Report No: EV1301008018-1

FCC REPORT

Applicant:	Ambient Devices, Inc.
Address of Applicant:	1 Broadway, 14th Floor Cambridge, MA 02142 USA
Equipment Under Test (EUT)	
Product Name:	Ambient Energy Joule
Model No.:	AMBEJ
Trade mark:	Ambient
FCC ID:	2AA9RAMBEJ
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.10~18, 2013
Date of report issued:	October.18, 2013
Test Result :	PASS *

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

Authorized Signature:

Jason
Manager

2 Version

Version No.	Date	Description
00	October.18, 2013	*Original*

Prepared By:  ***Date:*** October.18, 2013

Project Engineer

Check By:  ***Date:*** October.18, 2013

Reviewer

3 Contents

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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, 14th 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.:	AMBEJ
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

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
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 fuly 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.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

5.10 Test Instruments list

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last cal date** (mm-dd-yy)	**Cal Interval**
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

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last cal date** (mm-dd-yy)	**Cal Interval**
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

6 Test results and Measurement Data

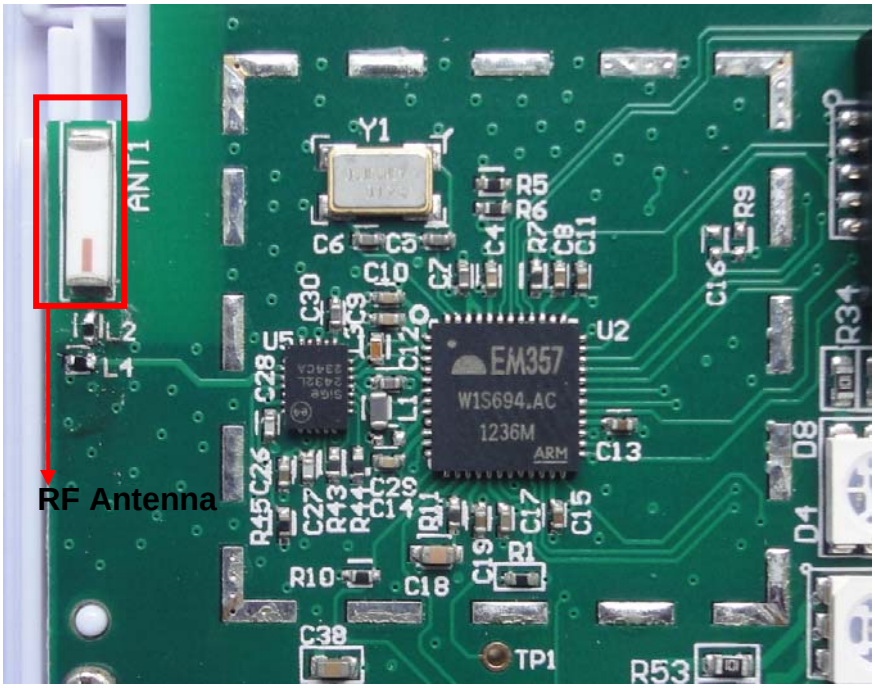
6.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

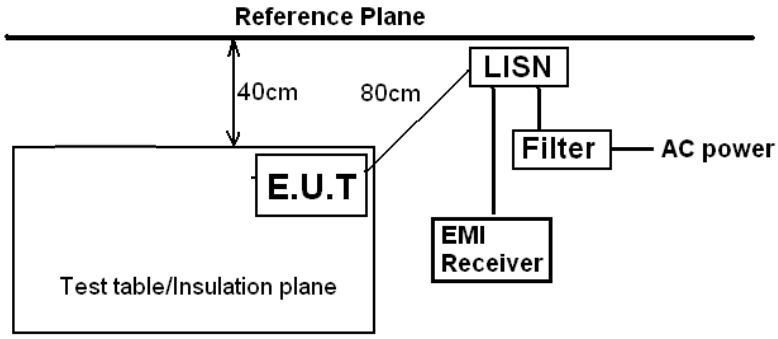
15.203 requirement:
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer 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.
15.247(c) (1)(i) requirement:
(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.

E.U.T Antenna:	

The antenna port is a Internal Chip Antenna; the best case gain of the antenna is 0.5dBi.



6.2 Conducted Emissions

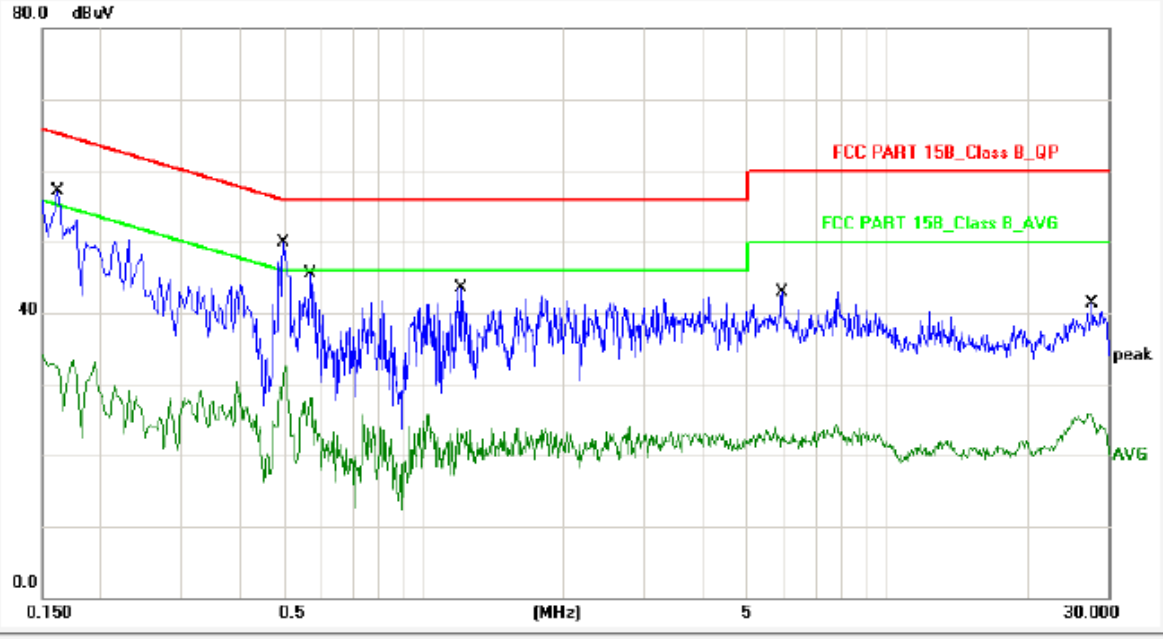
<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4:2003</td></tr>
<tr><td>Test Frequency Range:</td><td>150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td>Class B</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9KHz, VBW=30KHz</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test procedure</td><td>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.</td></tr>
<tr><td>Test setup:</td><td> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 5.7 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.3 for details</td></tr>
<tr><td>Test results:</td><td>Passed</td></tr>
</table>

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.

Live Line:

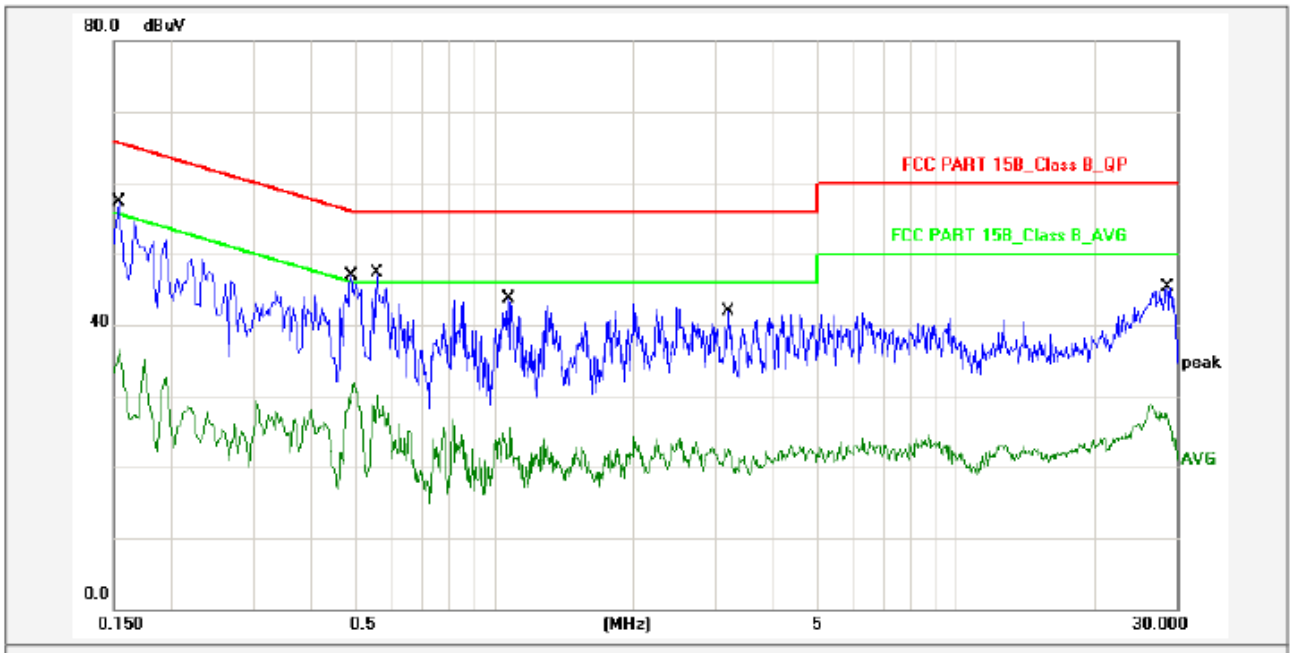


Report No.:	EV1301008018-1		
Test Standard:	FCC PART 15B_Class B_QP		
Test item:	Conducted Emission	Phase:	L1
Applicant:	Ambient	Temp.( )/Hum.(%):	24(C) / 54 %
Product:	Ambient Energy Joule	Power Rating:	AC 120V/60Hz
Model No.:	AMBEJ	Test Engineer:	Peter
Test Mode:	Transmitting mode		
Remark:			

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1606	10.80	45.17	55.97	65.43	-9.46	QP	P	
2	0.1606	10.80	23.26	34.06	55.43	-21.37	AVG	P	
3	0.4979	10.80	39.04	49.84	56.03	-6.19	QP	P	
4	0.4979	10.80	21.77	32.57	46.03	-13.46	AVG	P	
5	0.5700	10.80	34.79	45.59	56.00	-10.41	QP	P	
6	0.5700	10.80	17.39	28.19	46.00	-17.81	AVG	P	
7	1.2016	10.80	32.73	43.53	56.00	-12.47	QP	P	
8	1.2016	10.80	12.95	23.75	46.00	-22.25	AVG	P	
9	5.9378	10.80	32.07	42.87	60.00	-17.13	QP	P	
10	5.9378	10.80	13.09	23.89	50.00	-26.11	AVG	P	
11	27.7140	10.80	30.60	41.40	60.00	-18.60	QP	P	
12	27.7140	10.80	15.14	25.94	50.00	-24.06	AVG	P	

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

Neutral Line:



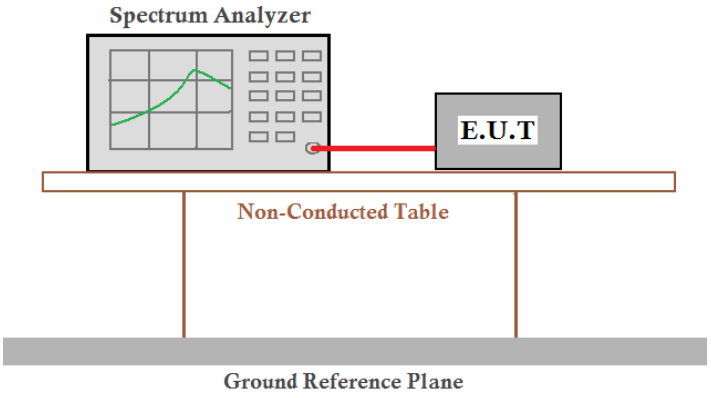
Report No.: EV1301008018-1
Test Standard: FCC PART 15B_Class B_QP
Test item: Conducted Emission
Phase: N
Applicant: Ambient
Temp.( )/Hum.(%): 24(C) / 54 %
Product: Ambient Energy Joule
Power Rating: AC 120V/60Hz
Model No.: AMBEJ
Test Engineer: Peter

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	46.45	57.25	65.78	-8.53	QP	P	
2	0.1539	10.80	25.71	36.51	55.78	-19.27	AVG	P	
3	0.4900	10.80	36.08	46.88	56.17	-9.29	QP	P	
4	0.4900	10.80	21.15	31.95	46.17	-14.22	AVG	P	
5	0.5580	10.80	36.55	47.35	56.00	-8.65	QP	P	
6	0.5580	10.80	19.34	30.14	46.00	-15.86	AVG	P	
7	1.0740	10.80	32.82	43.62	56.00	-12.38	QP	P	
8	1.0740	10.80	14.63	25.43	46.00	-20.57	AVG	P	
9	3.2099	10.80	31.05	41.85	56.00	-14.15	QP	P	
10	3.2099	10.80	11.76	22.56	46.00	-23.44	AVG	P	
11	28.7020	10.80	34.58	45.38	60.00	-14.62	QP	P	
12	28.7020	10.80	16.80	27.60	50.00	-22.40	AVG	P	

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

6.3 Conducted Peak Output Power

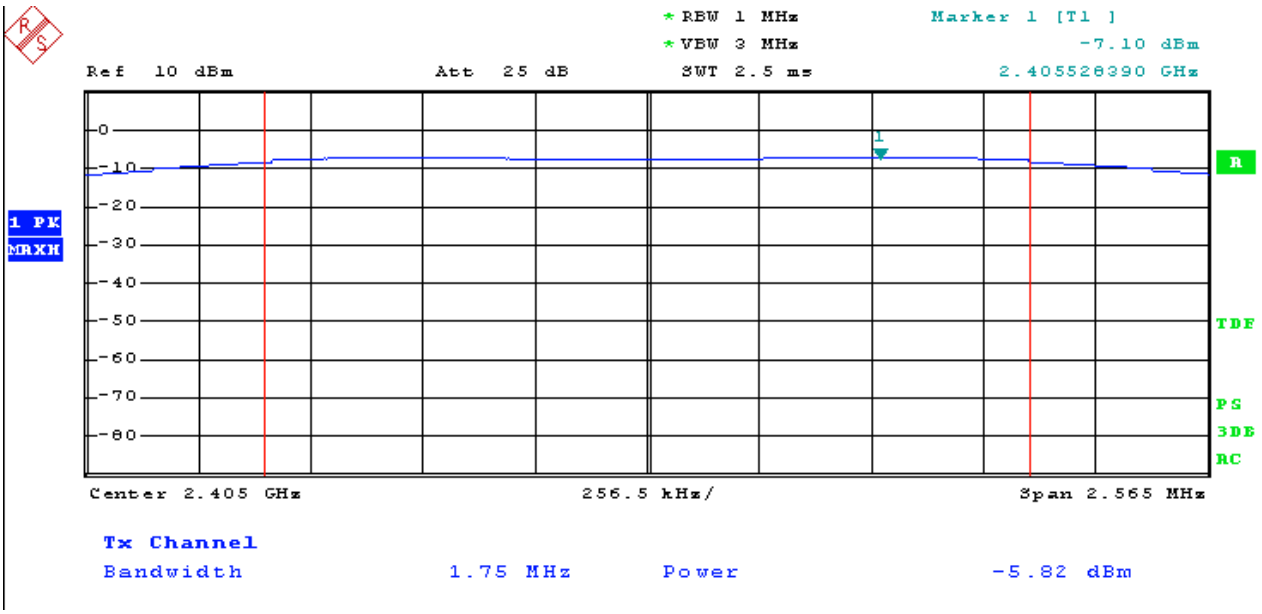
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	30dBm
Test setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.*
Test Instruments:	Refer to section 5.7 for details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

Measurement Data

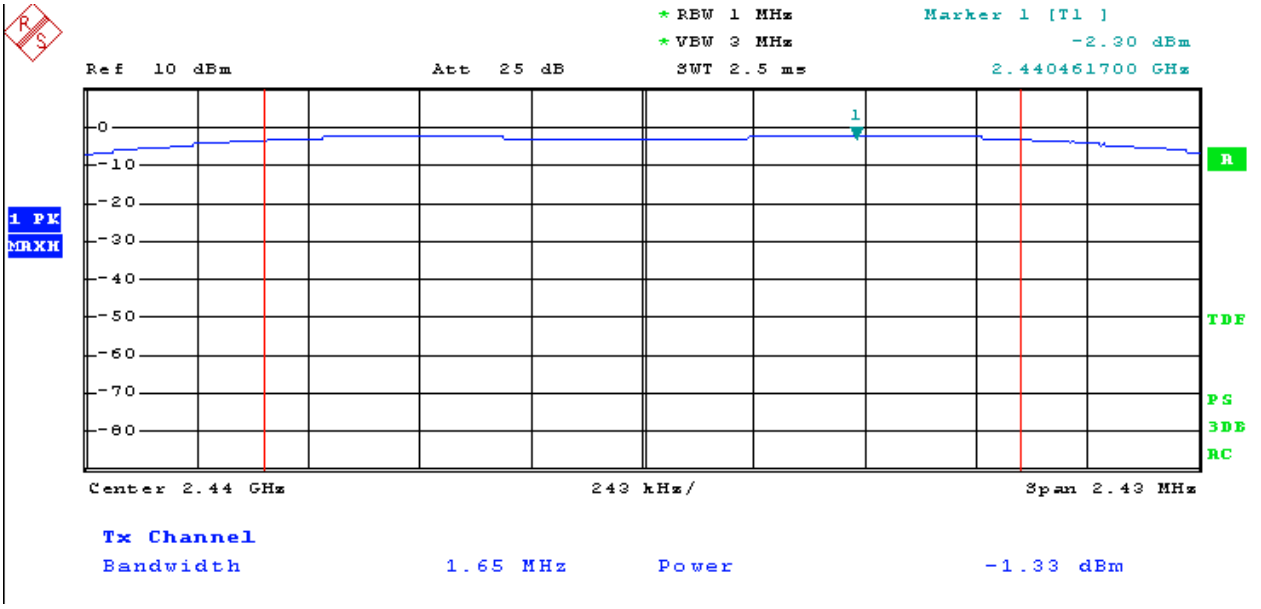
Operating mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-5.82	30.00	Pass
Middle	-1.33	30.00	Pass
Highest	8.12	30.00	Pass

Test plot as follows:

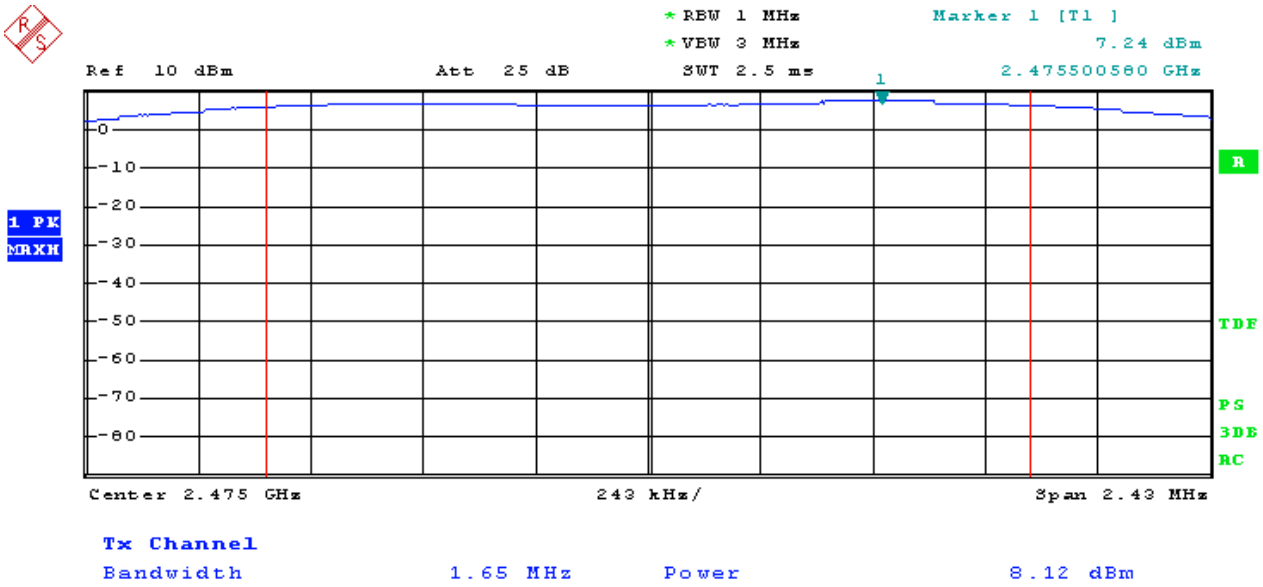
Test channel:	Lowest



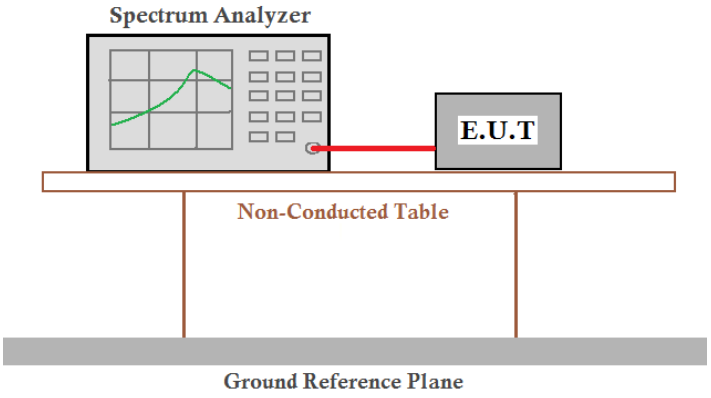
Test channel:	Middle



Test channel:	Highest



6.4 6dB Occupy Bandwidth

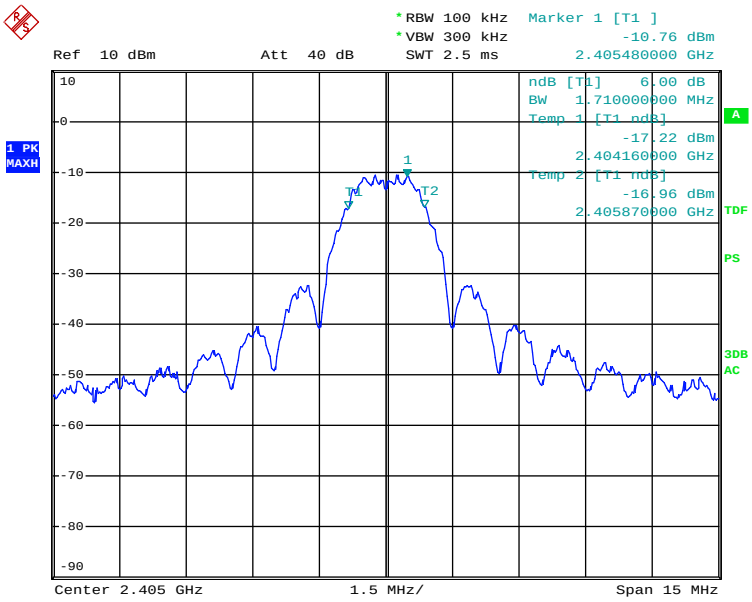
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	>500KHz
Test setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.*
Test Instruments:	Refer to section 5.7 for details
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	1.7100	>500	Pass
Middle	1.6200	>500	Pass
Highest	1.6200	>500	Pass

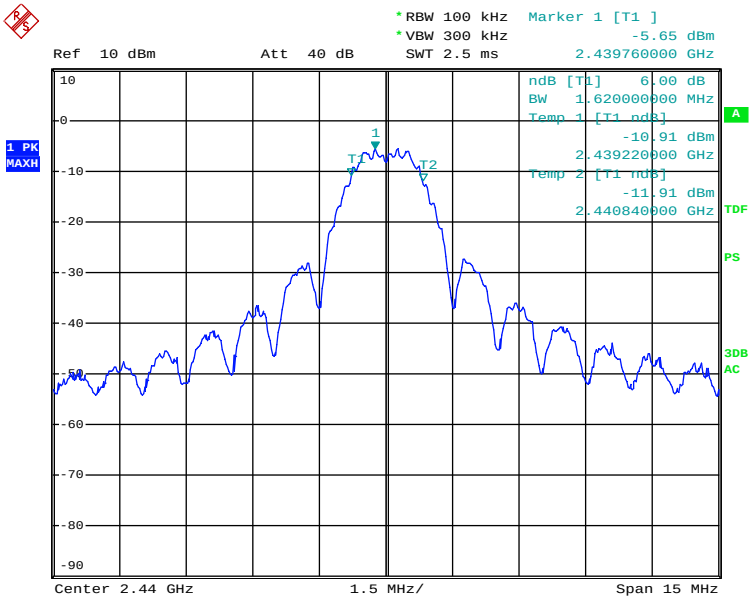
Test plot as follows:

Test channel:	Lowest



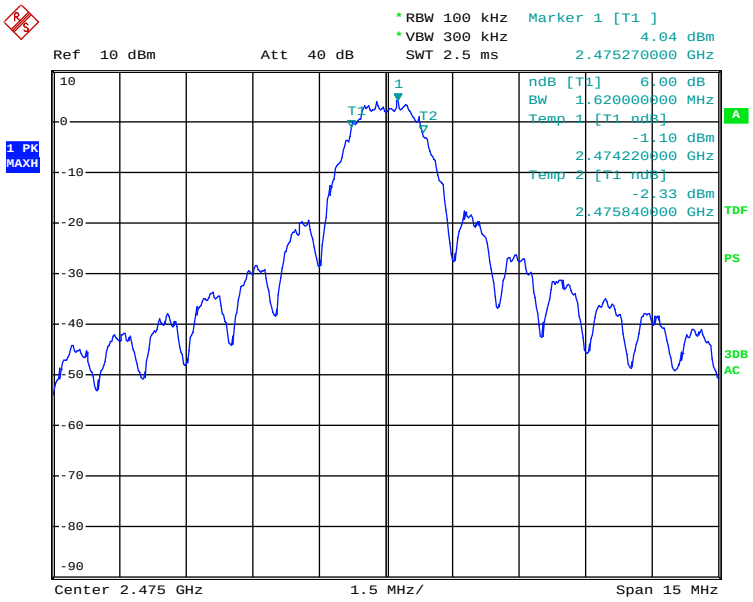
Date: 18.OCT.2013 17:14:53

Test channel:	Middle



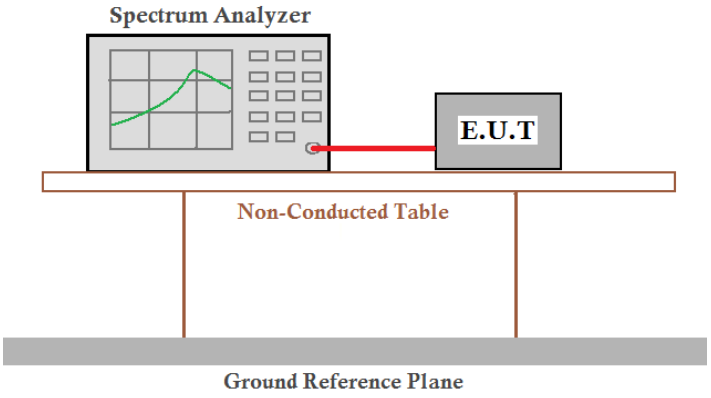
Date: 18.OCT.2013 17:25:17

Test channel:	Highest



Date: 18.OCT.2013 17:28:52

6.5 Power Spectral Density

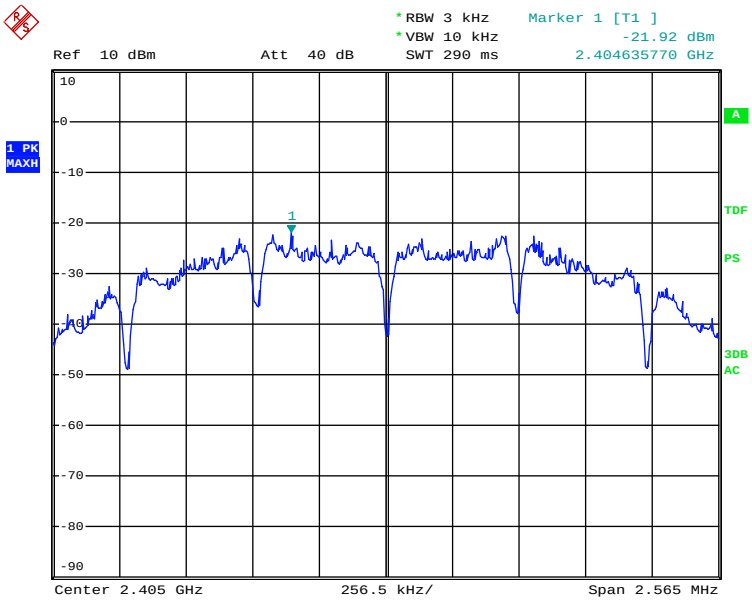
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	8dBm
Test setup:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.*
Test Instruments:	Refer to section 5.7 for details
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	-21.92	8.00	Pass
Middle	-17.77	8.00	Pass
Highest	-7.99	8.00	Pass

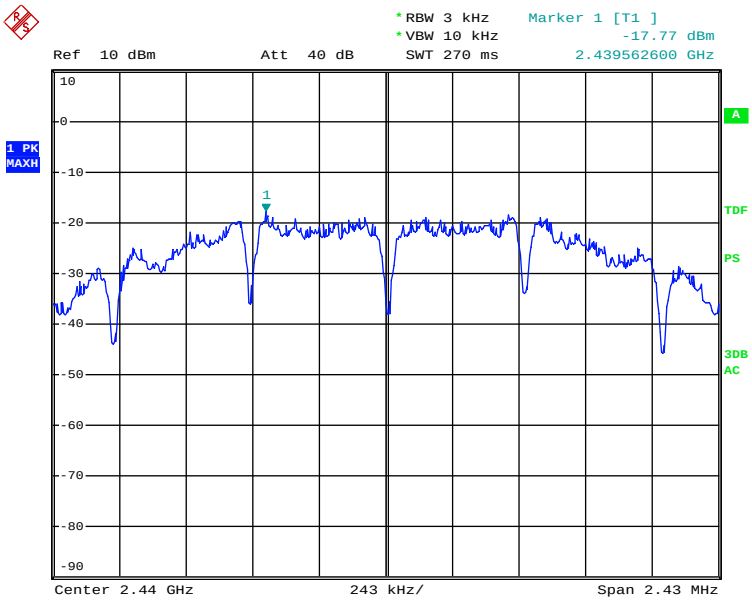
Test plot as follows:

Test channel:	Lowest



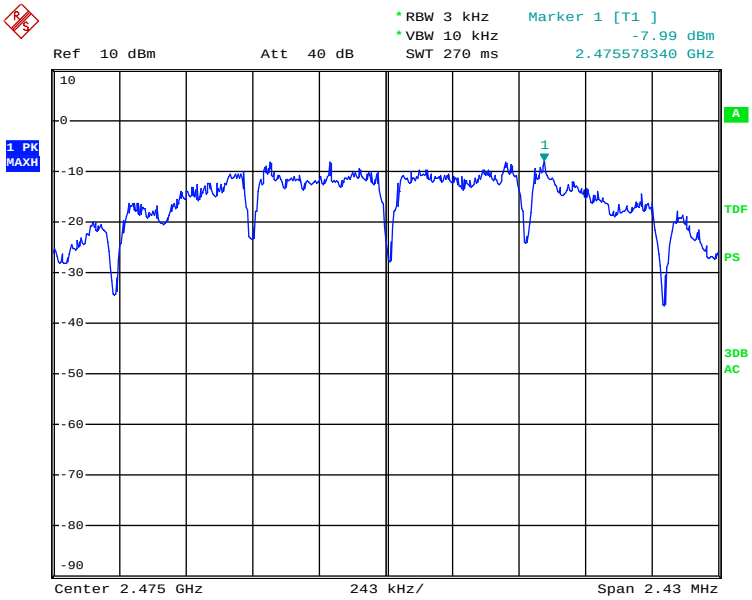
Date: 18.OCT.2013 17:16:06

Test channel:	Middle



Date: 18.OCT.2013 17:26:12

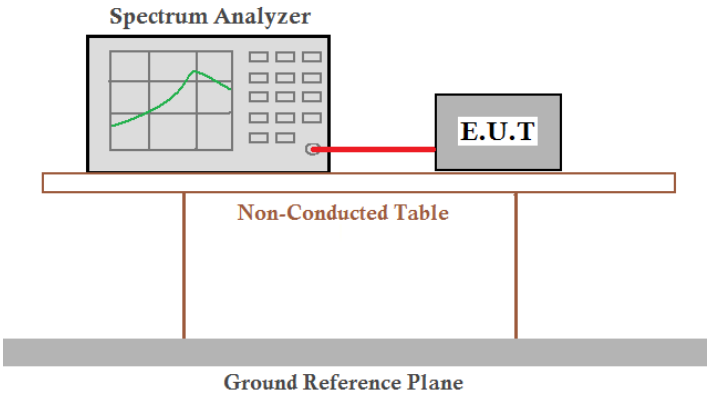
Test channel:	Highest



Date: 18.OCT.2013 17:29:52

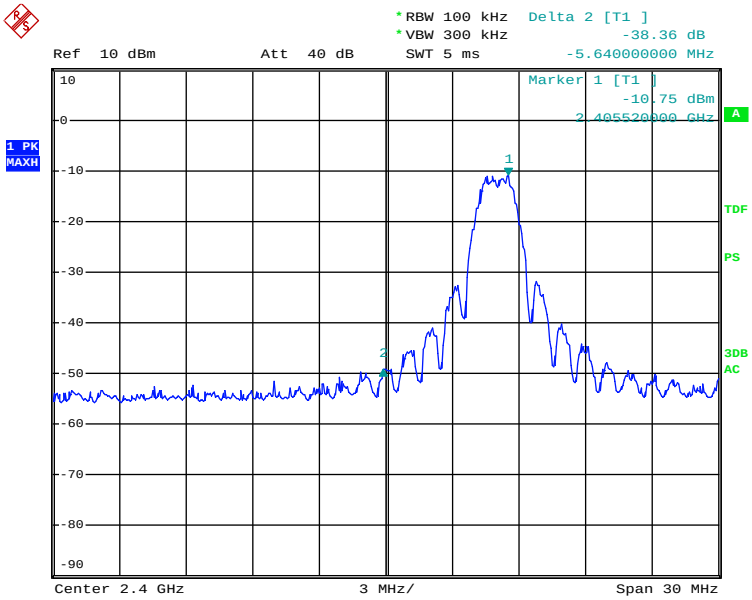
6.6 Band Edge

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:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.*
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

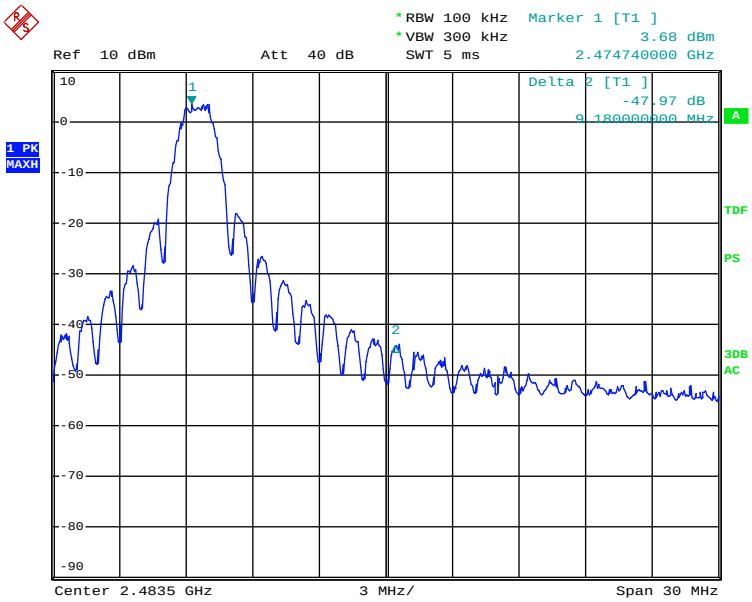
Test plot as follows:

Test mode:	Transmitting mode	Test channel:	Lowest



Date: 18.OCT.2013 17:16:43

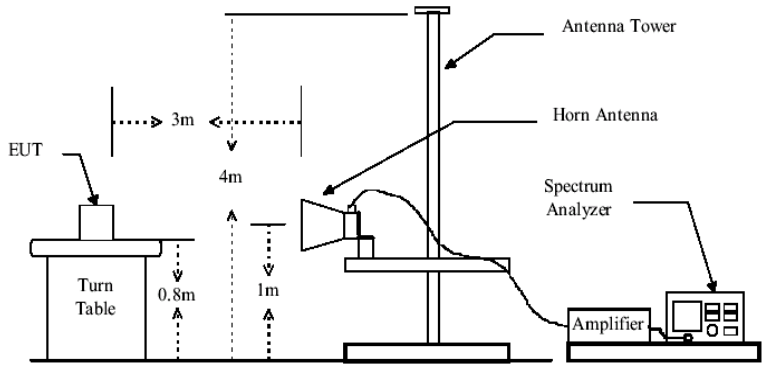
Test mode:	Transmitting mode	Test channel:	Highest



Date: 18.OCT.2013 17:30:34

6.6.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4: 2003</td></tr>
<tr><td>Test Frequency Range:</td><td>2.3GHz to 2.5GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>
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.
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.
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.
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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
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.
</td></tr>
</table>

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:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Measurement data:

Test channel:	Lowest	Value:	Peak

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2396.24	34.76	8.08	42.84	74.00	-31.16	Peak	Vertical
2400.00	38,96	8.09	47.05	74.00	-26.95	Peak	Vertical
2396.24	33.48	8.06	41.54	74.00	-32.46	Peak	Horizontal
2400.00	40.17	8.09	48.26	74.00	-25.74	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
2396.24	22.92	8.08	31.00	54.00	-23.00	Average	Vertical
2400.00	25.56	8.09	33.65	54.00	-20.35	Average	Vertical
2396.24	23.08	8.06	31.14	54.00	-22.86	Average	Horizontal
2400.00	27.23	8.09	35.32	54.00	-18.68	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	37.74	8.36	46.10	74.00	-27.90	Peak	Vertical
2489.18	35,12	8.38	43.50	74.00	-30.50	Peak	Vertical
2483.50	36.98	8.36	45.34	74.00	-28.66	Peak	Horizontal
2486.32	35.10	8.38	43.48	74.00	-30.52	Peak	Horizontal

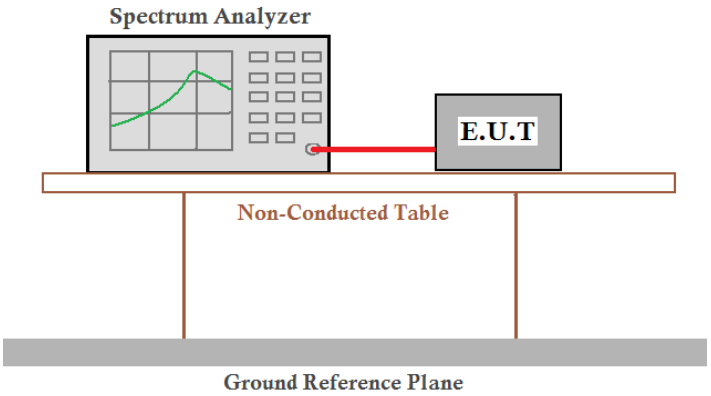
Test channel:	Highest	Value:	Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
2483.50	26.18	8.36	34.54	54.00	-19.46	Average	Vertical
2489.18	22.05	8.38	30.43	54.00	-23.57	Average	Vertical
2483.50	25.24	8.36	33.60	54.00	-20.40	Average	Horizontal
2486.32	22.17	8.38	30.55	54.00	-23.45	Average	Horizontal

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

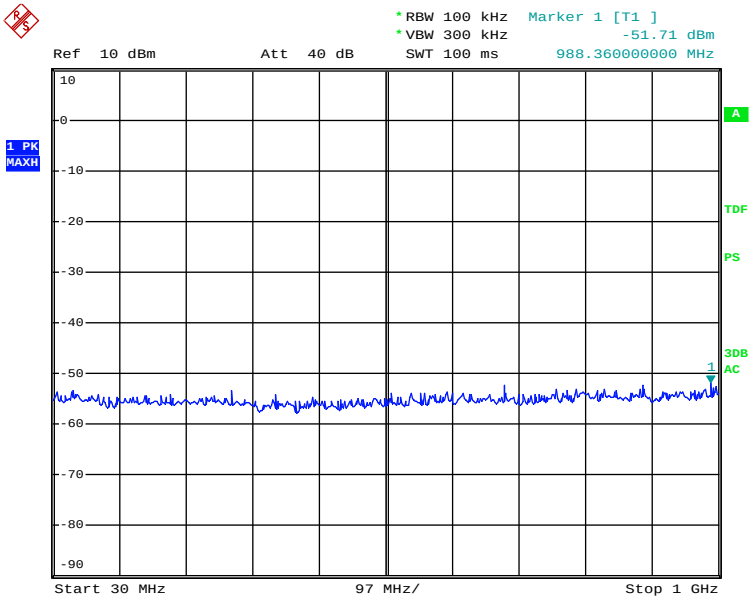
6.7 Spurious Emission

6.7.1 Conducted Emission

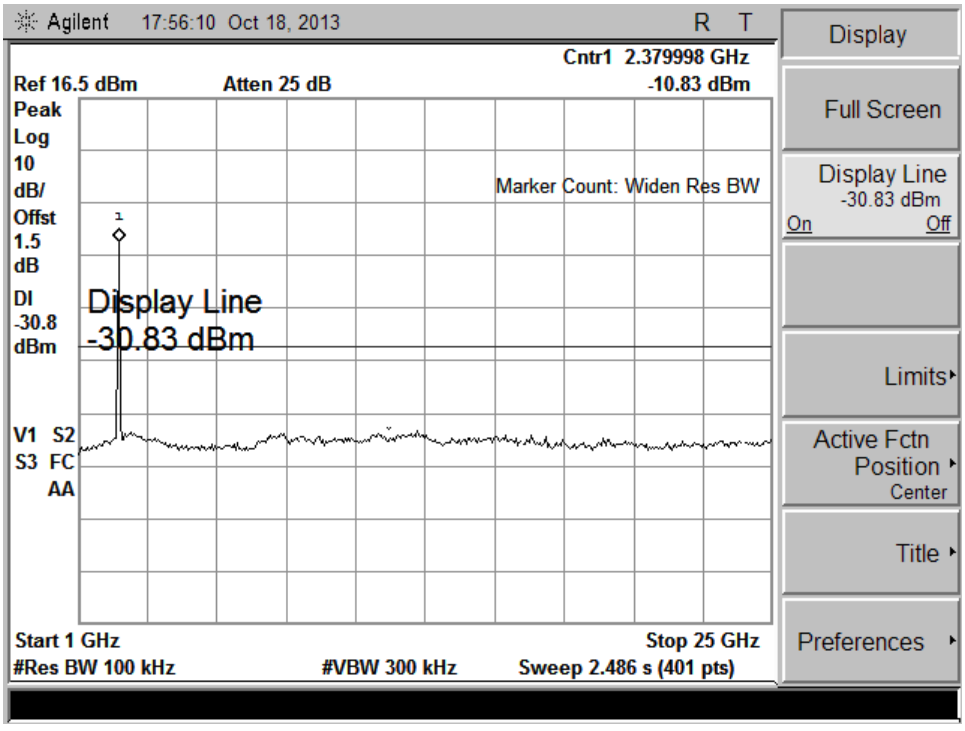
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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:	 *Remark:* *Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer. Cable loss was compensated from the measured value.*
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:

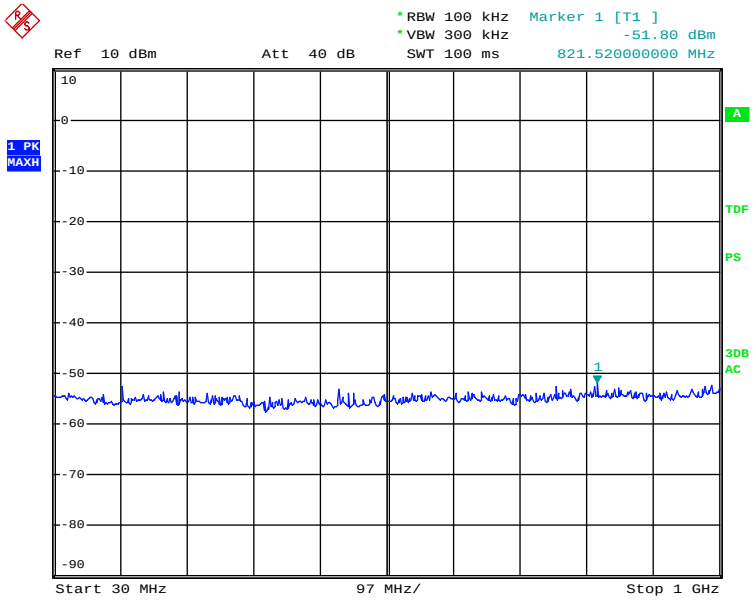
Test channel:	Lowest



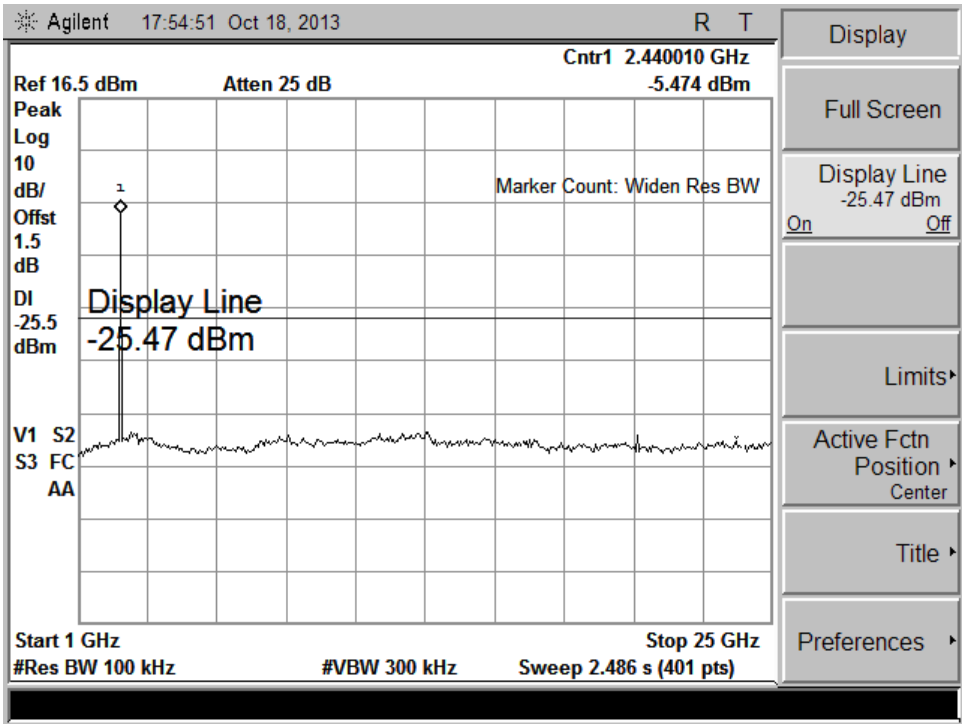
Date: 18.OCT.2013 17:17:00



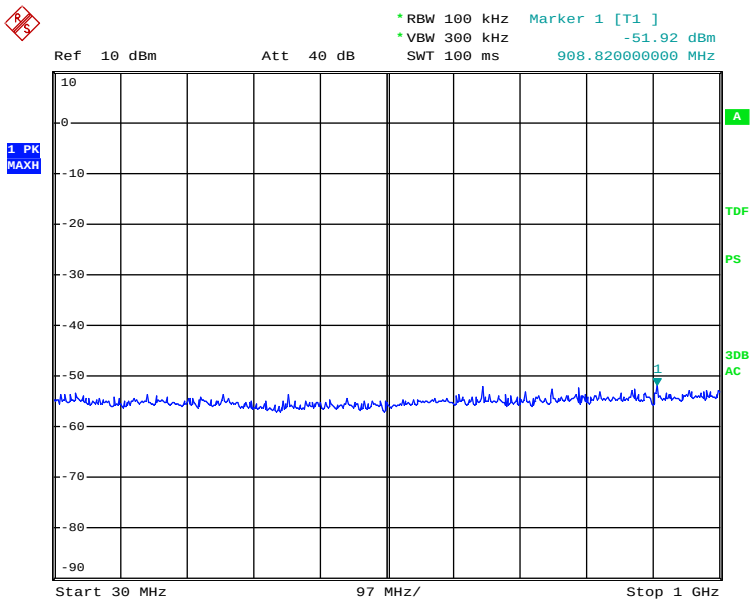
Test channel:	Middle



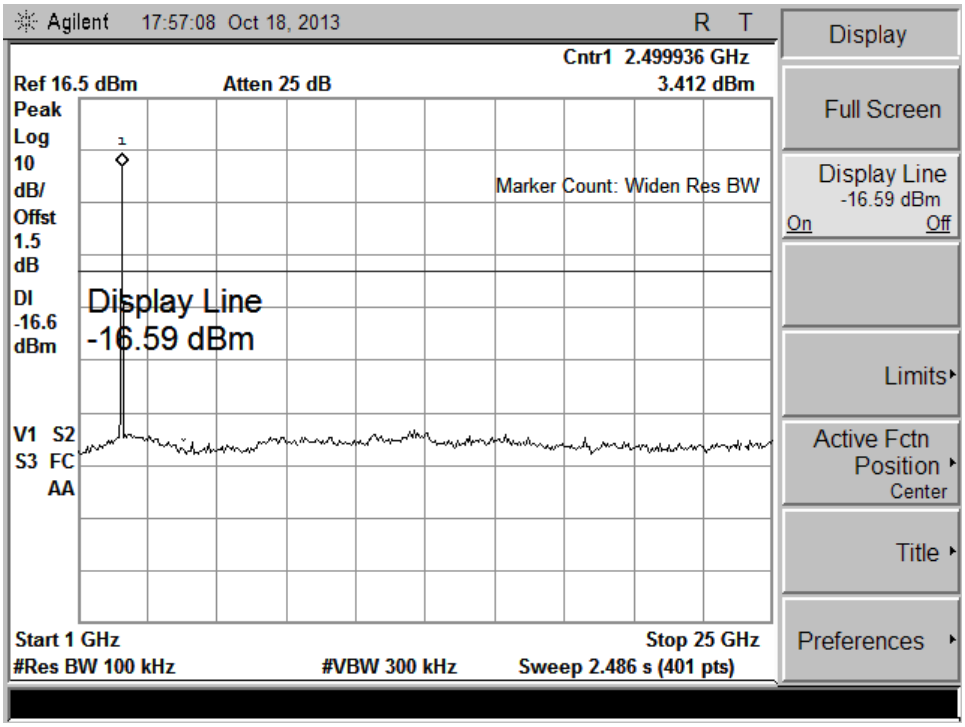
Date: 18.OCT.2013 17:26:42



Test channel:	Highest

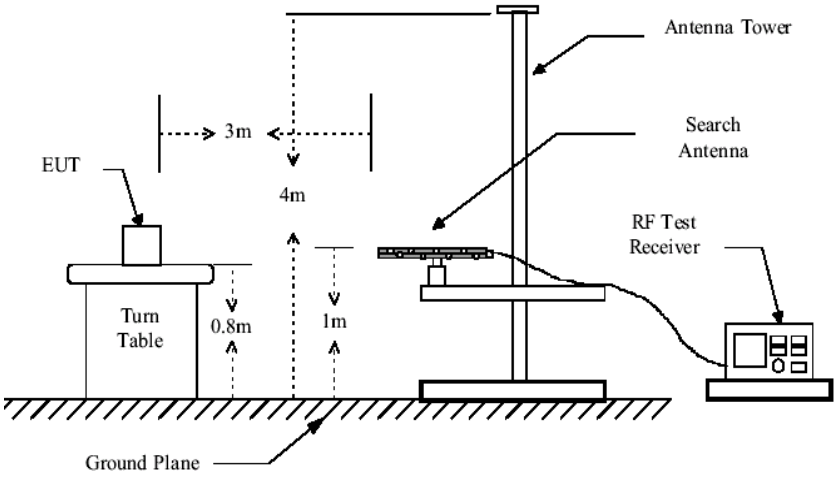
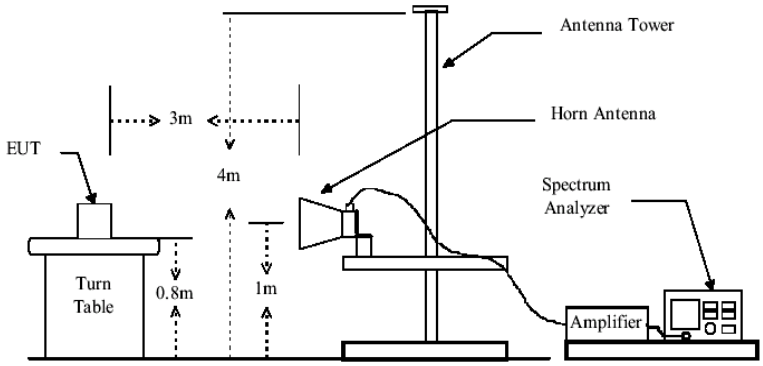


Date: 18.OCT.2013 17:30:59



6.7.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4: 2003</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>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.
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.
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.
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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.
k. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
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.</td></tr>
</table>

Test setup:	Below 1GHz  Above 1GHz 
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:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

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
30.48	43.65	-15.83	27.82	40.00	-12.18	QP	Vertical
56.76	47.24	-13.85	33.39	40.00	-6.61	QP	Vertical
83.15	38.45	-18.68	19.77	40.00	-20.23	QP	Vertical
128.82	37.86	-17.94	19.92	43.50	-23.58	QP	Vertical
184.06	42.56	-16.94	25.62	43.50	-17.88	QP	Vertical
228.15	38.68	-15.61	23.07	46.00	-22.93	QP	Vertical
55.27	36.02	-17.85	18.17	40.00	-21.83	QP	Horizontal
134,55	32.35	-15.32	17.03	43.50	-26.47	QP	Horizontal
147.64	35.42	-15.54	19.88	43.50	-23.62	QP	Horizontal
176.23	37.58	-14.47	23.11	43.50	-20.39	QP	Horizontal
220.60	33.96	-12.91	21.05	46.00	-24.95	QP	Horizontal
226.75	35.27	-12.56	22.71	46.00	-23.29	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	46.78	12.66	59.44	74.00	-14.56	Peak	Vertical
7215.00	43.26	16.70	59.96	74.00	-14.04	Peak	Vertical
9620.00	45.04	18.16	63.20	74.00	-10.80	Peak	Vertical
12025.00	42.87	17.63	60.50	74.00	-13.50	Peak	Vertical
4810.00	46.52	12.66	59.18	74.00	-14.82	Peak	Horizontal
7215.00	43.66	16.70	60.36	74.00	-13.64	Peak	Horizontal
9620.00	44.78	18.16	62.94	74.00	-11.06	Peak	Horizontal
12025.00	44.45	17.63	62.08	74.00	-11.92	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	36.45	12.66	49.11	54.00	-4.89	Average	Vertical
7215.00	31.57	16.70	48.27	54.00	-5.73	Average	Vertical
9620.00	32.05	18.16	50.21	54.00	-3.79	Average	Vertical
12025.00	32.84	17.63	50.47	54.00	-3.53	Average	Vertical
4810.00	35.12	12.66	47.78	54.00	-6.22	Average	Horizontal
7215.00	30.43	16.70	47.13	54.00	-6.87	Average	Horizontal
9620.00	31.65	18.16	49.81	54.00	-4.19	Average	Horizontal
12025.00	32.24	17.63	49.87	54.00	-4.13	Average	Horizontal

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	47.86	12.96	60.82	74.00	-13.18	Peak	Vertical
7320.000	45.23	16.91	62.14	74.00	-11.86	Peak	Vertical
9760.000	44.78	18.34	63.12	74.00	-10.88	Peak	Vertical
12200.000	47.24	17.87	65.11	74.00	-8.89	Peak	Vertical
4880.00	46.35	12.96	59.31	74.00	-14.69	Peak	Horizontal
7320.000	44.89	16.91	61.80	74.00	-12.20	Peak	Horizontal
9760.000	43.65	18.34	61.99	74.00	-12.01	Peak	Horizontal
12200.000	45.02	17.87	62.89	74.00	-11.11	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	35.12	12.96	48.08	54.00	-5.92	Average	Vertical
7320.000	30.76	16.91	47.67	54.00	-6.33	Average	Vertical
9760.000	30.22	18.34	48.56	54.00	-5.44	Average	Vertical
12200.000	31.08	17.87	48.95	54.00	-5.05	Average	Vertical
4880.00	33.45	12.96	46.41	54.00	-7.59	Average	Horizontal
7320.000	30.85	16.91	47.76	54.00	-6.24	Average	Horizontal
9760.000	30.52	18.34	48.86	54.00	-5.14	Average	Horizontal
12200.000	31.18	17.87	49.05	54.00	-4.95	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	45.36	13.26	58.62	74.00	-15.38	Peak	Vertical
7440.000	44.34	17.16	61.50	74.00	-12.50	Peak	Vertical
9920.000	43.28	18.55	61.83	74.00	-12.17	Peak	Vertical
12400.000	45.05	18.15	63.20	74.00	-10.80	Peak	Vertical
4950.00	44.98	13.26	58.24	74.00	-15.76	Peak	Horizontal
7440.000	45.37	17.16	62.53	74.00	-11.47	Peak	Horizontal
9920.000	44.65	18.55	63.20	74.00	-10.80	Peak	Horizontal
12400.000	45.23	18.15	63.38	74.00	-10.62	Peak	Horizontal

Test channel:	Highest	Remark:	Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
4950.00	33.76	13.26	47.02	54.00	-6.98	Average	Vertical
7440.000	31.24	17.16	48.40	54.00	-5.60	Average	Vertical
9920.000	30.47	18.55	49.02	54.00	-4.98	Average	Vertical
12400.000	32.05	18.15	50.20	54.00	-3.80	Average	Vertical
4950.00	33.68	13.26	46.94	54.00	-7.06	Average	Horizontal
7440.000	31.35	17.16	48.51	54.00	-5.49	Average	Horizontal
9920.000	30.69	18.55	49.24	54.00	-4.76	Average	Horizontal
12400.000	32.26	18.15	50.41	54.00	-3.59	Average	Horizontal

Remark:

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

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