycle
BLE	0.3833	0.2434	2.7	0.6267	61.16%



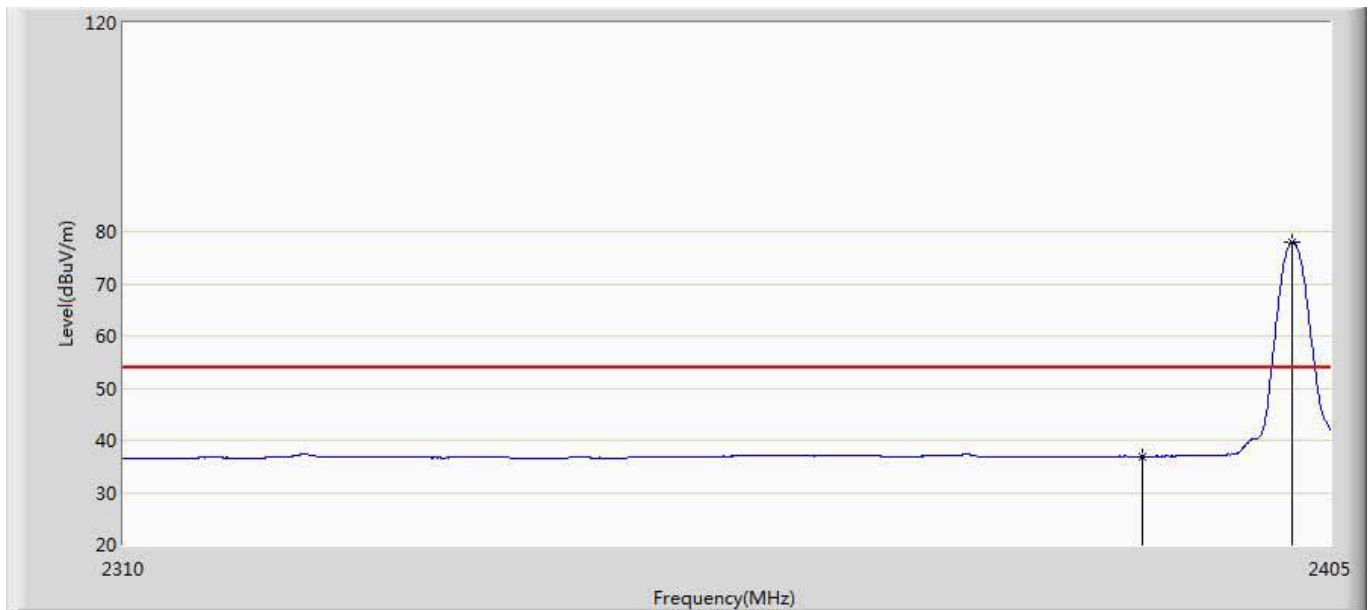
## 6.7. Test Result

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2382.865	51.640	13.750	-22.360	74.000	37.890	PK
2		2390.000	49.585	11.722	-24.415	74.000	37.863	PK
3	*	2402.103	99.992	62.152	N/A	N/A	37.840	PK

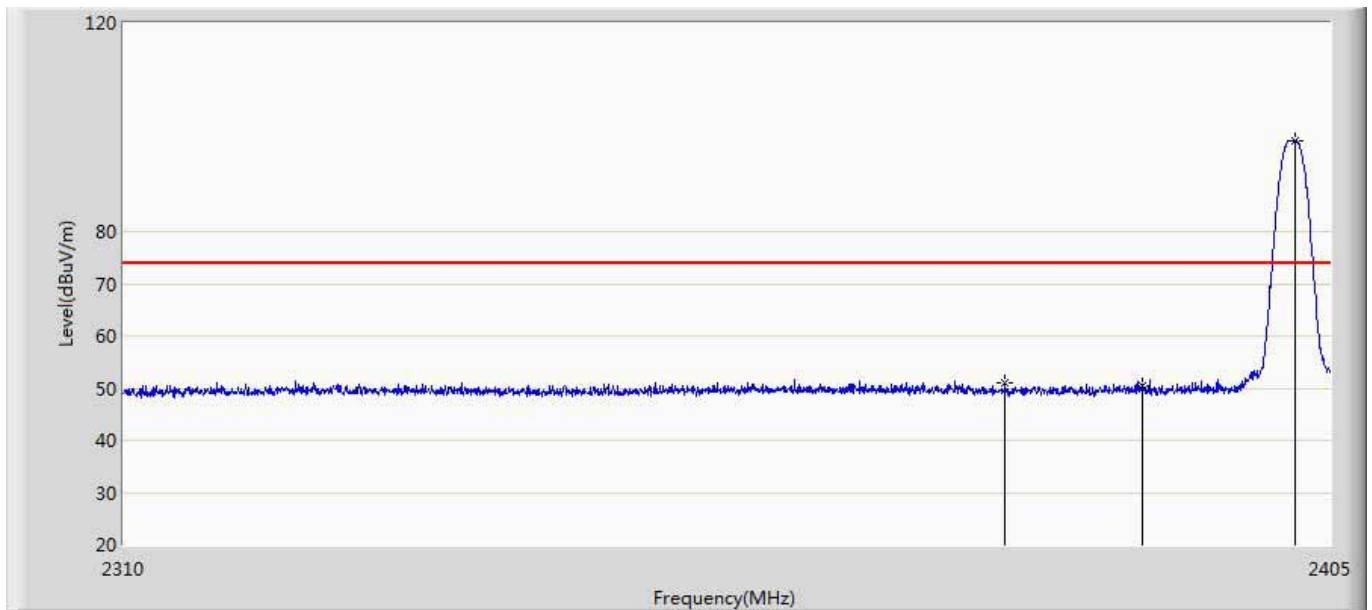
Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	36.943	-0.920	-17.057	54.000	37.863	AV
2	*	2401.913	77.960	40.120	N/A	N/A	37.840	AV

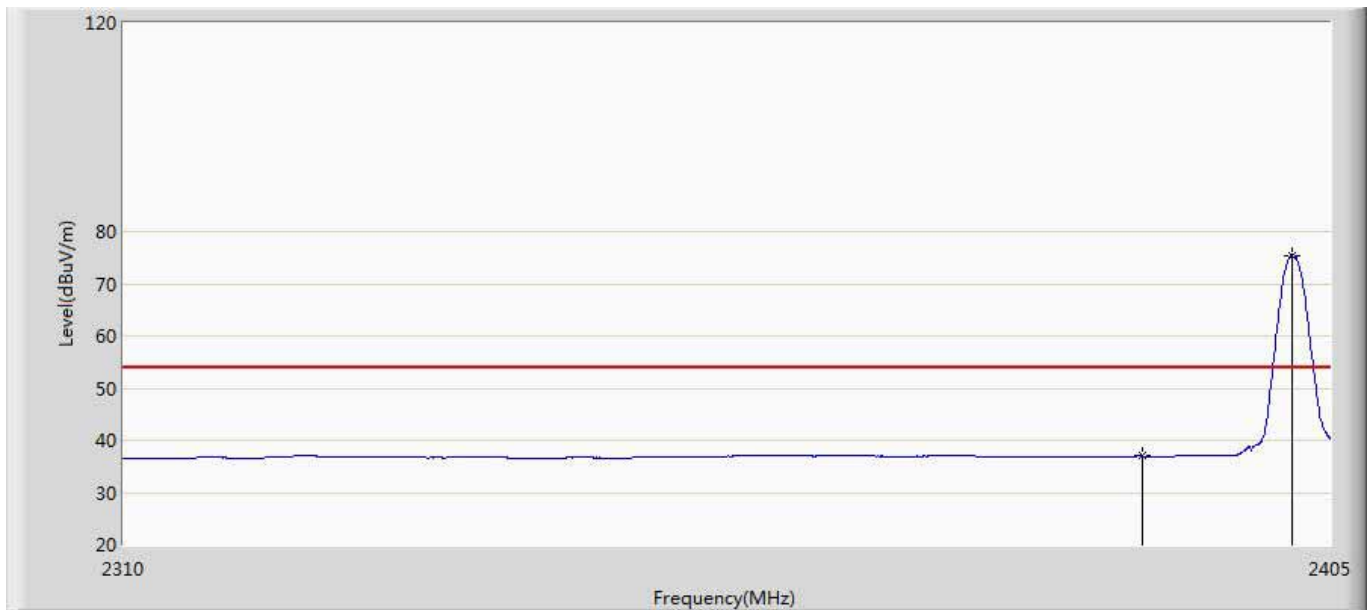


Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



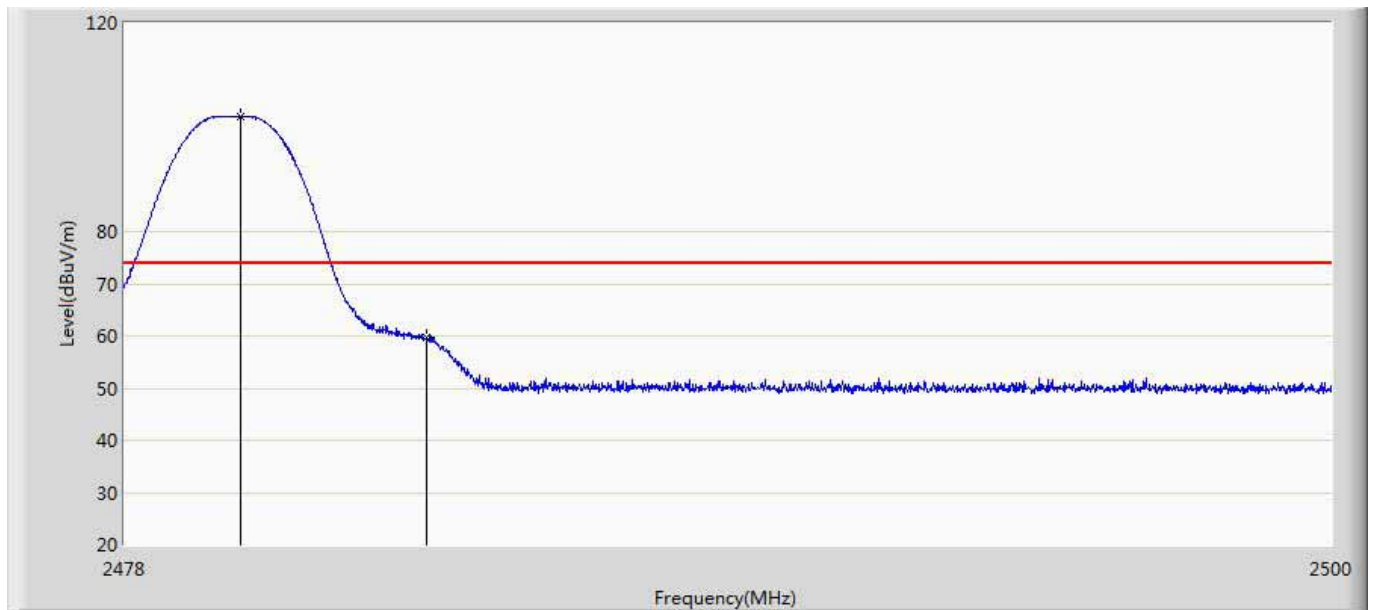
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2379.018	51.034	13.129	-22.966	74.000	37.904	PK
2		2390.000	50.403	12.540	-23.597	74.000	37.863	PK
3	*	2402.245	97.522	59.682	N/A	N/A	37.840	PK

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



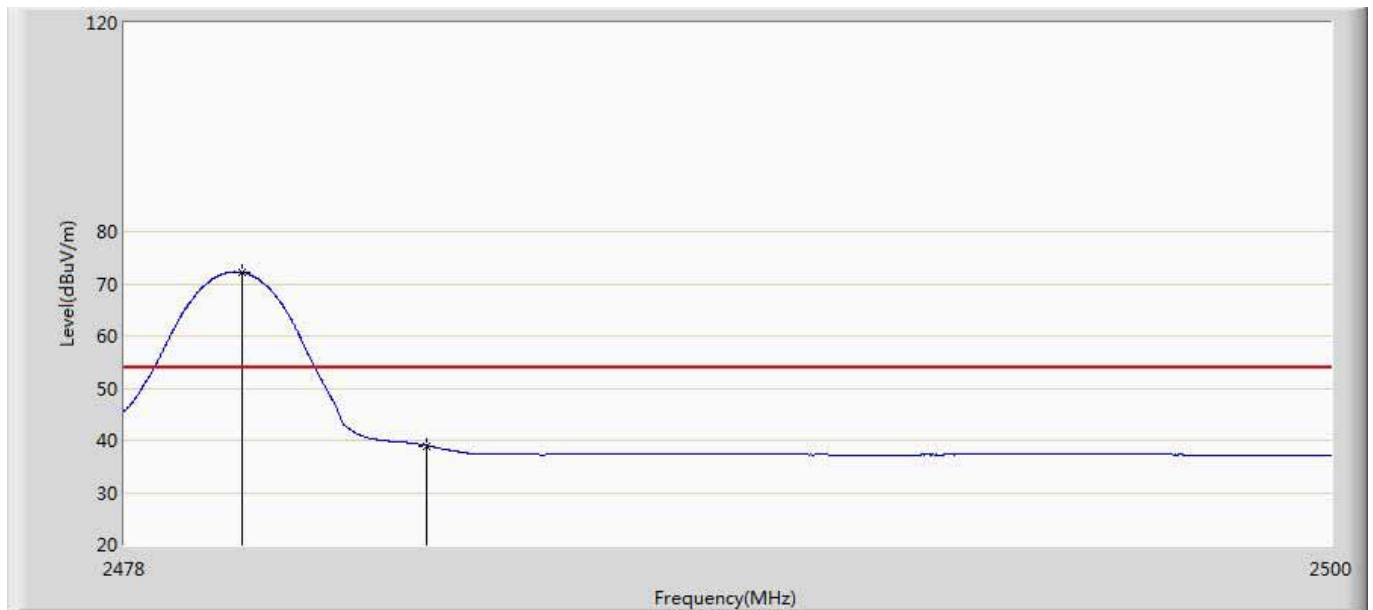
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	36.959	-0.904	-17.041	54.000	37.863	AV
2	*	2401.913	75.492	37.652	N/A	N/A	37.840	AV

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



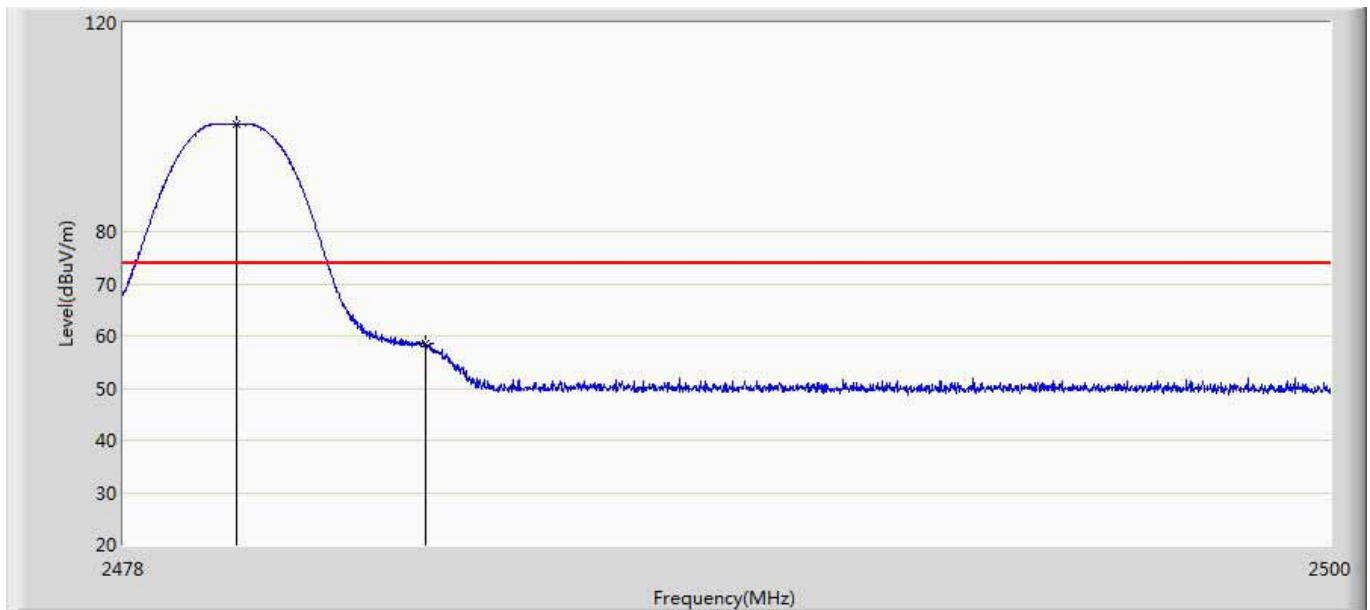
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.112	102.007	63.993	N/A	N/A	38.014	PK
2		2483.500	59.686	21.648	-14.314	74.000	38.038	PK

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



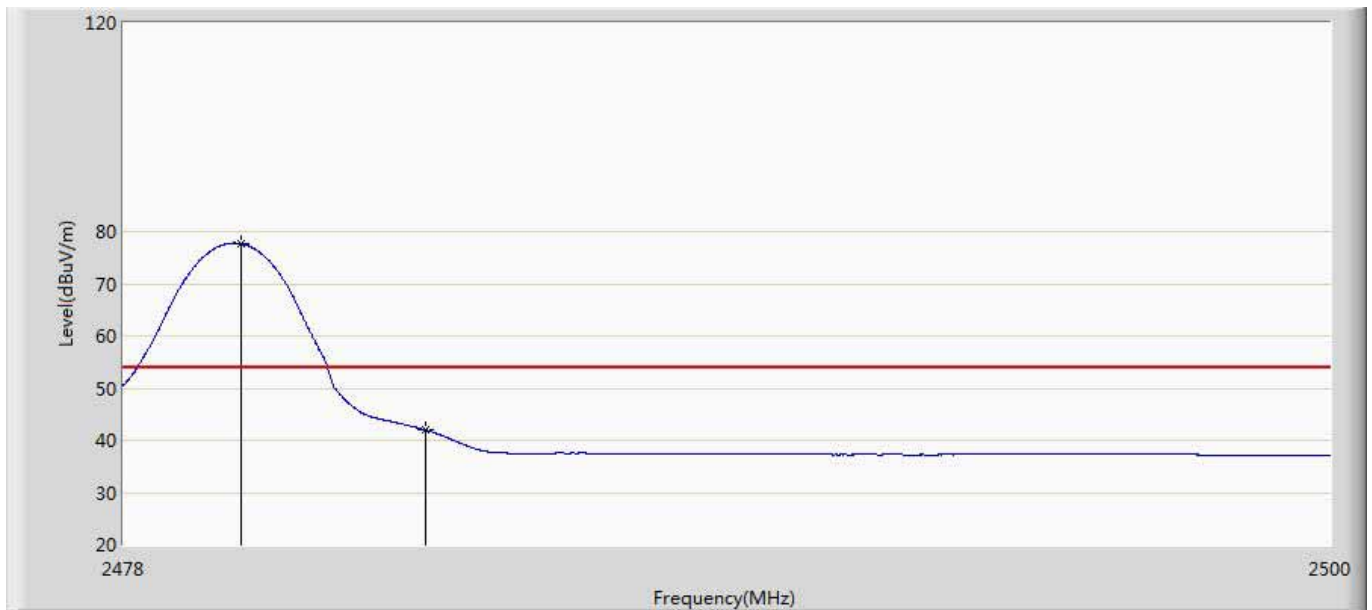
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	72.200	34.186	N/A	N/A	38.014	AV
2		2483.500	38.984	0.946	-15.016	54.000	38.038	AV

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	100.606	62.592	N/A	N/A	38.014	PK
2		2483.500	58.502	20.464	-15.498	74.000	38.038	PK

Site: CB7	Time: 2016/04/20
Limit: FCC_Part15.209_RE(3m)_ClassB	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: UMA	Power: AC 120V/60Hz
Note: Mode1 Transmit at channel 2480Mhz by BLE	



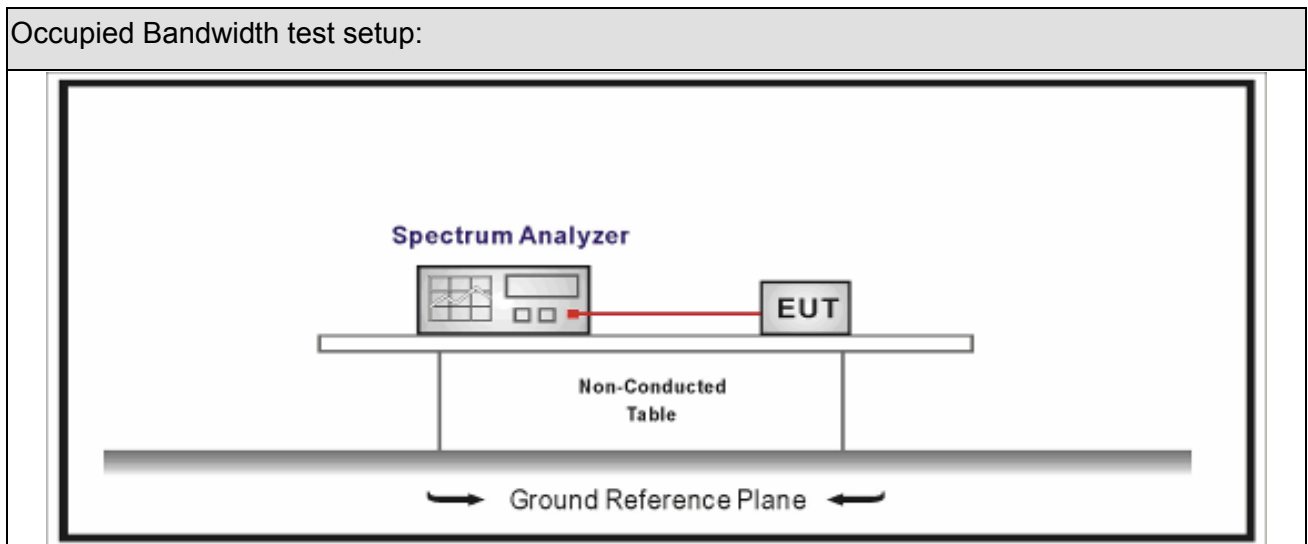
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.145	77.682	39.668	N/A	N/A	38.014	AV
2		2483.500	41.974	3.936	-12.026	54.000	38.038	AV

## 7. Occupied Bandwidth

### 7.1. Test Equipment

Occupied Bandwidth / NO.3					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 7.2. Test Setup



### 7.3. Limit

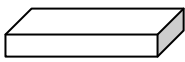
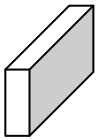
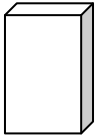

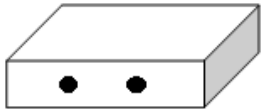

Occupied Bandwidth
Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

### 7.4. Test Procedure

Test Method				
	Reference Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.8	DTS bandwidth
	<input type="checkbox"/>	ANSI C63.10	11.8.1	Option 1
	<input checked="" type="checkbox"/>	ANSI C63.10	11.8.2	Option 2



## 7.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

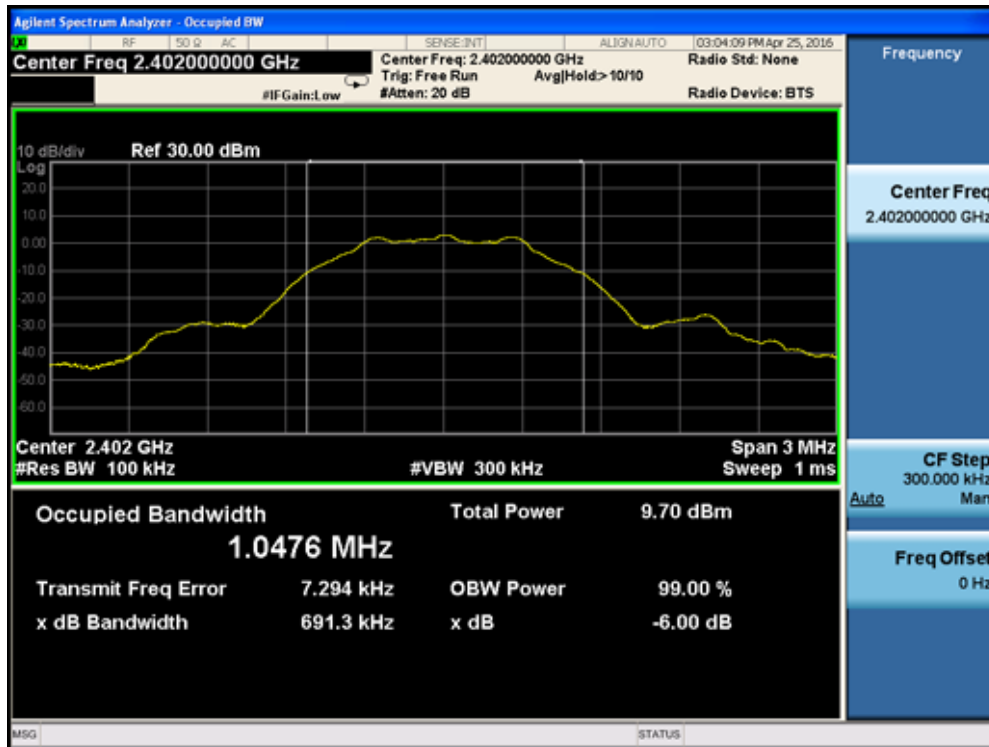
## 7.6. Test Result

Product Name	:	UMA	Test Power	:	AC 120V
Test Site	:	NO.3			

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
			Ant 0	Ant 0		
1	00	2402	1047.6	691.3	>500	Pass
1	19	2440	1045.7	692.7	>500	Pass
1	39	2480	1046.8	695.8	>500	Pass

Note : The worst case of Occupied Bandwidth as below:

### Mode 1 CH00 (2402MHz)

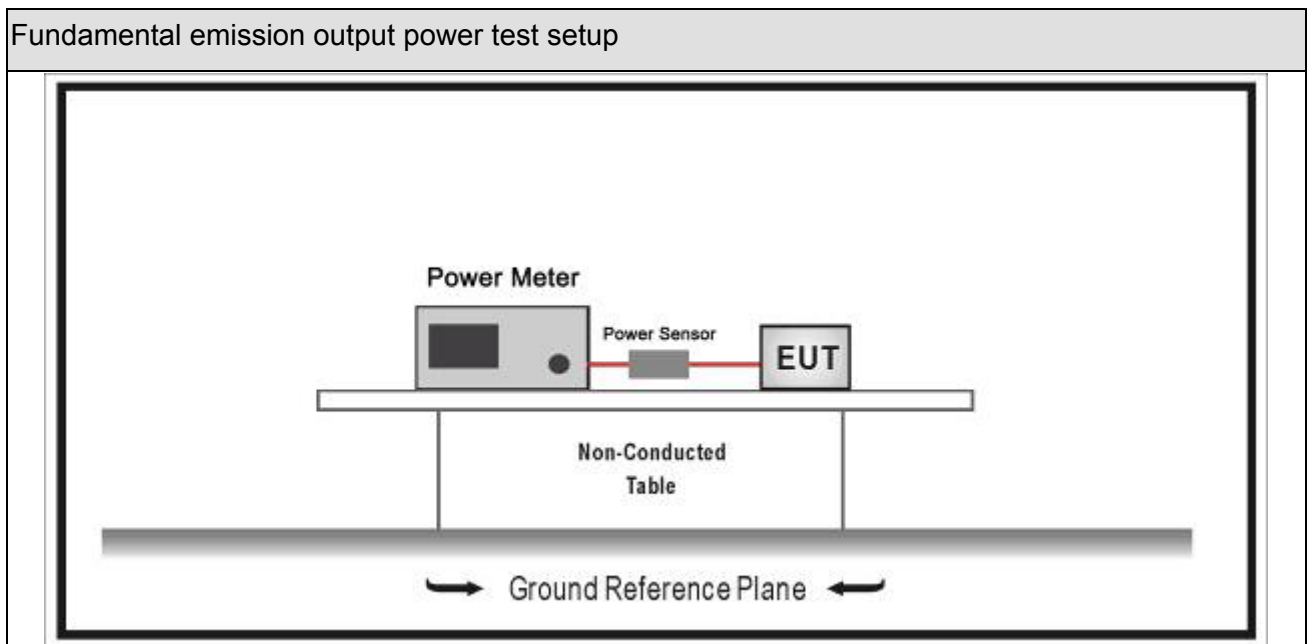


## 8. Fundamental emission output power

### 8.1. Test Equipment

Fundamental emission output power/ NO.3					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2015.11.11	2016.11.10
Power Sensor	Anritsu	MA2411B	0846014	2015.11.11	2016.11.10
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 8.2. Test Setup



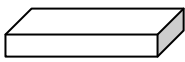
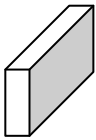
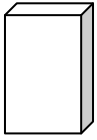

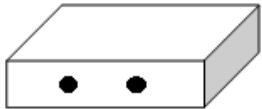

### 8.3. Limit

Fundamental emission output power Limit			
<input checked="" type="checkbox"/>	$G_{TX} < 6\text{dBi}$		$P_{out} \leq 30\text{dBm}$
<input type="checkbox"/>	$G_{TX} > 6\text{dBi}$		
	<input type="checkbox"/>	Non-Fix point-point	$P_{out} \leq 30 - (G_{TX} - 6)$
	<input type="checkbox"/>	Fix point-point	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	Point-to-multipoint	$P_{out} \leq 30 - (G_{TX} - 6)$
	<input type="checkbox"/>	Overlap Beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	Aggregate power transmitted simultaneously on all beams	$P_{out} \leq 30 - [(G_{TX} - 6)]/3$
	<input type="checkbox"/>	single directional beam	$P_{out} \leq 30 - [(G_{TX} - 6)]/3 + 8\text{dB}$
Note 1 : $G_{TX}$ directional gain of transmitting antennas. Note 2 : $P_{out}$ is maximum peak conducted output power .			

## 8.4. Test Procedure

Fundamental emission output power Test Method						
	References Rule			Chapter	Description	
<input checked="" type="checkbox"/>	ANSI C63.10			11.9	Fundamental emission output power	
	<input checked="" type="checkbox"/>	ANSI C63.10		11.9.1	Maximum peak conducted output power	
		<input type="checkbox"/>	ANSI C63.10	11.9.1.1	RBW ≥ DTS bandwidth	
		<input type="checkbox"/>	ANSI C63.10	11.9.1.2	Integrated band power method	
		<input checked="" type="checkbox"/>	ANSI C63.10	11.9.1.3	PKPM1 Peak power meter method	
	<input type="checkbox"/>	ANSI C63.10		11.9.2	Maximum conducted (average) output power	
		<input type="checkbox"/>	ANSI C63.10		11.9.2.2	Measurement using a spectrum analyzer (SA)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.2	Method AVGSA-1(Duty cycle 98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.3	Method AVGSA-1A(Duty cycle 98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-2(Duty cycle 98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-2A(Duty cycle 98%)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.4	Method AVGSA-3
			<input type="checkbox"/>	ANSI C63.10	11.9.2.2.5	Method AVGSA-3A
		<input type="checkbox"/>	ANSI C63.10		11.9.2.3	Measurement using a power meter (PM)
			<input type="checkbox"/>	ANSI C63.10	11.9.2.3.1	Method AVGPM
			<input type="checkbox"/>	ANSI C63.10	11.9.2.3.2	Method AVGPM-G

## 8.5. EUT test definition

Item	Fundamental emission output power			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

## 8.6. Test Result

Product Name	:	UMA	Test Power	:	AC 120V
Test Site	:	NO.3			

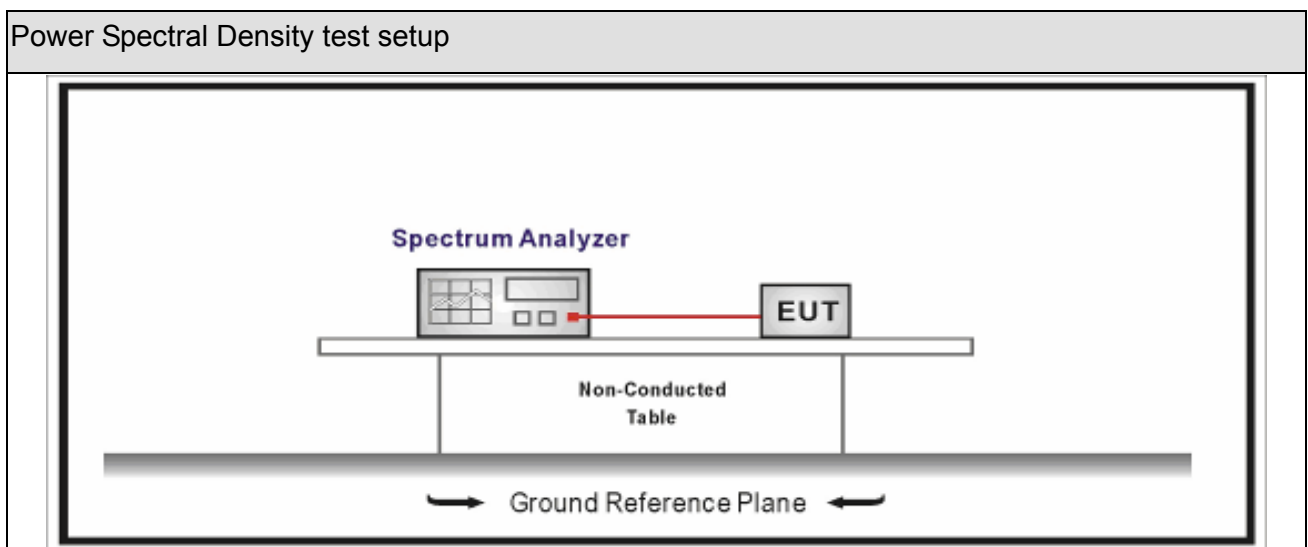
Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
1	00	2402	2.95	2.95	30	Pass
1	19	2440	5.22	5.22	30	Pass
1	39	2480	6.91	6.91	30	Pass

## 9. Power Spectral Density

### 9.1. Test Equipment

Power Spectral Density / NO.3					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.04	2017.01.03
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

### 9.2. Test Setup



### 9.3. Limit

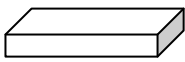
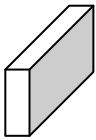
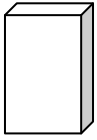



Power Spectral Density Limit
Power Spectral Density 8dBm/3kHz



## 9.4. Test Procedure

Power Spectral Density Test Method				
	References Rule		Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10		11.10	Maximum power spectral density level in the fundamental emission
	<input checked="" type="checkbox"/>	ANSI C63.10	11.10.2	Method PKPSD (peak PSD)
	<input type="checkbox"/>	ANSI C63.10	11.10.3	Method AVGPSD-1(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.10.4	Method AVGPSD-1A(Duty cycle 98%)
	<input type="checkbox"/>	ANSI C63.10	11.10.5	Method AVGPSD-2(Duty cycle < 98%)
	<input type="checkbox"/>	ANSI C63.10	11.10.6	Method AVGPSD-2A(Duty cycle < 98%)
	<input type="checkbox"/>	ANSI C63.10	11.10.7	Method AVGPSD-3
	<input type="checkbox"/>	ANSI C63.10	11.10.8	Method AVGPSD-3A

## 9.5. EUT test definition

Item	Power Spectral Density Test Method			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

## 9.6. Test Result

Product Name	:	UMA	Test Power	:	AC 120V
Test Site	:	NO.3			

Mode	Channel	Test Frequency (MHz)	Measurement PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
			Ant 0			
1	00	2402	-12.324	-12.324	8	Pass
1	19	2440	-9.757	-9.757	8	Pass
1	39	2480	-8.513	-8.513	8	Pass

Mode 1 CH39(2480MHz)

