



# FCC REPORT

**Applicant:** Ambient Devices, Inc.

**Address of Applicant:** 1 Broadway, 14<sup>th</sup> Floor Cambridge, MA 02142 USA

**Equipment Under Test (EUT)**

Product Name: Ambient Energy Joule

Model No.: AMBEJOW

Trade mark: Ambient

**FCC ID:** 2AA9RAMBEJW

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247:2013

**Date of sample receipt:** October.08, 2013

**Date of Test:** October.08~15, 2013

**Date of report issued:** October.15, 2013

**Test Result :** PASS \*

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

Authorized Signature:

Jason  
Manager



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the Volt product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2 Version

Version No.	Date	Description
00	October.12, 2013	Original

**Prepared By:**

**Date:**

October.12, 2013

**Project Engineer**

**Check By:**

**Date:**

October.12, 2013

**Reviewer**

**Dongguan Volt Compliance Testing Service Co.,Ltd.**

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious emissions	15.205/15.209	Pass

*Pass: The EUT complies with the essential requirements in the standard.*

## 5 General Information

### 5.1 Client Information

Applicant:	Ambient Devices, Inc.
Address of Applicant:	1 Broadway, 14 <sup>th</sup> Floor Cambridge, MA 02142 USA
Manufacturer:	Donguan Union Electronic Co., LTD.
Address of Manufacturer:	No.3 Yinyuan street, Jiaoyitang village, Tangxia town, Dongguan city, Guangdong province, China.

### 5.2 General Description of E.U.T.

Product Name:	Ambient Energy Joule
Model No.:	AMBEJOW
Operation Frequency:	2405MHz~2475MHz
Channel numbers:	15
Channel separation:	5MHz
Modulation type:	Direct Sequence Spread Spectrum (DSSS)
Antenna Type:	Internal Chip Antenna
Antenna gain:	0.5dBi
Power supply:	DC 3.7V/600mAh by Battery

#### Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2405MHz	5	2425MHz	9	2445MHz	13	2465MHz
2	2410MHz	6	2430MHz	10	2450MHz	14	2470MHz
3	2415MHz	7	2435MHz	11	2455MHz	15	2475MHz
4	2420MHz	8	2440MHz	12	2460MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2405MHz
The middle channel	2440MHz
The Highest channel	2475MHz

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### 5.3 Test environment and mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
<b>Test mode:</b>	
Transmitting mode	Keep the EUT in transmitting mode with modulation.

### 5.4 Test Facility

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

● **FCC —Registration No.: 987723**

Dongguan Volt Compliance Testing Service Co.,Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 987723, July 08, 2013.

● **Industry Canada (IC) —Submission No.: 169466**

The 3m Semi-anechoic chamber of Dongguan Volt Compliance Testing Service Co.,Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Submission No.: 169466.

### 5.5 Test Location

All tests were performed at:
Dongguan Volt Compliance Testing Service Co.,Ltd. Address: 6/F,Fuwei Buiding,No.88 Hongtu Road,Nancheng District,Dongguan, Guangdong, P.R. China. Tel: +86-769-21663588, Fax: +86-769-21660978

### 5.6 Description of Support Units

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last cal date (mm-dd-yy)	Cal Interval
1	Desktop Computers	HP	Pro 3005 MT	4CV1324FBS	N/A	N/A

### 5.7 Deviation from Standards

None.
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### 5.8 Abnormalities from Standard Conditions

None.
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### 5.9 Other Information Requested by the Customer

None.
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**5.10 Test Instruments list**

<b>Conducted Emission:</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Last cal date (mm-dd-yy)</b>	<b>Cal Interval</b>
1	Test Receiver	Rohde & Schwarz	ESCI	101152	Nov.25,2012	1 year
2	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Nov.09,2012	1 year
3	L.I.S.N	Schwarzbeck	NNLK8129	8129-212	Nov.09,2012	1 year
4	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Nov.09,2012	1 year
5	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0022	Nov.09,2012	1 year

<b>Radiated Emission:</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Last cal date (mm-dd-yy)</b>	<b>Cal Interval</b>
1	Log-periodic Antenna	Schwarzbeck	VULB9162	9162-010	Nov.28,2012	1 year
	Horn Antenna	COM-Power	AH-118	071078	Nov.28,2012	1 year
	Horn Antenna	Schwarzbeck	BBHA9170	9170-372	Nov.28,2012	1 year
2	Power Amplifier	HP	HP 8447D	1145A00203	Nov.09,2012	1 year
	Pre-Amplifier	Agilent	8449B	3008A02964	Nov.09,2012	1 year
3	Test Receiver	Rohde & Schwarz	ESCI7	100837	Nov.25,2012	1 year
	Spectrum Analyzer	Agilent	E4408B	MY41440717	Nov.25,2012	1 year
4	Cable	Huber + Suhner	CBL2-NN-9M	22390001	Nov.09,2012	1 year
5	Cable	Huber + Suhner	CIL02	N/A	Nov.09,2012	1 year
6	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
7	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
8	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
9	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
10	Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A

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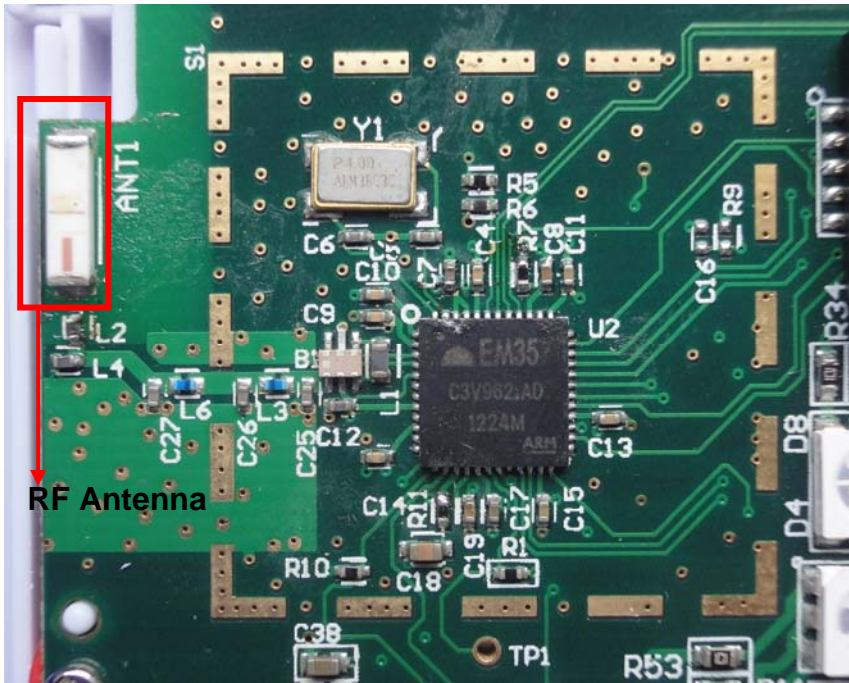
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## 6 Test results and Measurement Data

### 6.1 Antenna requirement:

<b>Standard requirement:</b>	FCC Part15 C Section 15.203 /247(c)
<p>15.203 requirement:  <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i></p> <p>15.247(c) (1)(i) requirement:  <i>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</i></p>	
<b>E.U.T Antenna:</b>	
<p>The antenna port is a Internal Chip Antenna; the best case gain of the antenna is 0.5dBi.</p> 	

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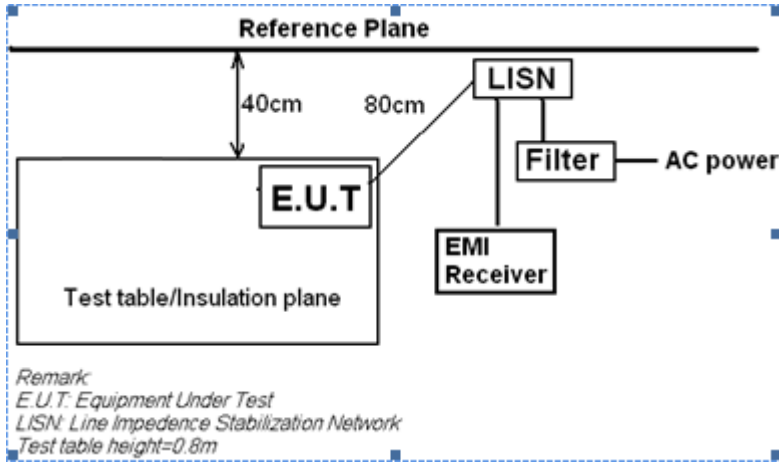
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## 6.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.4:2003		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test procedure	<p>The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.</p>		
Test setup:	 <p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test Instruments:	Refer to section 5.7 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

### Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

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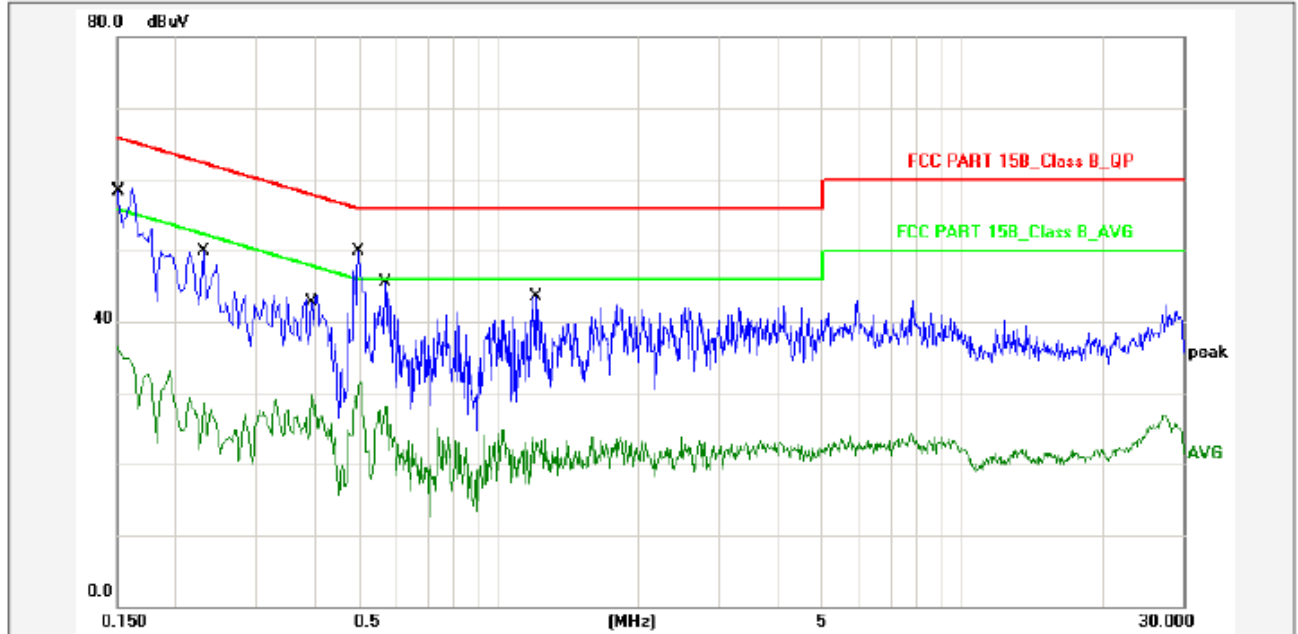
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**Live Line:**



Report No.: EV1301008017-1

Test Standard: FCC PART 15B\_Class B\_QP

Test item: Conducted Emission

Phase: L1

Applicant: Ambient

Temp.( )/Hum.(%): 24(C) / 54 %

Product: Ambient Energy Joule

Power Rating: AC 120V/60Hz

Model No.: AMBEJOW

Test Engineer: Peter

Test Mode: Transmitting mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	10.80	44.90	55.70	65.99	-10.29	QP	P	
2	0.1500	10.80	25.30	36.10	55.99	-19.89	AVG	P	
3	0.2300	10.80	36.00	46.80	62.45	-15.65	QP	P	
4	0.2300	10.80	15.50	26.30	52.45	-26.15	AVG	P	
5	0.3940	10.80	29.90	40.70	57.98	-17.28	QP	P	
6	0.3940	10.80	16.90	27.70	47.98	-20.28	AVG	P	
7	0.4980	10.80	36.00	46.80	56.03	-9.23	QP	P	
8	0.4980	10.80	18.90	29.70	46.03	-16.33	AVG	P	
9	0.5700	10.80	31.80	42.60	56.00	-13.40	QP	P	
10	0.5700	10.80	15.50	26.30	46.00	-19.70	AVG	P	
11	1.2020	10.80	29.70	40.50	56.00	-15.50	QP	P	
12	1.2020	10.80	12.00	22.80	46.00	-23.20	AVG	P	

Notes: Level=Reading+Factor. Margin=Level-Limit.

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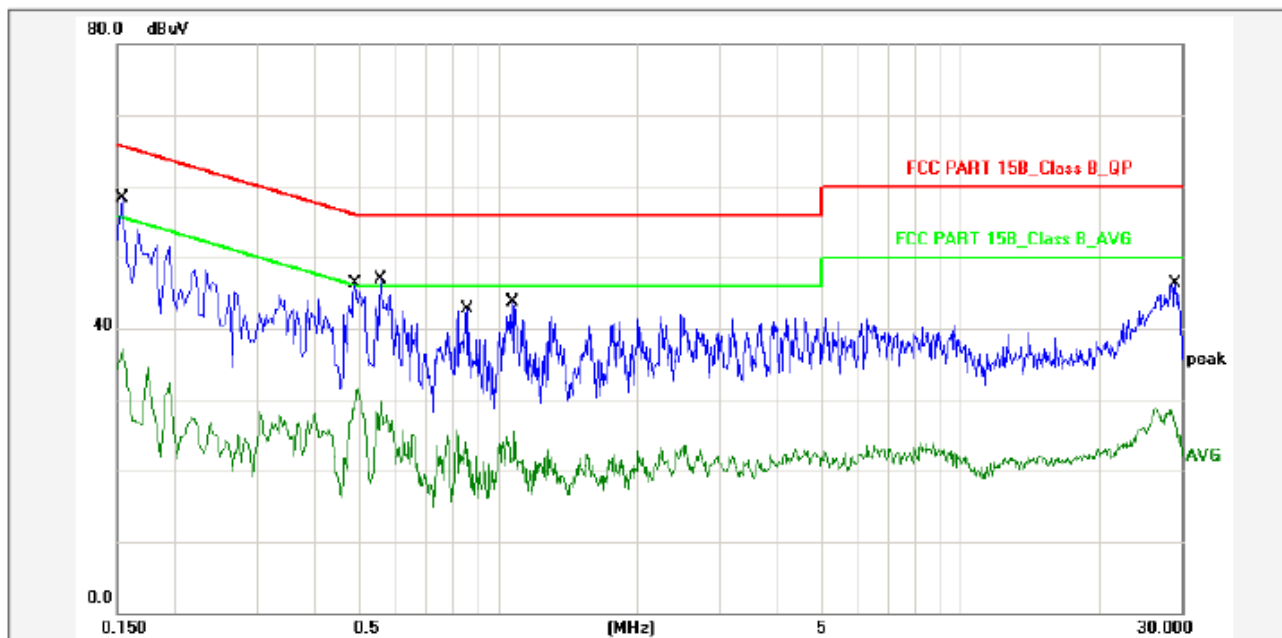
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### Neutral Line:



Report No.: EV1301008017-1

Test Standard: FCC PART 15B\_Class B\_QP

Test item: Conducted Emission

Phase: N

Applicant: Ambient

Temp.( )/Hum.(%): 24(C) / 54 %

Product: Ambient Energy Joule

Power Rating: AC 120V/60Hz

Model No.: AMBEJOW

Test Engineer: Peter

Test Mode: Transmitting mode

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1539	10.80	44.50	55.30	65.78	-10.48	QP	P	
2	0.1539	10.80	24.30	35.10	55.78	-20.68	AVG	P	
3	0.4900	10.80	32.80	43.60	56.17	-12.57	QP	P	
4	0.4900	10.80	18.70	29.50	46.17	-16.67	AVG	P	
5	0.5580	10.80	32.80	43.60	56.00	-12.40	QP	P	
6	0.5580	10.80	16.80	27.60	46.00	-18.40	AVG	P	
7	0.8580	10.80	28.90	39.70	56.00	-16.30	QP	P	
8	0.8580	10.80	12.90	23.70	46.00	-22.30	AVG	P	
9	1.0740	10.80	29.80	40.60	56.00	-15.40	QP	P	
10	1.0740	10.80	12.60	23.40	46.00	-22.60	AVG	P	
11	29.0620	10.80	32.70	43.50	60.00	-16.50	QP	P	
12	29.0620	10.80	15.90	26.70	50.00	-23.30	AVG	P	

Notes: Level=Reading+Factor. Margin=Level-Limit.

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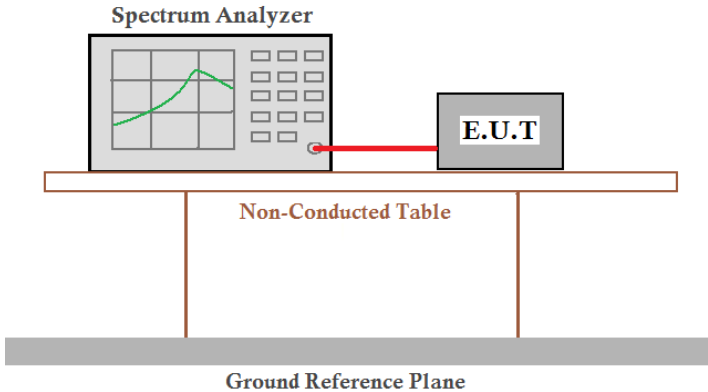
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### 6.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	30dBm
Test setup:	 <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.</i></p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

### Measurement Data

Operating mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-4.92	30.00	Pass
Middle	-4.76	30.00	Pass
Highest	-4.23	30.00	Pass

**Test plot as follows:**

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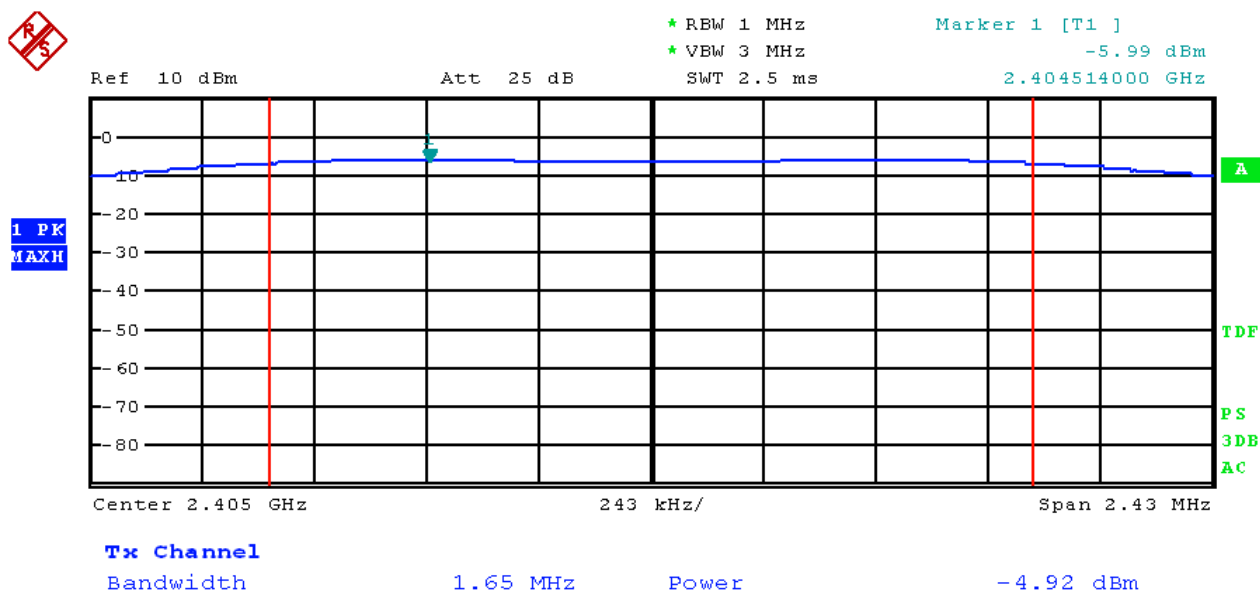
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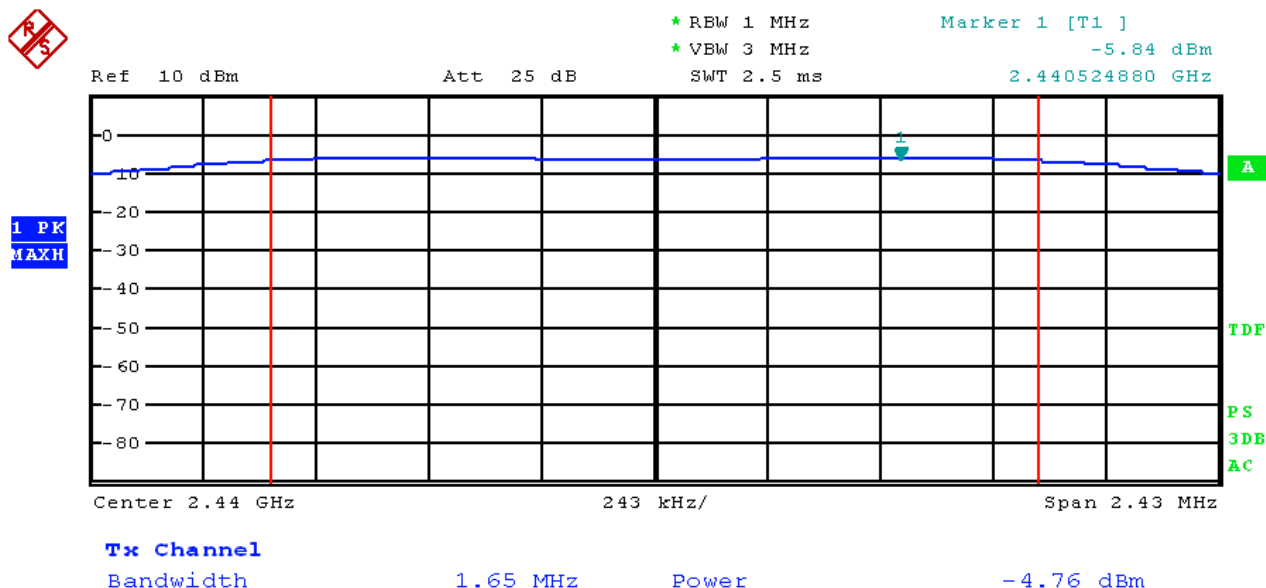
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Report No: EV1301008017-1

Test channel: Lowest



Test channel: Middle



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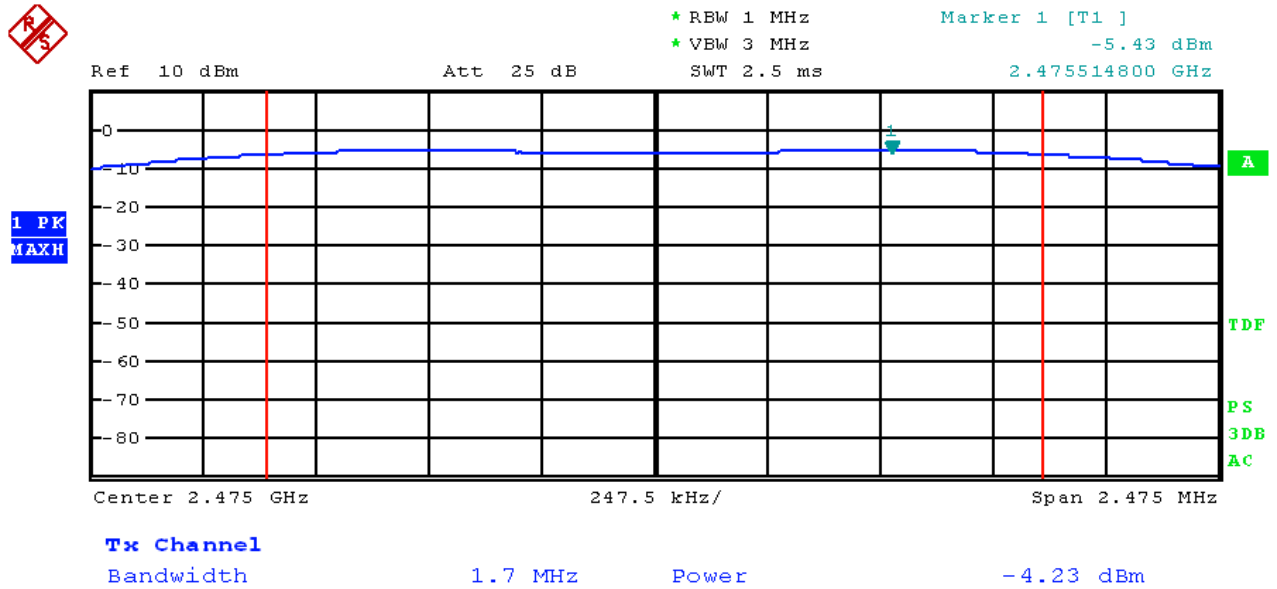
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Test channel:	Highest
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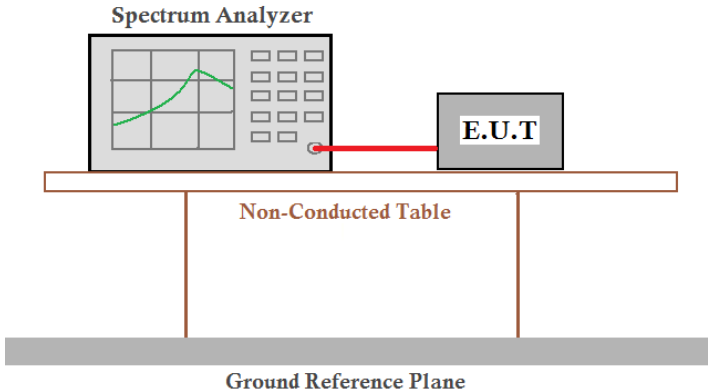
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## 6.4 6dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	>500KHz
Test setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

## Measurement Data

Operating mode			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result
Lowest	1.6500	>500	Pass
Middle	1.6200	>500	Pass
Highest	1.6500	>500	Pass

## Test plot as follows:

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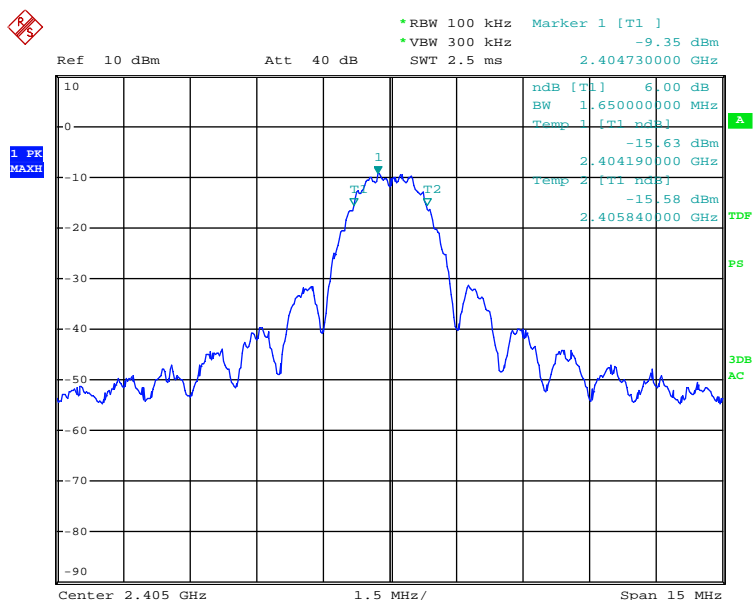
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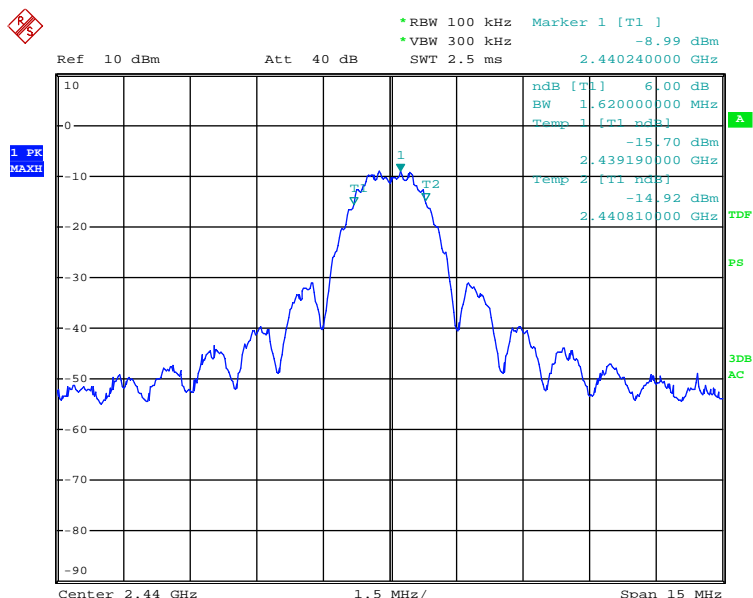


Test channel:	Lowest
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Date: 18.OCT.2013 16:33:49

Test channel:	Middle
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Date: 18.OCT.2013 16:41:34

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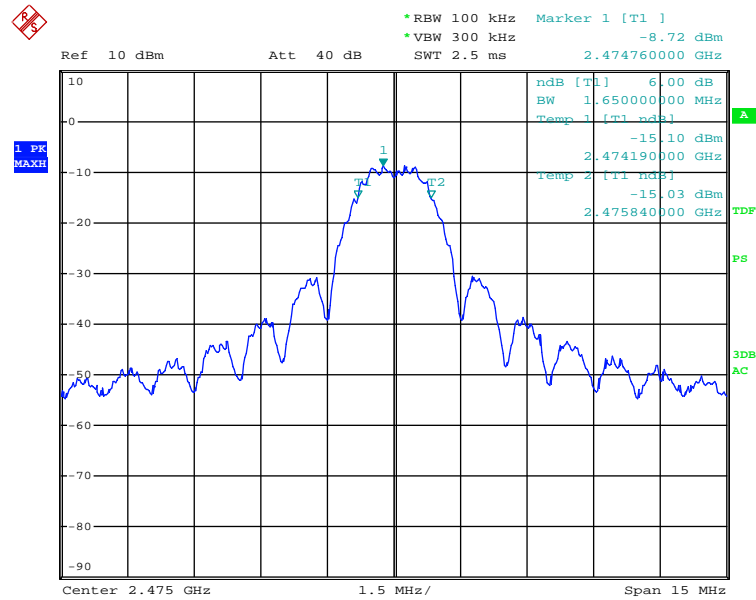
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Test channel:	Highest
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Date: 18.OCT.2013 16:44:30

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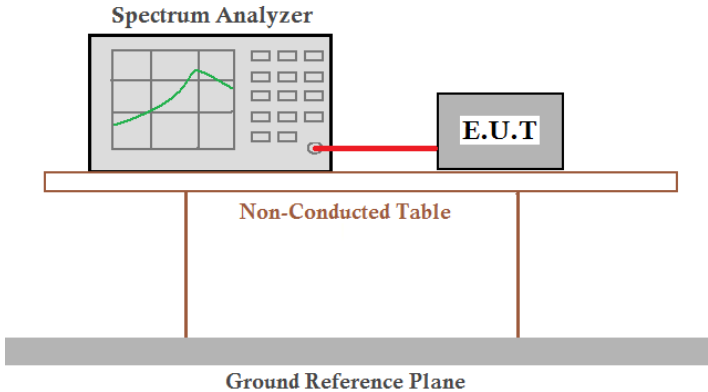
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## 6.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	8dBm
Test setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

## Measurement Data

Operating mode			
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	-21.36	8.00	Pass
Middle	-20.53	8.00	Pass
Highest	-20.02	8.00	Pass

**Test plot as follows:**

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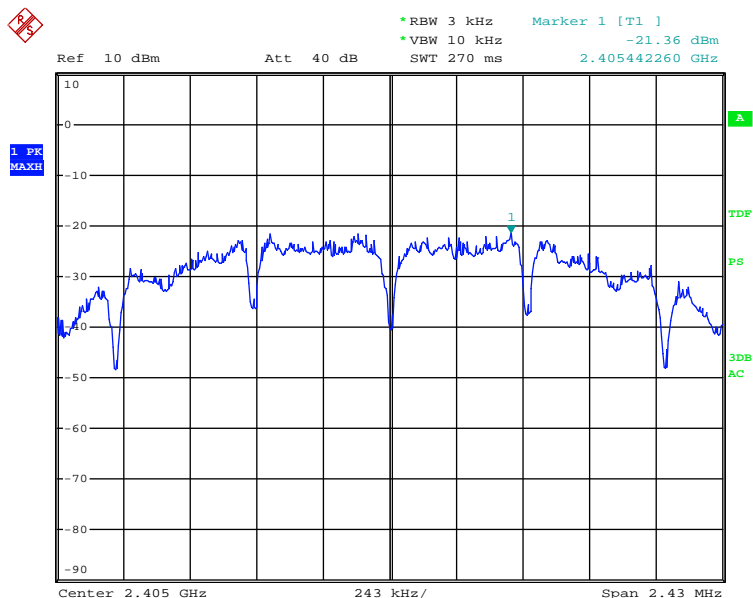
Tel: +86-769-21663588,

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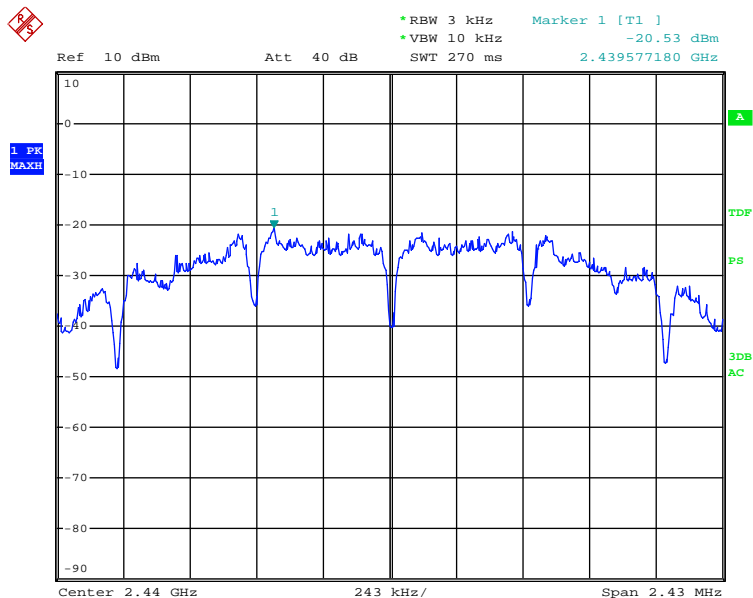


Test channel:	Lowest
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Date: 18.OCT.2013 16:36:05

Test channel:	Middle
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Date: 18.OCT.2013 16:42:29

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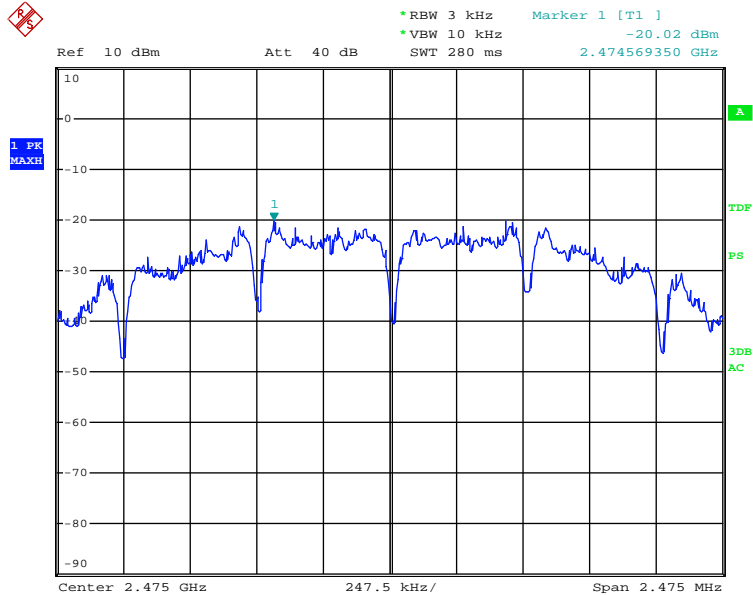
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Test channel:	Highest
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Date: 18.OCT.2013 16:45:40

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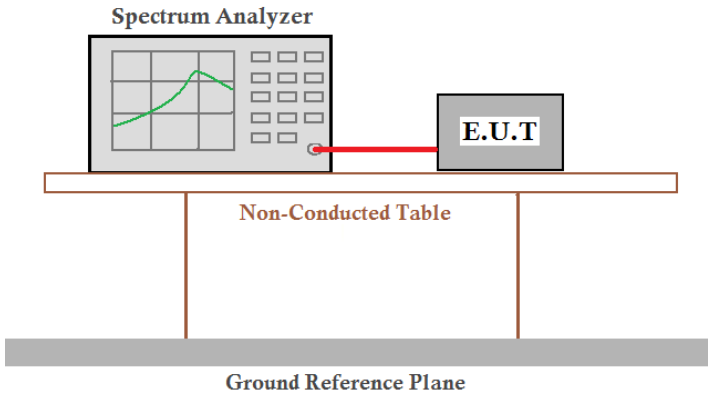
Tel: +86-769-21663588,

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## 6.6 Band Edge

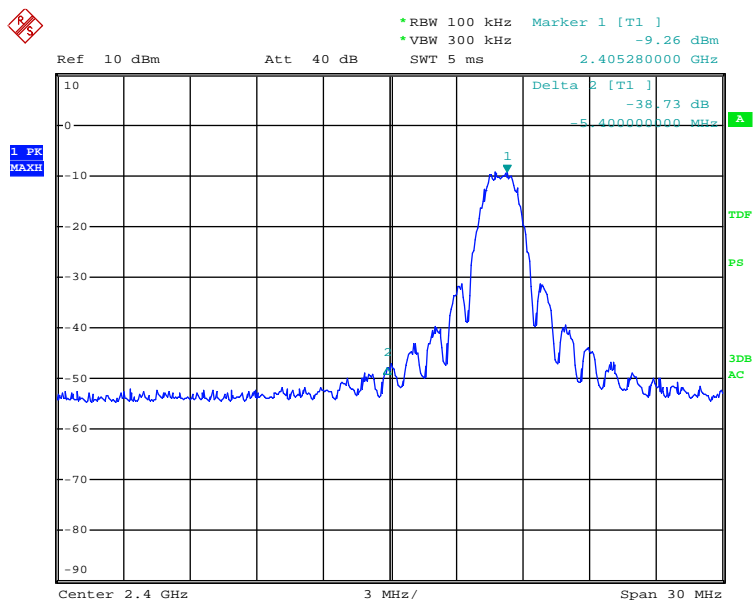
### 6.6.1 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Test plot as follows:**

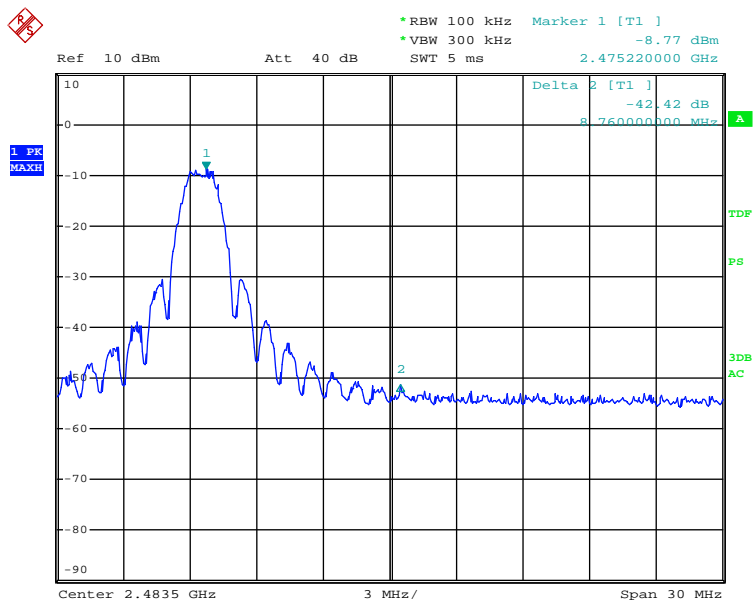


Test mode:	Transmitting mode	Test channel:	Lowest
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Date: 18.OCT.2013 16:39:57

Test mode:	Transmitting mode	Test channel:	Highest
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Date: 18.OCT.2013 16:46:23

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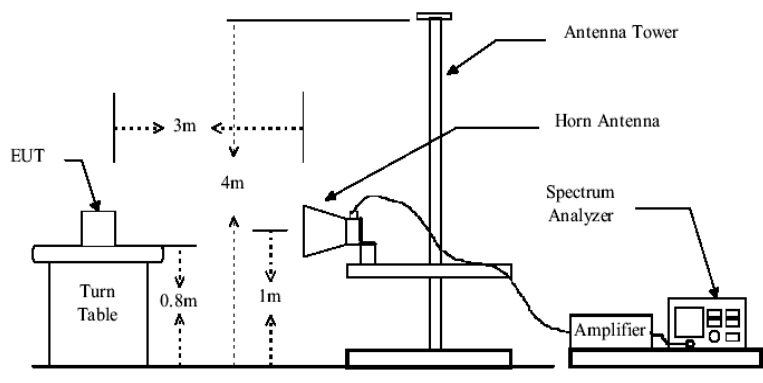
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**6.6.2 Radiated Emission**

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	2.3GHz to 2.5GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:					
	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit:					
	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.0		Average Value
74.0			Peak Value		
Test Procedure:	<p>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p>				

Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Note:**

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$





Measurement data:

Test channel:	Lowest	Value:	Peak
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Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2396.38	34.11	8.08	42.19	74.00	-31.81	Peak	Vertical
2400.00	37.16	8.09	45.25	74.00	-28.75	Peak	Vertical
2396.38	32.98	8.06	41.04	74.00	-32.96	Peak	Horizontal
2400.00	39.12	8.09	47.21	74.00	-26.79	Peak	Horizontal

Test channel:	Lowest	Value:	Average
---------------	--------	--------	---------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2396.38	20.64	8.08	28.72	54.00	-25.28	Average	Vertical
2400.00	24.94	8.09	33.03	54.00	-20.97	Average	Vertical
2396.38	22.14	8.06	30.20	54.00	-23.80	Average	Horizontal
2400.00	26.47	8.09	34.56	54.00	-19.44	Average	Horizontal

Notes: Level=Reading+Factor. Margin=Level-Limit.

Test channel:	Highest	Value:	Peak
---------------	---------	--------	------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2483.50	36.73	8.36	45.09	74.00	-28.91	Peak	Vertical
2489.10	34.33	8.38	42.71	74.00	-31.29	Peak	Vertical
2483.50	35.19	8.36	43.55	74.00	-30.45	Peak	Horizontal
2486.37	33.56	8.38	41.94	74.00	-32.06	Peak	Horizontal

Test channel:	Highest	Value:	Average
---------------	---------	--------	---------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2483.50	25.06	8.36	33.42	54.00	-20.58	Average	Vertical
2489.10	20.39	8.38	28.77	54.00	-25.23	Average	Vertical
2483.50	24.38	8.36	32.74	54.00	-21.26	Average	Horizontal
2486.37	20.37	8.38	28.75	54.00	-25.25	Average	Horizontal

Notes: Level=Reading+Factor. Margin=Level-Limit.

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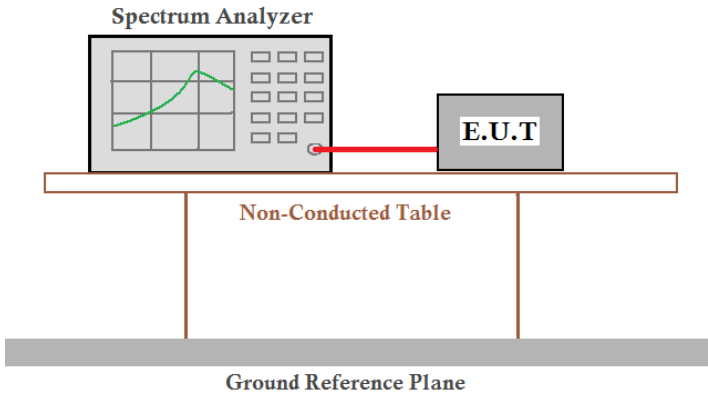
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## 6.7 Spurious Emission

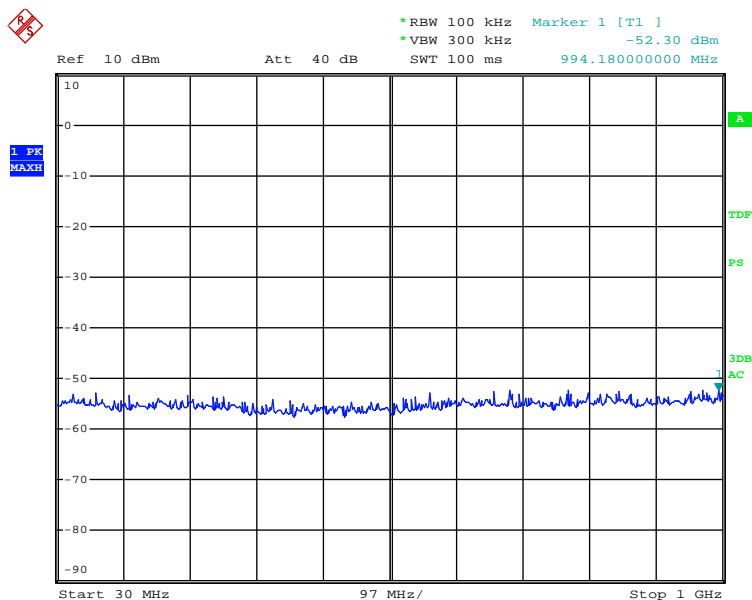
### 6.7.1 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p><i>Remark:</i> Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.</p>
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

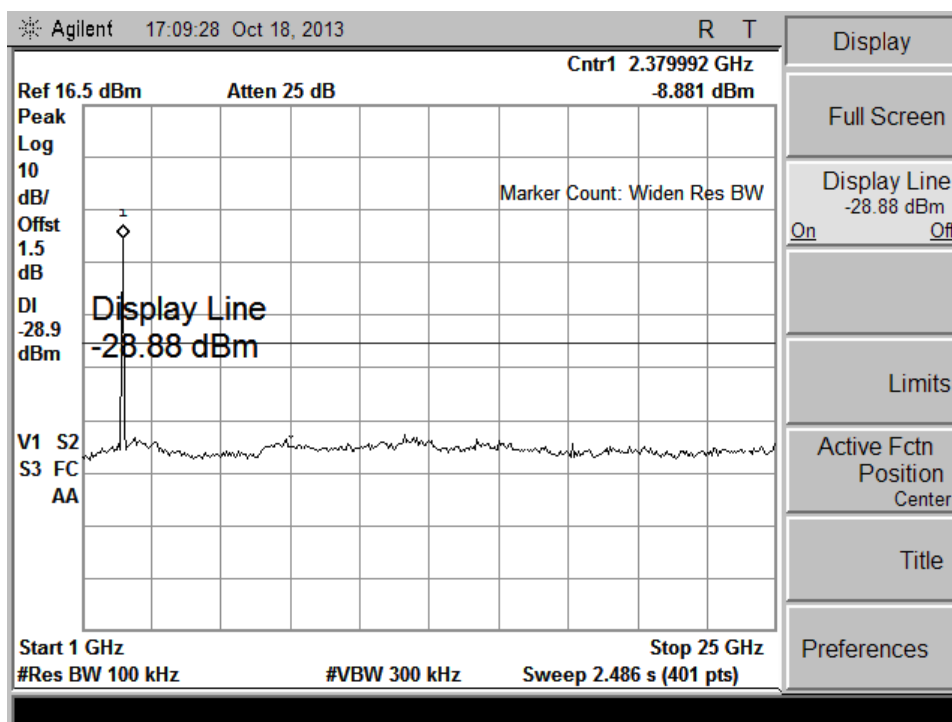
**Test plot as follows:**



Test channel:	Lowest
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Date: 18.OCT.2013 16:40:26



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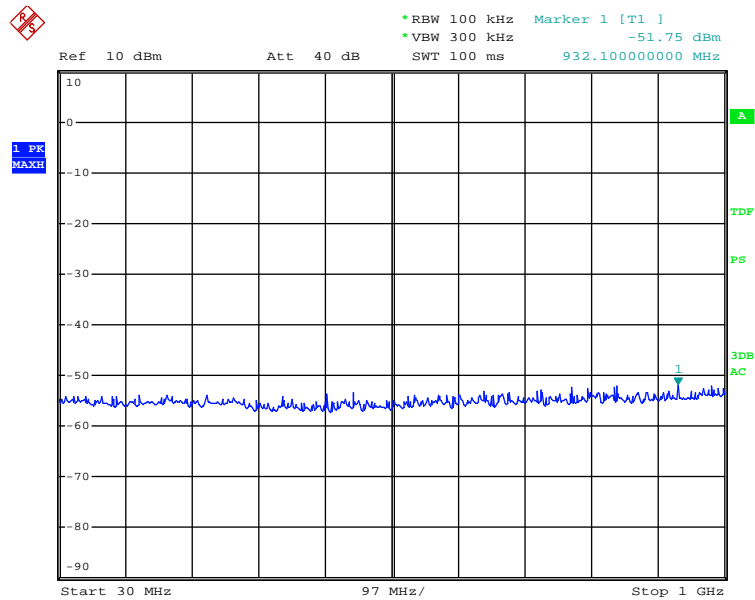
Tel: +86-769-21663588,

Fax: +86-769-21660978

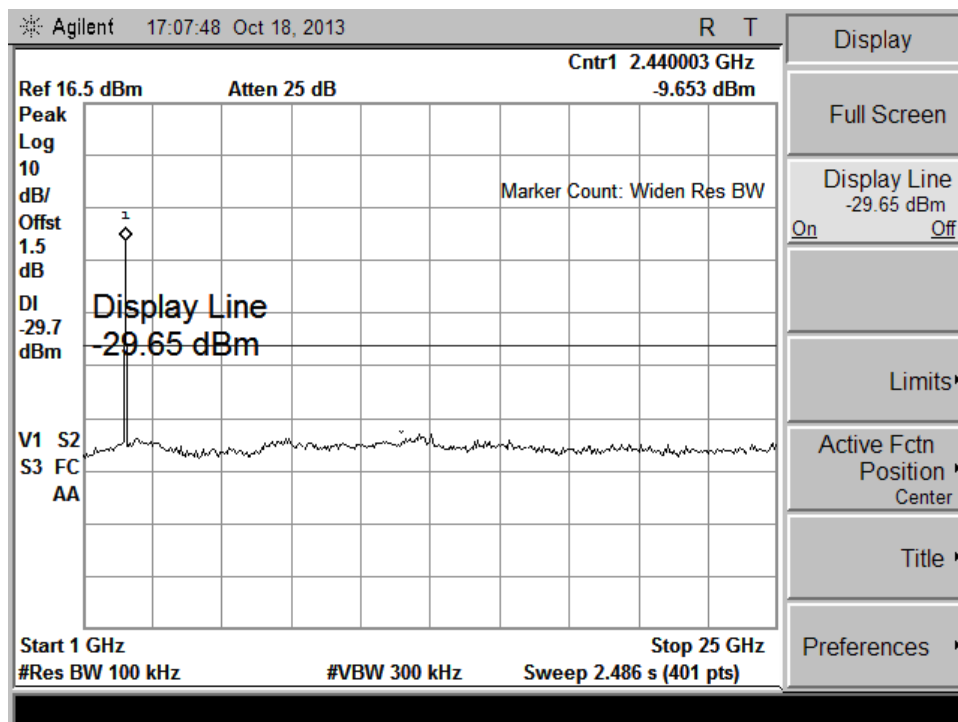
Http: //www.volttest.com.cn



Test channel:	Middle
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Date: 18.OCT.2013 16:43:03



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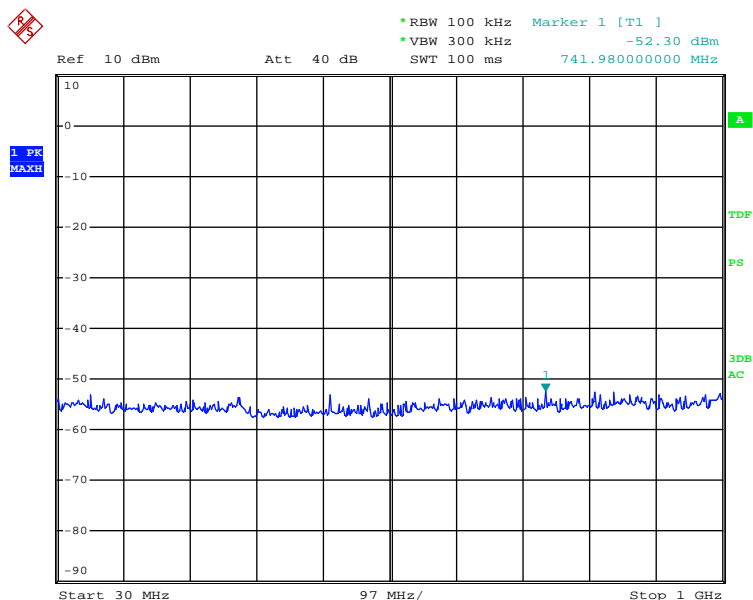
Tel: +86-769-21663588,

Fax: +86-769-21660978

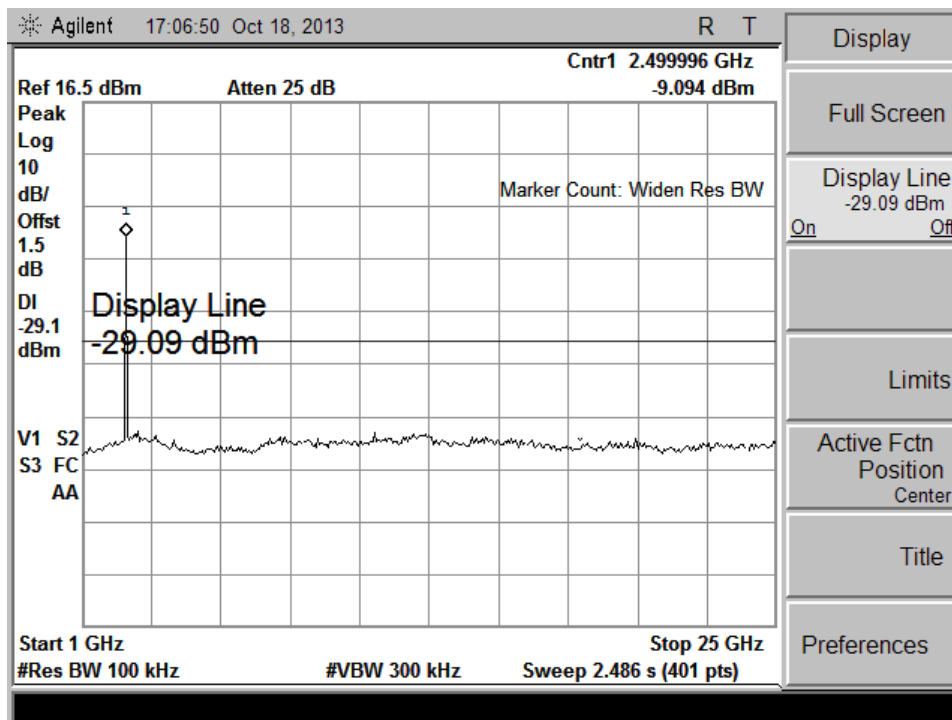
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Test channel:	Highest
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Date: 18.OCT.2013 16:46:48



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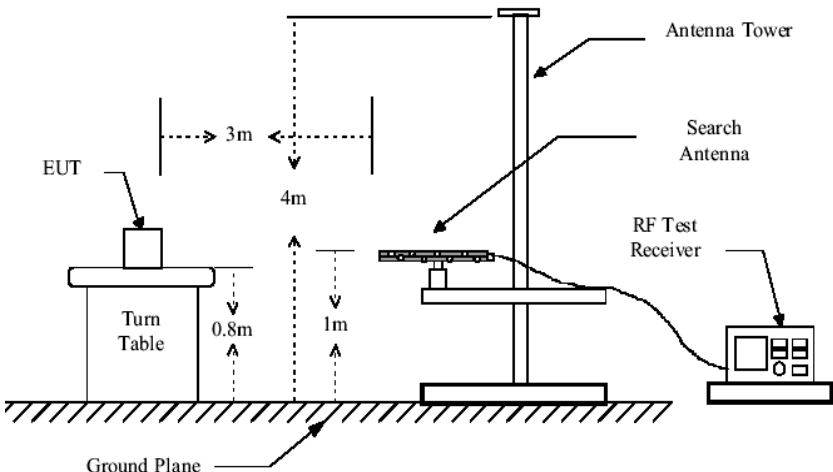
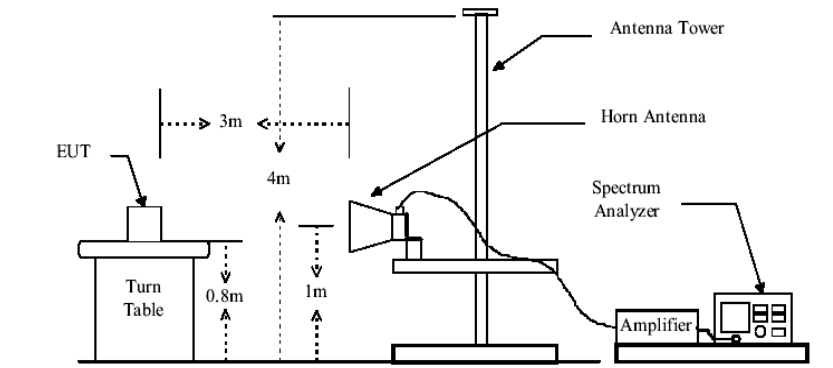
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**6.7.2 Radiated Emission**

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	30MHz to 25GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:					
	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit:					
	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz	54.0		Average Value	
74.0		Peak Value			
Test Procedure:	<p>g. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>h. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>i. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</p> <p>j. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>k. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>l. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p>				

<p>Test setup:</p>	<p><b>Below 1GHz</b></p>  <p><b>Above 1GHz</b></p> 
<p>Test Instruments:</p>	<p>Refer to section 5.7 for details</p>
<p>Test mode:</p>	<p>Refer to section 5.3 for details</p>
<p>Test results:</p>	<p>Passed</p>

**Note:**

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

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**Below 1GHz**

Worst case:	Middle Channel
-------------	----------------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
30.97	44.66	-15.83	30.83	40.00	-9.70	QP	Vertical
56.19	48.05	-13.85	34.02	40.00	-5.80	QP	Vertical
82.38	39.18	-18.68	20.50	40.00	-19.50	QP	Vertical
127.97	38.94	-17.94	21.00	43.50	-22.50	QP	Vertical
183.26	41.60	-16.94	24.66	43.50	-18.84	QP	Vertical
226.91	37.61	-15.61	22.00	46.00	-24.00	QP	Vertical
56.19	34.87	-17.85	17.02	40.00	-22.98	QP	Horizontal
133.79	33.30	-15.32	17.98	43.50	-21.26	QP	Horizontal
148.34	34.12	-15.54	18.58	43.50	-24.92	QP	Horizontal
175.50	36.71	-14.47	22.24	43.50	-21.26	QP	Horizontal
221.09	34.48	-12.91	21.57	46.00	-24.43	QP	Horizontal
227.88	34.36	-12.56	21.80	46.00	-24.20	QP	Horizontal

Notes: For radiation emission below 30MHz, The measured value haven't been reported for down 20dB under the limit.

Level=Reading+Factor. Margin=Level-Limit. Level=Reading+Factor. Margin=Level-Limit.

**Above 1GHz**

Test channel:	Lowest	Remark:	Peak
---------------	--------	---------	------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4810.00	45.52	12.66	58.18	74.00	-15.82	Peak	Vertical
7215.00	42.52	16.70	59.22	74.00	-14.78	Peak	Vertical
9620.00	44.20	18.16	62.36	74.00	-11.64	Peak	Vertical
12025.00	43.12	17.63	60.75	74.00	-13.25	Peak	Vertical
4810.00	45.81	12.66	58.47	74.00	-15.53	Peak	Horizontal
7215.00	43.35	16.70	60.05	74.00	-13.95	Peak	Horizontal
9620.00	43.78	18.16	61.94	74.00	-12.06	Peak	Horizontal
12025.00	43.84	17.63	61.47	74.00	-12.53	Peak	Horizontal

Test channel:	Lowest	Remark:	Average
---------------	--------	---------	---------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4810.00	34.59	12.66	47.25	54.00	-6.75	Average	Vertical
7215.00	30.02	16.70	46.72	54.00	-7.28	Average	Vertical
9620.00	30.60	18.16	48.76	54.00	-5.24	Average	Vertical
12025.00	30.89	17.63	48.52	54.00	-5.48	Average	Vertical
4810.00	33.22	12.66	45.88	54.00	-8.12	Average	Horizontal
7215.00	30.00	16.70	46.70	54.00	-7.30	Average	Horizontal
9620.00	30.71	18.16	48.87	54.00	-5.13	Average	Horizontal
12025.00	30.90	17.63	48.53	54.00	-5.47	Average	Horizontal

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Report No: EV1301008017-1

Test channel:	Middle	Remark:	Peak
---------------	--------	---------	------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4880.00	45.36	12.96	58.32	74.00	-15.68	Peak	Vertical
7320.000	43.45	16.91	60.36	74.00	-13.64	Peak	Vertical
9760.000	43.20	18.34	61.54	74.00	-12.46	Peak	Vertical
12200.000	44.05	17.87	61.92	74.00	-12.08	Peak	Vertical
4880.00	44.76	12.96	57.72	74.00	-16.28	Peak	Horizontal
7320.000	43.88	16.91	60.79	74.00	-13.21	Peak	Horizontal
9760.000	42.69	18.34	61.03	74.00	-12.97	Peak	Horizontal
12200.000	43.80	17.87	61.67	74.00	-12.33	Peak	Horizontal

Test channel:	Middle	Remark:	Average
---------------	--------	---------	---------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4880.00	34.49	12.96	47.45	54.00	-6.55	Average	Vertical
7320.000	30.23	16.91	47.14	54.00	-6.86	Average	Vertical
9760.000	30.32	18.34	48.66	54.00	-5.34	Average	Vertical
12200.000	31.42	17.87	49.29	54.00	-4.71	Average	Vertical
4880.00	32.93	12.96	45.89	54.00	-8.11	Average	Horizontal
7320.000	30.17	16.91	47.08	54.00	-6.92	Average	Horizontal
9760.000	30.27	18.34	48.61	54.00	-5.39	Average	Horizontal
12200.000	31.47	17.87	49.34	54.00	-4.66	Average	Horizontal

Test channel:	Highest	Remark:	Peak
---------------	---------	---------	------

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4950.00	43.67	13.26	56.93	74.00	-17.07	Peak	Vertical
7440.000	43.30	17.16	60.46	74.00	-13.54	Peak	Vertical
9920.000	42.54	18.55	61.09	74.00	-12.91	Peak	Vertical
12400.000	43.99	18.15	62.14	74.00	-11.86	Peak	Vertical
4950.00	43.94	13.26	57.20	74.00	-16.80	Peak	Horizontal
7440.000	43.99	17.16	61.15	74.00	-12.85	Peak	Horizontal
9920.000	43.72	18.55	62.27	74.00	-11.73	Peak	Horizontal
12400.000	44.30	18.15	62.45	74.00	-11.55	Peak	Horizontal

Test channel:	Highest	Remark:	Average
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Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4950.00	31.89	13.26	45.15	54.00	-8.85	Average	Vertical
7440.000	30.34	17.16	47.50	54.00	-6.50	Average	Vertical
9920.000	30.40	18.55	48.95	54.00	-5.05	Average	Vertical
12400.000	31.60	18.15	49.75	54.00	-4.25	Average	Vertical
4950.00	32.44	13.26	45.70	54.00	-8.30	Average	Horizontal
7440.000	30.47	17.16	47.63	54.00	-6.37	Average	Horizontal
9920.000	30.40	18.55	48.95	54.00	-5.05	Average	Horizontal
12400.000	31.58	18.15	49.73	54.00	-4.27	Average	Horizontal

Remark:

The emission levels of above 13GHz are very lower than the limit and not show in test report.

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**\*\*\*\*\*End of Test Report\*\*\*\*\***