FCC 47 CFR PART 15 SUBPART C
TEST REPORT

For

Product Name: VitaSound PAE

Brand Name: VitaSound

Model No.: PAE-100

FCC ID: S9X-HB-1121
Test Report Number:
C131015E01-RPB

Issued for

Honey Bee (Hong Kong) Limited

Flat L, 12/F, Phase 4, Kwun Tong Industrial Centre, 436-446 Kwun Tong Road, Kowloon, HongKong

Issued by

Compliance Certification Services Inc.

Kun shan Laboratory

**No.10 Weiye Rd., Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, China**

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FAX: 86-512-57370818

ACCREDITED
TESTING CERT #2541.01

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result
3.1	15.247(a)(1)	Number of Channels	≥ 15Channels	Pass
3.2	15.247(a)(1)	Hopping Channel Separation	≥2/3 of 20dB BW	Pass
3.3	15.247(a)(1)	Dwell Time of Each Channel	≤0.4sec in 31.6sec period	Pass
3.4	15.247(a)(1)	20dB Bandwidth	NA	Pass
3.2	15.247(d)	Peak Output Power	≤ 1W for 1Mbps ≤125mW for 2,3Mbps	Pass
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	15.209(a) &15.247(d)	Pass
3.6	15.207	AC Conducted Emission	15.207(a)	Pass
3.7	15.203 &15.247(b)	Antenna Requirement	N/A	Pass

1 TEST RESULT CERTIFICATION

Product Name:	VitaSound PAE
Trade Name:	VitaSound
Model Name.:	PAE-100
Series Model:	PAE-500，PAE-380
Applicant Discrepancy:	Initial
Device Category:	PORTABLE DEVICES
Date of Test:	November 2, 2013
Applicant:	**Honey Bee (Hong Kong) Limited** Flat L, 12/F, Phase 4, Kwun Tong Industrial Centre, 436-446 Kwun Tong Road, Kowloon, HongKong
Manufacturer:	**Shantou S.E.Z. Honey Bee Electronices Co., Ltd.** 5/F, Blk 3, Zhu Hua Industrial Zone, Li Shui Zhuang, Zhong Qu, Long Hu Qu, Shantou City, Guangdong Province, China
Application Type:	Certification

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by: ***Tested by:***

Jeff.Fang
RF Manager
Compliance Certification Services Inc.

Blent.Wang
Test Engineer
Compliance Certification Services Inc.

2 EUT DESCRIPTION

Product Name:	VitaSound PAE
Trade Name:	VitaSound
Model Name.:	PAE-100
Series Model:	PAE-500，PAE-380
Model Discrepancy:	Only for market segment
Power Rating :	Power supply and ADP（rating）: Model：SEB0902000P INPUT: 100-240V~50-60Hz,1A OUTPUT: 9V,2000mA Battery（rating）: Capacitance: 3.7V-1500mAh
Frequency Range :	2402 ~ 2480 MHz
Transmit Power :	5.44Bm(3.50mW)
Modulation Technique :	FHSS
Transmit Data Rate :	GFSK(1 Mbps),π/4-DQPSK(2 Mbps),8-DPSK(3 Mbps)
Number of Channels :	79 Channels
Antenna Specification :	PCB Antenna

Remark:

1. This submittal(s) (test report) is intended for ***FCC ID: S9X-HB-1121*** to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 ,15.247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EXERCISEEUT

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

3.4 Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	Antenna
Peak Output Power	GFSK	1 Mbps	0/39/78	1
	π/4-DQPSK	2 Mbps		
	8DPSK	3 Mbps		
Hopping Channel Bandwidth	GFSK	1 Mbps	0/39/78	1
	π/4-DQPSK	2 Mbps		
	8DPSK	3 Mbps		
Hopping Channel Separation	GFSK	1 Mbps	0-1/38-39/77-78	1
	π/4-DQPSK	2 Mbps		
	8DPSK	3 Mbps		
Number of Hopping Frequency	GFSK	1 Mbps	0-78	1
Dwell Time	DH1/DH3/DH5	1 Mbps	39	1
	π/4-DQPSK	2 Mbps		
	3DH1/3DH3/3DH5	3 Mbps		
Spurious Emission	GFSK	1 Mbps	0/39/78	1
	π/4-DQPSK	2 Mbps		
	8DPSK	3 Mbps		
Band Edge Emissions	GFSK	1 Mbps	0/78	1
	8DPSK	3 Mbps		
Radiated Emissions Below 1GHz	GFSK	1 Mbps	78	1
Radiated Emissions Above 1GHz	GFSK	1 Mbps	0/39/78	1
	8DPSK	3 Mbps		
AC Power Conducted Emissions	CTX	-	-	-

Remark: For radiated test cases below 1 GHz, the worst mode data rate channel 78 of 1Mbps was reported only, because this data rate has the highest RF output power at preliminary tests.

3.5 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.0900 - 0.1100	16.420 - 16.423	399.9 - 410.0	4.50 - 5.15
0.4950 - 0.505(1)	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960.0 - 1240	7.25 - 7.75
4.1250 - 4.1280	25.50 - 25.67	1300 - 1427	8.025 - 8.500
4.17725 - 4.17775	37.50 - 38.25	1435.0 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73.0 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.2150 - 6.2180	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108.00 - 121.94	1718.8 - 1722.2	13.25 - 13.40
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.50
8.2910 - 8.2940	149.90 - 150.05	2310 - 2390	15.35 - 16.20
8.3620 - 8.3660	156.52475 - 156.52525	2483.5 - 2500.0	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.1700	3260 - 3267	23.6 - 24.0
12.2900 - 12.2930	167.72 - 173.20	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345 - 3358	36.43 - 36.5 (2)
12.57675 - 12.57725	322.0 - 335.4	3600 - 4400	
13.3600 - 13.4100			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.facilities and accreditations

5 FACILITIES AND ACCREDITATIONS

5.1 FACILTIES

All measurement facilities used to collect the measurement data are located at
CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements.

5.4 TABLE OF ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

Taiwan	TAF
USA	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada
Japan	VCCI
Taiwan	BSMI
USA	FCC

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

5.5 LIST OF MEASURING EQUIPMENT

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	RS	FSU26	200789	2014-6-30
Bluttooth Tester	RS	CBT	100189	N.C.R
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2014-3-14
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2014-3-14
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2014-3-14
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC POWER SUPPLY	AGILENT	E3632A	MY50340053	2014-3-14
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2014-1-24
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-4-16
Pre-Amplfier	MITEQ	JS41-00101800-32-10P	1675713	2013-10-8
Pre-Amplfier	MITEQ	NSP400-NF	870731	2014-4-26
Bilog Antenna	Sunol Sciences	JB1	A062604	2014-5-2
Horn-antenna	SCHWARZBECK	BBHA9120D	267	2014-4-28
Horn-antenna	SCHWARZBECK	BBHA9170	171	2014-4-28
Loop Antenna	Hengwei	HOPEV39501C	20051	2014-4-5
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT1OO	95637	N.C.R
Test Software	EZ-EMC			

Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER	R&S	ESCI3	100781	2014-3-14
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2014-3-14
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2014-3-14
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2014-3-14
Test Software	EZ-EMC			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

5.6 SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

5.7 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	Notebook	DELL	E5430	CN8YYW1	N/A

Remark:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6 FCC PART 15.247 REQUIREMENTS

6.1 PEAK POWER

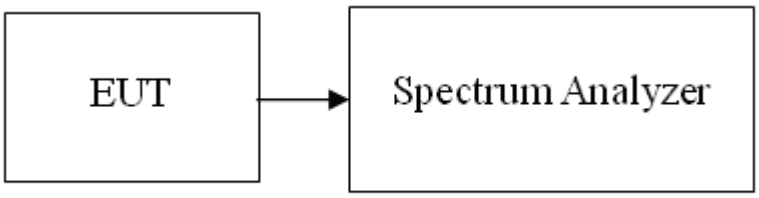
Limit

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
2. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
3. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



Test Procedure

The transmitter output is connected to the spectrum analyzer. Set the RBW = 3MHz , VBW = 3MHz, Detector = Peak, Trace mode = max hold, Sweep = auto couple. Record the max reading.
Repeat the above procedure until the measurements for all frequencies are completed.

Test Results

No non-compliance noted

Test RESULTS

1M GFSK Modulation mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	3.12	2.05	1000	PASS
Mid	2441	2.50	1.78		PASS
High	2480	**5.44**	**3.50**		PASS

2M DQPSK Modulation mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	1.86	1.53	1000	PASS
Mid	2441	4.13	2.59		PASS
High	2480	**5.08**	**3.22**		PASS

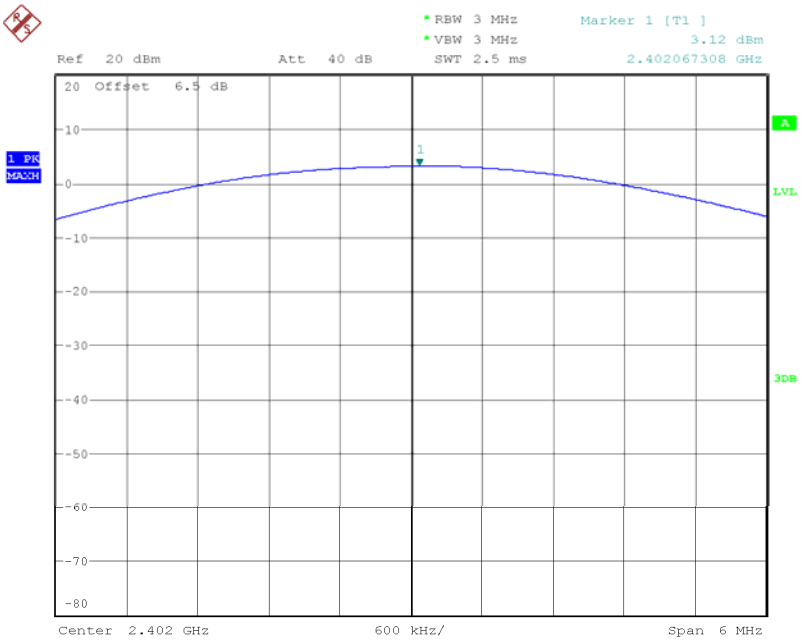
3M 8-DPSK Modulation mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	1.52	1.42	1000	PASS
Mid	2441	3.80	2.40		PASS
High	2480	**4.61**	**2.89**		PASS

Test Data

1M

Ch low



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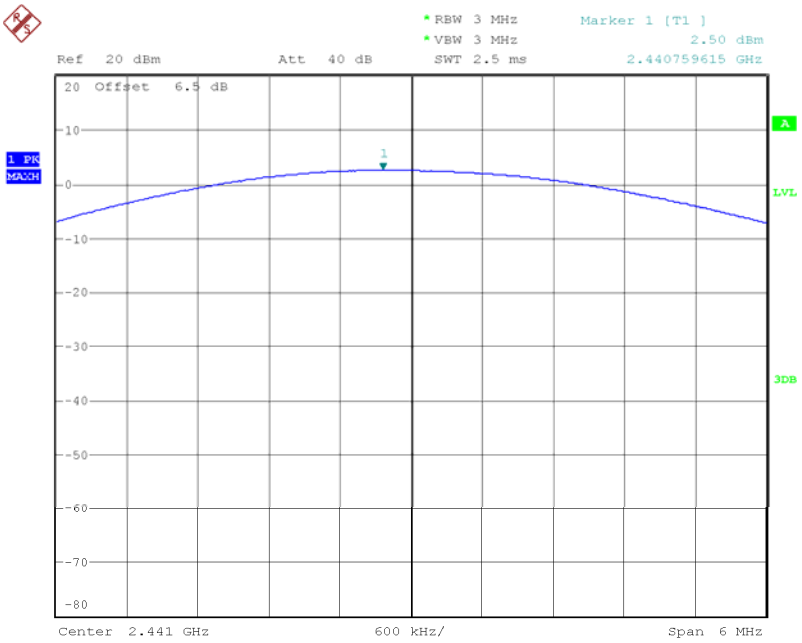
CH Mid



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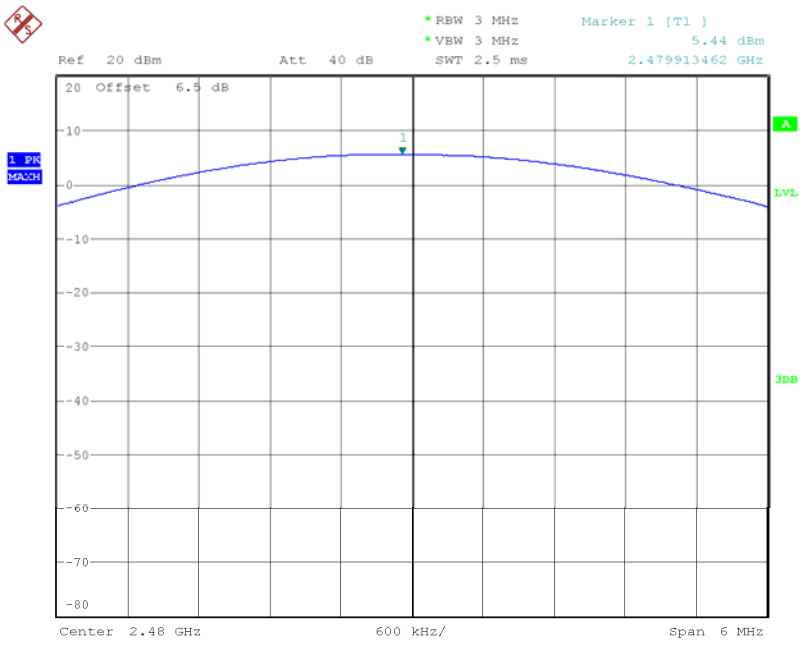
CH High



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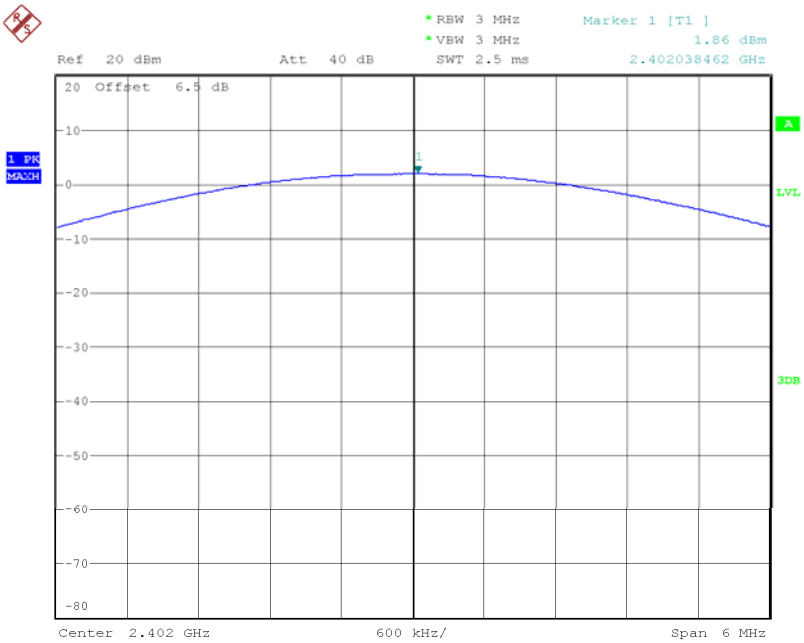
2M

Ch low



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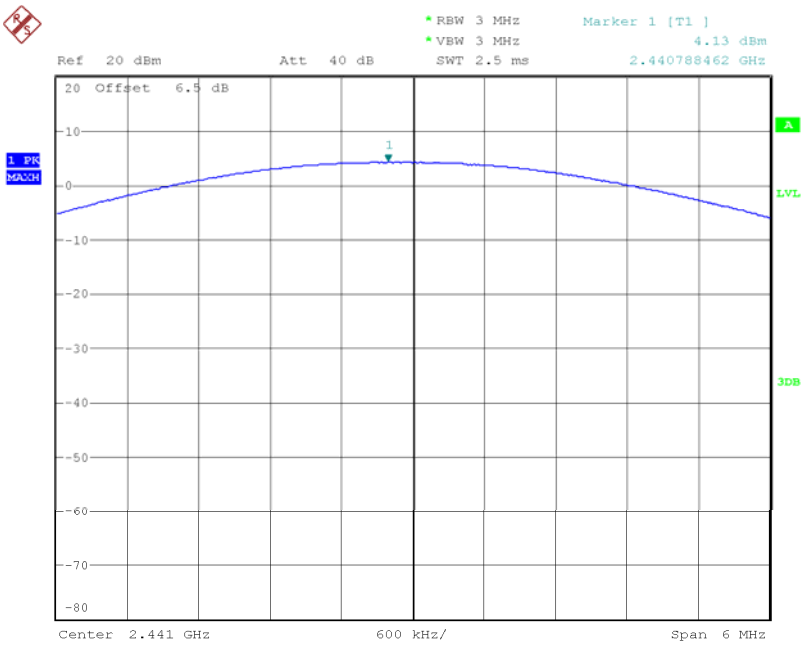
CH Mid



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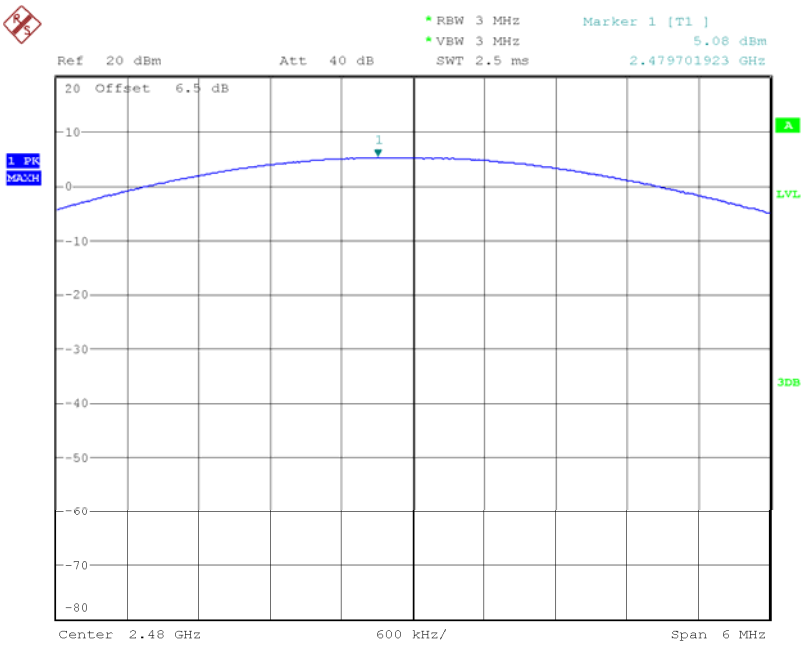

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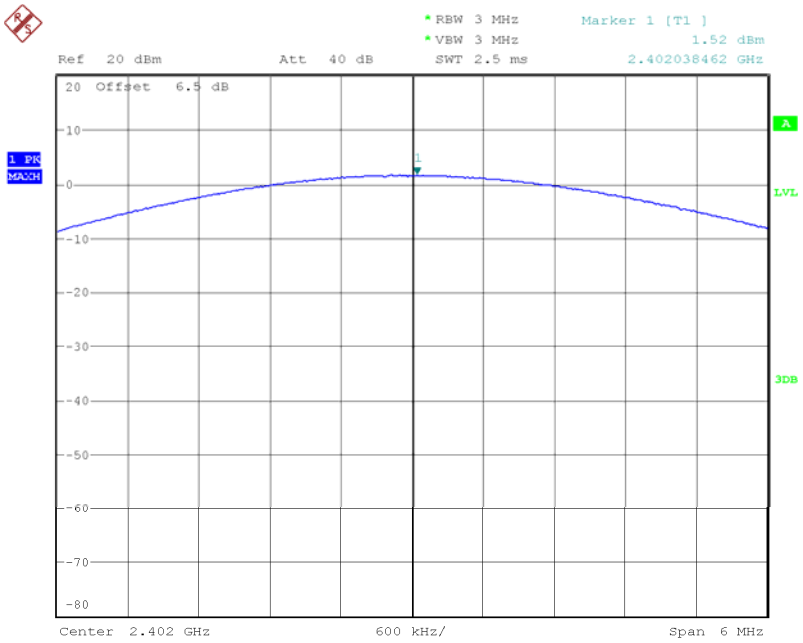
3M

Ch low



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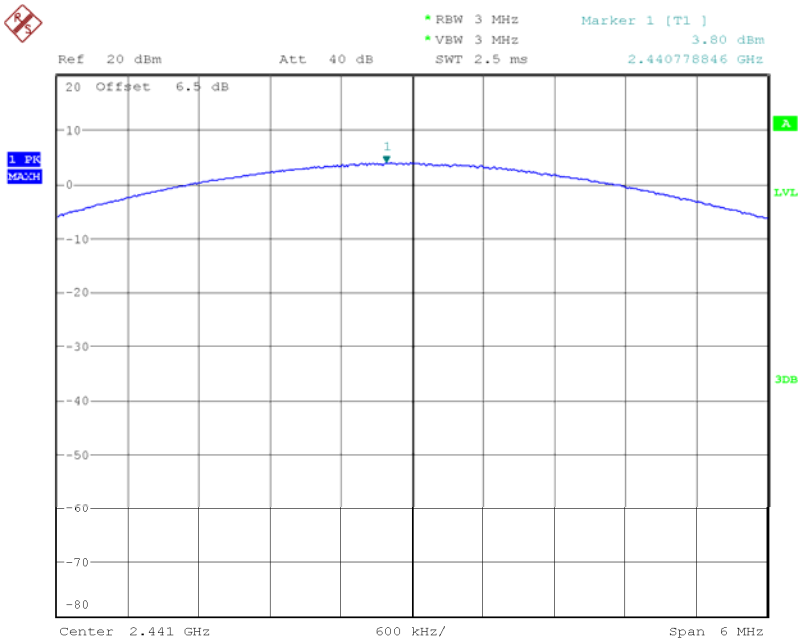
Ch mid



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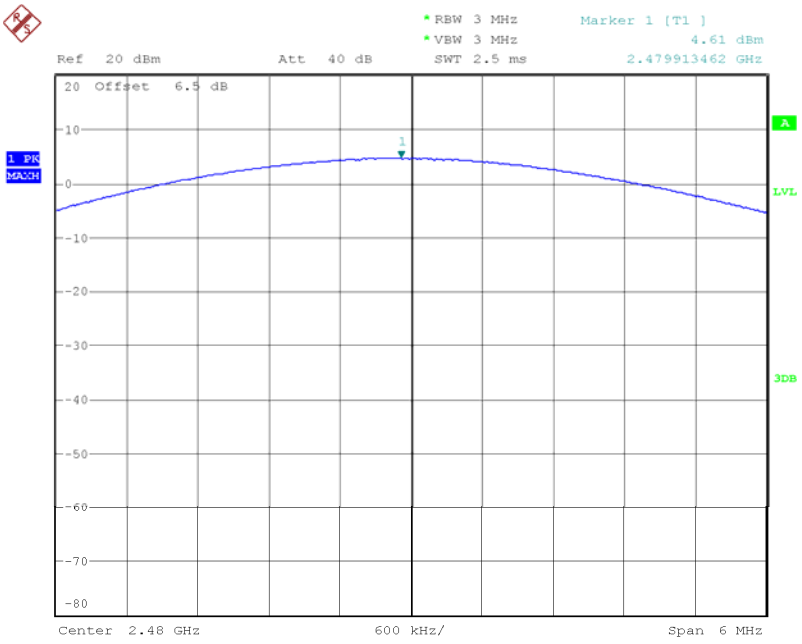
Ch High



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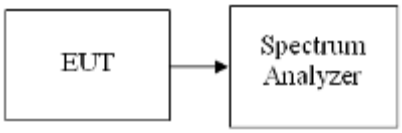
6.2 HOPPING CHANNEL BANDWIDTH

Limit

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Test Configuration



Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 30kHz, VBW = 100kHz, Span = 2MHz, Sweep = auto.
4. Max hold, mark 2 peaks of hopping channel and record the 2 peaks frequency.

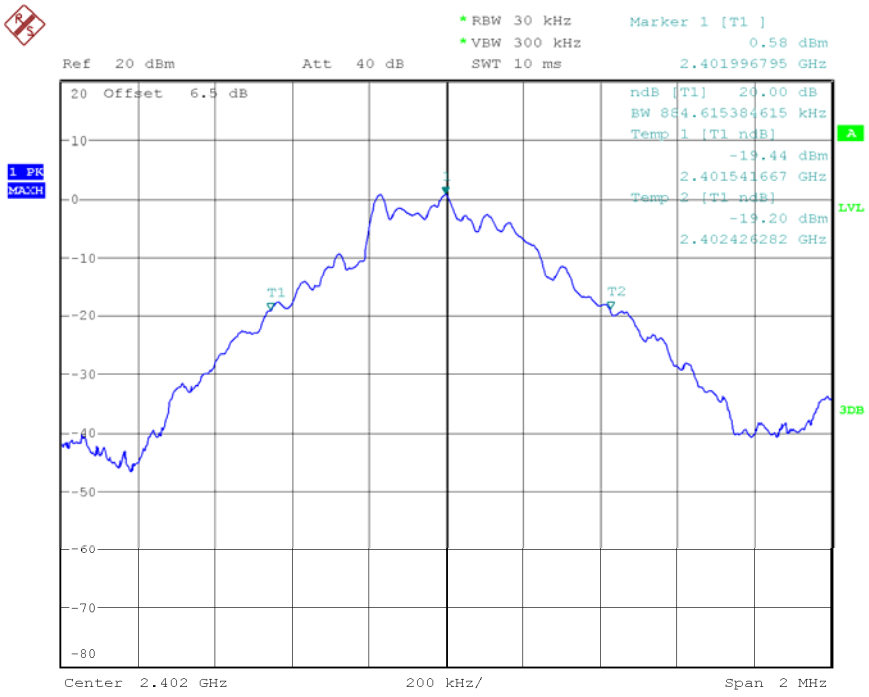
Test Results of 20dB Bandwidth

No non-compliance noted

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	20dB Bandwith(MHz)
00	2402	0.884
39	2441	0.849
78	2480	0.854

20 dB Bandwidth Plot on Channel 00



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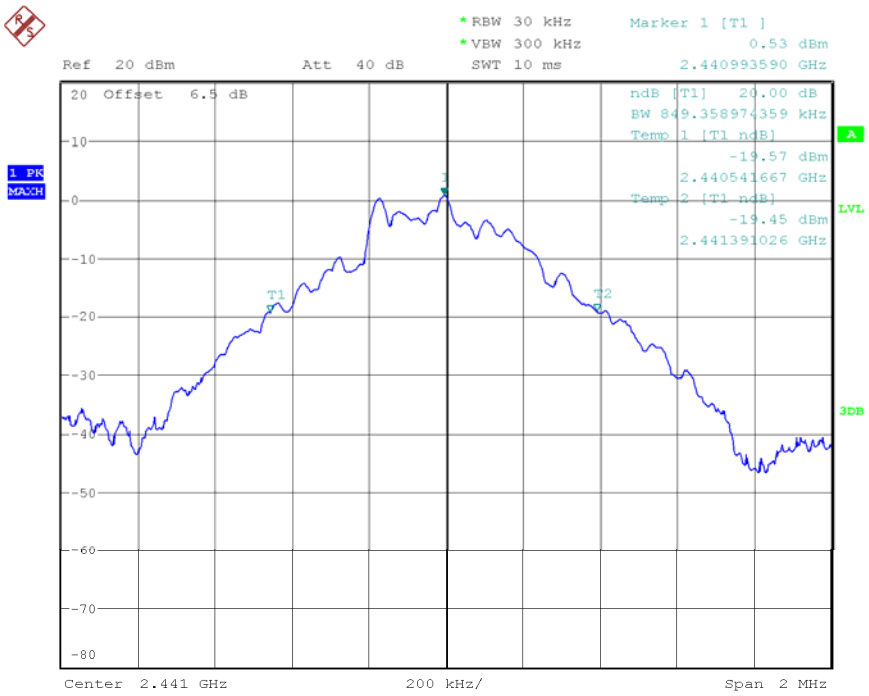
20 dB Bandwidth Plot on Channel 39



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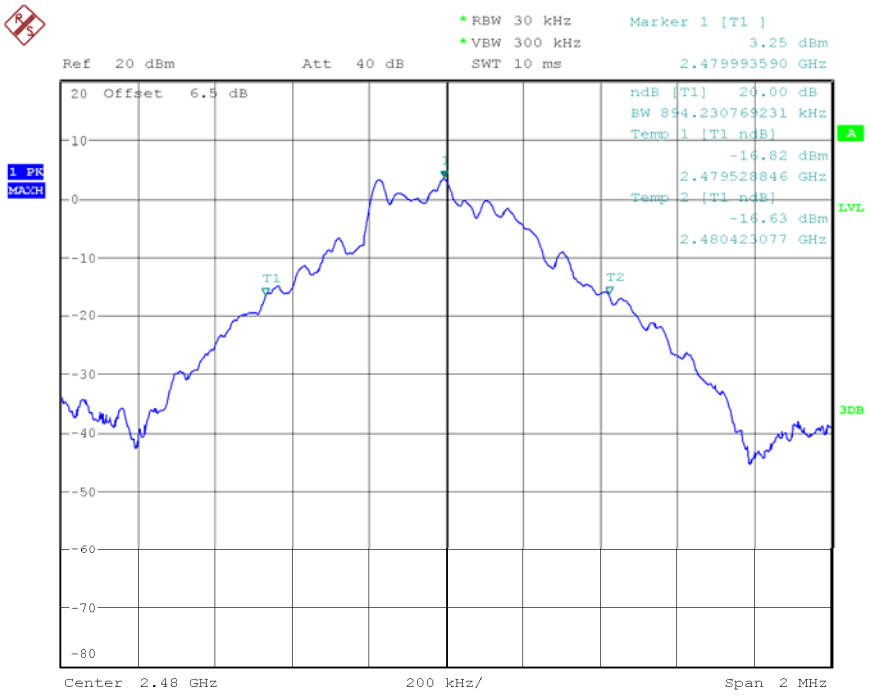
20 dB Bandwidth Plot on Channel 78

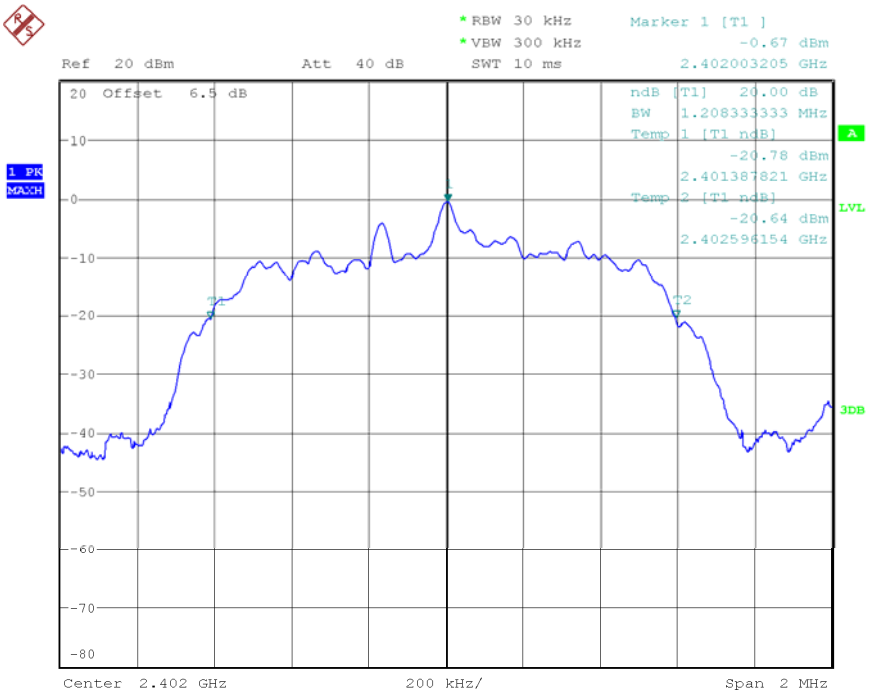


Date: 29.OCT.2013 17:14:56

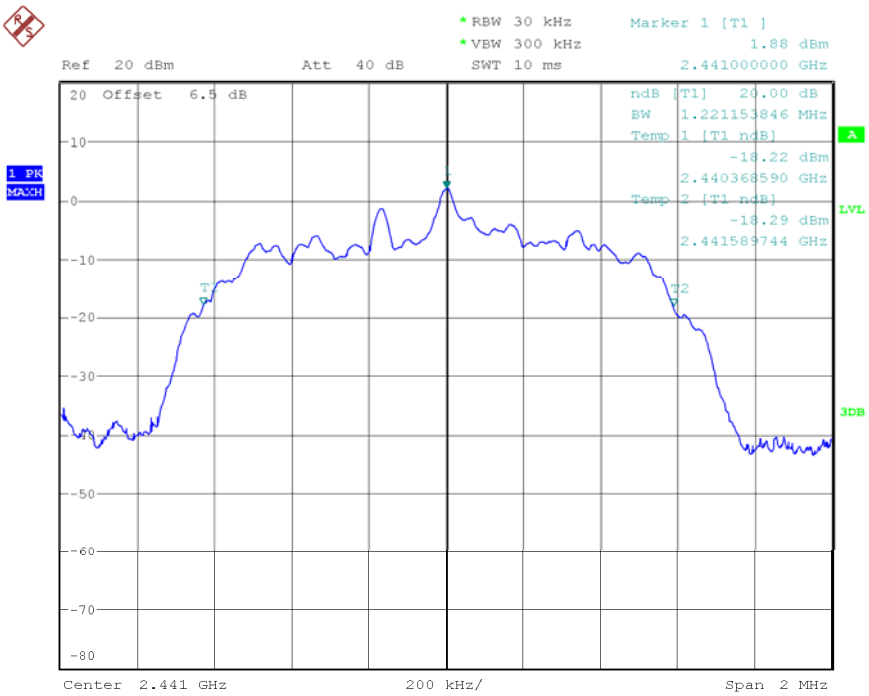
Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	20dB Bandwith(MHz)
00	2402	1.208
39	2441	1.221
78	2480	1.212

20 dB Bandwidth Plot on Channel 00



20 dB Bandwidth Plot on Channel 39



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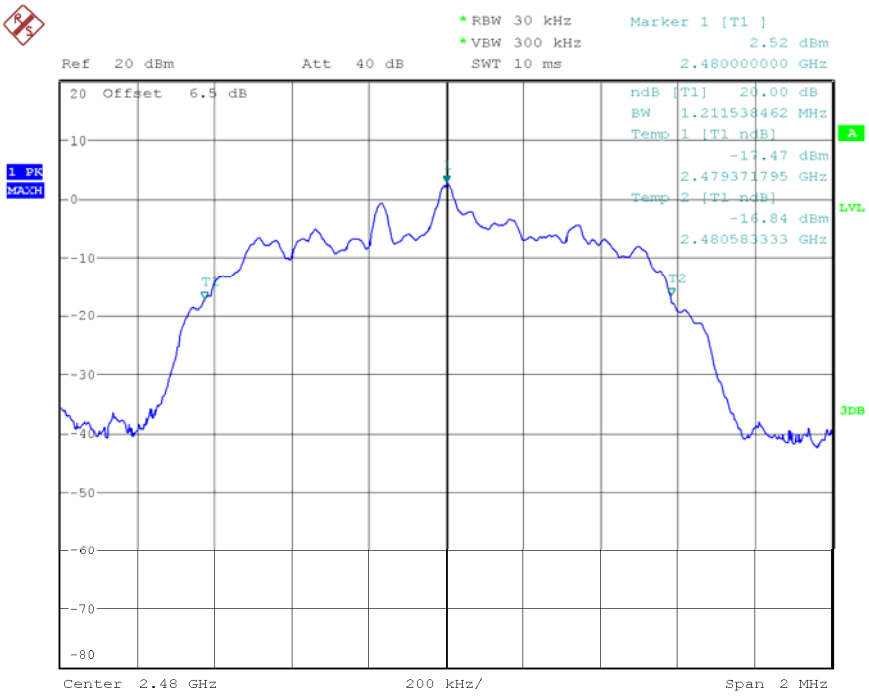
20 dB Bandwidth Plot on Channel 78

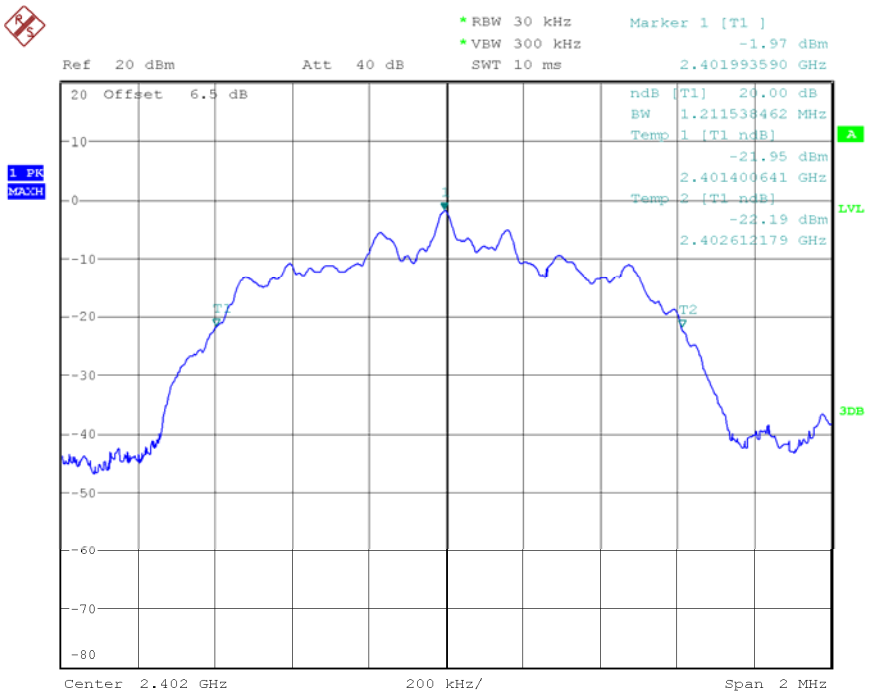


Date: 2.DEC.2013 12:20:56

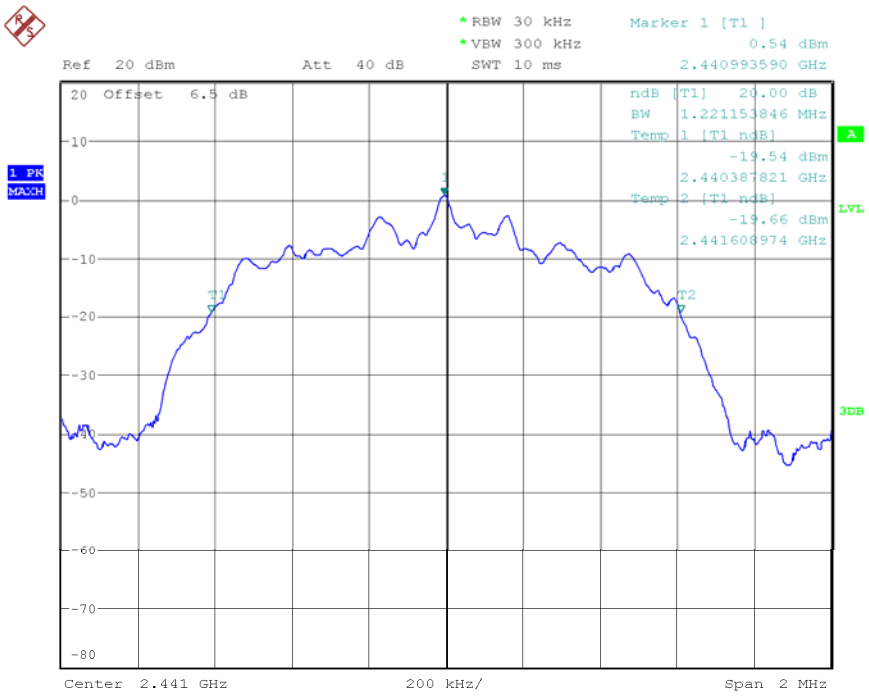
Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	20dB Bandwith(MHz)
00	2402	1.211
39	2441	1.221
78	2480	1.221

20 dB Bandwidth Plot on Channel 00

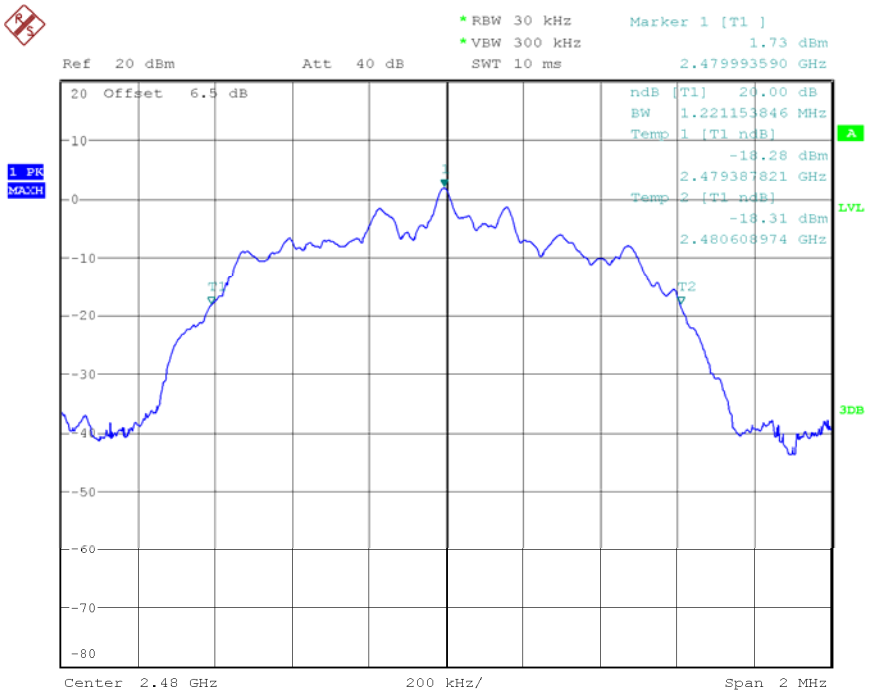


20 dB Bandwidth Plot on Channel 39



Date: 29.OCT.2013 17:14:13

20 dB Bandwidth Plot on Channel 78



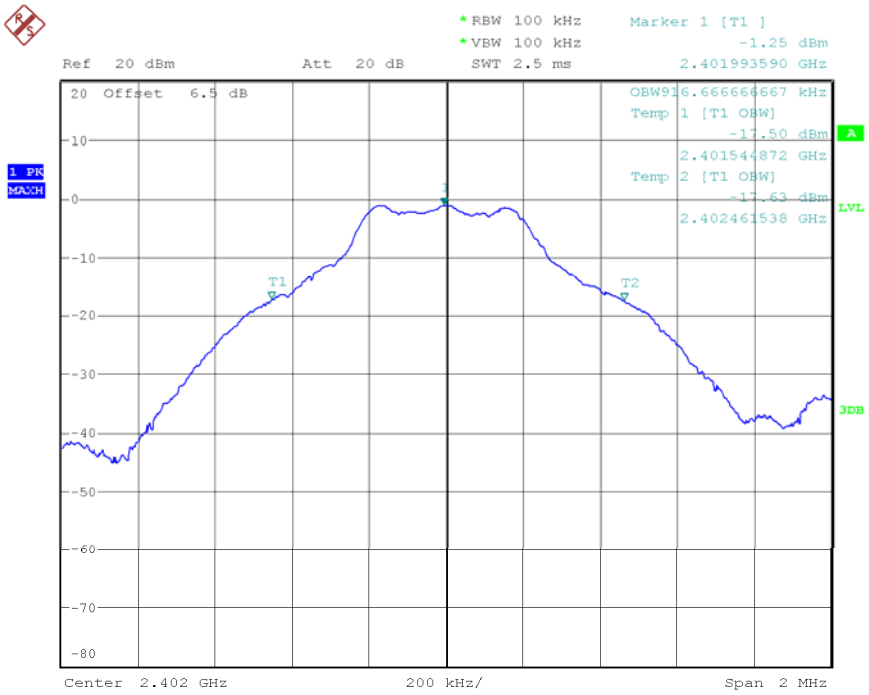
Date: 29.OCT.2013 17:15:14

Test Result of 99% Occupied Bandwidth

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

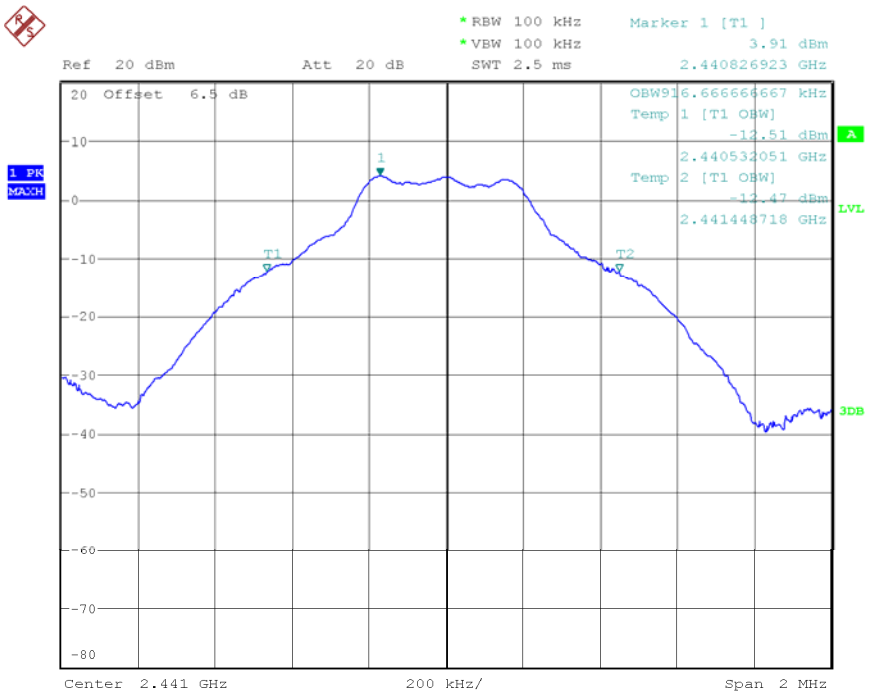
Channel	Frequency(MHz)	99% Occupied Bandwidth(MHz)
00	2402	0.917
39	2441	0.917
78	2480	0.917

99% Bandwidth Plot on Channel 00



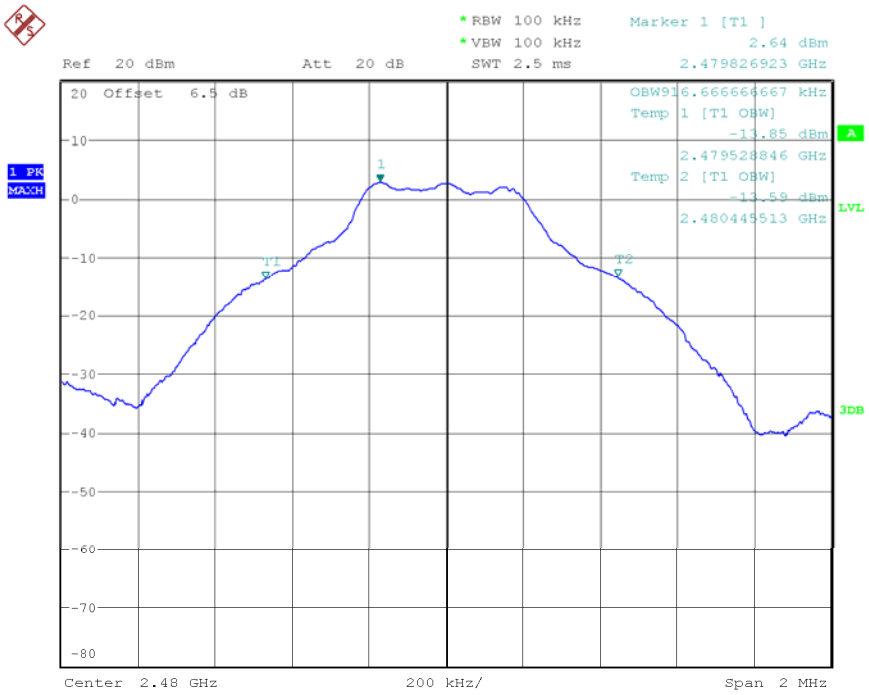
Date: 29.OCT.2013 17:18:52

99% Bandwidth Plot on Channel 39



Date: 29.OCT.2013 17:17:28

99% Bandwidth Plot on Channel 78

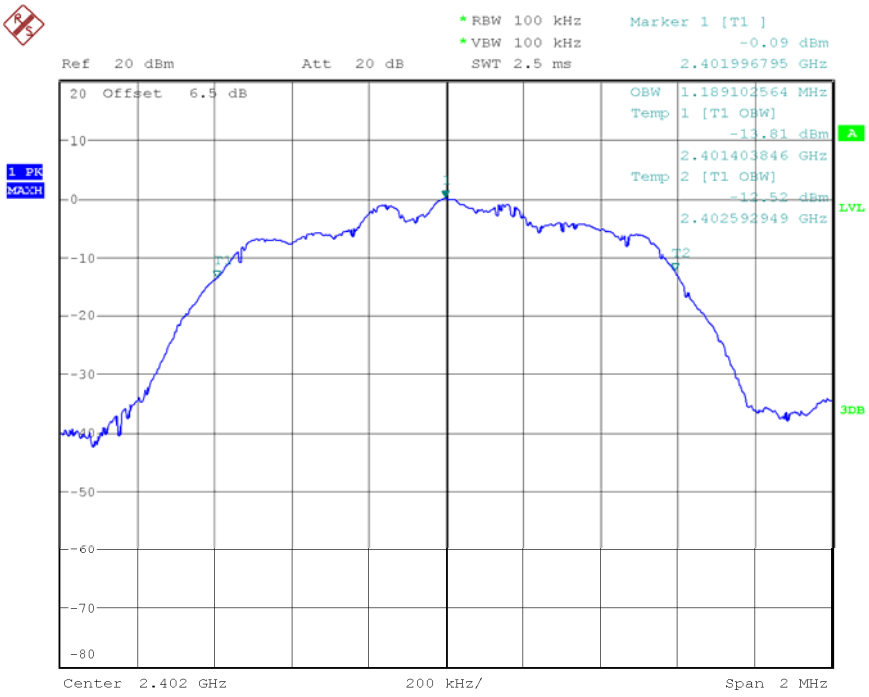


Date: 29.OCT.2013 17:17:06

Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

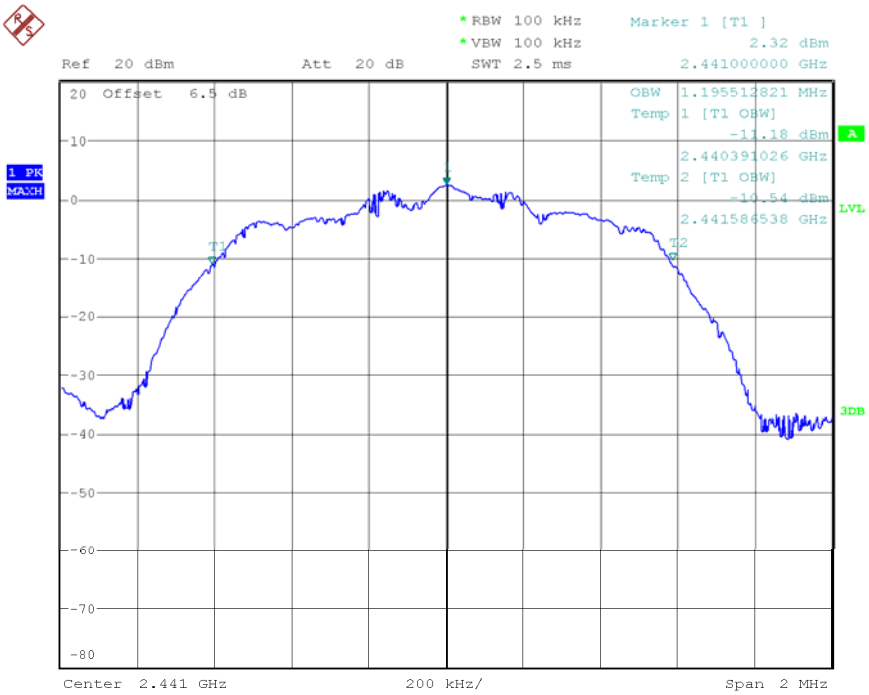
Channel	Frequency(MHz)	99% Occupied Bandwidth(MHz)
00	2402	1.189
39	2441	1.196
78	2480	1.196

99% Bandwidth Plot on Channel 00



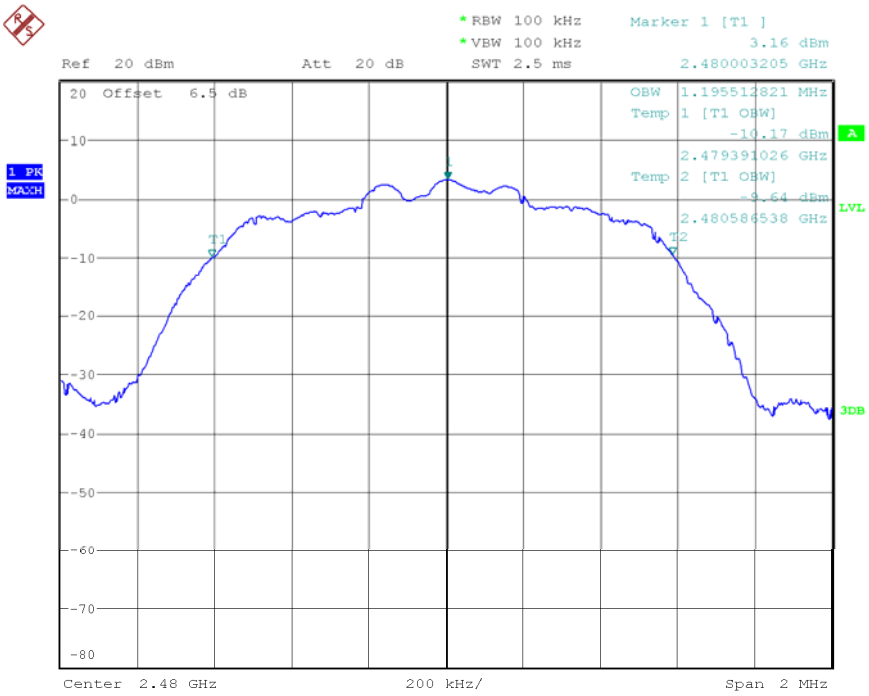
Date: 2.DEC.2013 12:23:16

99% Bandwidth Plot on Channel 39



Date: 2.DEC.2013 12:23:32

99% Bandwidth Plot on Channel 78

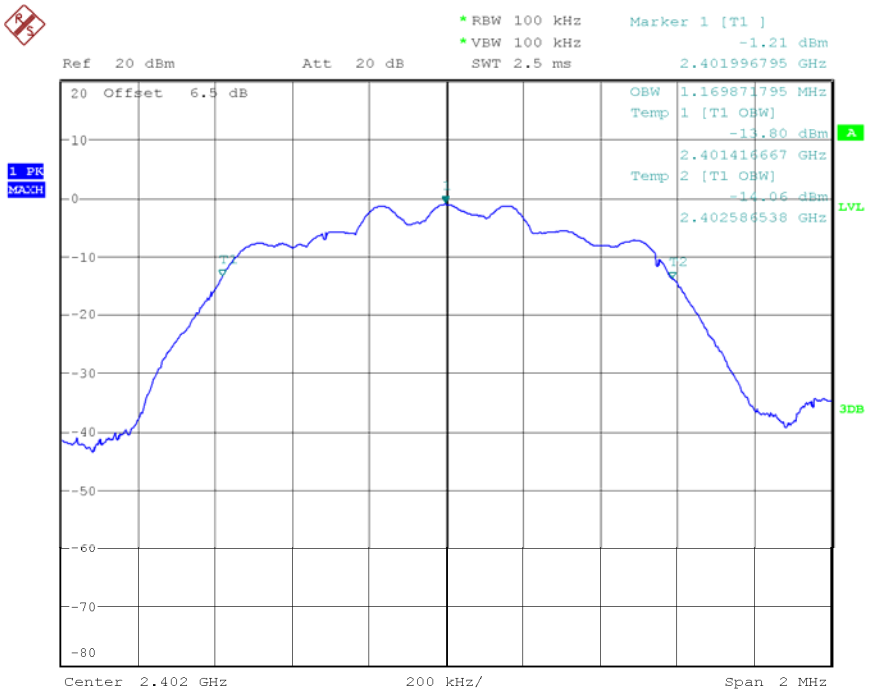


Date: 2.DEC.2013 12:23:55

Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

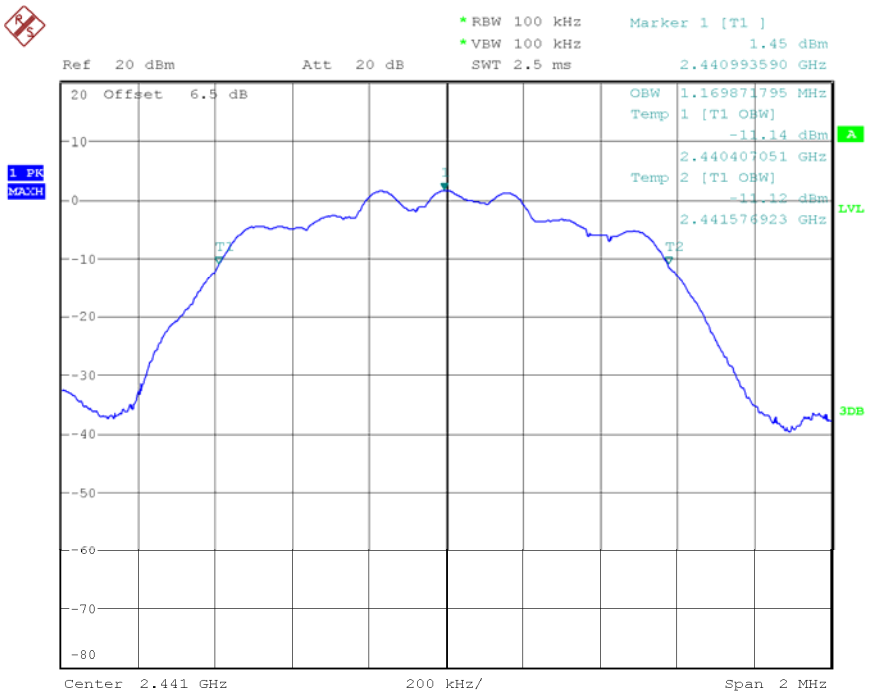
Channel	Frequency(MHz)	99% Occupied Bandwidth(MHz)
00	2402	1.170
39	2441	1.170
78	2480	1.176

99% Bandwidth Plot on Channel 00



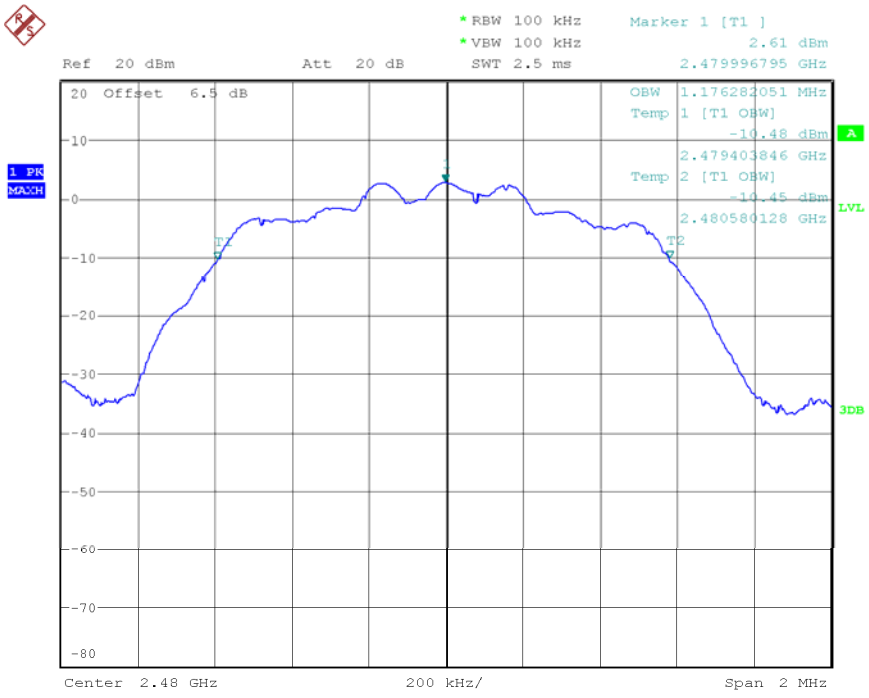
Date: 29.OCT.2013 17:18:30

99% Bandwidth Plot on Channel 39



Date: 29.OCT.2013 17:17:54

99% Bandwidth Plot on Channel 78



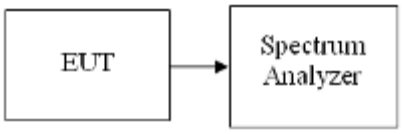
Date: 29.OCT.2013 17:16:26

6.3 HOPPING CHANNEL SEPARATION

LIMIT

According to §15.247(a)(1)Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW = 30kHz, VBW = 100kHz, Span = 3MHz, Sweep = auto.
5. Max hold, mark 2 peaks of hopping channel and record the 2 peaks frequency.

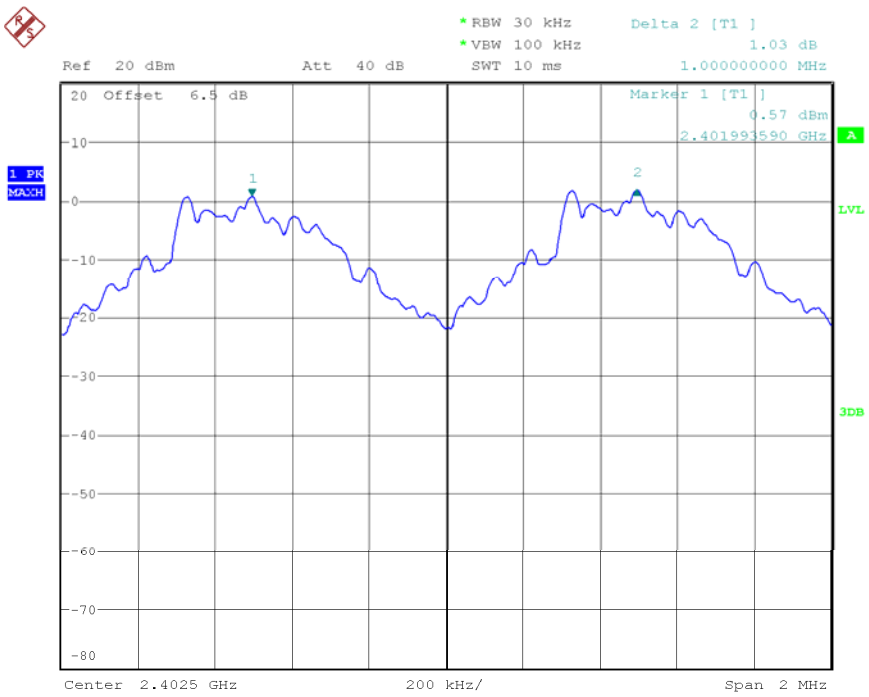
TEST RESULTS

No non-compliance noted

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

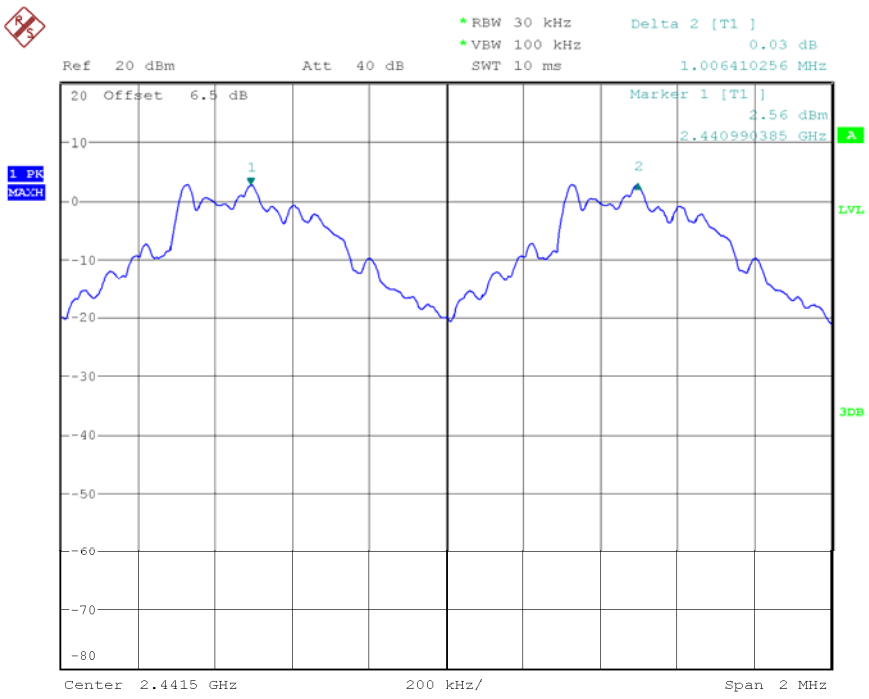
Channel	Frequency (MHz)	Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Result
0~1	2402~2403	1.000	0.589	Pass
38~39	2440~2441	1.006	0.566	Pass
77~78	2479~2480	1.000	0.569	Pass

Channel Separation Plot on Channel 00-01



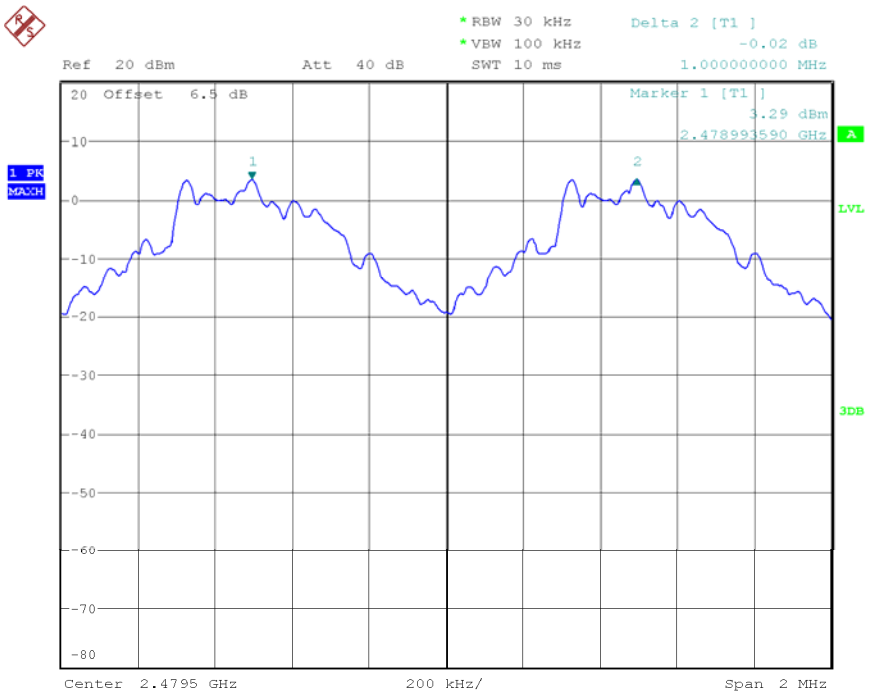
Date: 29.OCT.2013 17:21:41

Channel Separation Plot on Channel 38-39



Date: 29.OCT.2013 17:26:05

Channel Separation Plot on Channel 77-78

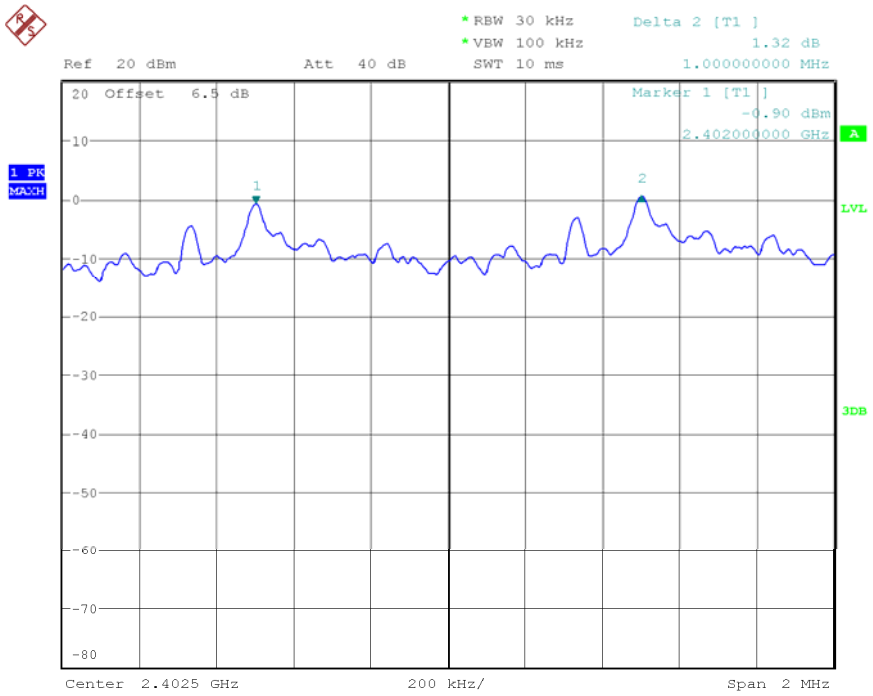


Date: 29.OCT.2013 17:27:20

Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

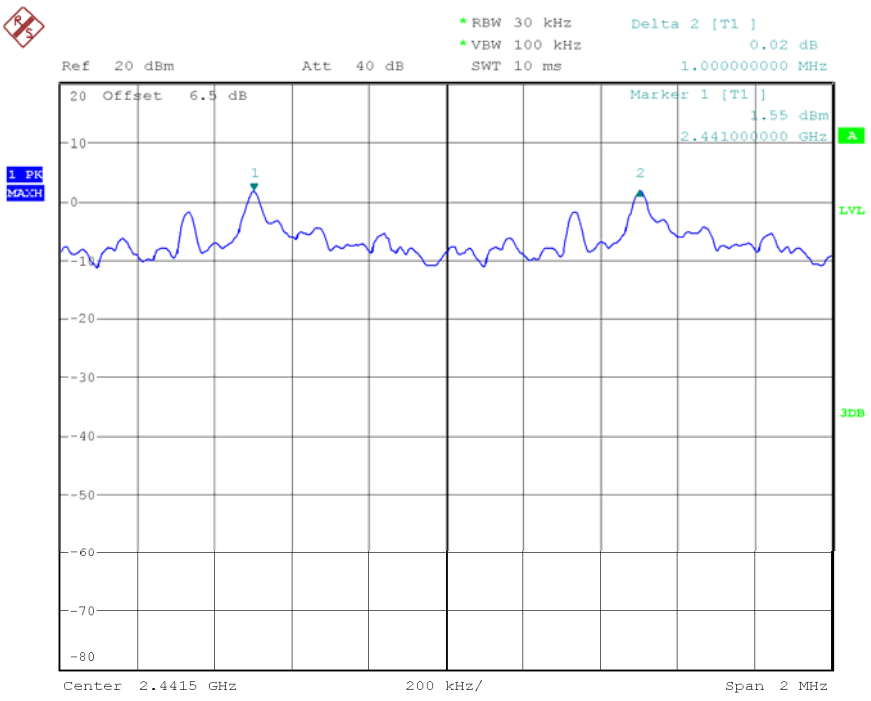
Channel	Frequency (MHz)	Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Result
0~1	2402~2403	1.000	0.805	Pass
38~39	2440~2441	1.000	0.814	Pass
77~78	2479~2480	1.000	0.808	Pass

Channel Separation Plot on Channel 00-01



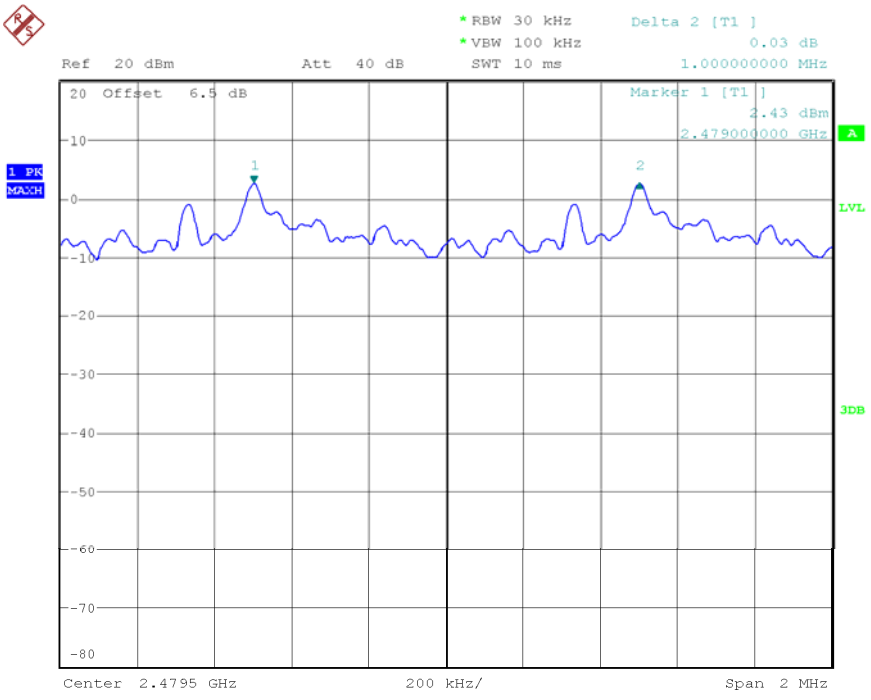
Date: 2.DEC.2013 12:25:45

Channel Separation Plot on Channel 38-39



Date: 2.DEC.2013 12:26:41

Channel Separation Plot on Channel 77-78

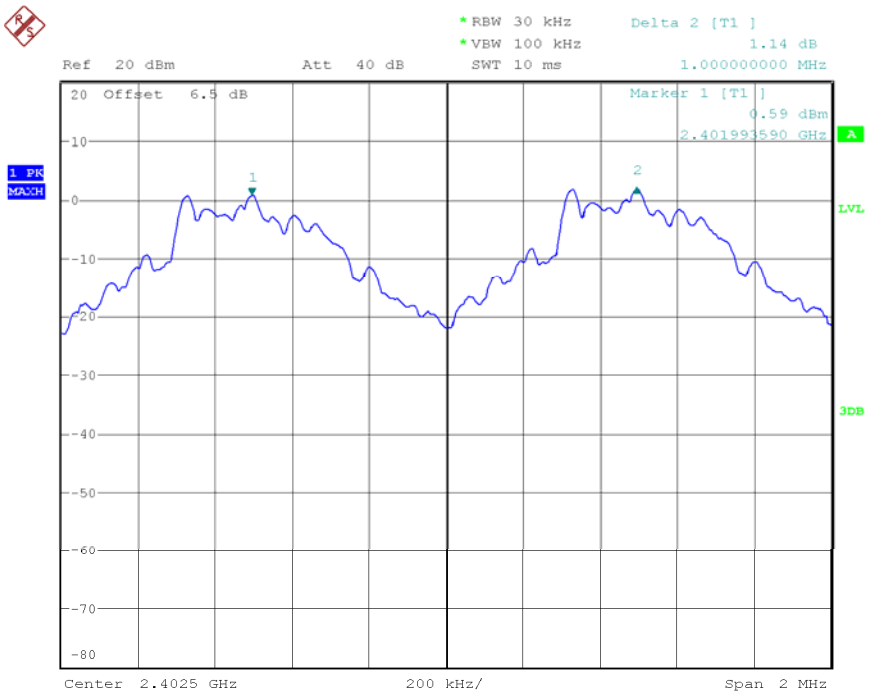


Date: 2.DEC.2013 12:27:28

Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

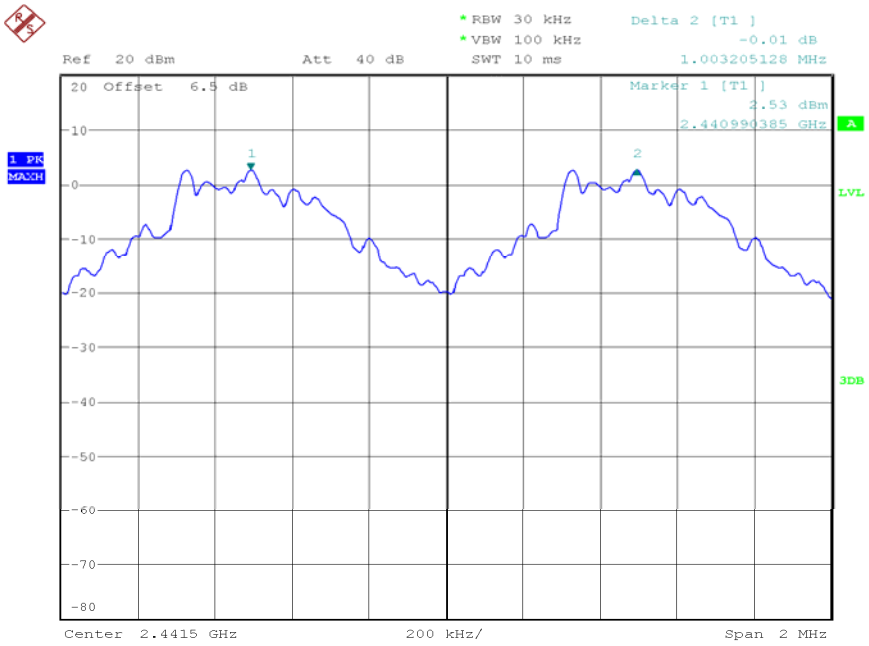
Channel	Frequency (MHz)	Separation (MHz)	(2/3 of 20dB BW) Limits (MHz)	Result
0~1	2402~2403	1.000	0.807	Pass
38~39	2440~2441	1.003	0.814	Pass
77~78	2479~2480	1.000	0.814	Pass

Channel Separation Plot on Channel 00-01



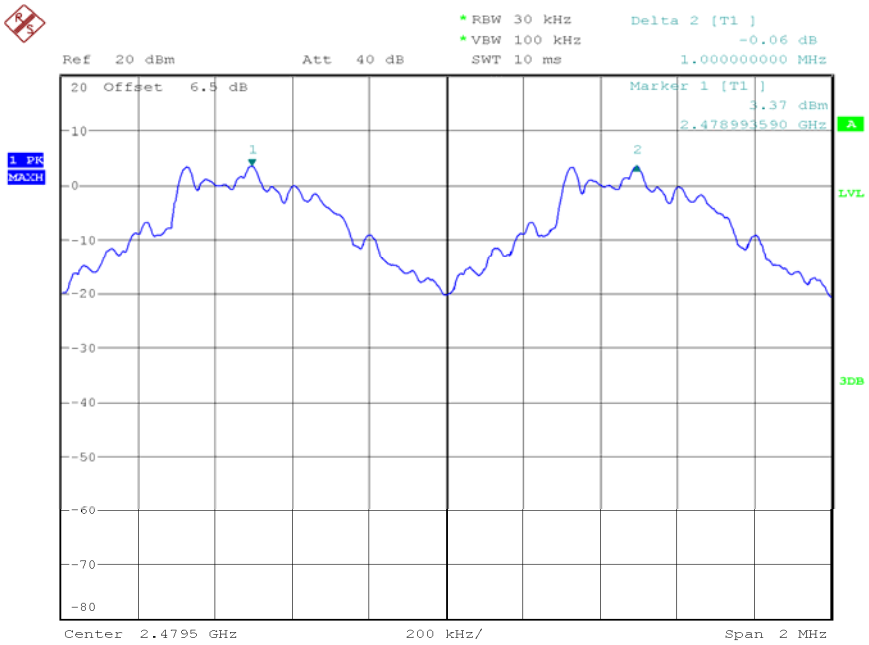
Date: 29.OCT.2013 17:23:19

Channel Separation Plot on Channel 38-39



Date: 29.OCT.2013 17:24:54

Channel Separation Plot on Channel 77-78



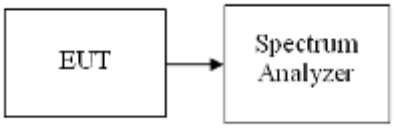
Date: 29.OCT.2013 17:28:56

6.4 NUMBER OF HOPPING FREQUENCY

LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2441.5MHz, Sweep = auto and Start=2441.5MHz, Stop = 2483.5MHz, Sweep = auto.
4. Set the spectrum analyzer as RBW, VBW=1MHz.
5. Max hold, view and count how many channel in the band.

TEST RESULTS

No non-compliance noted

Test Data

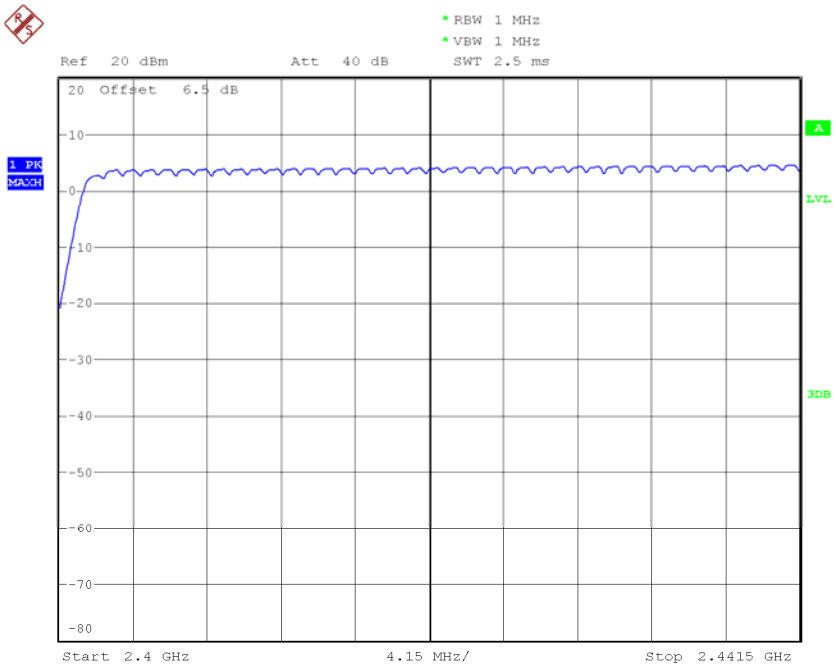
Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Result (No. of CH)	Limit (No. of CH)	Result
79	>15	PASS

Test Plot

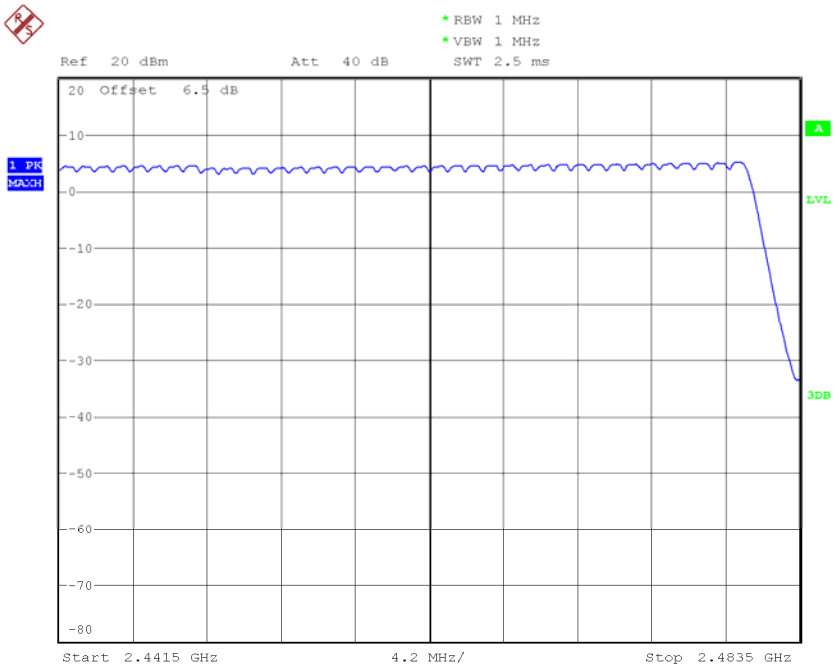
Channel Number

2.4 GHz – 2.4415 GHz



Date: 29.OCT.2013 17:38:47

2.4415 GHz – 2.4835 GHz



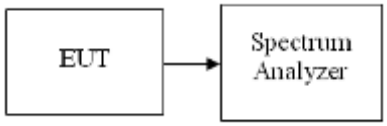
Date: 29.OCT.2013 17:41:06

6.5 TIME OF OCCUPANCY (DWELL TIME)

LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

No non-compliance noted

Test Data

1M

DH 1

0.397 * (1600/2)/79 * 31.6 = 127.04(ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
0.397	127.04	31.60	400	PASS

DH 3

1.663 * (1600/4)/79 * 31.6 = 266.08 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1.663	266.08	31.60	400	PASS

DH 5

2.9137* (1600/6)/79 * 31.6 = 310.72 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.913	310.72	31.60	400	PASS

2M
DH 1
0.400 * (1600/2)/79 * 31.6 = 128.00 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
0.400	128.00	31.60	400	PASS

DH 3
1.675 * (1600/4)/79 * 31.6 = 268.00 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1.675	268.00	31.60	400	PASS

DH 5
2.941* (1600/6)/79 * 31.6 = 313.71(ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.941	313.71	31.60	400	PASS

3M
DH 1
0.397 * (1600/2)/79 * 31.6 = 127.04 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
0.397	127.04	31.60	400	PASS

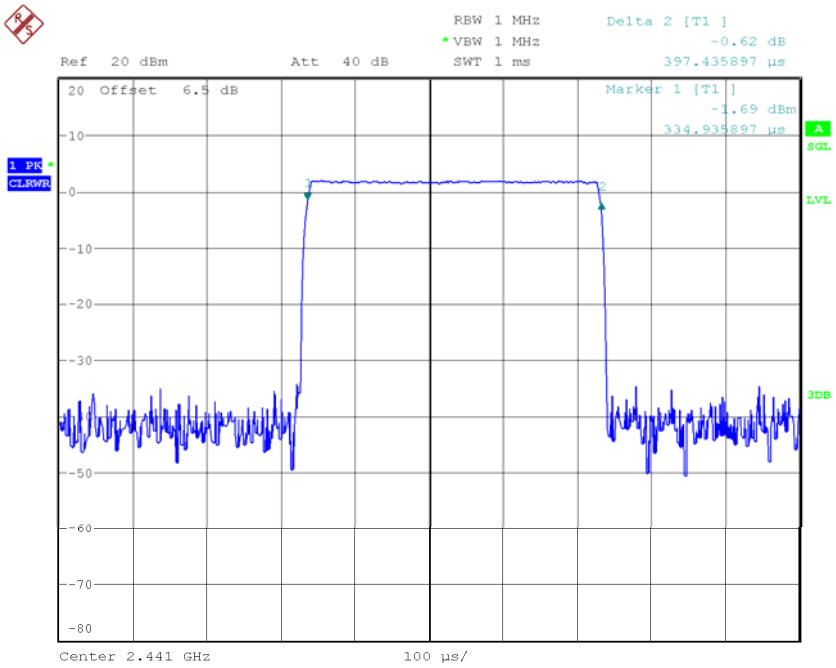
DH 3
1.655 * (1600/4)/79 * 31.6 = 264.80 (ms)

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1.655	264.80	31.60	400	PASS

DH 5
2.913* (1600/6)/79 * 31.6 = 310.72(ms)

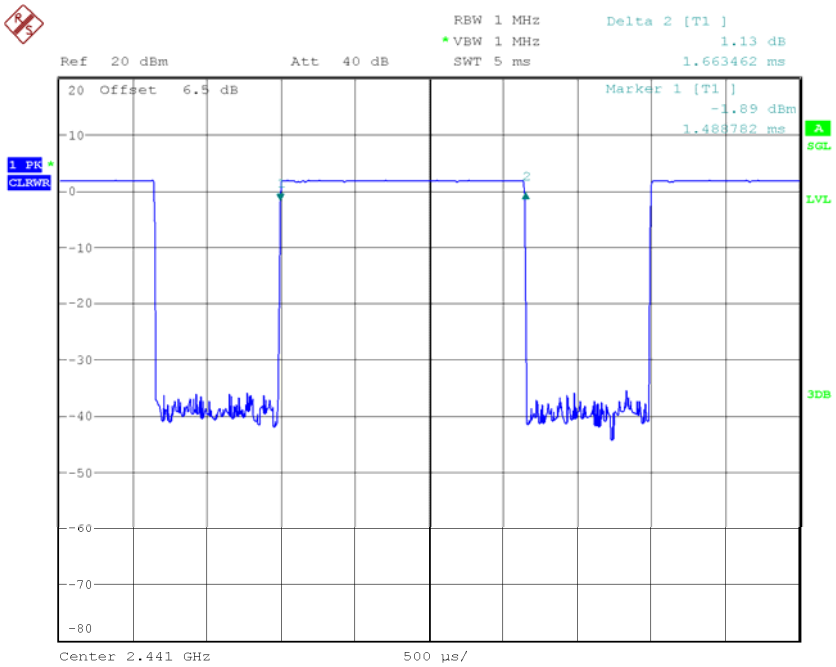
Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.913	310.72	31.60	400	PASS

1M-DH1



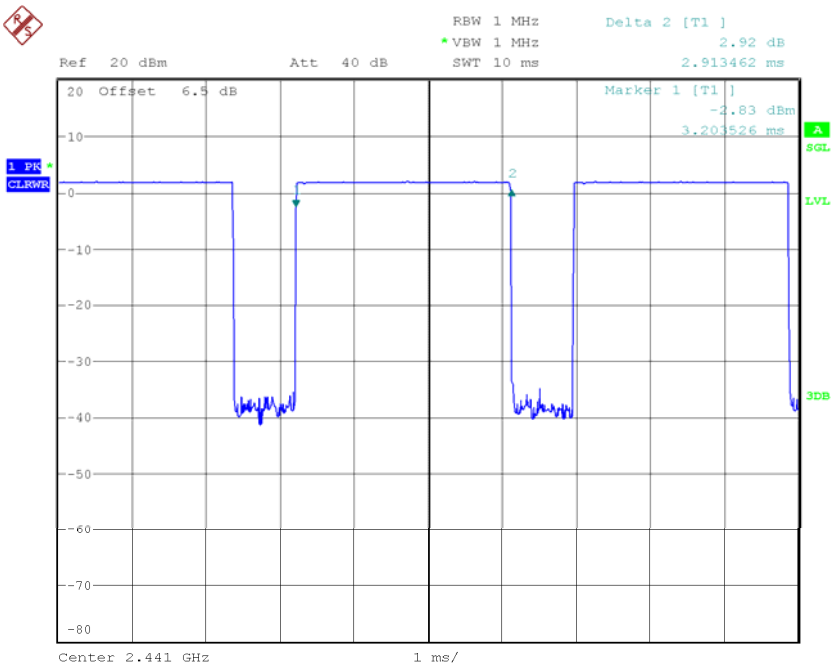
Date: 29.OCT.2013 17:50:19

1M-DH3



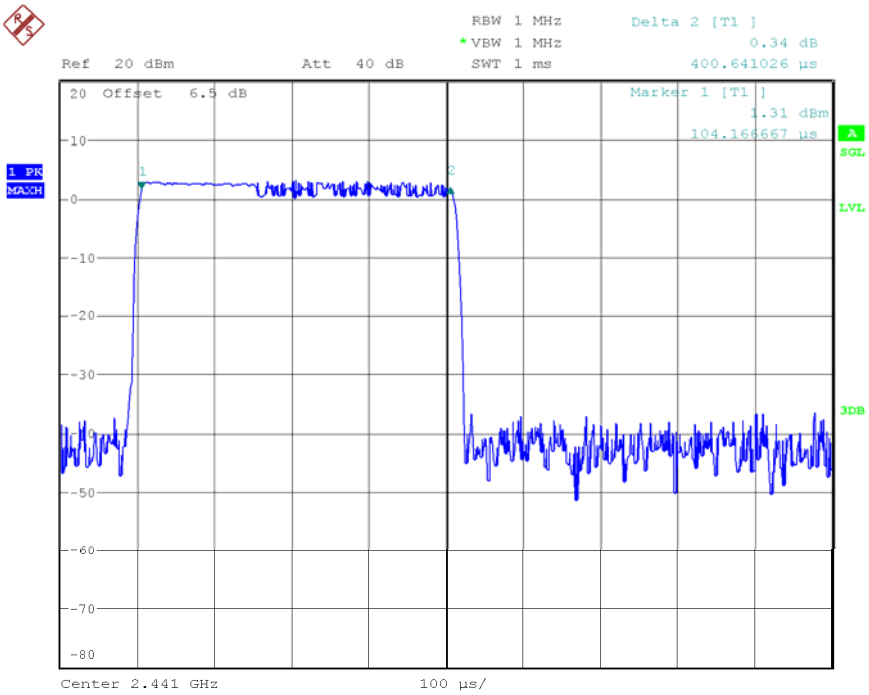
Date: 29.OCT.2013 17:51:00

1M-DH5



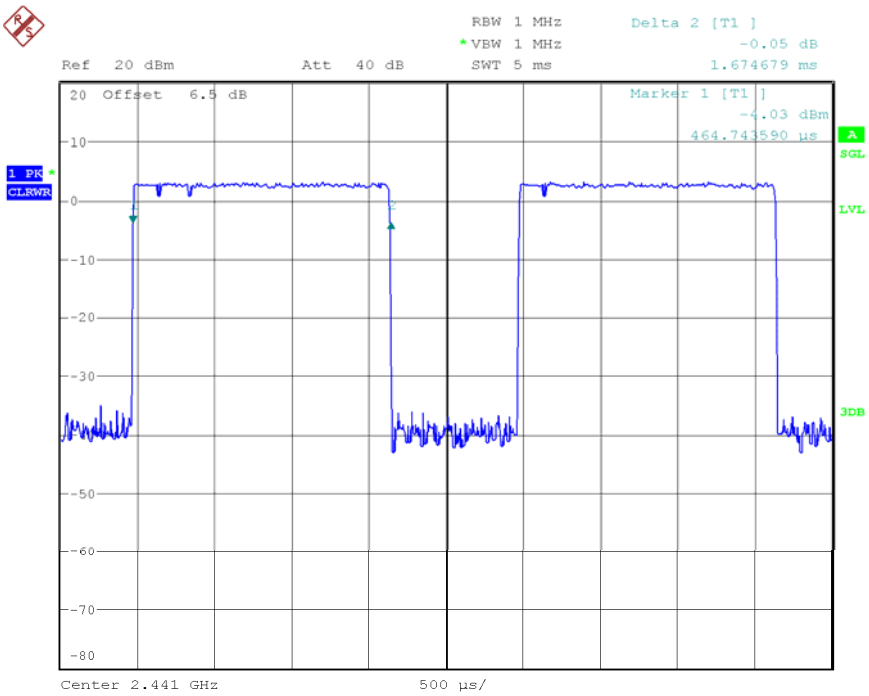
Date: 29.OCT.2013 17:51:40

2M-DH1



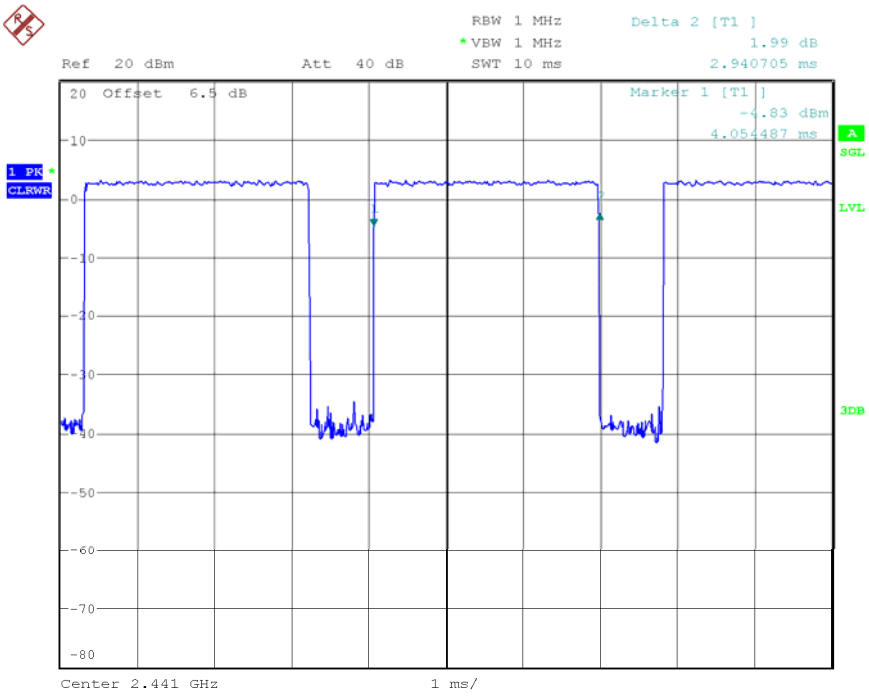
Date: 2.DEC.2013 14:47:56

2M-DH3



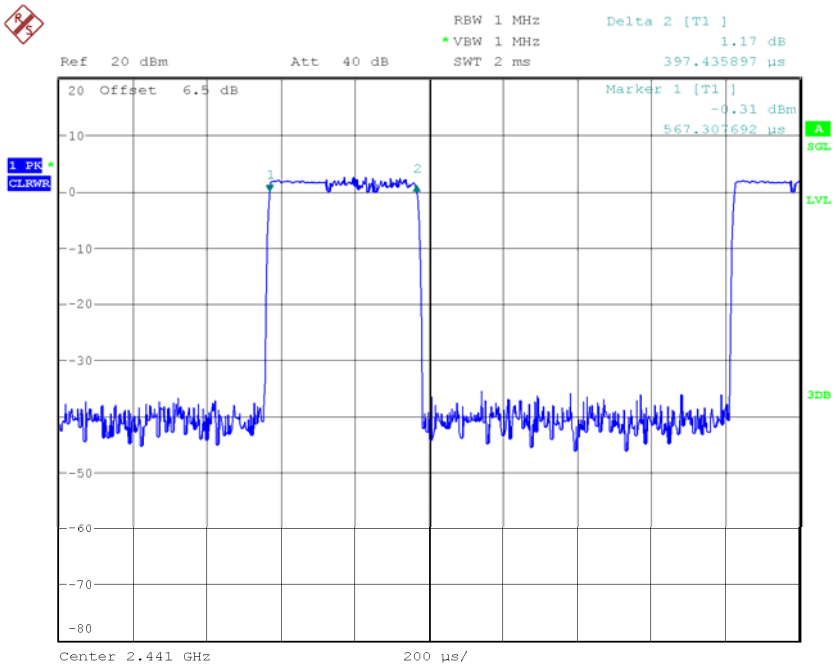
Date: 2.DEC.2013 14:49:33

2M-DH5



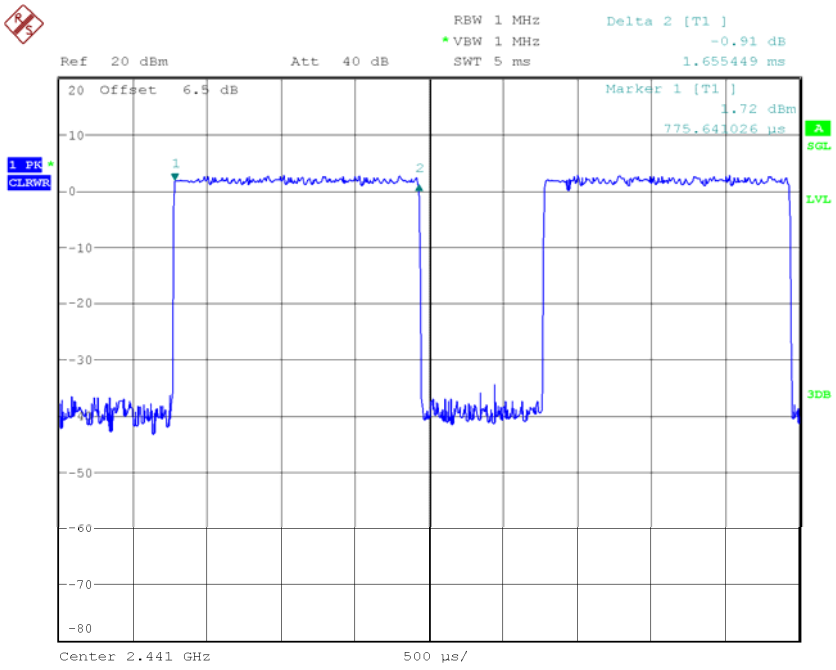
Date: 2.DEC.2013 14:50:27

3M-DH1



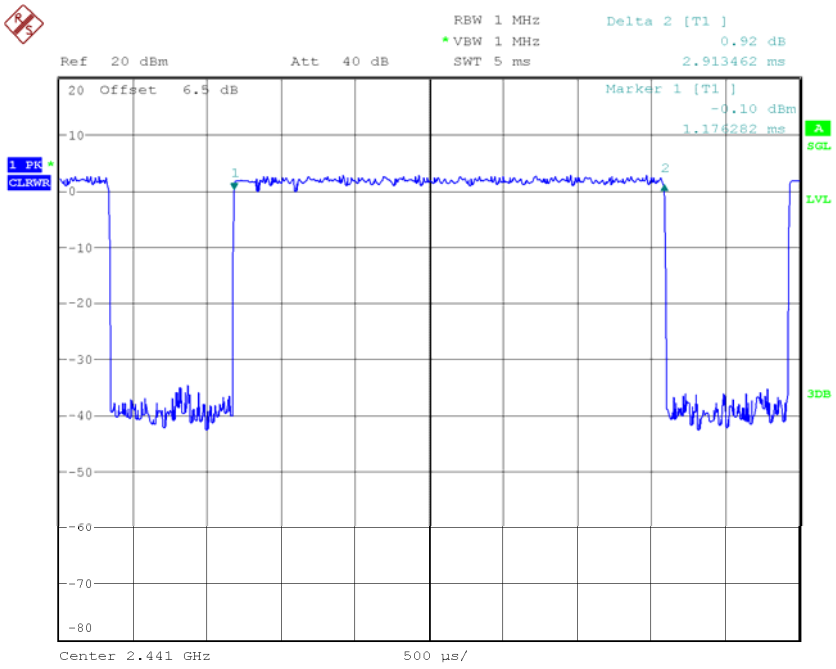
Date: 29.OCT.2013 17:45:33

3M-DH3



Date: 29.OCT.2013 17:47:49

3M-DH5



Date: 29.OCT.2013 17:48:30

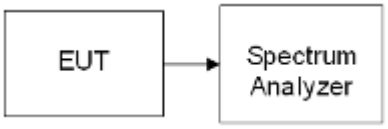
6.6 SPURIOUS EMISSION

Conducted Measurement

LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

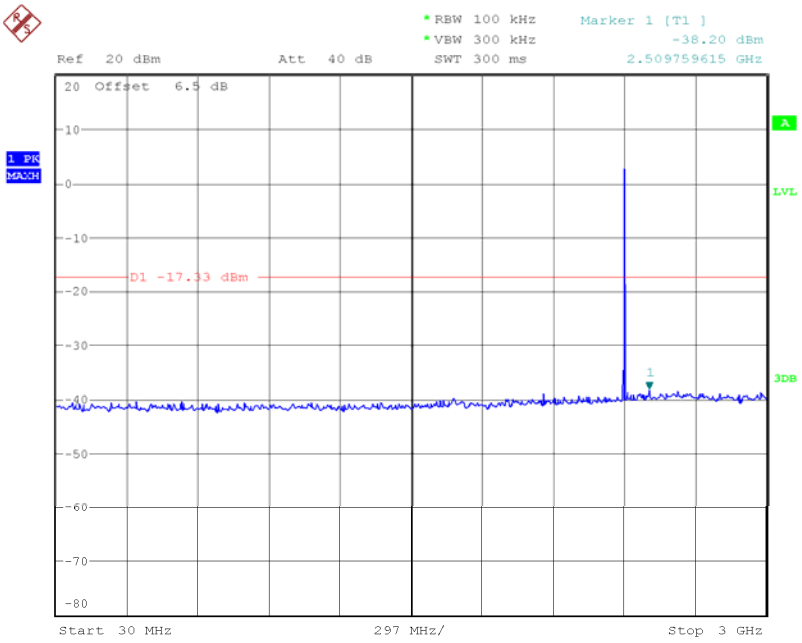
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

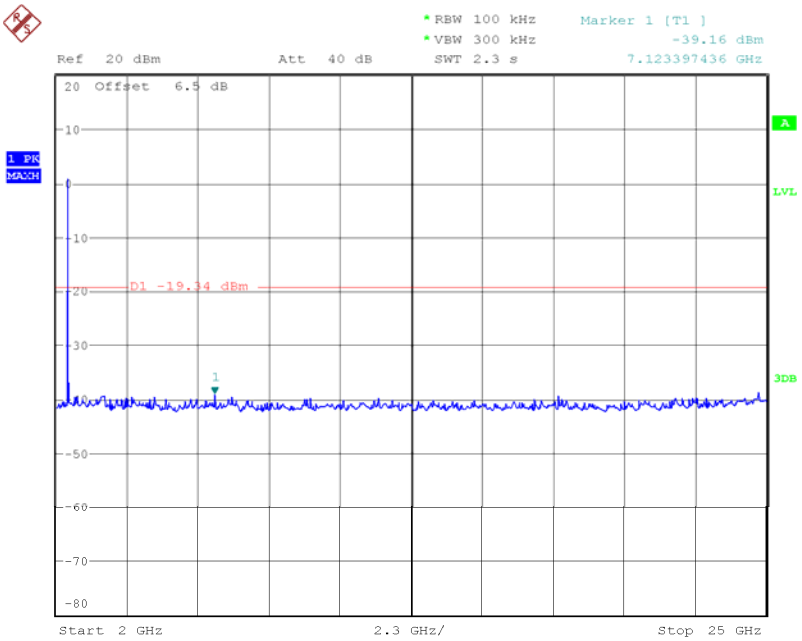
TEST RESULTS

No non-compliance noted

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Test Channel:	00	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

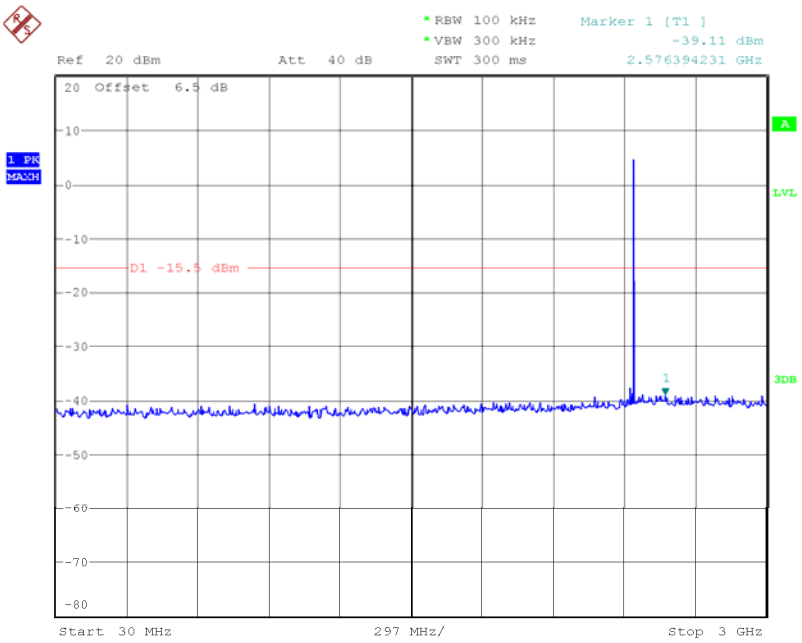


Date: 2.NOV.2013 10:34:57

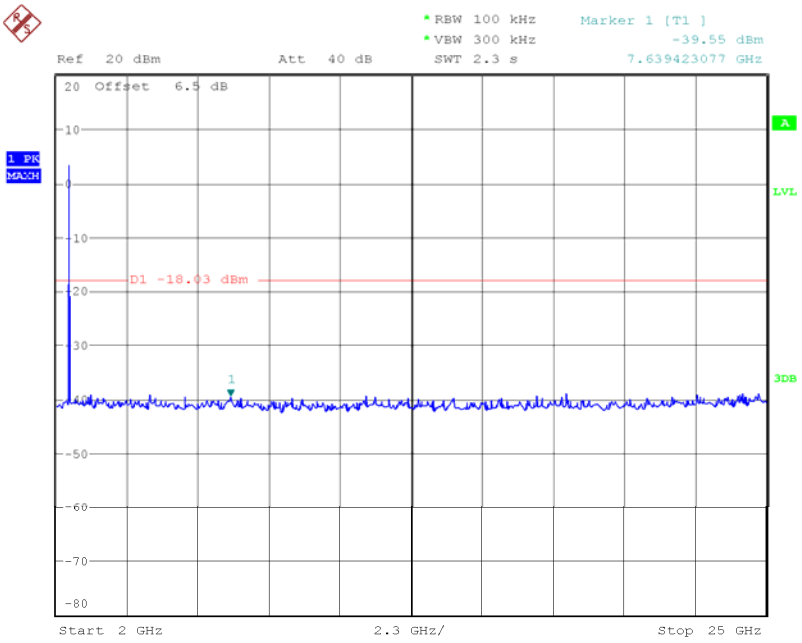


Date: 2.NOV.2013 11:02:35

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Test Channel:	39	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

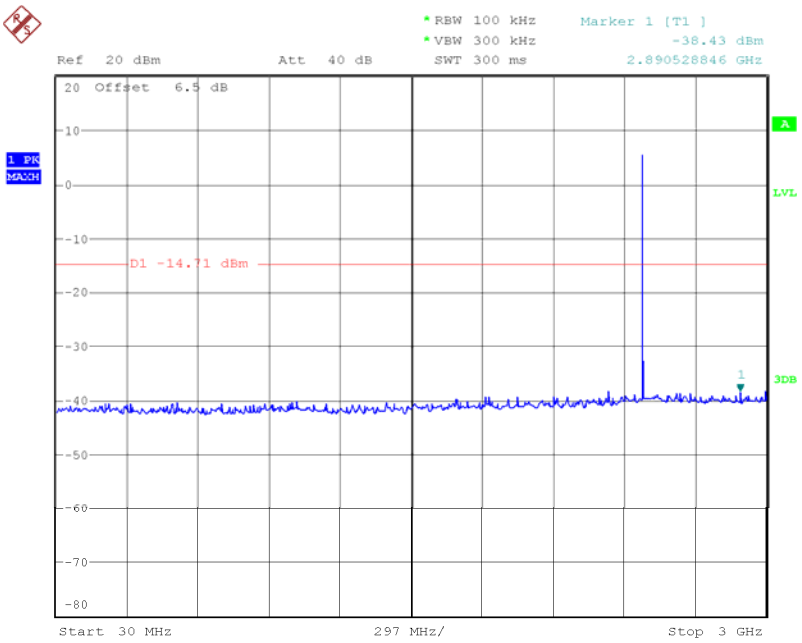


Date: 2.NOV.2013 10:38:59

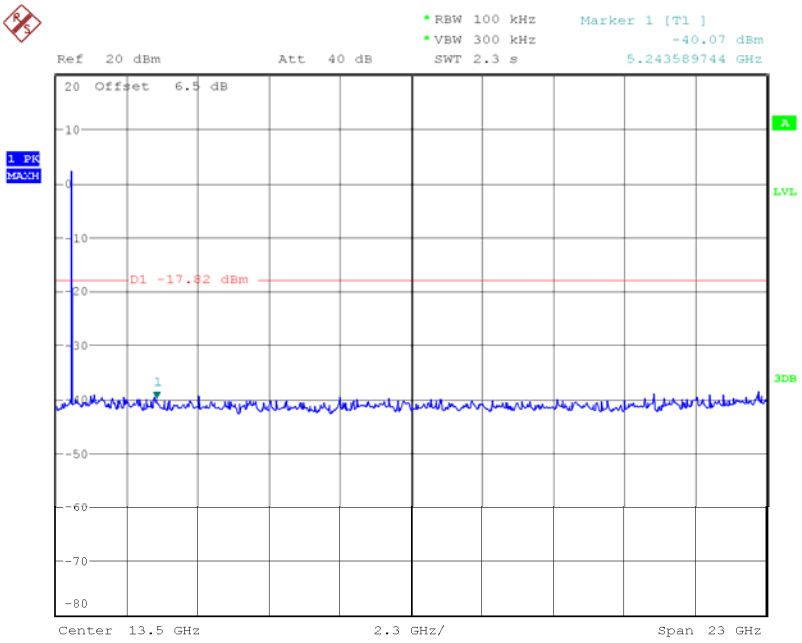


Date: 2.NOV.2013 11:01:47

Operation Mode:	1 Mbps	Test Date:	November 2, 2013
Test Channel:	78	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

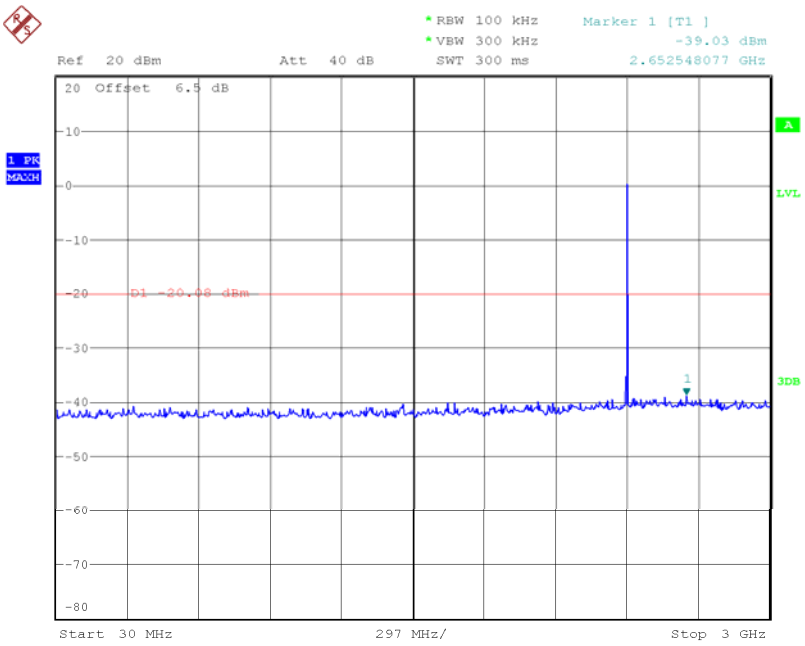


Date: 2.NOV.2013 10:41:50

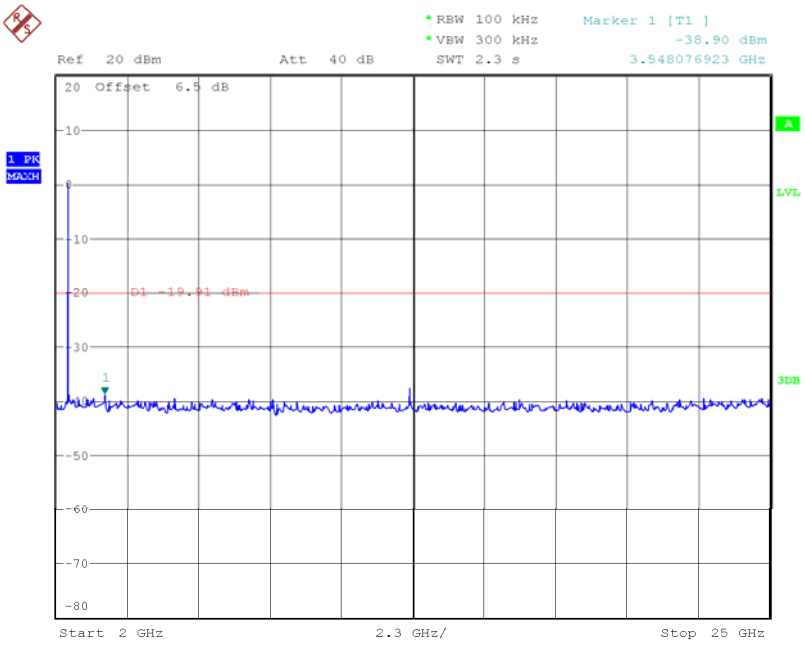


Date: 2.NOV.2013 11:00:43

Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Test Channel:	00	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

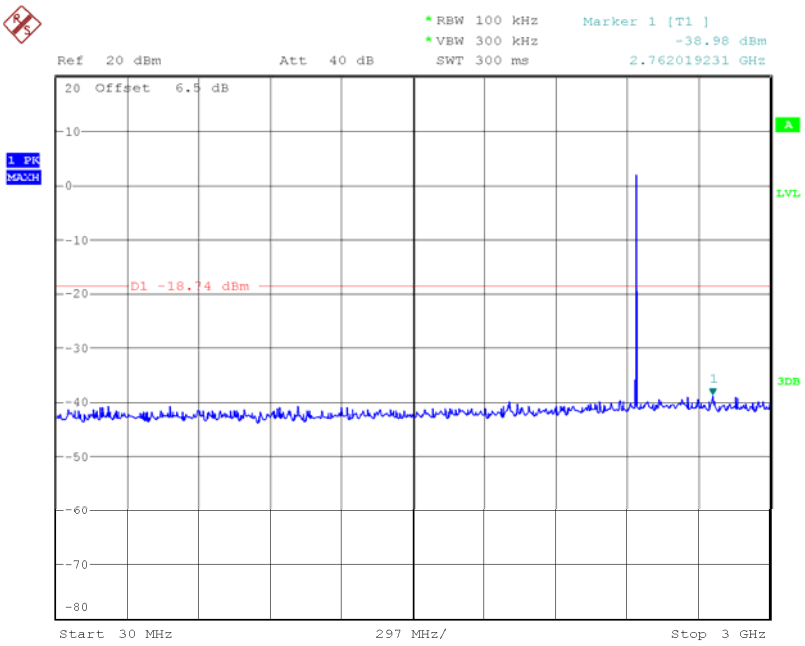


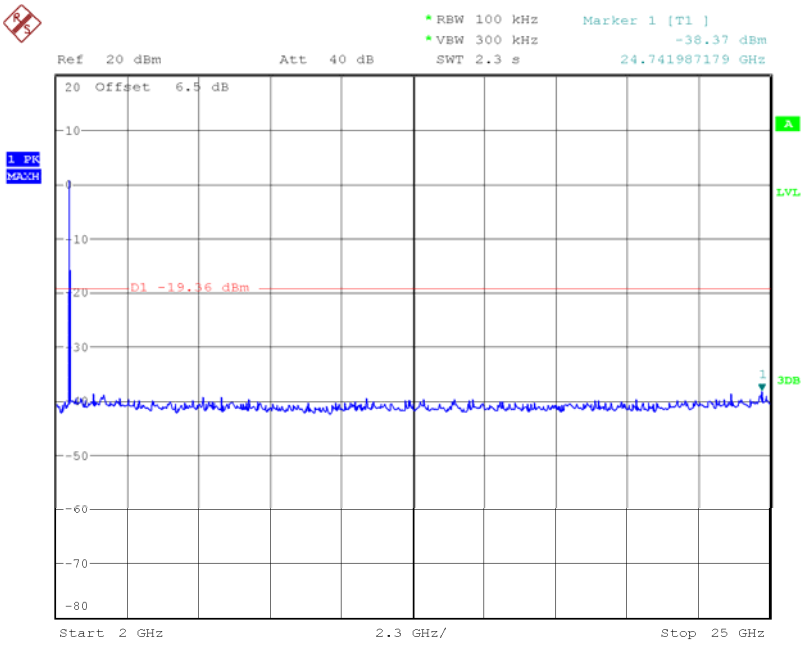
Date: 2.DEC.2013 14:54:15



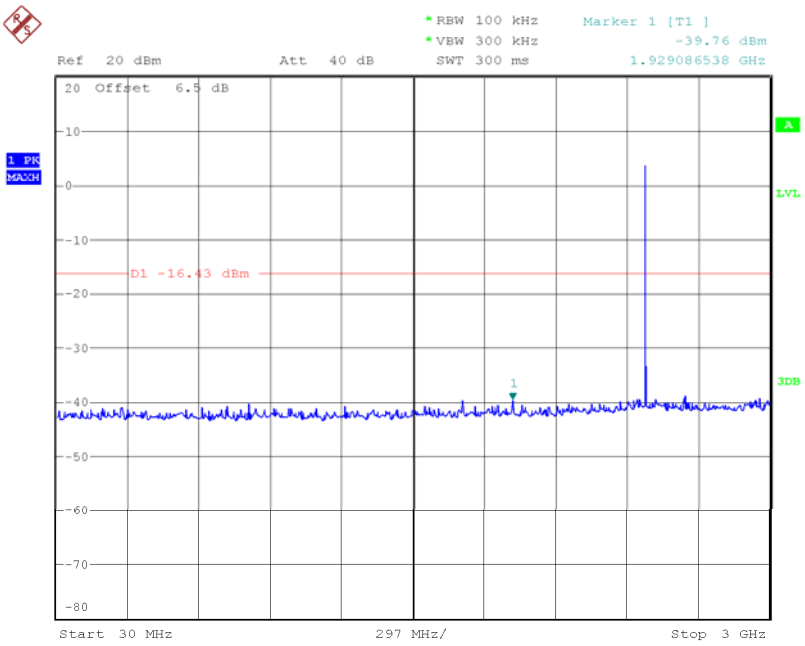
Date: 2.DEC.2013 14:55:04

Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Test Channel:	39	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

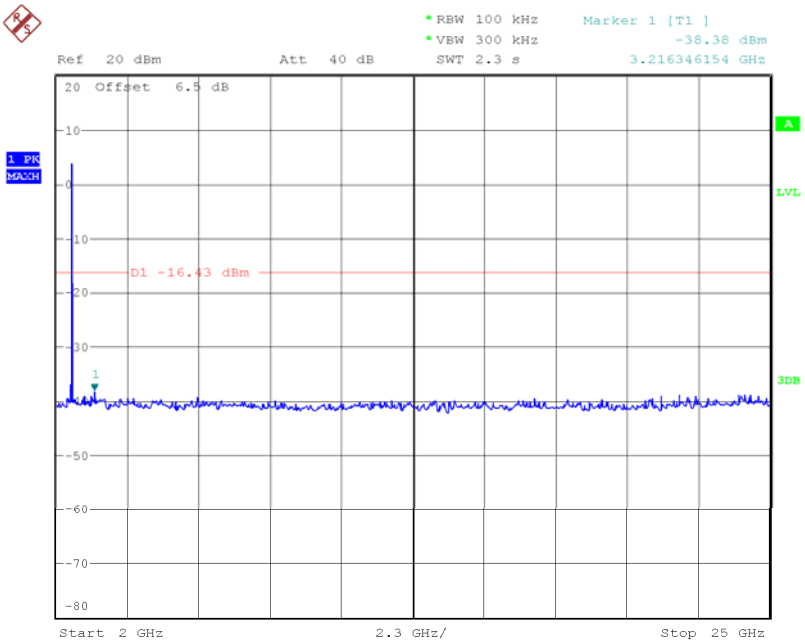




Operation Mode:	2 Mbps	Test Date:	December 2, 2013
Test Channel:	78	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

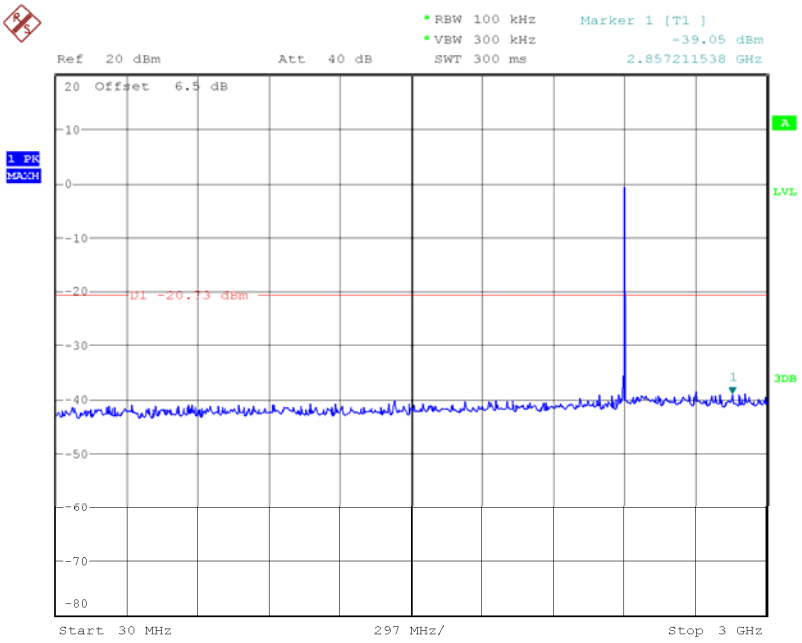


Date: 2.DEC.2013 14:57:25

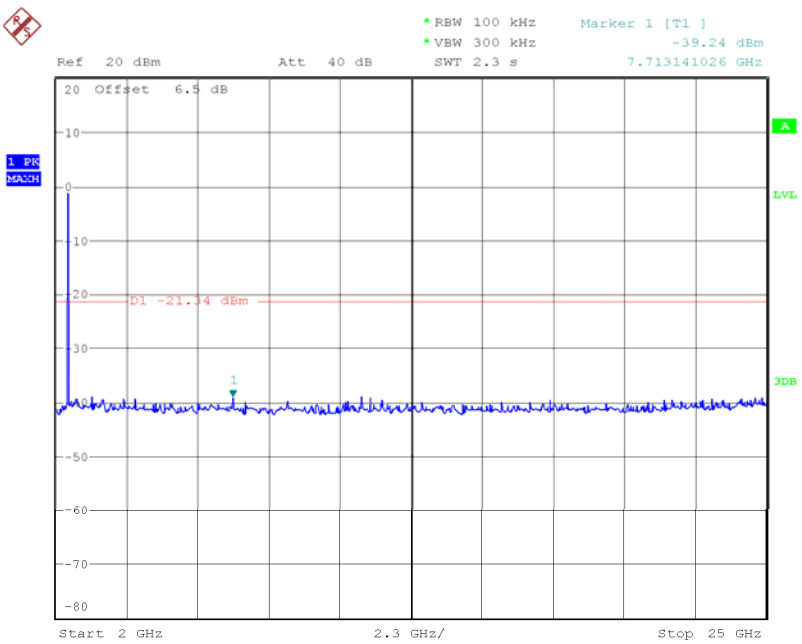


Date: 2.DEC.2013 14:59:02

Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Test Channel:	00	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

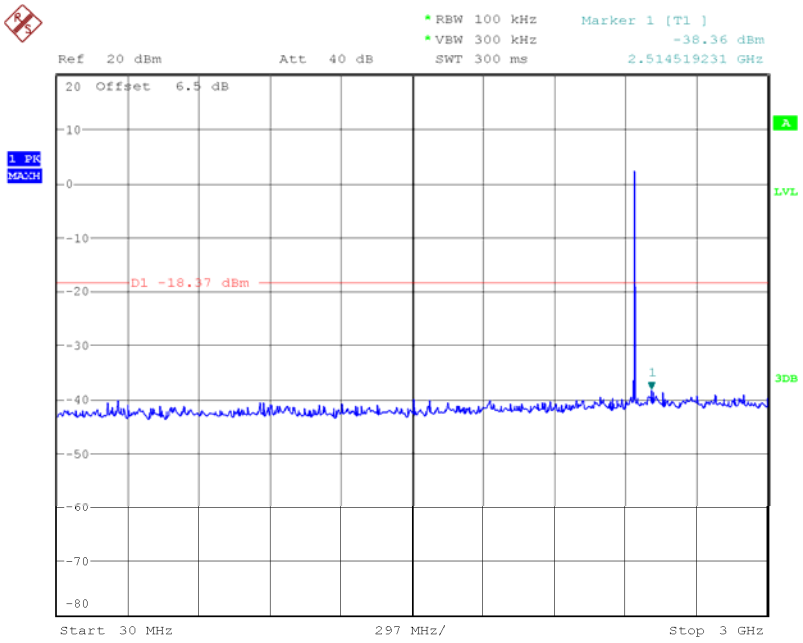


Date: 2.NOV.2013 10:44:53

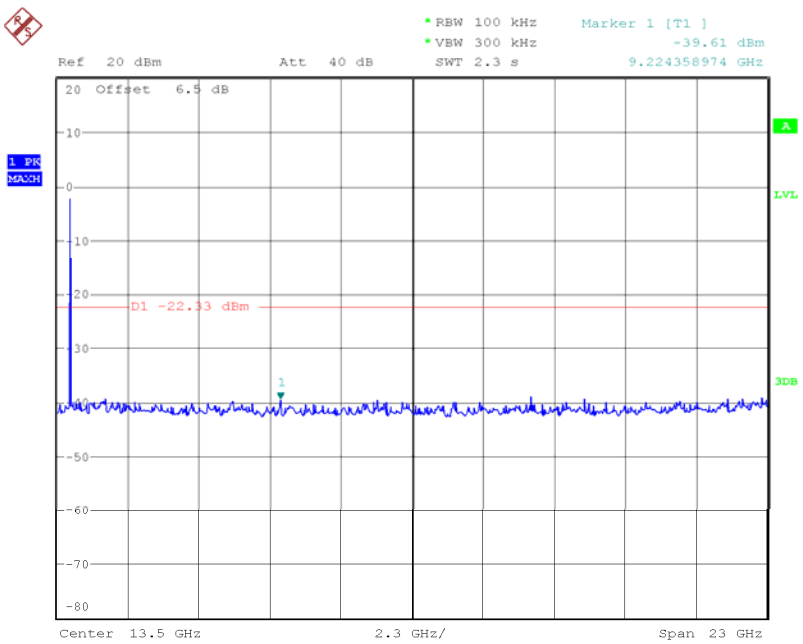


Date: 2.NOV.2013 10:46:33

Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Test Channel:	39	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C

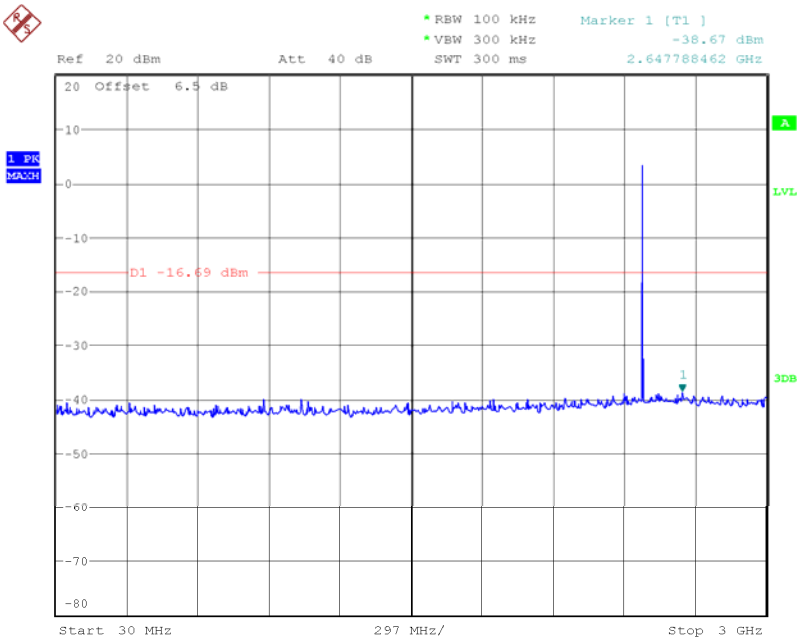


Date: 2.NOV.2013 10:44:04

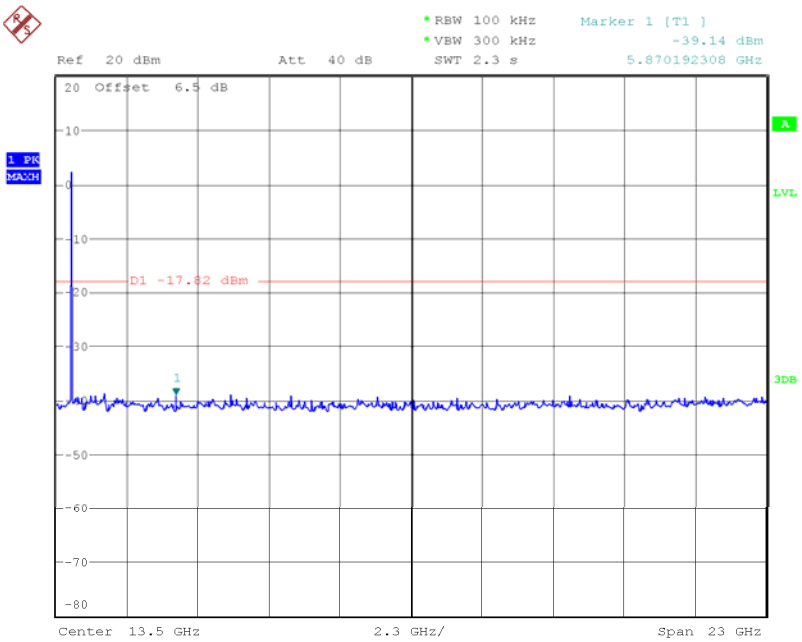


Date: 2.NOV.2013 10:58:09

Operation Mode:	3 Mbps	Test Date:	November 2, 2013
Test Channel:	78	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 2.NOV.2013 10:43:20



Date: 2.NOV.2013 10:59:41

6.7 Radiated Band Edge and Spurious Emission Measurement

LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

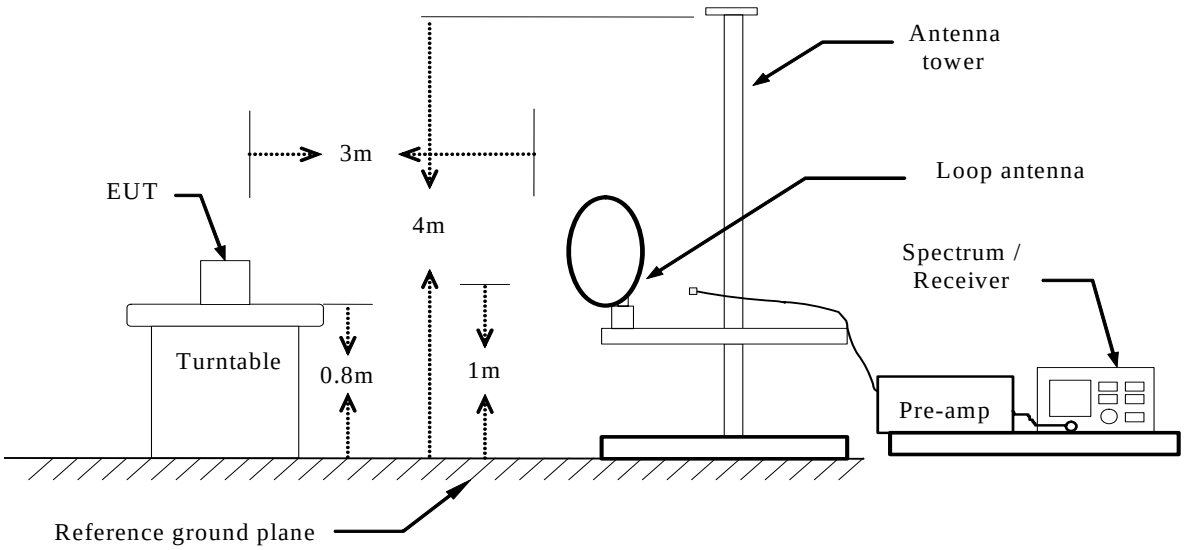
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

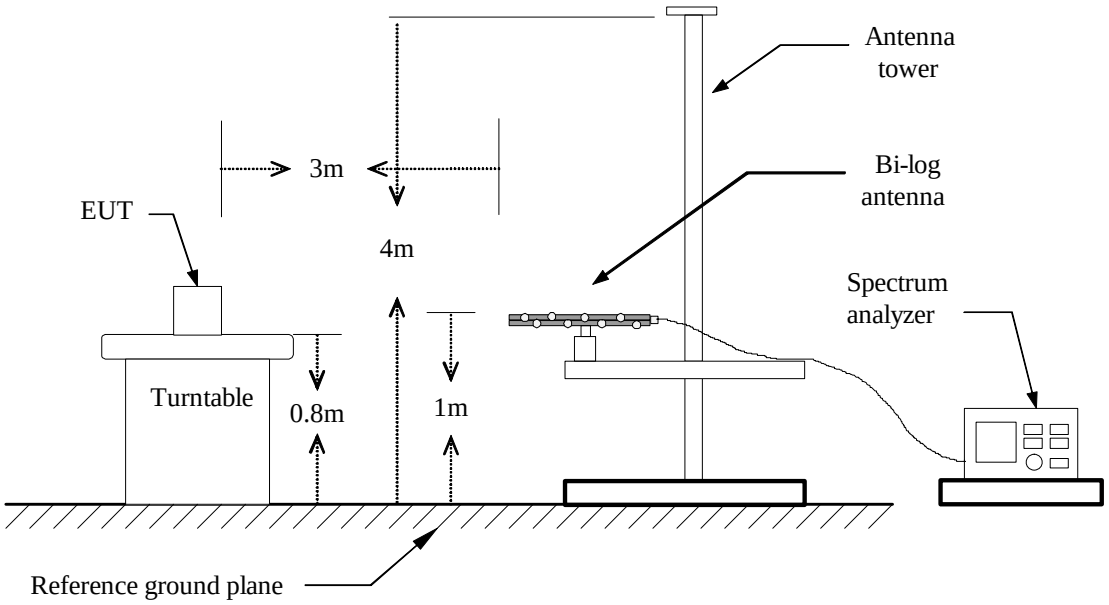
Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

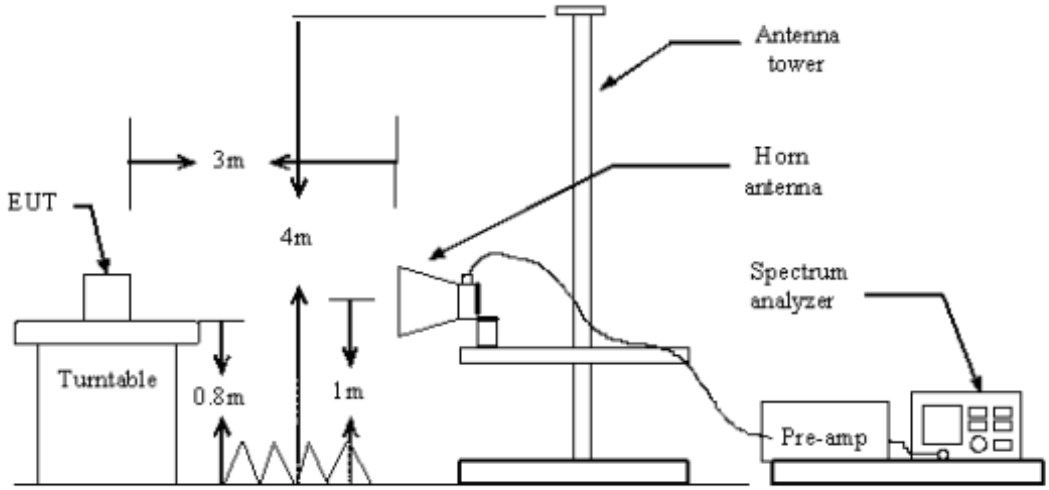
Below 30MHz



Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz:

   RBW=100kHz / VBW=300kHz / Sweep=AUTO

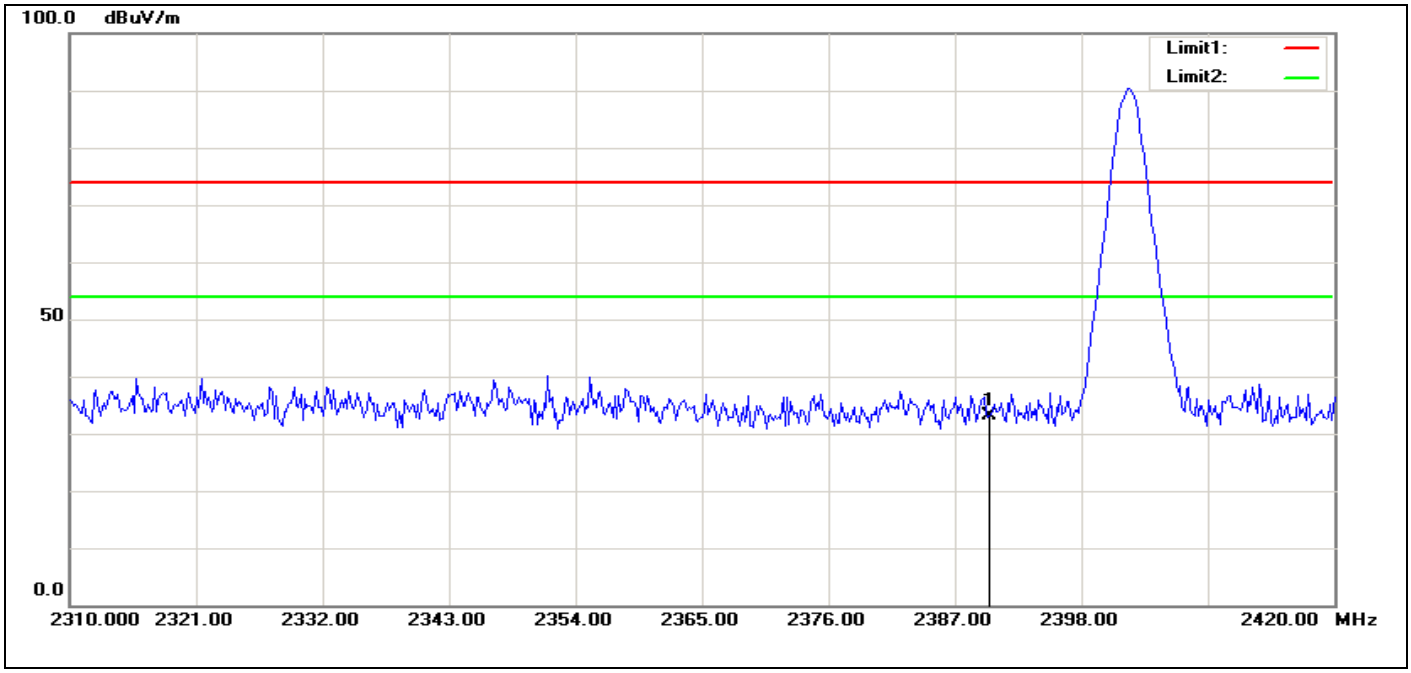
   Above 1GHz:

   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

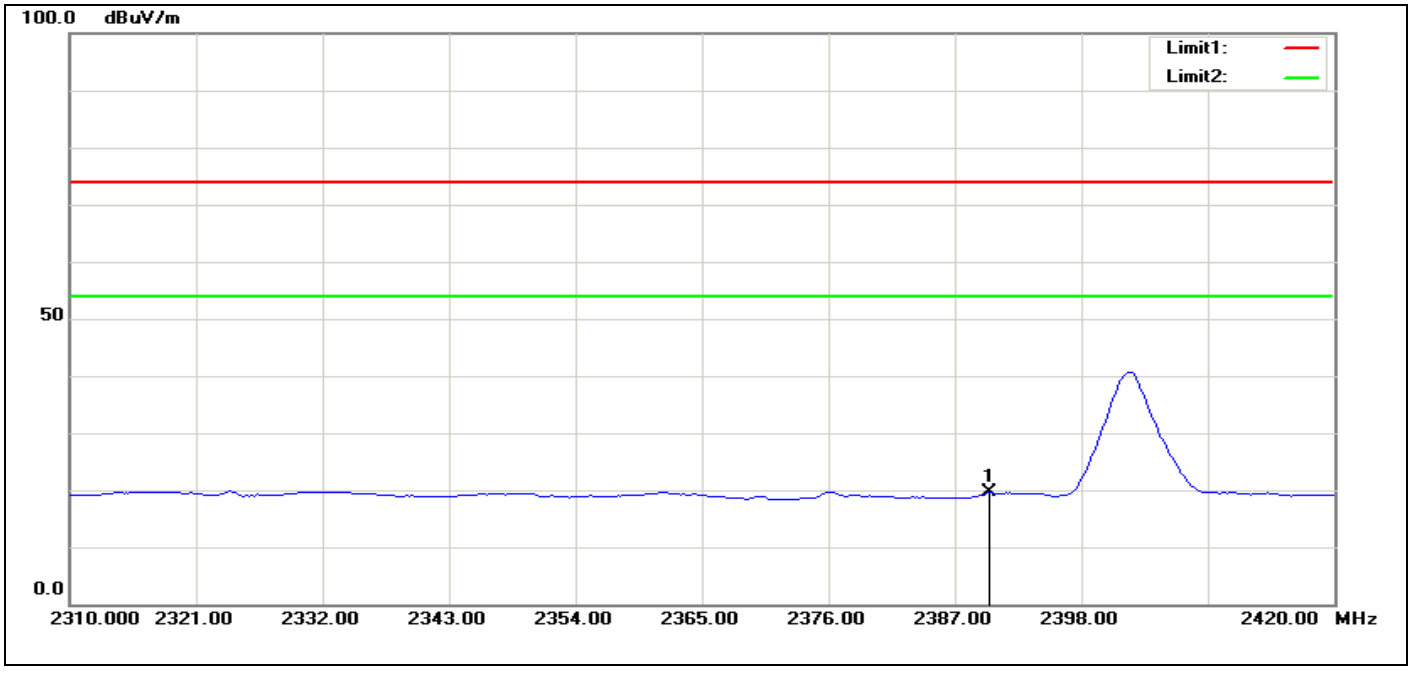
RESTRICTED BANDEDGE (1Mbps, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.43	-14.28	33.15	74.00	-40.85	100	117	peak

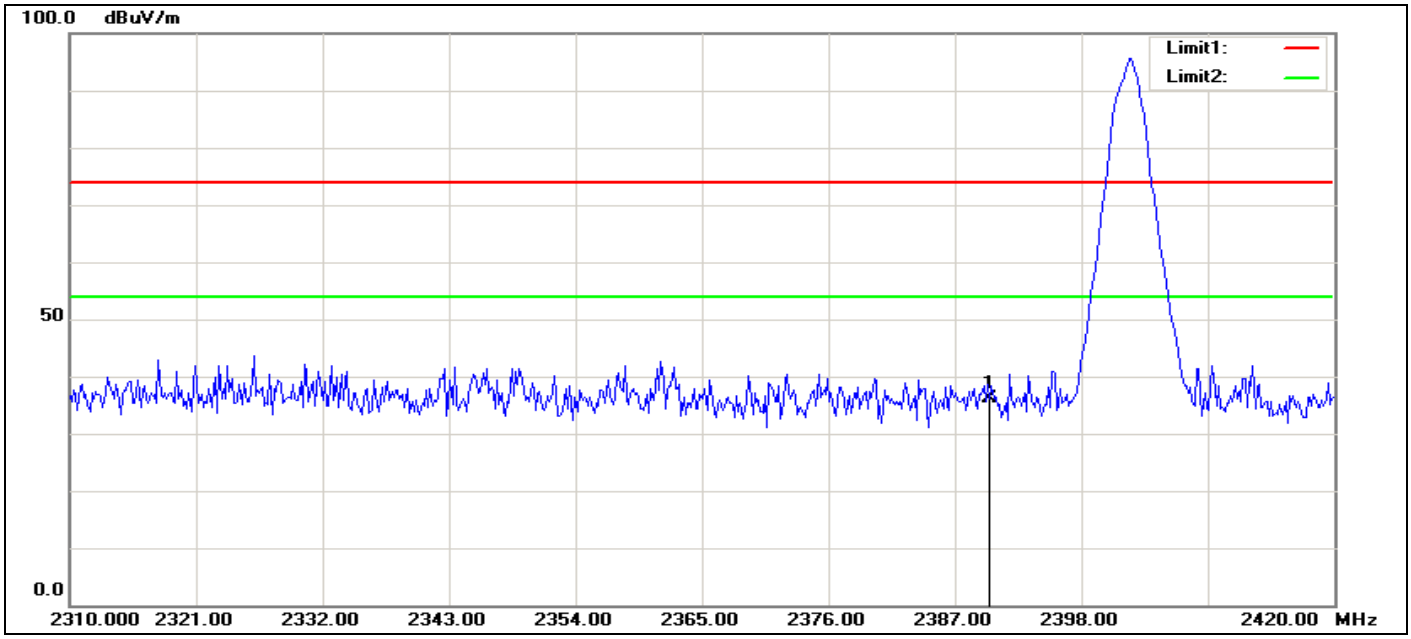
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	33.81	-14.28	19.53	54.00	-34.47	100	276	AVG

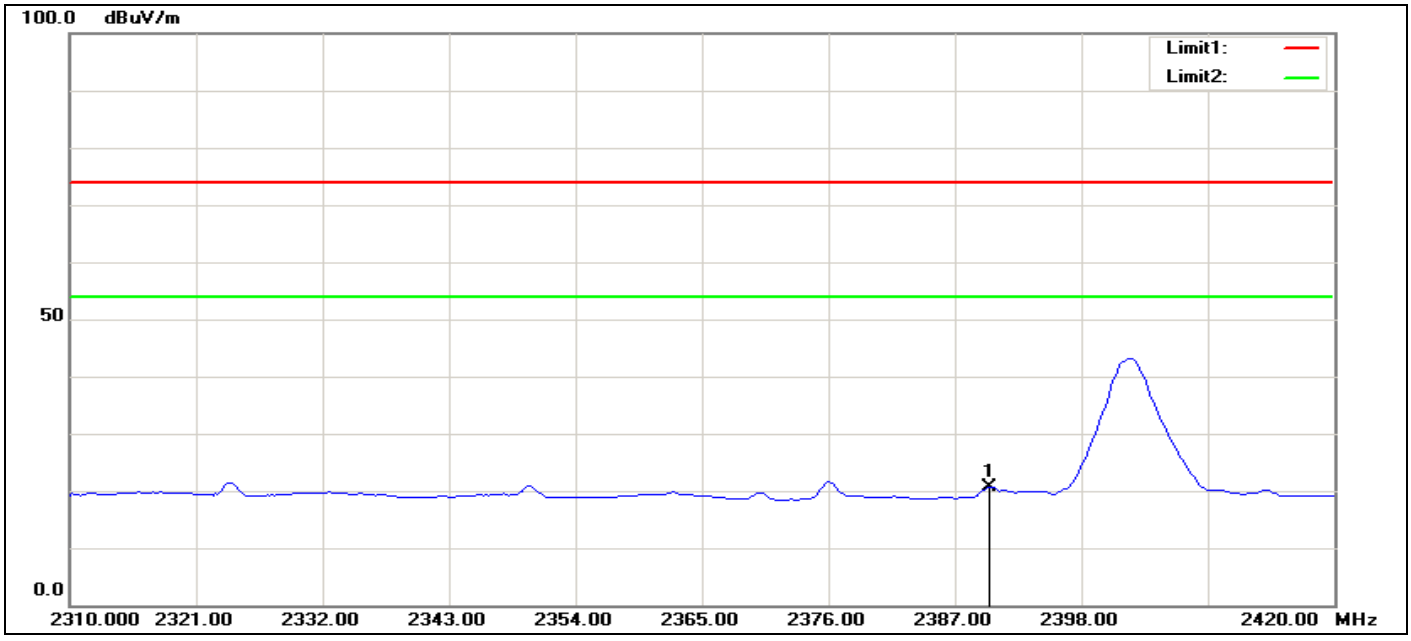
RESTRICTED BANDEDGE (1Mbps, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	50.38	-14.28	36.10	74.00	-37.90	100	157	peak

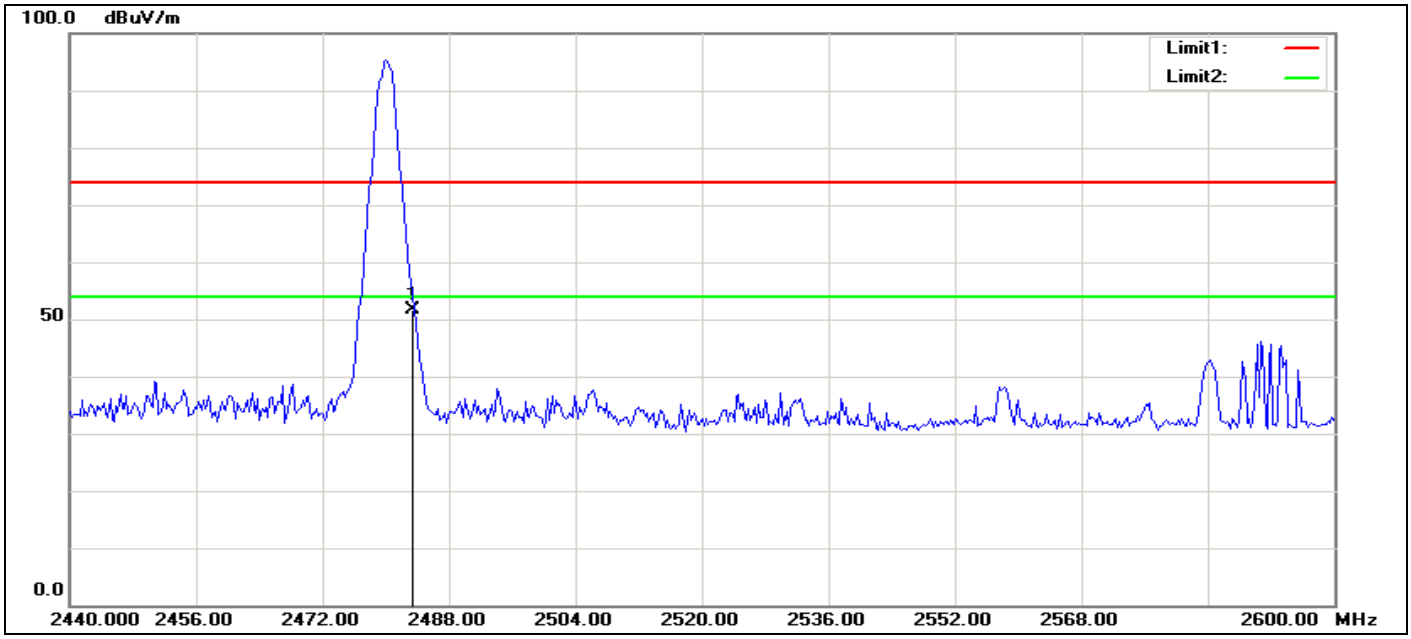
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	34.96	-14.28	20.68	54.00	-33.32	100	157	AVG

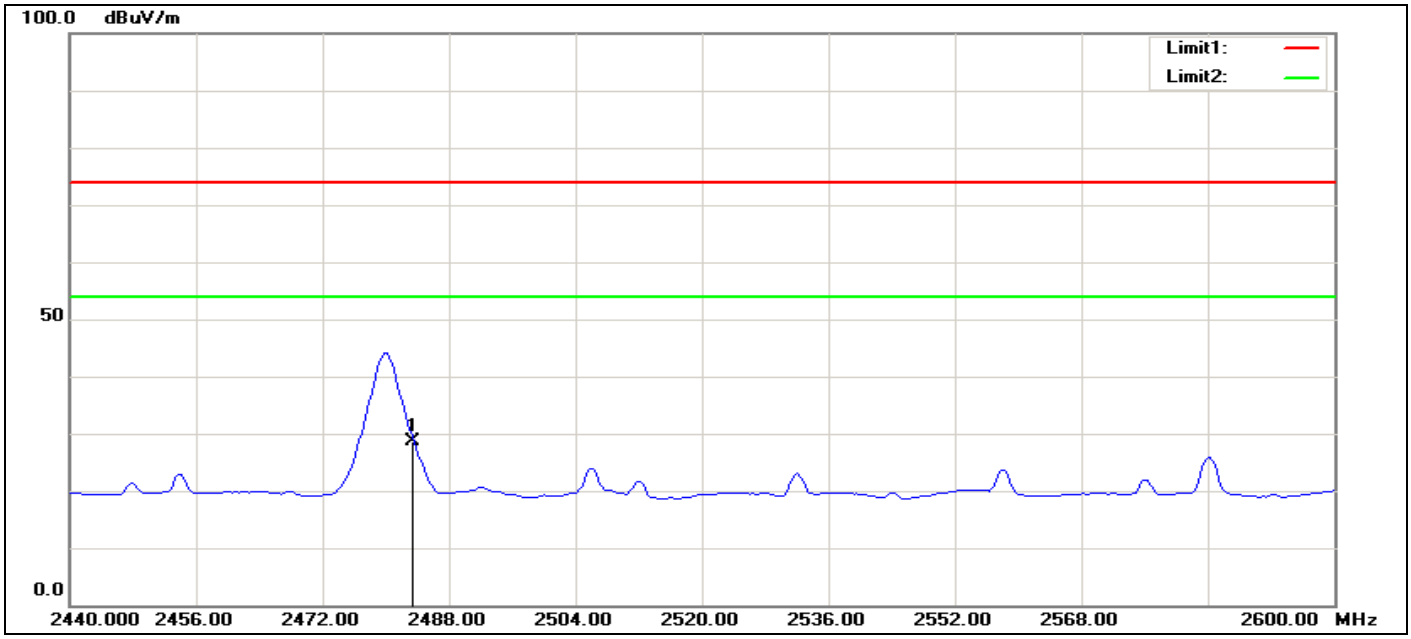
RESTRICTED BANDEDGE (1Mbps Mode, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	65.27	-13.65	51.62	74.00	-22.38	100	23	peak

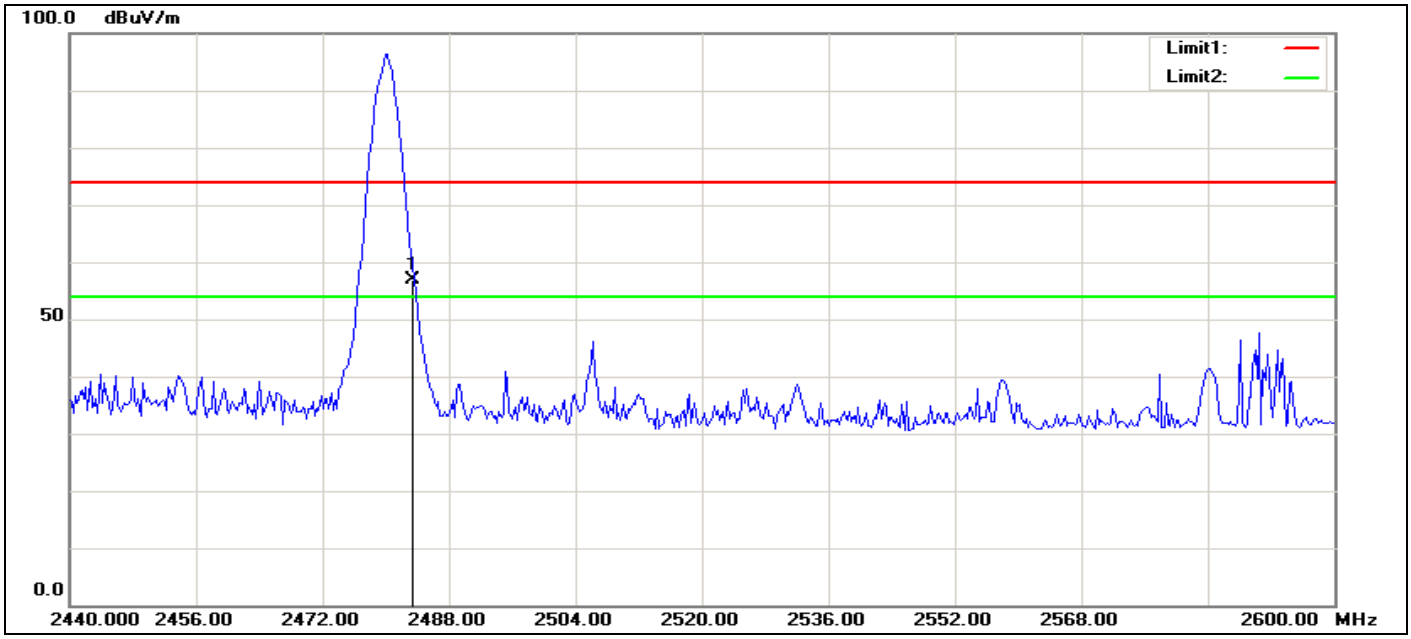
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.28	-13.65	28.63	54.00	-25.37	100	23	AVG

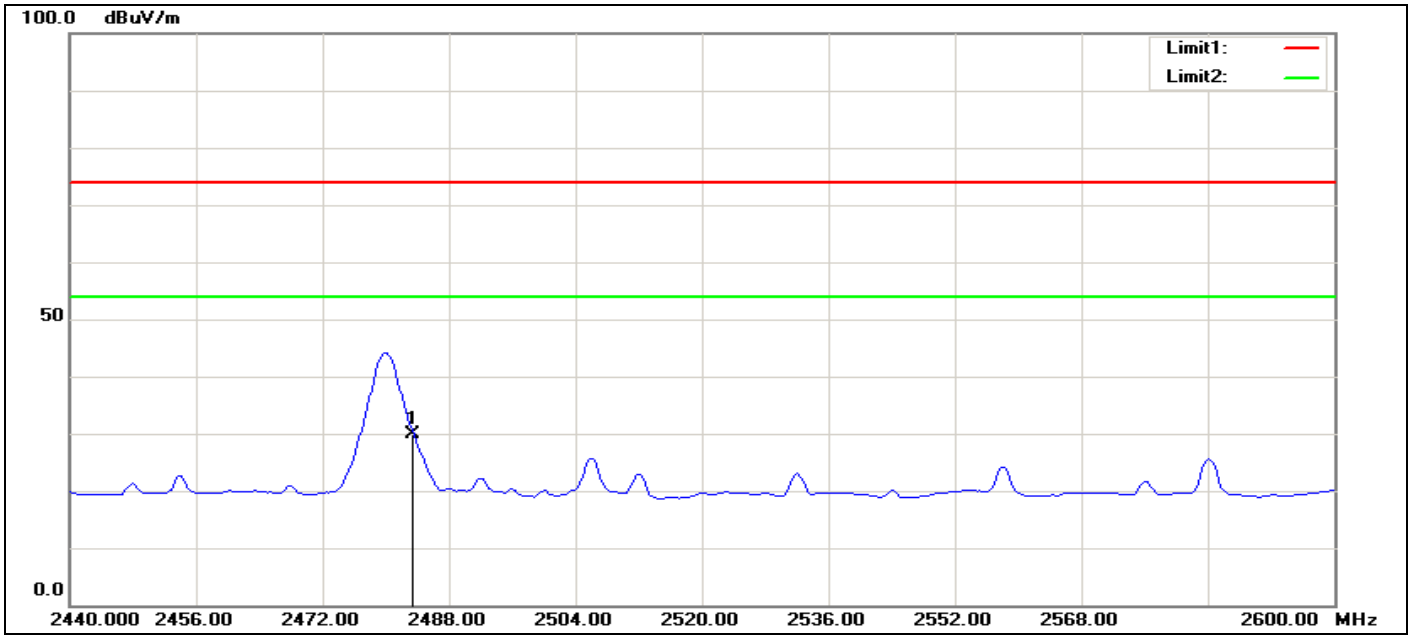
RESTRICTED BANDEDGE (1Mbps, High Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	70.59	-13.65	56.94	74.00	-17.06	100	269	peak

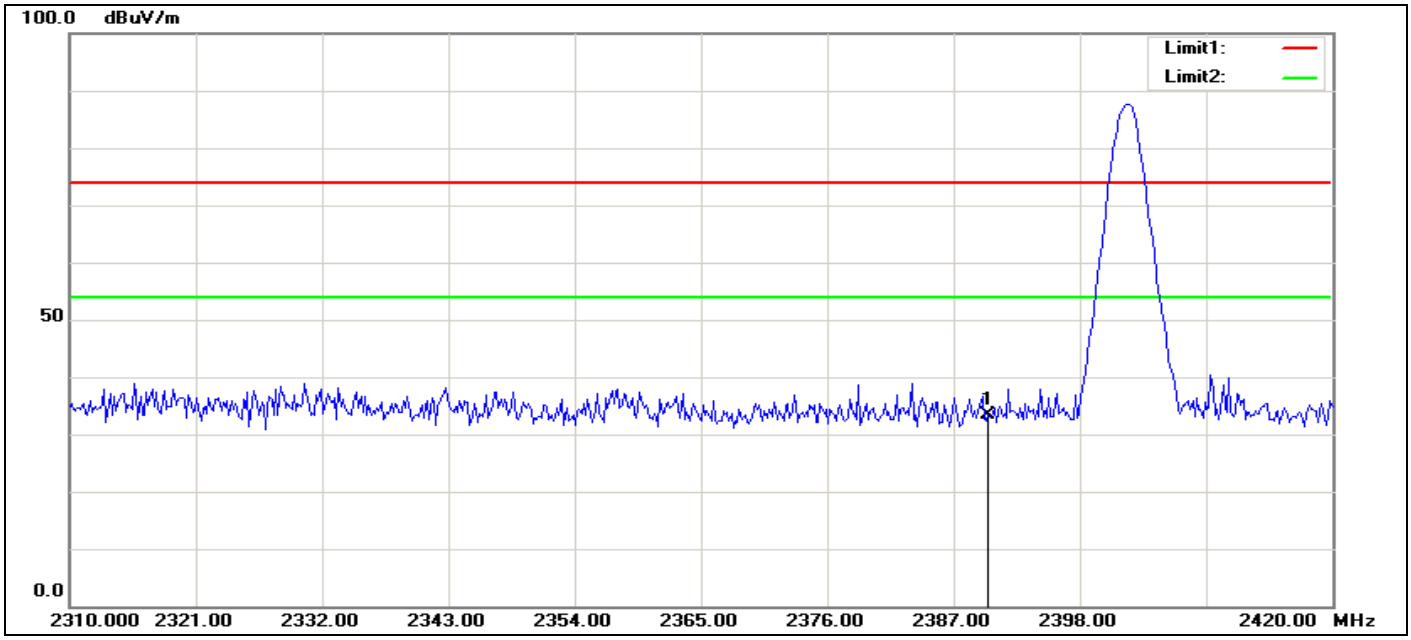
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	43.51	-13.65	29.86	54.00	-24.14	100	269	AVG

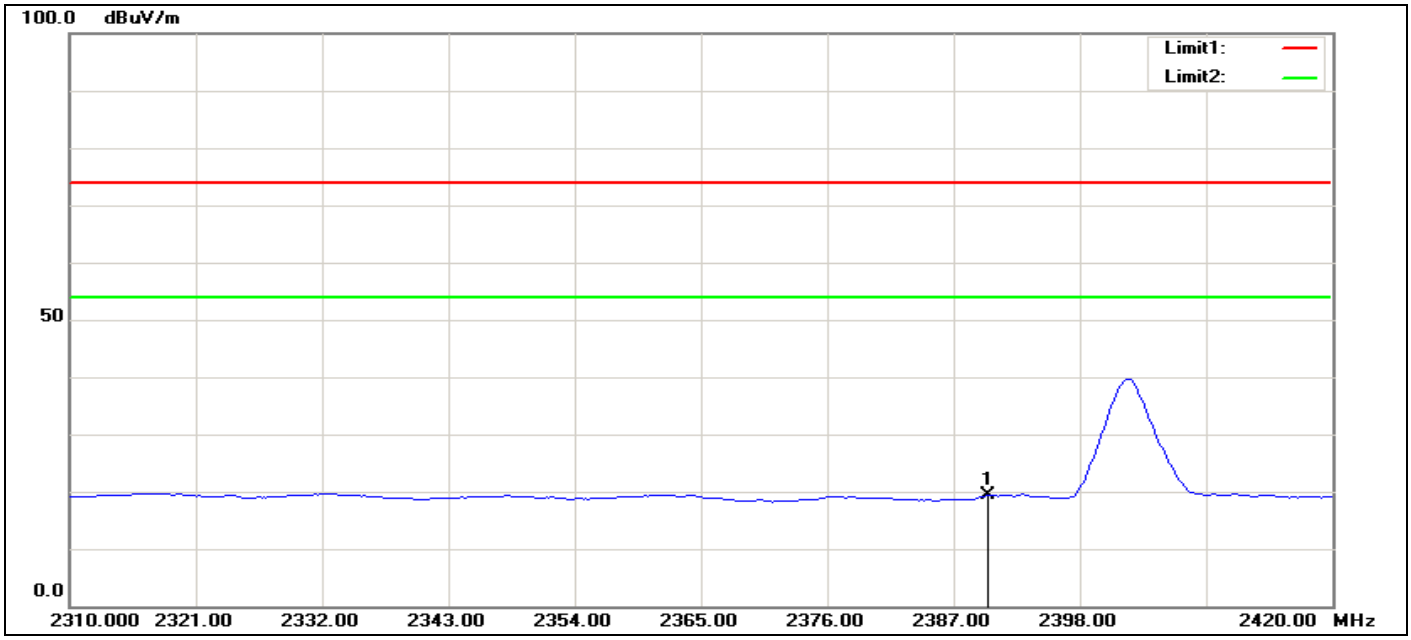
RESTRICTED BANDEDGE (3Mbps, Low Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.74	-14.28	33.46	74.00	-40.54	100	115	peak

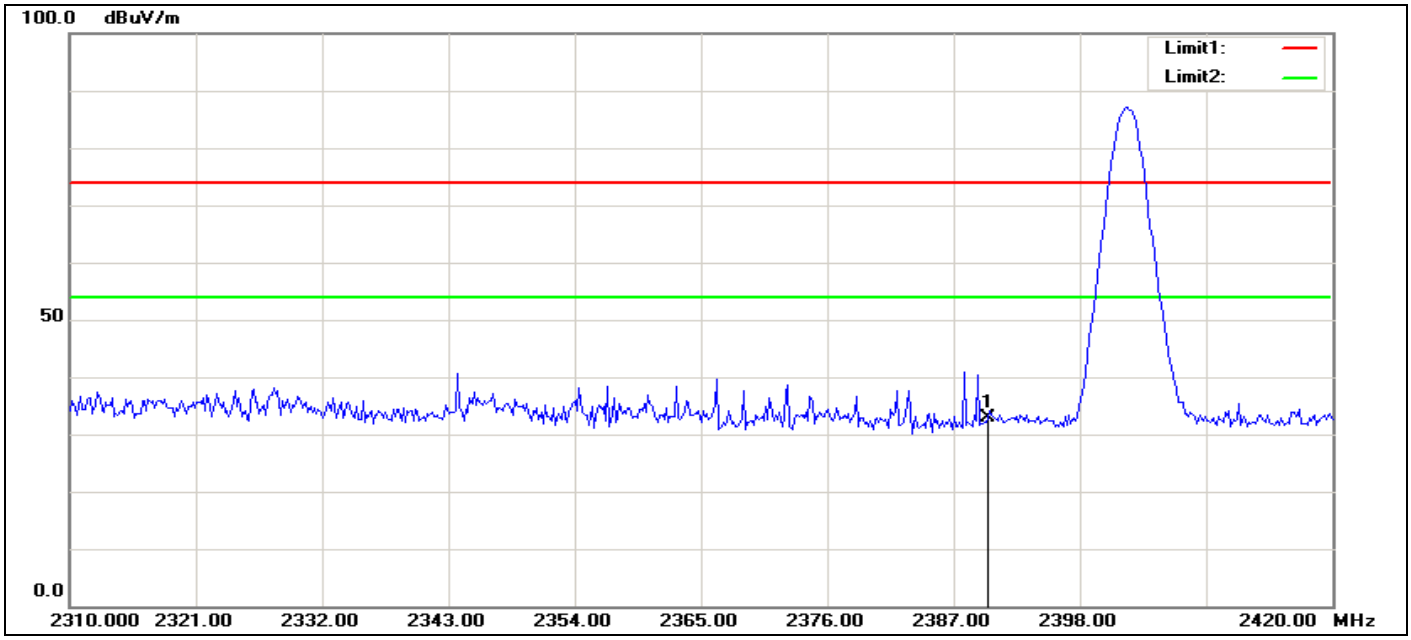
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	33.59	-14.28	19.31	54.00	-34.69	100	115	AVG

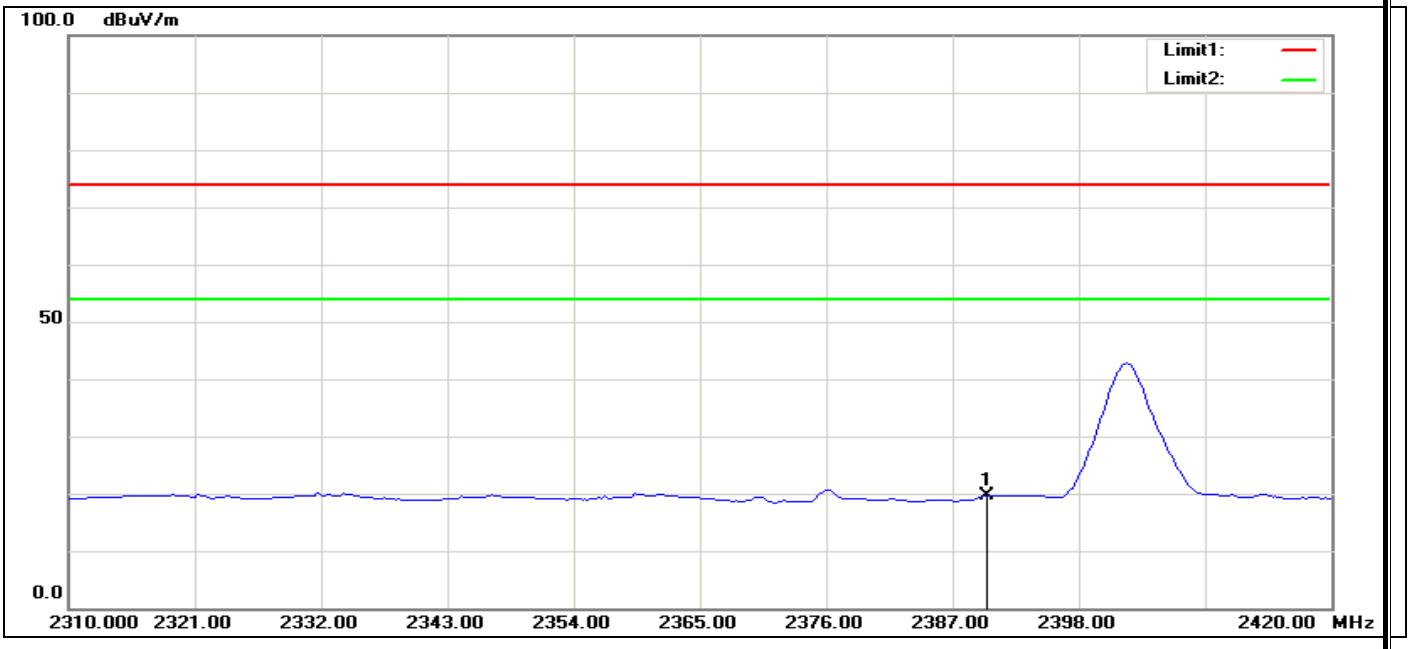
RESTRICTED BANDEDGE (3Mbps, Low Channel, Vertical)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.05	-14.28	32.77	74.00	-41.23	100	360	peak

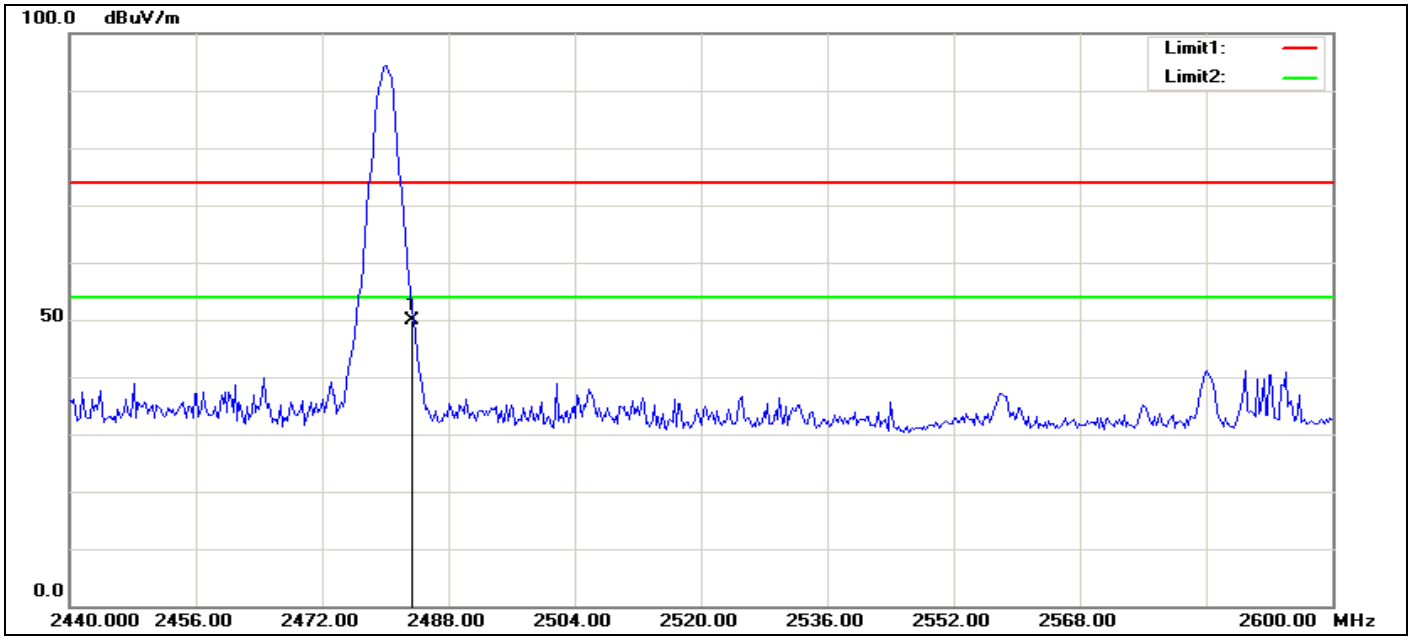
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	33.97	-14.28	19.69	54.00	-34.31	100	360	AVG

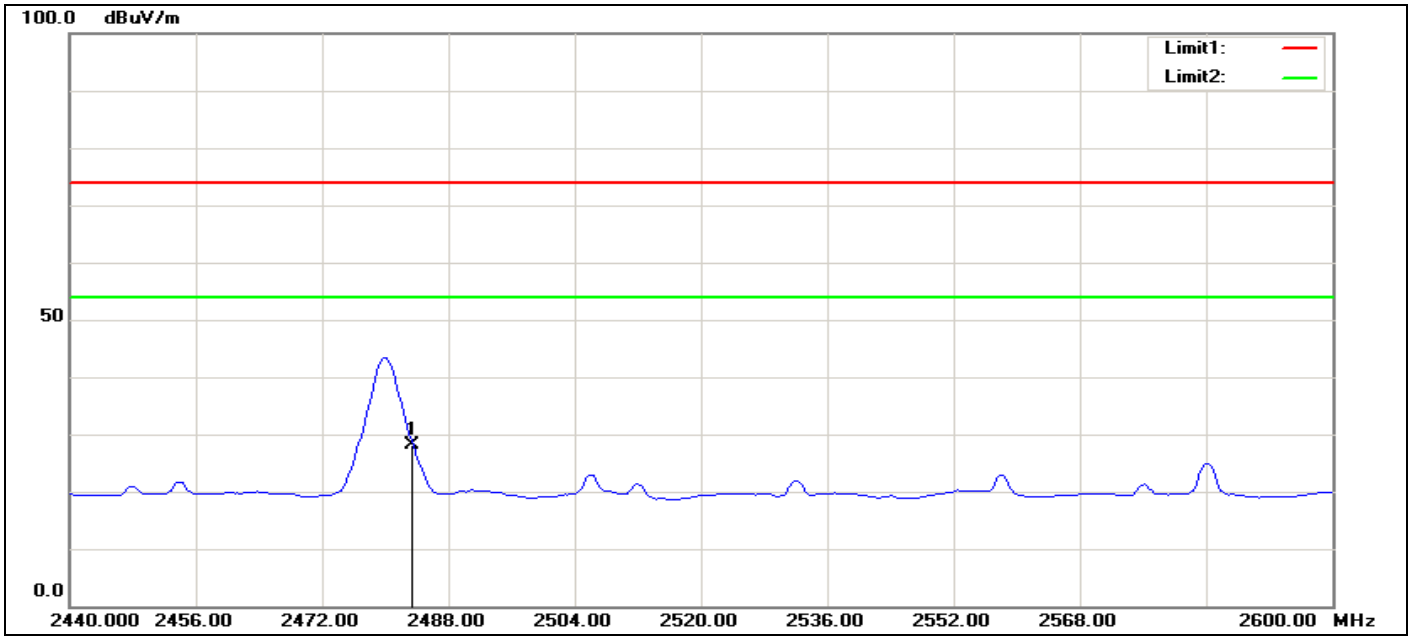
RESTRICTED BANDEDGE (3Mbps, High Channel, Horizontal)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	63.53	-13.65	49.88	74.00	-24.12	100	337	peak

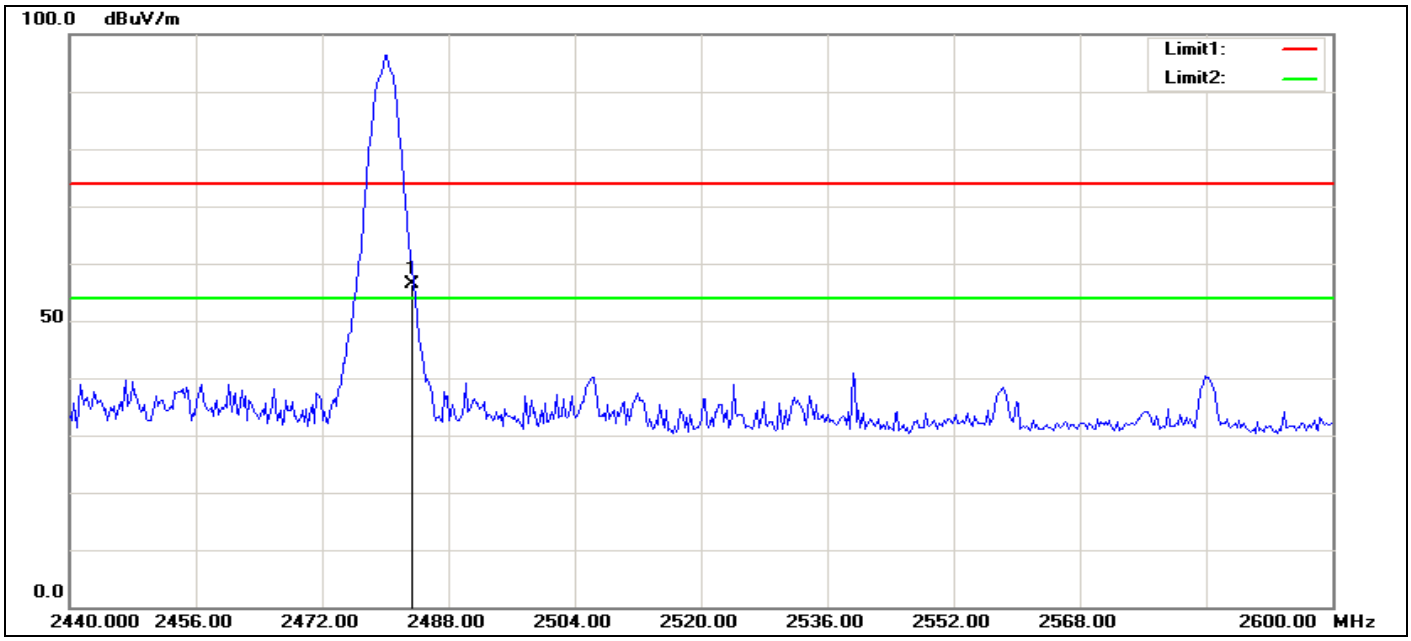
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	41.73	-13.65	28.08	54.00	-25.92	100	337	AVG

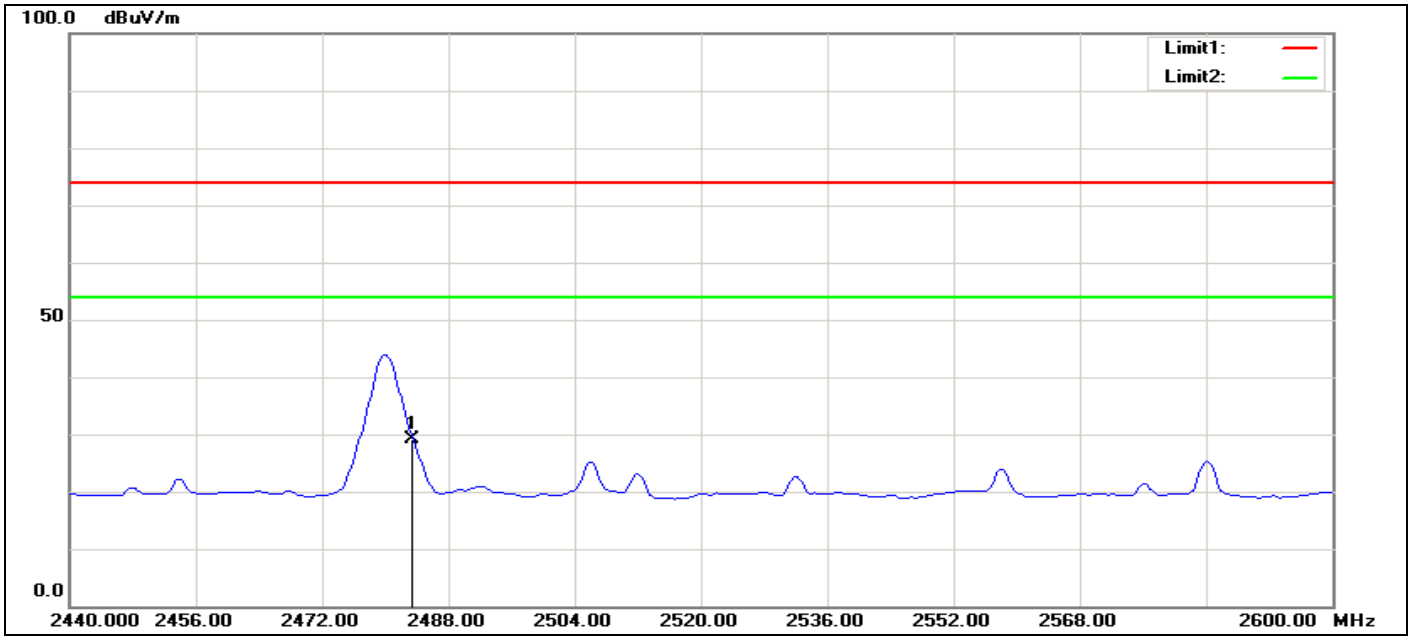
RESTRICTED BANDEDGE (3Mbps, High Channel, Vertical)

Peak



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	70.13	-13.65	56.48	74.00	-17.52	100	270	peak

AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.68	-13.65	29.03	54.00	-24.97	100	270	AVG

TEST RESULT OF RADIATED EMISSION

30MHz-1GHz

Operation Mode: 1 Mbps **Test Date:** November 2, 2013

Test Channel: CH78 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	334.6795	27.23	6.15	33.38	46.00	-12.62	100	77	peak
2	928.4936	19.48	15.52	35.00	46.00	-11.00	100	157	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	113.9423	25.32	3.70	29.02	43.50	-14.48	100	221	peak
2	891.1859	19.08	15.49	34.57	46.00	-11.43	100	306	peak

Notes:

1. Measurements above show only up to maximum emissions noted, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.

3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

Above 1 GHz

Operation Mode: 1 Mbps **Test Date:** November 2, 2013

Test Channel: CH00 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4786.859	V	61.25	-8.07	53.18	74.00	-20.82	PEAK
7238.782	V	44.73	-0.68	44.05	74.00	-29.95	PEAK
4786.859	H	60.73	-8.07	52.66	74.00	-21.34	PEAK
7211.538	H	46.54	-0.59	45.95	74.00	-28.05	PEAK

Operation Mode: 1 Mbps **Test Date:** November 2, 2013

Test Channel: CH39 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.210	V	54.71	-7.72	46.99	74.00	-27.01	PEAK
7321.650	V	47.85	-0.83	47.02	74.00	-26.98	PEAK
4866.540	H	52.74	-7.73	45.01	74.00	-28.99	PEAK
7318.790	H	48.03	-0.84	47.19	74.00	-26.81	PEAK

Operation Mode: 1 Mbps **Test Date:** November 2, 2013

Test Channel: CH78 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4950.320	V	53.82	-7.58	46.24	74.00	-27.76	PEAK
7429.487	V	47.14	-0.55	46.59	74.00	-27.41	PEAK
4950.320	H	60.09	-7.58	52.51	74.00	-21.49	PEAK
7429.487	H	48.53	-0.55	47.98	74.00	-26.02	PEAK

Operation Mode: 3 Mbps **Test Date:** November 2, 2013

Test Channel: CH00 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4788.910	V	58.75	-8.06	50.69	74.00	-23.31	PEAK
7240.580	V	46.46	-0.69	45.77	74.00	-28.23	PEAK
4808.114	H	53.34	-8.03	45.31	74.00	-28.69	PEAK
7749.728	H	44.34	0.60	44.94	74.00	-29.06	PEAK

Operation Mode: 3 Mbps **Test Date:** November 2, 2013

Test Channel: CH39 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4871.620	V	53.02	-7.71	45.31	74.00	-28.69	PEAK
7319.880	V	47.80	-0.83	46.97	74.00	-27.03	PEAK
4870.000	H	55.74	-7.71	48.03	74.00	-25.97	PEAK
7321.156	H	47.38	-0.83	46.55	74.00	-27.45	PEAK

Operation Mode: 3 Mbps **Test Date:** November 2, 2013

Test Channel: CH78 **Tested by:** Blent.Wang

Temperature: 25°C **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4955.217	V	53.82	-7.58	46.24	74.00	-27.76	PEAK
7430.000	V	47.14	-0.55	46.59	74.00	-27.41	PEAK
4951.330	H	57.59	-7.58	50.01	74.00	-23.99	PEAK
7429.810	H	46.74	-0.55	46.19	74.00	-27.81	PEAK

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. *Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.*
   b. *AV Setting 1GH z to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.*

6.8 POWERLINE CONDUCTED EMISSIONS

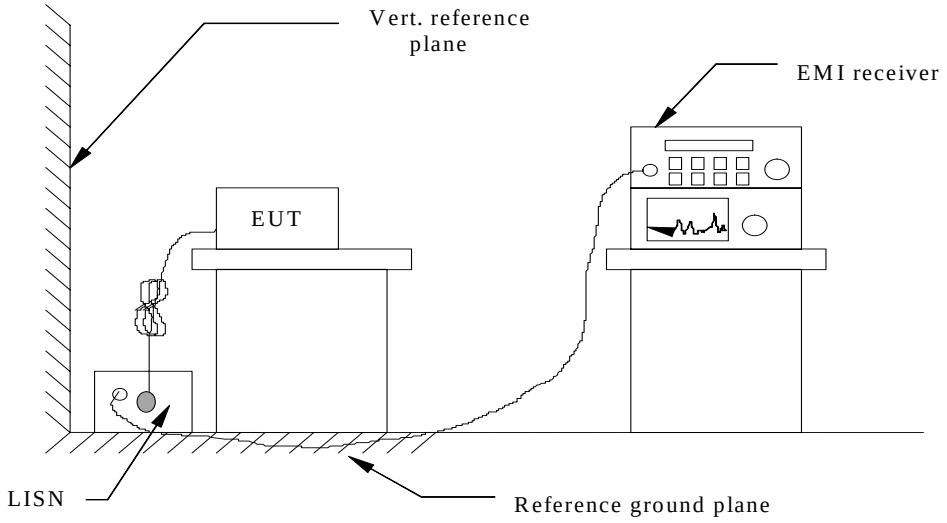
LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

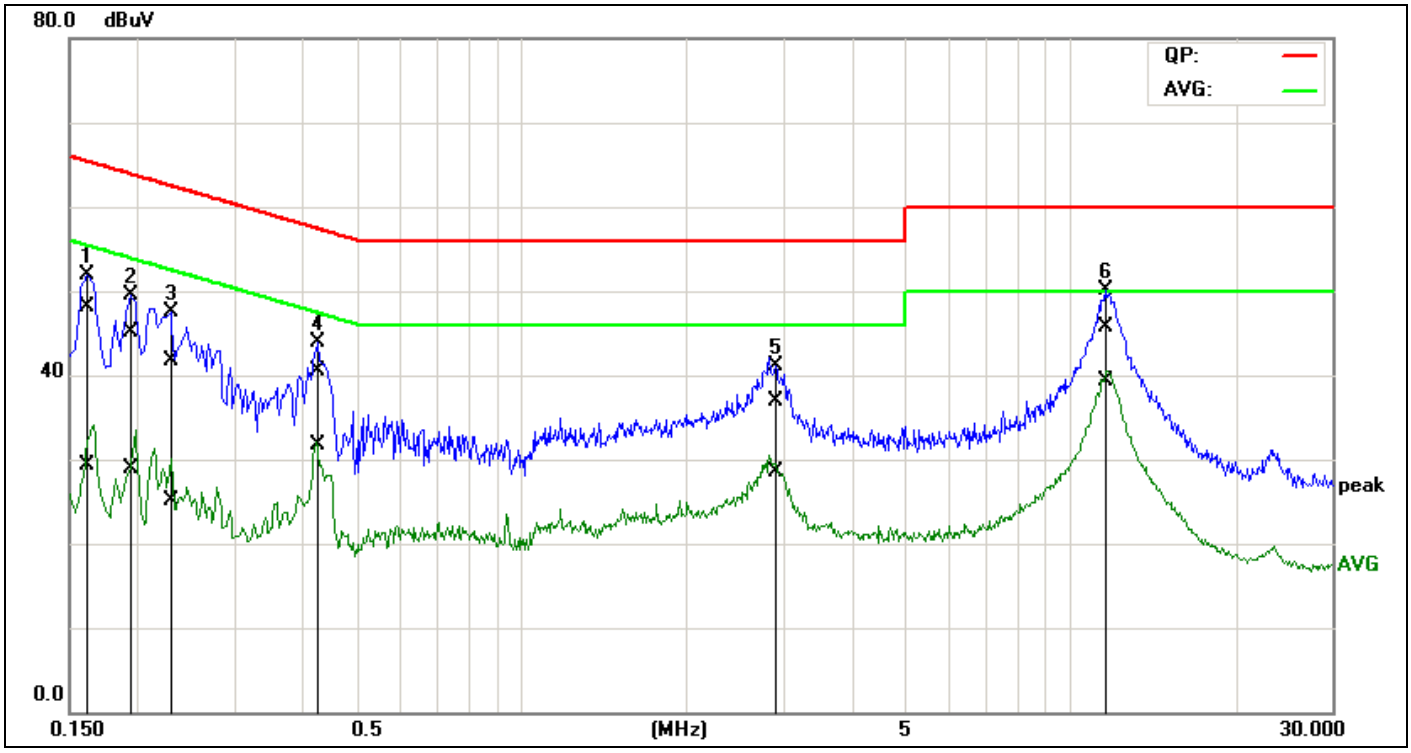
TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

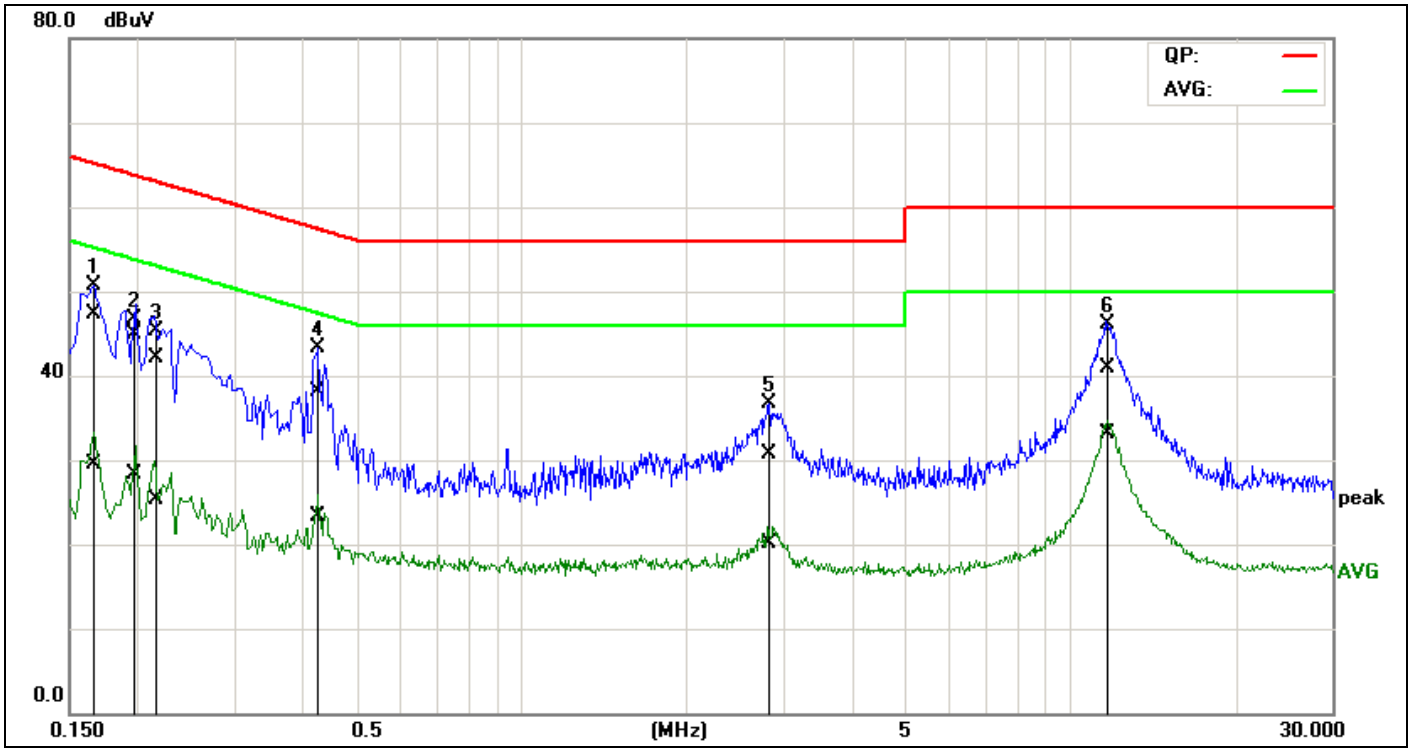
Model: PAE-100	**Test Mode:** Mode 1
Temperature: 23°C	**Humidity:** 51% RH
Tested by: Blent.Wang	**Test Results:** Pass

L1



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1593	28.36	9.58	19.77	48.13	29.35	65.50	55.50	-17.37	-26.15	Pass
2	0.1909	25.55	9.26	19.64	45.19	28.90	64.00	54.00	-18.81	-25.10	Pass
3	0.2281	22.03	5.51	19.62	41.65	25.13	62.52	52.52	-20.87	-27.39	Pass
4	0.4241	20.79	11.98	19.77	40.56	31.75	57.37	47.37	-16.81	-15.62	Pass
5	2.8549	16.82	8.47	20.04	36.86	28.51	56.00	46.00	-19.14	-17.49	Pass
6	19.8850	21.27	14.28	21.12	42.39	35.40	60.00	50.00	-17.61	-14.60	Pass

L2



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1651	27.57	9.71	19.70	47.27	29.41	65.20	55.20	-17.93	-25.79	Pass
2	0.1944	25.26	8.70	19.65	44.91	28.35	63.85	53.85	-18.94	-25.50	Pass
3	0.2182	22.41	5.57	19.65	42.06	25.22	62.89	52.89	-20.83	-27.67	Pass
4	0.4224	18.25	3.50	19.80	38.05	23.30	57.40	47.40	-19.35	-24.10	Pass
5	2.8241	10.61	-0.01	20.06	30.67	20.05	56.00	46.00	-25.33	-25.95	Pass
6	11.6860	20.07	12.31	20.77	40.84	33.08	60.00	50.00	-19.16	-16.92	Pass

*R*emark:

1.The measuring frequencies range between 0.15 MHz and 30 MHz.

2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.

3."---" denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.

4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

END OF REPORT