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Report On

Application for Grant of Equipment Authorization Class II
Permissive Change/Reassessment of the
Wi2Wi, Inc.
W2CBW0015 Wi-Fi and BT Combo Module

FCC Part 15 Subpart C §15.247
IC RSS-Gen and RSS-210 Issue 8 December 2010

Report No. SC1300509G **February 2013**

REPORT ON	Class II Permissive Change Reassessment of the Wi2Wi, Inc. Wi-Fi and BT Combo Module
TEST REPORT NUMBER	SC1300509G
PREPARED FOR	Wi2Wi, Inc. 2107 North 1st Street, Suite 540 San Jose, CA 95131, USA
CONTACT PERSON	David Couchman c/o Hughes Network Systems Principal Engineer (858) 452-4648 Dave.Couchman@hughes.com
PREPARED BY	Ferdinand S. Custodio **Name** Authorized Signatory Title: EMC/Wireless Test Engineer
APPROVED BY	Chip R. Fleury **Name** Authorized Signatory
DATED	February 22, 2012

TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

Revision History

SC1300509G Wi2Wi, Inc. W2CBW0015 Wi-Fi and BT Combo Module					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
02/22/13	Initial Release				Ferdinand Custodio

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SECTION 1

REPORT SUMMARY

Class II Permissive Change Reassessment of the
Wi2Wi, Inc.
Wi-Fi and BT Combo Module

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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Wi2Wi, Inc. W2CBW0015 Wi-Fi and BT Combo Module to the requirements of FCC Part 15 Subpart C §15.247 and IC RSS-Gen and RSS-210 Issue 8 December 2010 using Hughes Network Systems proprietary multi-band antenna.

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Wi2Wi, Inc.
Model Number(s)	W2CBW0015
FCC ID Number	U9R-W2CBW0015
IC Number	7089A-W2CBW0015
Serial Number(s)	N/A
Number of Samples Tested	1
Test Specification/Issue/Date	• FCC Part 15 Subpart C §15.247 (October 1, 2011). • RSS-210 - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment (Issue 8, December 2010). • RSS-Gen - General Requirements and Information for the Certification of Radio Apparatus (Issue 3, December 2010).
Start of Test	February 15, 2013
Finish of Test	February 21, 2013
Name of Engineer(s)	Ferdinand S. Custodio
Related Document(s)	• Report Number R1206041-247 (FCC Part 15 Subpart C and IC RSS-210 Test and Measurement Report for Wi2Wi, Inc.) Issued by: Bay Area compliance Laboratories Corp. • "Specification Control Document – Antenna, L-Band, Thuraya IP V2" Cage Code 3L0W2 No. 3500719 Rev. 2 (06/15/2012) • IEEE C63.10-2009. American national standard for testing unlicensed wireless device. • Supporting documents for EUT certification are separate exhibits.

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 with cross-reference to the corresponding IC RSS standard is shown below.

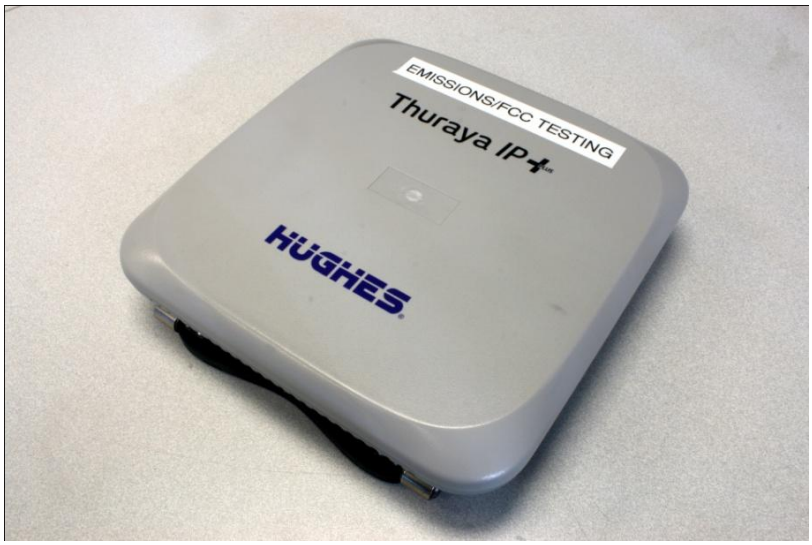
Section	§15.247 Spec Clause	RSS	Test Description	Result	Comments/ Base Standard
-	§15.247(b)(3)	RSS-210 A8.4 (4)	Peak Output Power	N/A*	
-	§15.207(a)	RSS-Gen 7.2.4	Conducted Emissions	N/A*	
-		RSS-Gen 4.6.1	99% Emission Bandwidth	N/A*	
-	§15.247(a)(2)	RSS-210 A8.2(a)	Minimum 6 dB RF Bandwidth	N/A*	
-	§15.247(d)	RSS-210 A8.5	Out-of-Band Emissions - Conducted	N/A*	
-	§15.247(d)	RSS-210 A8.5	Band-edge Compliance of RF Conducted Emissions	N/A*	
2.1	§15.247(d)	RSS-210 A8.5	Spurious Radiated Emissions	Compliant	
2.1		RSS-Gen 4.10	Receiver Spurious Emissions	Compliant	
-	§15.247(e)	RSS-210 A8.2(b)	Power Spectral Density for Digitally Modulated Device	N/A*	

* Not applicable. Not included in this permissive change. Antenna change would not change previous test results. Test results from Report Number R1206041-247 (FCC Part 15 Subpart C and IC RSS-210 Test and Measurement Report for Wi2Wi, Inc.) Issued by: Bay Area compliance Laboratories Corp applies.

1.3 PRODUCT INFORMATION

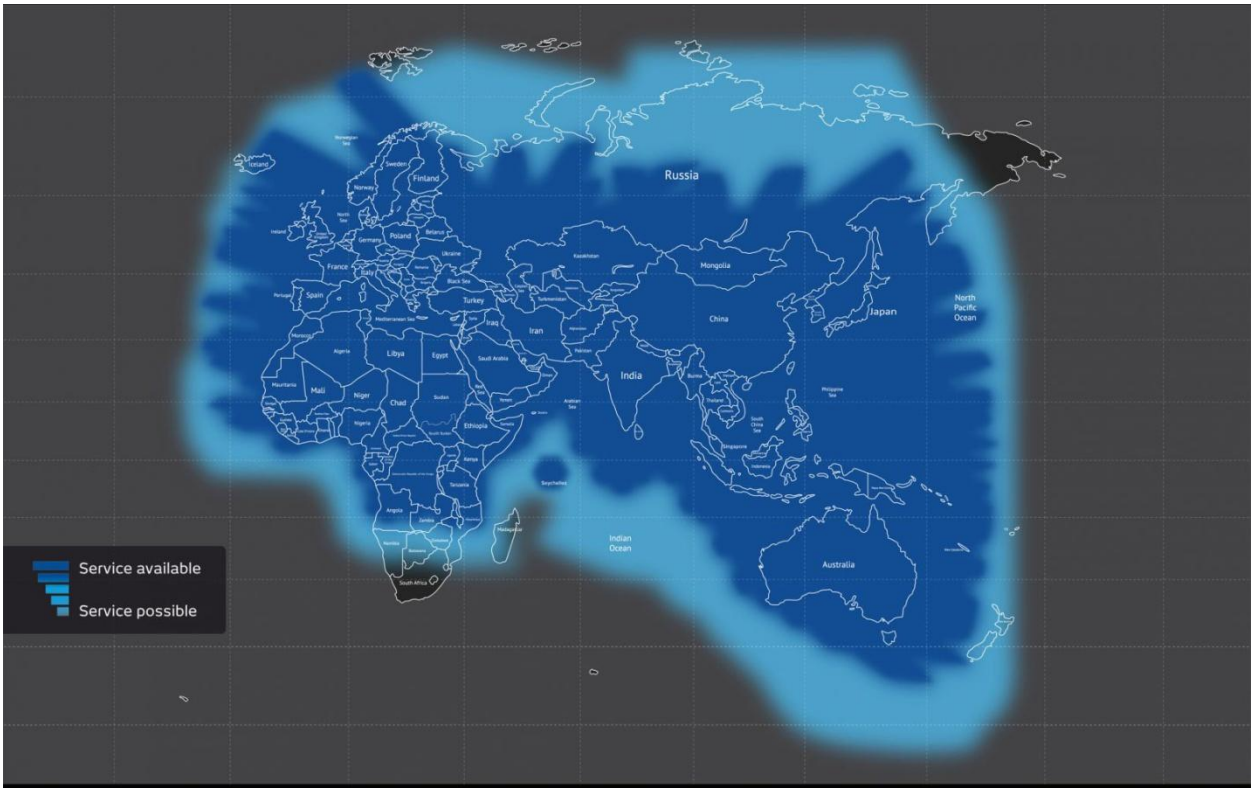
1.3.1 Technical Description

The Equipment Under Test (EUT) was a Wi2Wi, Inc. Wi-Fi and BT Combo Module model W2CBW0015 (FCC ID U9R-W2CBW0015/IC Number 7089A-W2CBW0015). The EUT is installed inside Hughes Network Systems Thuraya IP+ Broadband Satellite IP Modem model 9104 (see photographs below). The host is a broadband satellite IP modem and Wi-Fi Access Point. It is a self-contained communications system designed to provide users with IP network access for their personal computers via satellite. It can use Ethernet or Wi-Fi interfaces for network access. The 9104 allows you to simultaneously send and receive IP packet data via Ethernet and Wi-Fi interfaces over the Thuraya satellite network– see Section 1.3.2 for map coverage.
The EUT is being verified with Hughes Network Systems Thuraya IP V2 L-Band Antenna (the antenna assembly has a built-in WLAN and GPS antenna in addition to the main L-Band antenna).



Host Equipment where EUT is installed

1.3.2 Thuraya Satellite Coverage Map



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1.3.3 EUT General Description

EUT Description	Wi-Fi and BT Combo Module
Model Number(s)	W2CBW0015
Host Model Name	Thuraya IP+
Host Model Number	9104
Host Serial Number	N/A
Host Software Version	20.0.4
Host PIC Version	1.1.1.3
Host Input Voltage	19VDC from Hughes AC adapter (Model STD-1934PA)
Host Battery Type	7.2VDC Li-Ion battery (Hughes P/N 3500496-0001 Rev. B)
Output Power	15.89 dBm (conducted) 109.88dBµV/m @ 3 meters (original filing worst case measured radiated fundamental emission)
Frequency Range	2412 MHz to 2462 MHz in the 2400 MHz to 2483.5 MHz Band
Number of Operating Frequencies	11 (b, g, n HT20), 7 (n HT40)
Channels Verified (b, g, n HT20)	Channel 1 (Low Channel 2412 MHz) Channel 6(Mid Channel 2437 MHz) Channel 11 (High Channel 2462MHz)
Channels Verified(n HT40)	Channel 3 (Low Channel 2422 MHz) Channel 6(Mid Channel 2437 MHz) Channel 9 (High Channel 2452MHz)
Modulation Used	DSSS and OFDM

1.3.4 Antenna Details

Model (MPN)	3500719
Manufacturer	Wi2Wi, Inc.
Antenna Type	Multiband (L-Band LHCP 12 dB Transportable Antenna with WLAN and GPS)
Antenna Gain (Peak)	3.5 dBi (WLAN – Client declared)
EUT Antenna Connector	Hi Rose U.FL-R-SMT-1 Receptacle (connector is integral to the EUT).
Maximum Dimensions	210mm x 210mm x 9.5mm

Please refer to the manufacturer documentation titled “Specification Control Document – Antenna, L-Band, Thuraya IP V2” Cage Code 3L0W2 No. 3500719 Rev. 2 (06/15/2012).

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configurations	Description
Default	Radiated emissions test configuration. EUT configured to transmit with the built-in integral antenna.

1.4.2 EUT Exercise Software

"Perl Command" software provided by the client was used to exercise the EUT. A file containing commands to change channels and modulation was also provided. Specific channel/modulation combination is copied from this file and transferred to the test software, once executed the EUT will transmit at max power at that particular channel.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Hughes	AC Adapter	Model: STD-1934PA Output 19VDC 3.4A LPS
Toshiba	Laptop	Model Portege 7000CT SN98061429A
Toshiba	10/100 Network/DVD Dock	Model PA2722U SN X9073402
Toshiba	Laptop External PSU	Model PA2450U SN 9903 C 2058923
Logitech	Mouse for Laptop	Model M-BJ58 Optical Mouse
-	CAT6 (Laptop to EUT)	2.1m unshielded RJ45 connector

1.4.4 Worst Case Configuration

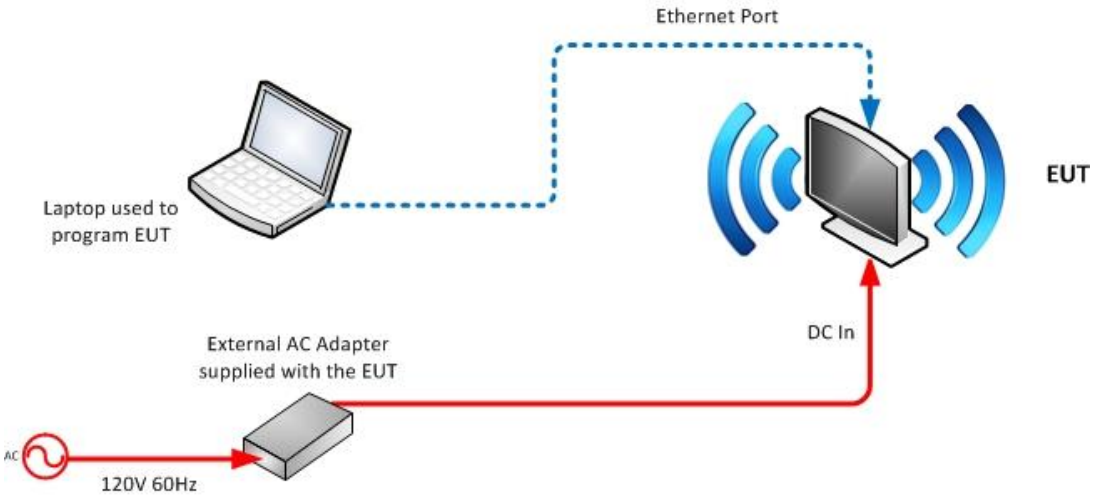
Worst-case data rate used in this test report:

802.11b	802.11g	802.11n HT20	802.11n HT40
1Mbps	6Mbps	72.2Mbps	150Mbps

The EUT uses an integral PCB antenna. For radiated measurements X, Y and Z orientations were verified. Worst case position is "X".

		
"X" Configuration	*"Y" Configuration*	*"Z" Configuration*

1.4.5 Simplified Test Configuration Diagram



1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

Description of Modification	Modification Fitted By	Date Modification Fitted
Serial Number N/A		
N/A		

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.
For conducted and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.4-2009. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY

1.8.1 FCC – Registration No.: US5296

TUV SUD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.498 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Registration is US5296.

1.8.2 Industry Canada (IC) Registration No.: 3067A

The 10m Semi-anechoic chamber of TUV SUD America Inc. (San Diego), has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No. 3067A.

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SECTION 2

TEST DETAILS

Class II Permissive Change Reassessment of the
Wi2Wi, Inc.
Wi-Fi and BT Combo Module

2.1 SPURIOUS RADIATED EMISSIONS

2.1.1 Specification Reference

Part 15 Subpart C §15.247(d)

2.1.2 Standard Applicable

(d) 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.1.3 Equipment Under Test and Modification State

Serial No: N/A / Default Test Configuration

2.1.4 Date of Test/Initial of test personnel who performed the test

February 15, February 18 and February 19, 2013/FSC

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions

Ambient Temperature	24.5 to 25.6°C
Relative Humidity	19.2 to 25.7%
ATM Pressure	99.5 to 99.7 kPa

2.1.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to the 10th harmonic.
- There are no emissions found that do not comply to the restricted bands defined in FCC Part 15 Subpart C, 15.205 or Part 15.247(d).
- Test procedure is consistent with those specified under C63.10.
- Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.1.8 for sample computation.

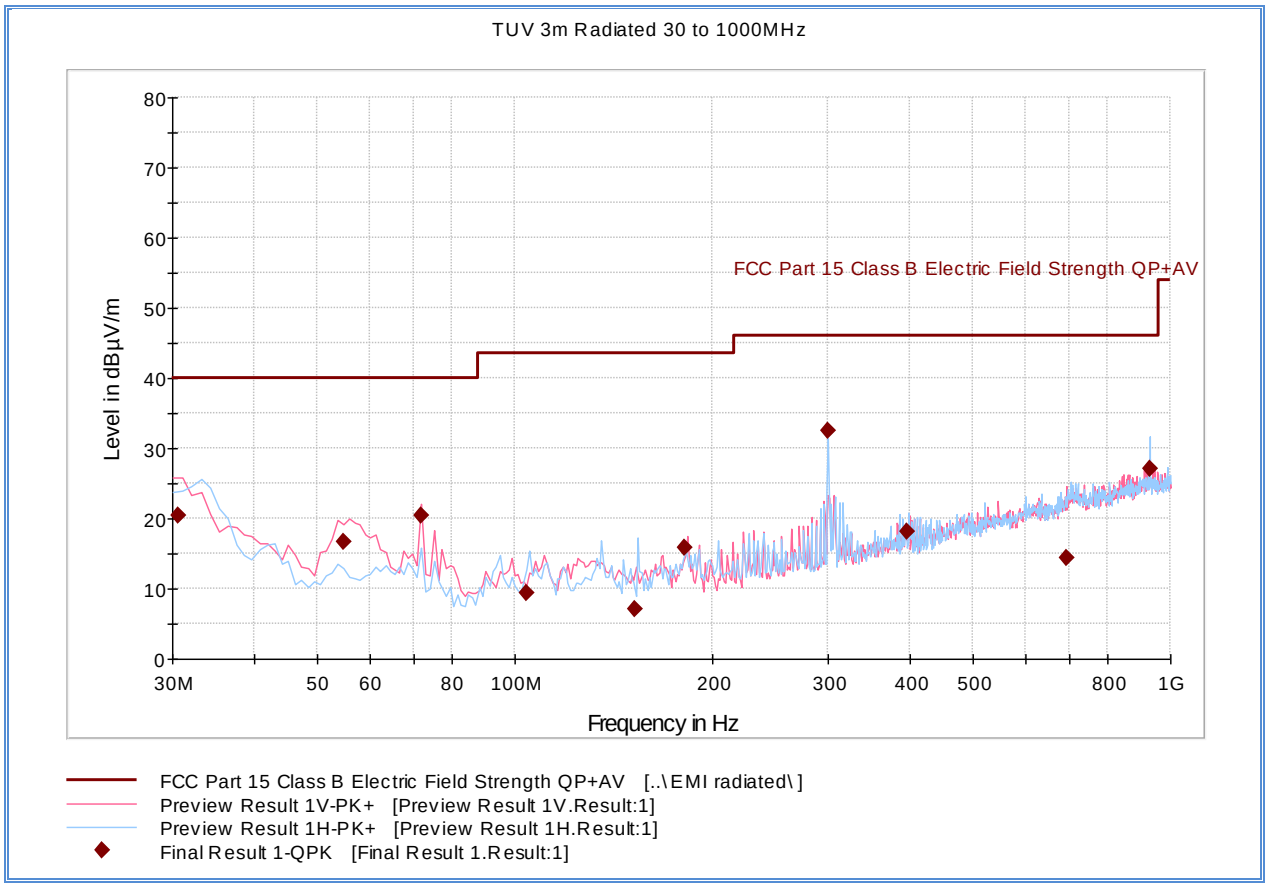
2.1.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 30 MHz			24.4
Correction Factor (dB)	Asset# 1066 (cable)	0.3	-12.6
	Asset# 1172 (cable)	0.3	
	Asset# 1016 (preamplifier)	-30.7	
	Asset# 1175(cable)	0.3	
	Asset# 1002 (antenna)	17.2	
Reported QuasiPeak Final Measurement (dbµV/m) @ 30MHz			**11.8**

2.1.9 Test Results

See attached plots.

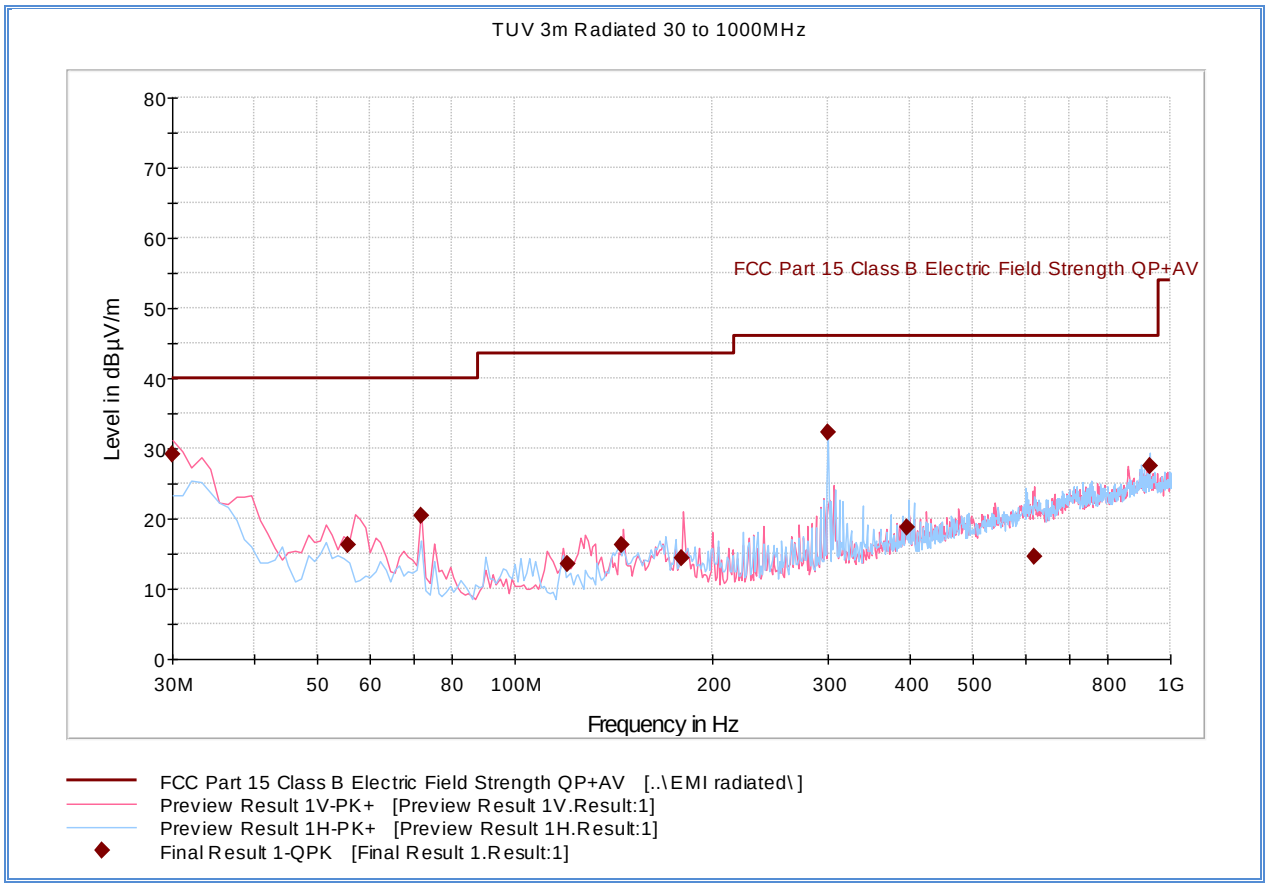
2.1.10 Test Results Below 1GHz (Receive Mode)



Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.600000	20.4	1000.0	120.000	100.0	V	88.0	-13.0	19.6	40.0
54.746667	16.7	1000.0	120.000	100.0	V	19.0	-22.5	23.3	40.0
71.993333	20.4	1000.0	120.000	100.0	V	137.0	-24.4	19.6	40.0
103.964444	9.3	1000.0	120.000	103.0	H	102.0	-22.2	34.2	43.5
152.224444	7.1	1000.0	120.000	103.0	H	12.0	-21.6	36.4	43.5
181.764444	15.9	1000.0	120.000	100.0	V	10.0	-20.6	27.6	43.5
300.002222	32.5	1000.0	120.000	103.0	H	317.0	-16.2	13.5	46.0
397.280000	18.2	1000.0	120.000	103.0	H	225.0	-13.7	27.8	46.0
694.551111	14.4	1000.0	120.000	100.0	V	228.0	-7.7	31.6	46.0
929.622222	27.0	1000.0	120.000	103.0	H	-1.0	-5.2	19.0	46.0

2.1.11 Test Results Below 1GHz (Mid Channel – 802.11 b)

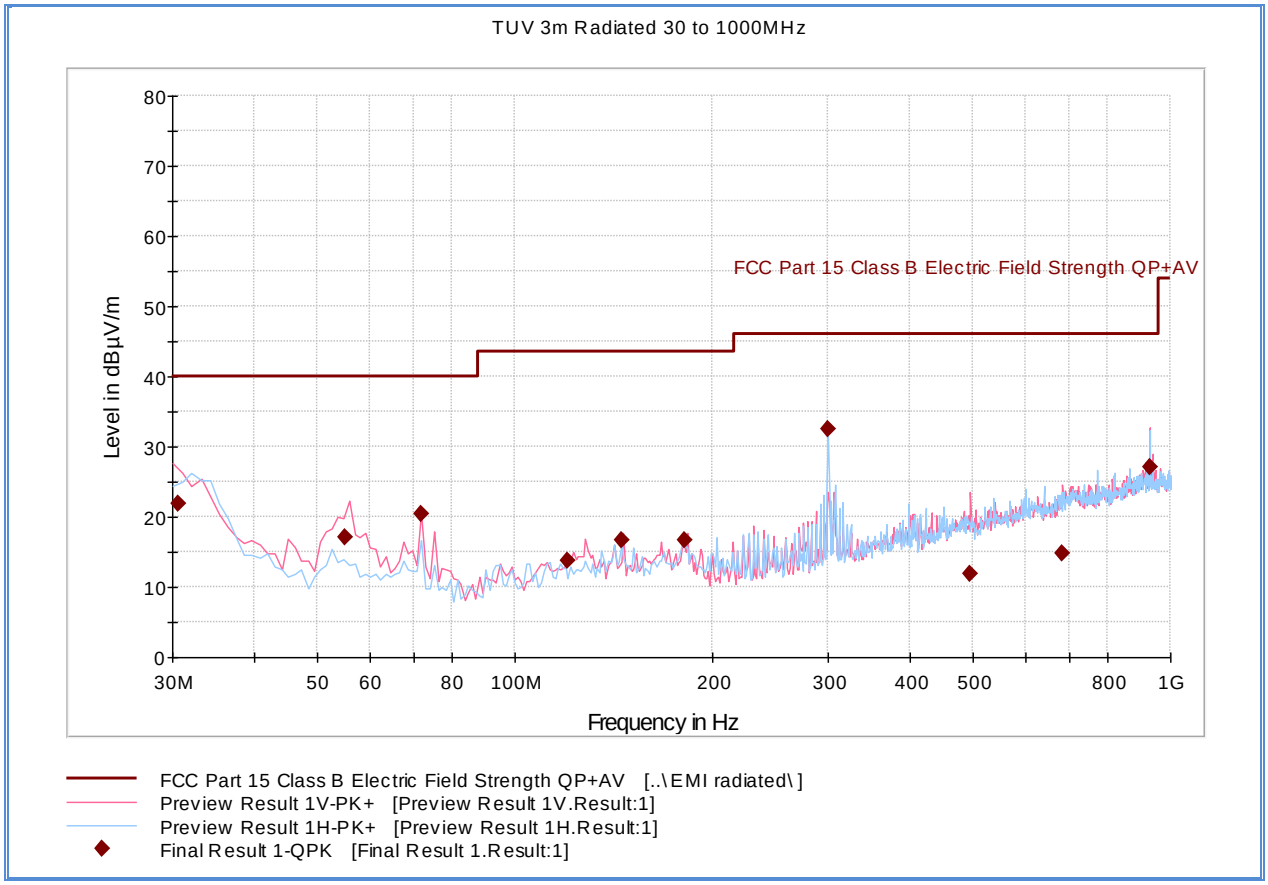


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.000000	29.2	1000.0	120.000	100.0	V	237.0	-12.6	10.8	40.0
55.704444	16.2	1000.0	120.000	100.0	V	20.0	-22.7	23.8	40.0
71.993333	20.3	1000.0	120.000	100.0	V	11.0	-24.4	19.7	40.0
120.017778	13.6	1000.0	120.000	100.0	V	93.0	-23.0	29.9	43.5
145.240000	16.3	1000.0	120.000	100.0	V	297.0	-22.2	27.2	43.5
179.728889	14.4	1000.0	120.000	100.0	V	318.0	-20.9	29.1	43.5
300.002222	32.3	1000.0	120.000	103.0	H	317.0	-16.2	13.7	46.0
397.320000	18.8	1000.0	120.000	103.0	H	90.0	-13.7	27.2	46.0
618.504444	14.6	1000.0	120.000	100.0	V	154.0	-9.0	31.4	46.0
929.662222	27.5	1000.0	120.000	103.0	H	137.0	-5.2	18.5	46.0

Test Notes: Only worst case channel presented for spurious emissions below 1GHz.

2.1.12 Test Results Below 1GHz (Low Channel – 802.11 g)

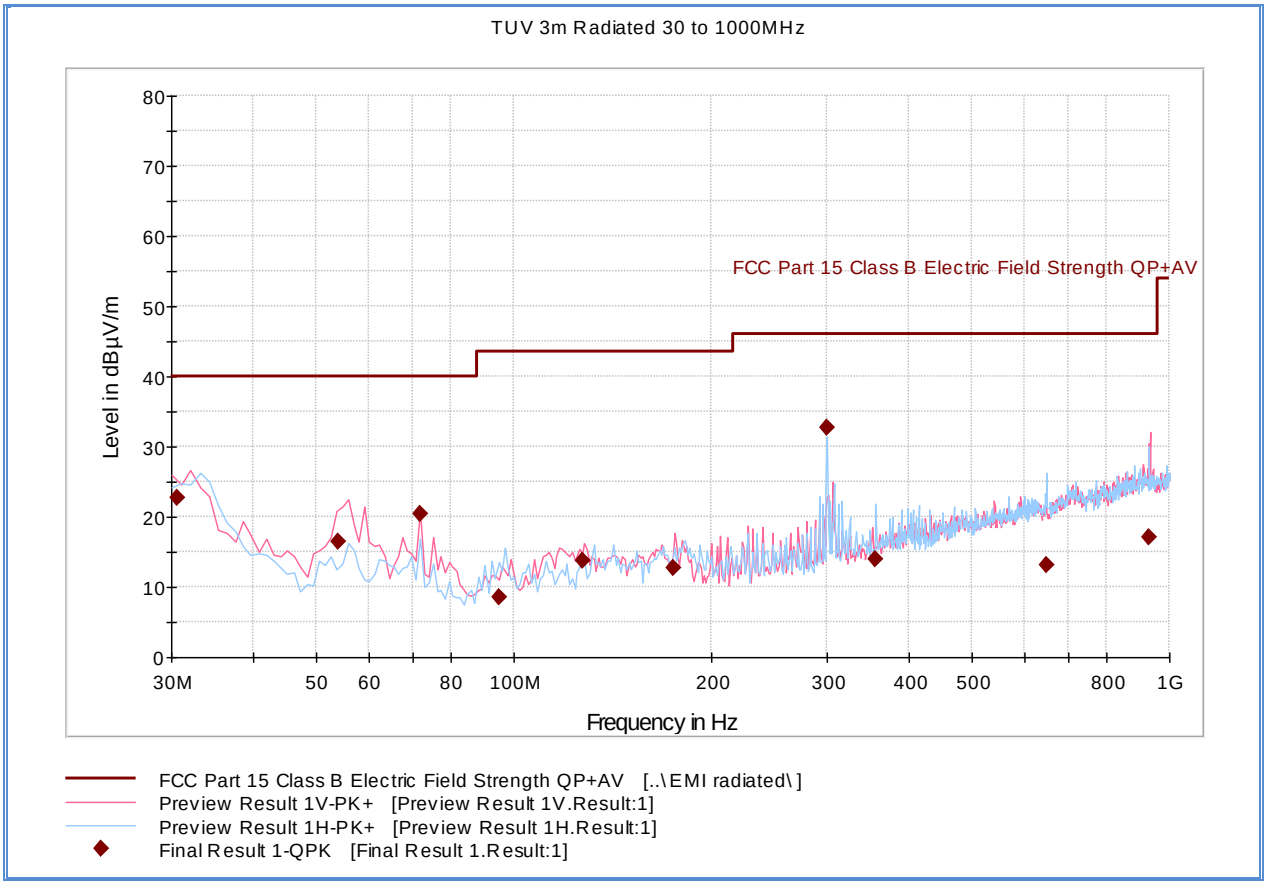


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.680000	21.9	1000.0	120.000	100.0	V	140.0	-13.0	18.1	40.0
55.026667	17.2	1000.0	120.000	100.0	V	7.0	-22.5	22.8	40.0
71.993333	20.3	1000.0	120.000	100.0	V	5.0	-24.4	19.7	40.0
120.013333	13.7	1000.0	120.000	100.0	V	45.0	-23.0	29.8	43.5
145.280000	16.8	1000.0	120.000	100.0	V	11.0	-22.1	26.7	43.5
181.764444	16.7	1000.0	120.000	100.0	V	11.0	-20.6	26.8	43.5
300.002222	32.5	1000.0	120.000	103.0	H	324.0	-16.2	13.5	46.0
494.800000	11.8	1000.0	120.000	100.0	V	275.0	-11.9	34.2	46.0
684.968889	14.7	1000.0	120.000	100.0	V	11.0	-7.9	31.3	46.0
929.662222	27.0	1000.0	120.000	100.0	V	276.0	-5.2	19.0	46.0

Test Notes: Only worst case channel presented for spurious emissions below 1GHz.

2.1.13 Test Results Below 1GHz (Low Channel – 802.11 n HT20)

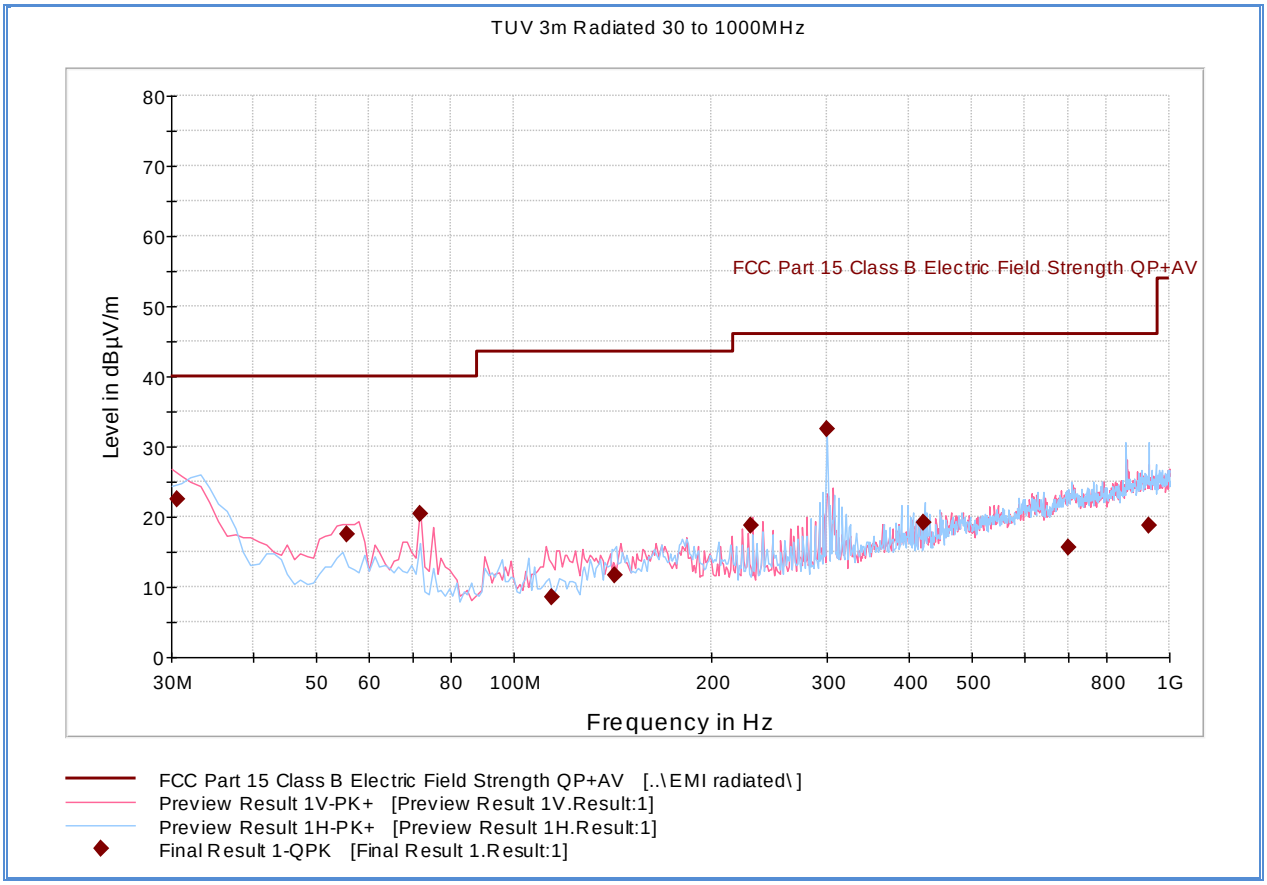


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.640000	22.6	1000.0	120.000	100.0	V	-1.0	-13.0	17.4	40.0
53.906667	16.5	1000.0	120.000	100.0	V	228.0	-22.3	23.5	40.0
71.993333	20.4	1000.0	120.000	100.0	V	45.0	-24.4	19.6	40.0
95.062222	8.6	1000.0	120.000	103.0	H	253.0	-22.0	34.9	43.5
127.117778	13.7	1000.0	120.000	100.0	V	50.0	-23.3	29.8	43.5
175.260000	12.8	1000.0	120.000	100.0	V	51.0	-21.3	30.7	43.5
300.002222	32.7	1000.0	120.000	103.0	H	318.0	-16.2	13.3	46.0
356.326667	14.0	1000.0	120.000	103.0	H	36.0	-14.6	32.0	46.0
649.042222	13.2	1000.0	120.000	103.0	H	45.0	-9.4	32.8	46.0
932.537778	17.1	1000.0	120.000	100.0	V	27.0	-5.3	28.9	46.0

Test Notes: Only worst case channel presented for spurious emissions below 1GHz.

2.1.14 Test Results Below 1GHz (High Channel – 802.11 n HT40)

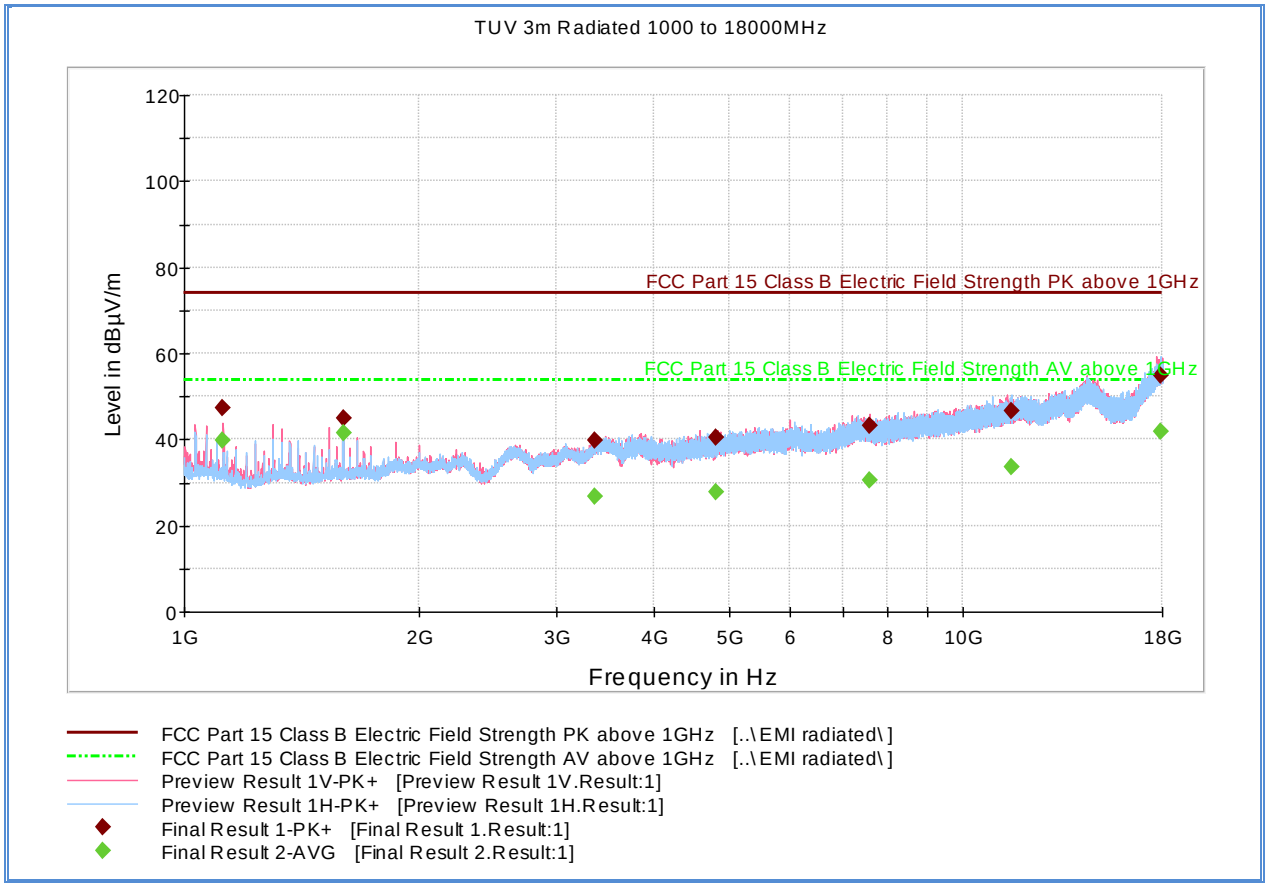


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.640000	22.5	1000.0	120.000	100.0	V	57.0	-13.0	17.5	40.0
55.582222	17.4	1000.0	120.000	100.0	V	149.0	-22.6	22.6	40.0
71.993333	20.4	1000.0	120.000	100.0	V	138.0	-24.4	19.6	40.0
113.991111	8.4	1000.0	120.000	100.0	V	57.0	-22.5	35.1	43.5
142.362222	11.6	1000.0	120.000	100.0	V	11.0	-22.4	31.9	43.5
230.224444	18.7	1000.0	120.000	100.0	V	228.0	-19.0	27.3	46.0
300.002222	32.6	1000.0	120.000	103.0	H	324.0	-16.2	13.4	46.0
421.868889	19.1	1000.0	120.000	103.0	H	225.0	-14.0	26.9	46.0
700.017778	15.5	1000.0	120.000	103.0	H	100.0	-7.6	30.5	46.0
929.622222	18.7	1000.0	120.000	103.0	H	12.0	-5.2	27.3	46.0

Test Notes: Only worst case channel presented for spurious emissions below 1GHz.

2.1.15 Test Results Above 1GHz (Receive Mode)



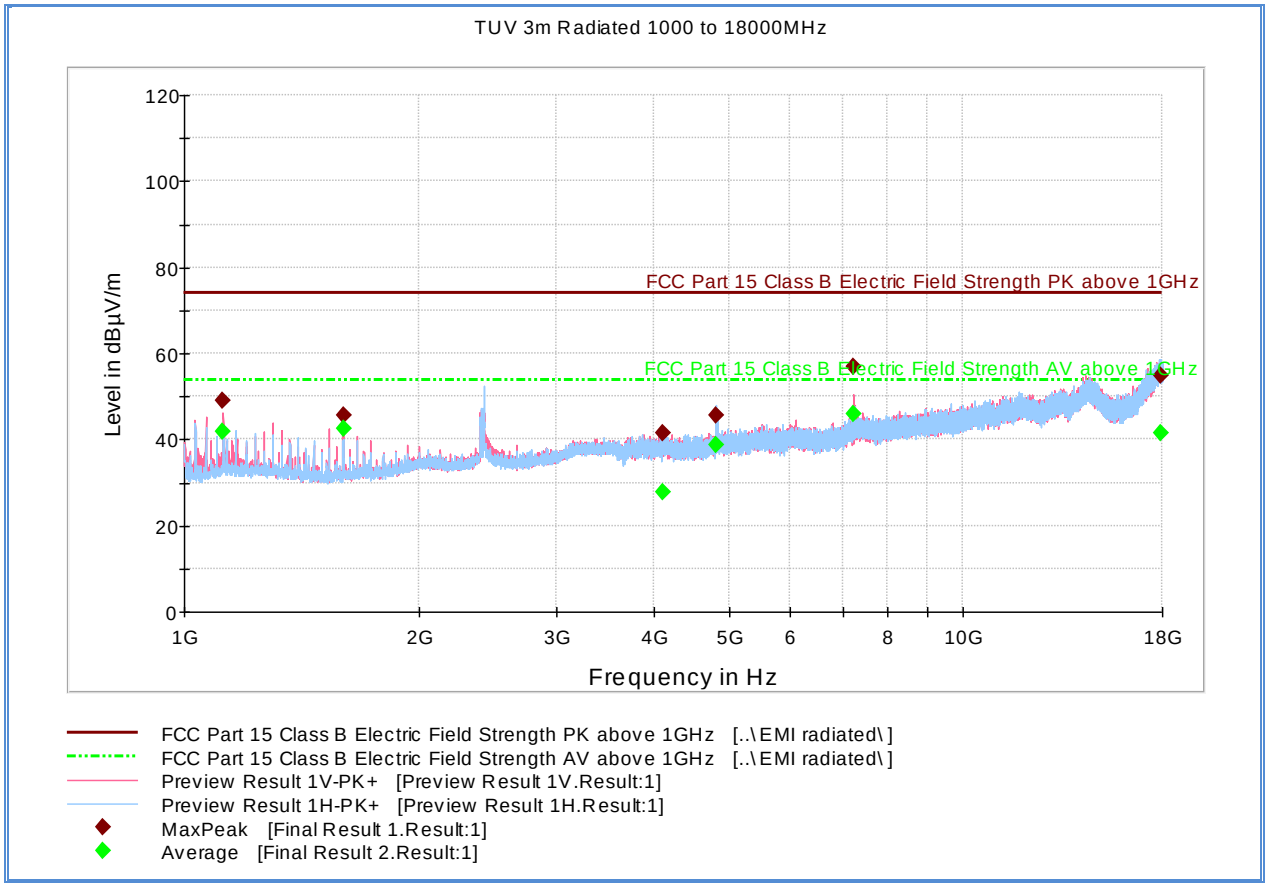
Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1122.540000	47.3	1000.0	1000.000	148.0	V	345.0	-10.2	26.6	73.9
1599.633333	44.8	1000.0	1000.000	104.0	V	245.0	-8.9	29.1	73.9
3373.260000	39.7	1000.0	1000.000	149.0	V	58.0	-1.0	34.2	73.9
4825.753333	40.4	1000.0	1000.000	117.0	V	15.0	1.9	33.5	73.9
7576.353333	43.3	1000.0	1000.000	183.0	V	315.0	7.3	30.6	73.9
11528.85333	46.6	1000.0	1000.000	400.0	H	42.0	12.4	27.3	73.9
17930.48666	55.0	1000.0	1000.000	184.0	H	25.0	21.5	18.9	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1122.540000	39.6	1000.0	1000.000	148.0	V	345.0	-10.2	14.3	53.9
1599.633333	41.6	1000.0	1000.000	104.0	V	245.0	-8.9	12.3	53.9
3373.260000	26.7	1000.0	1000.000	149.0	V	58.0	-1.0	27.2	53.9
4825.753333	27.7	1000.0	1000.000	117.0	V	15.0	1.9	26.2	53.9
7576.353333	30.4	1000.0	1000.000	183.0	V	315.0	7.3	23.5	53.9
11528.85333	33.7	1000.0	1000.000	400.0	H	42.0	12.4	20.2	53.9
17930.48666	41.8	1000.0	1000.000	184.0	H	25.0	21.5	12.1	53.9

2.1.16 Test Results Above 1GHz (Low Channel -802.11 b)



Peak Data

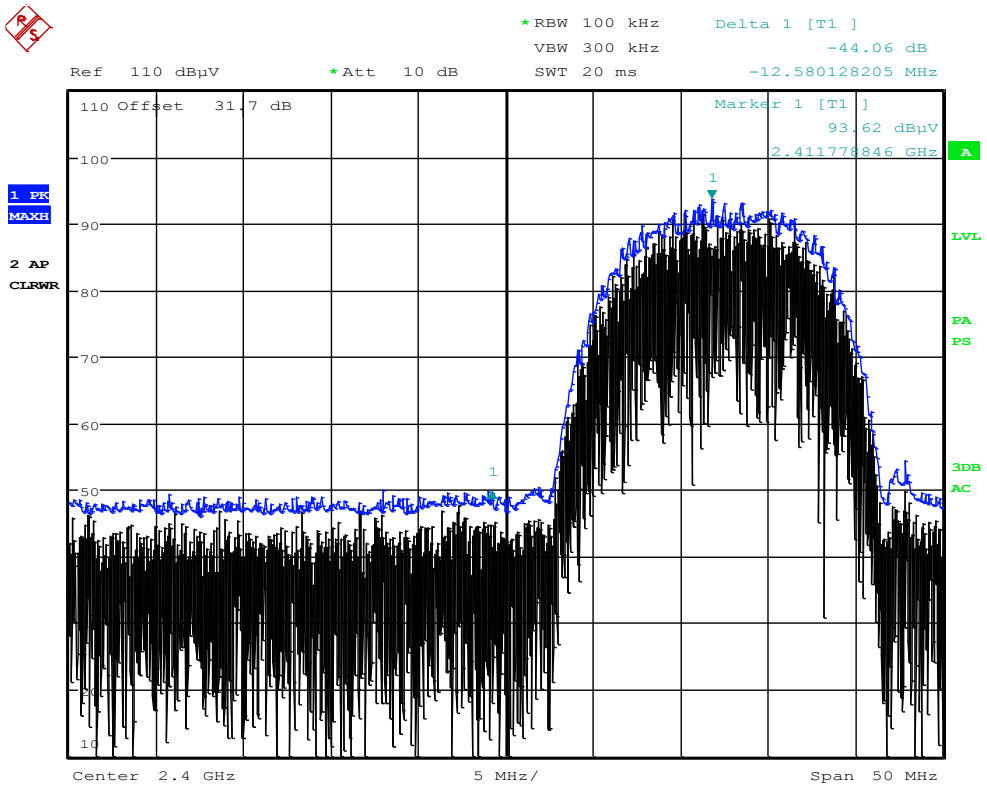
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1122.500000	49.2	1000.0	1000.000	150.0	V	350.0	-10.2	24.7	73.9
1599.666667	45.4	1000.0	1000.000	109.0	V	242.0	-8.9	28.5	73.9
4111.306667	41.4	1000.0	1000.000	346.0	V	4.0	0.8	32.5	73.9
4824.933333	45.4	1000.0	1000.000	137.0	V	4.0	1.9	28.5	73.9
7235.660000	56.9	1000.0	1000.000	137.0	V	4.0	7.0	17.0	73.9
17882.633333	55.0	1000.0	1000.000	400.0	H	111.0	21.3	18.9	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1122.500000	41.9	1000.0	1000.000	150.0	V	350.0	-10.2	12.0	53.9
1599.666667	42.3	1000.0	1000.000	109.0	V	242.0	-8.9	11.6	53.9
4111.306667	27.7	1000.0	1000.000	346.0	V	4.0	0.8	26.2	53.9
4824.933333	38.6	1000.0	1000.000	137.0	V	4.0	1.9	15.3	53.9
7235.660000	45.9	1000.0	1000.000	137.0	V	4.0	7.0	8.0	53.9
17882.633333	41.6	1000.0	1000.000	400.0	H	111.0	21.3	12.3	53.9

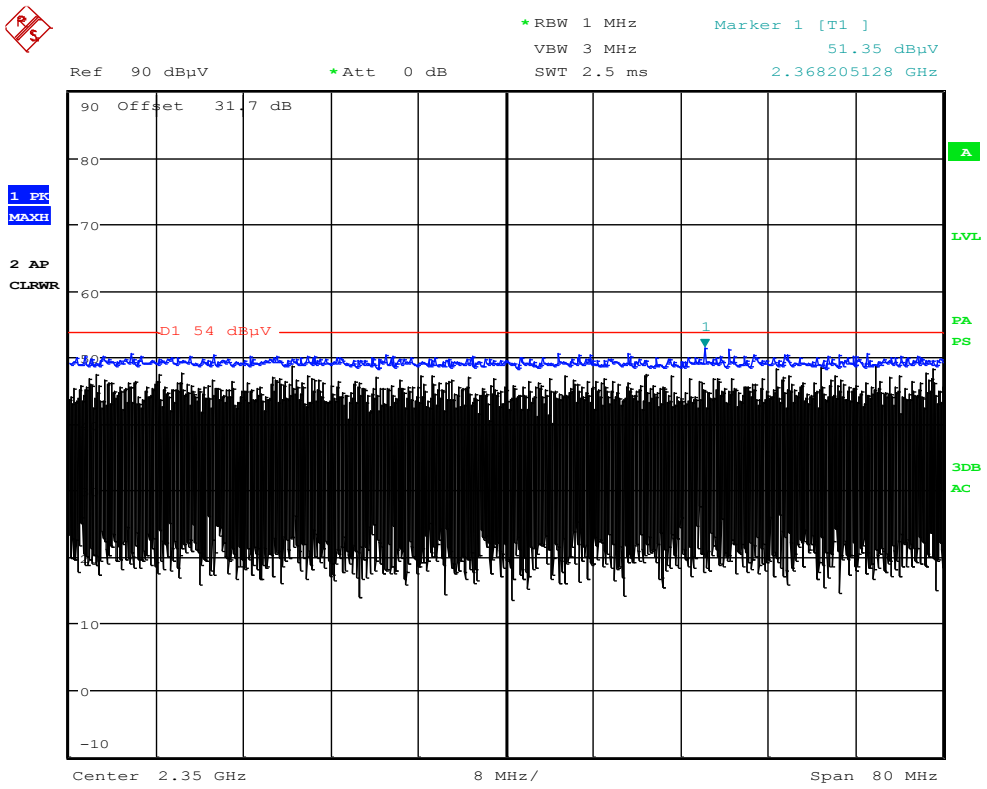
Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.17 Test Results Lower Band Edge 802.11 b (Radiated - Low Channel using 100 kHz RBW)



Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna used. Limit for this test is 20dBc.

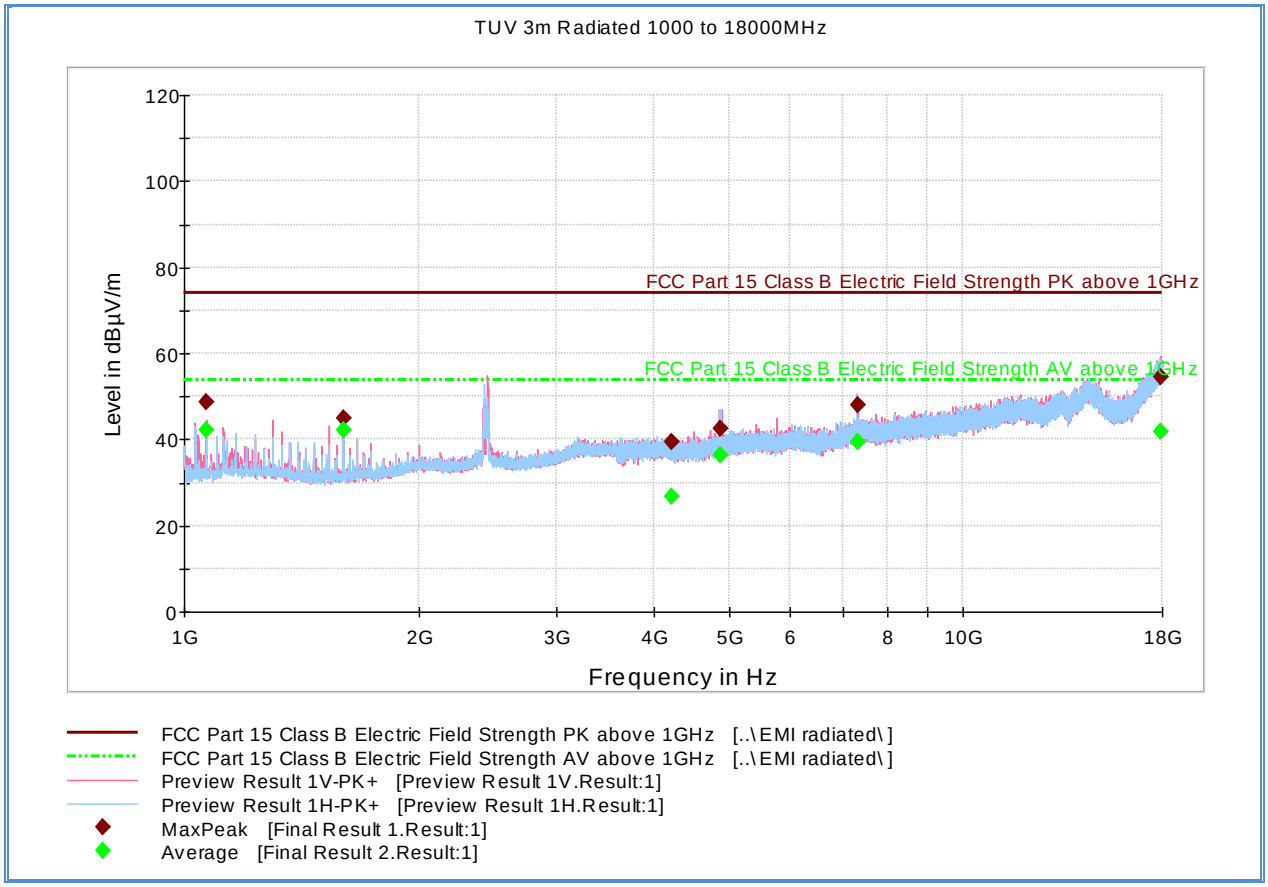
2.1.18 Test Results Restricted Band (2310MHz to 2390MHz) 802.11 b



Date: 19.FEB.2013 11:11:13

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Peak complies with Average limit therefore no Average measurement performed.

2.1.19 Test Results Above 1GHz (Mid Channel -802.11 b)



Peak Data

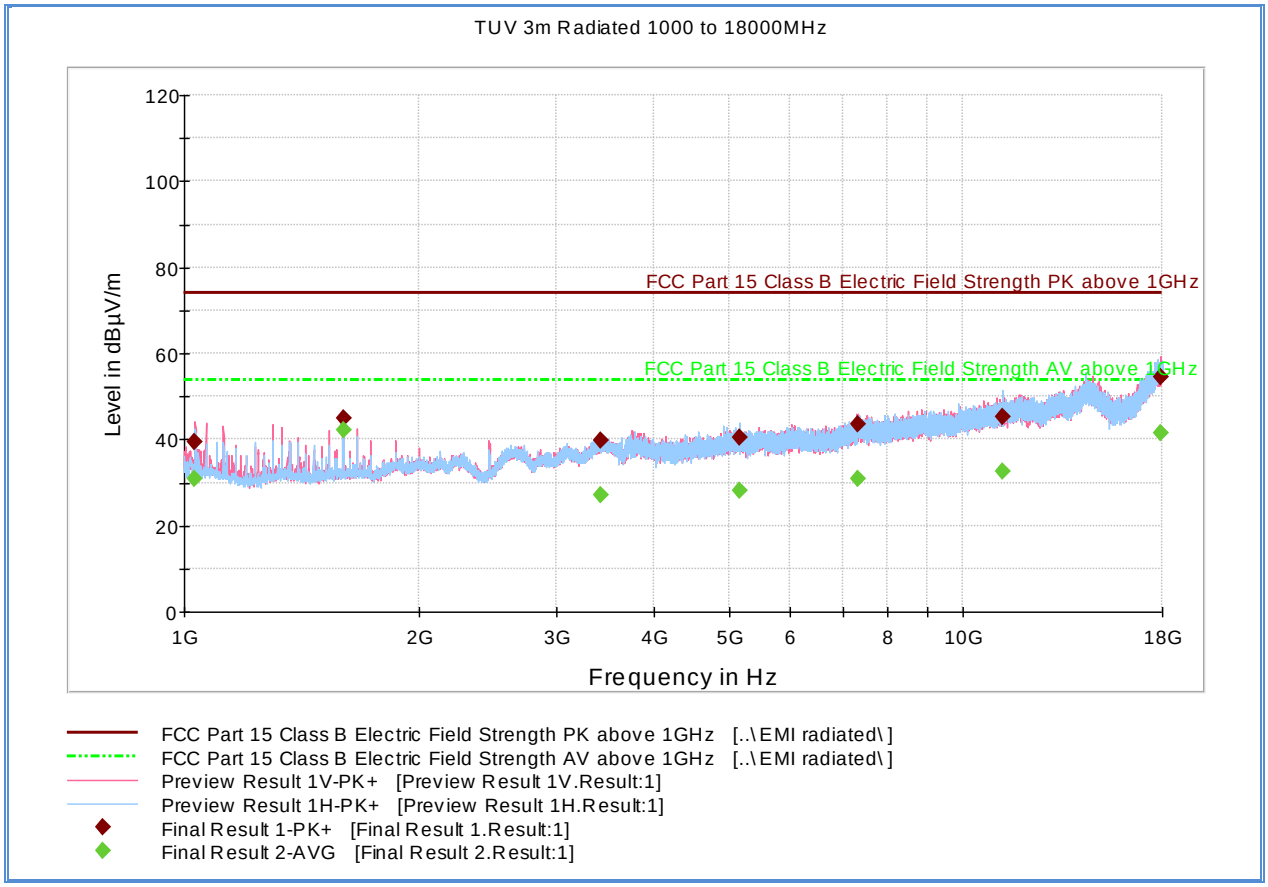
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	48.8	1000.0	1000.000	104.0	V	198.0	-10.7	25.1	73.9
1599.633333	45.1	1000.0	1000.000	109.0	V	242.0	-8.9	28.8	73.9
4230.186667	39.4	1000.0	1000.000	400.0	H	171.0	0.7	34.5	73.9
4872.706667	42.4	1000.0	1000.000	196.0	V	11.0	1.9	31.5	73.9
7312.033333	48.1	1000.0	1000.000	195.0	V	11.0	7.5	25.8	73.9
17916.606667	54.7	1000.0	1000.000	162.0	V	56.0	21.4	19.2	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	42.2	1000.0	1000.000	104.0	V	198.0	-10.7	11.7	53.9
1599.633333	42.1	1000.0	1000.000	109.0	V	242.0	-8.9	11.8	53.9
4230.186667	26.8	1000.0	1000.000	400.0	H	171.0	0.7	27.1	53.9
4872.706667	36.4	1000.0	1000.000	196.0	V	11.0	1.9	17.5	53.9
7312.033333	39.4	1000.0	1000.000	195.0	V	11.0	7.5	14.5	53.9
17916.606667	41.8	1000.0	1000.000	162.0	V	56.0	21.4	12.1	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.20 Test Results Above 1GHz (High Channel -802.11 b)



Peak Data

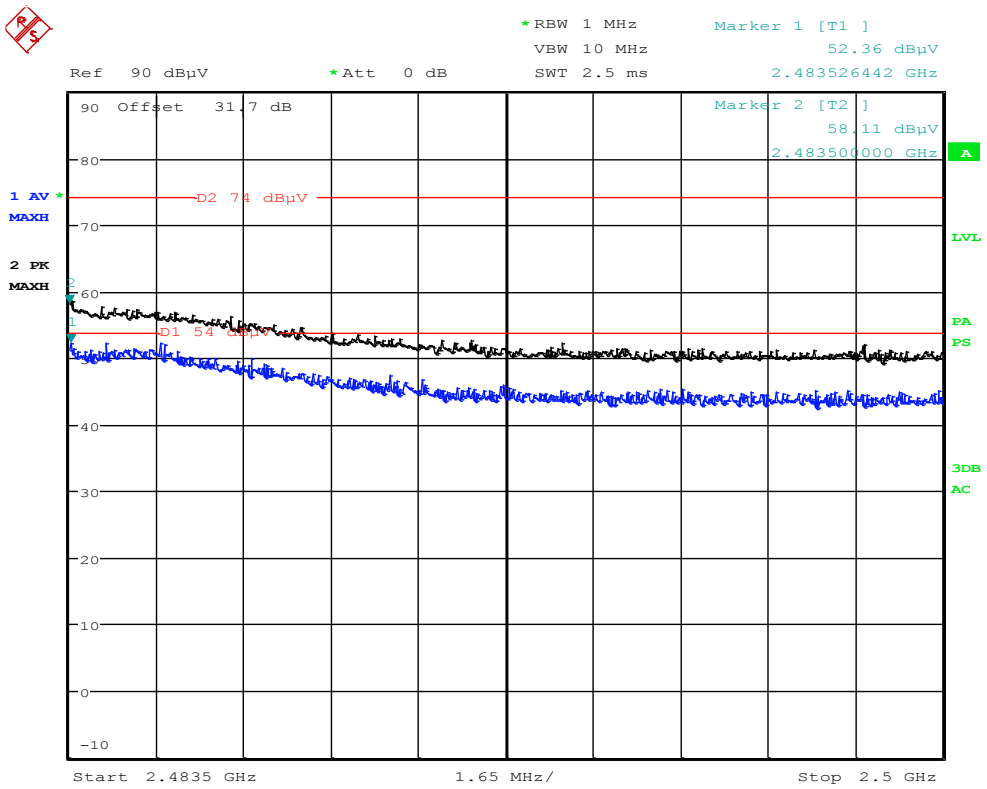
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1033.086667	39.3	1000.0	1000.000	241.0	V	224.0	-11.0	34.6	73.9
1599.633333	45.1	1000.0	1000.000	109.0	V	242.0	-8.9	28.8	73.9
3426.733333	39.7	1000.0	1000.000	100.0	H	167.0	-0.8	34.2	73.9
5160.360000	40.6	1000.0	1000.000	127.0	H	32.0	3.2	33.3	73.9
7332.440000	43.7	1000.0	1000.000	100.0	V	109.0	7.6	30.2	73.9
11231.273333	45.4	1000.0	1000.000	100.0	H	296.0	12.0	28.5	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1033.086667	30.9	1000.0	1000.000	241.0	V	224.0	-11.0	23.0	53.9
1599.633333	42.1	1000.0	1000.000	109.0	V	242.0	-8.9	11.8	53.9
3426.733333	27.0	1000.0	1000.000	100.0	H	167.0	-0.8	26.9	53.9
5160.360000	28.2	1000.0	1000.000	127.0	H	32.0	3.2	25.7	53.9
7332.440000	30.9	1000.0	1000.000	100.0	V	109.0	7.6	23.0	53.9
11231.273333	32.5	1000.0	1000.000	100.0	H	296.0	12.0	21.4	53.9

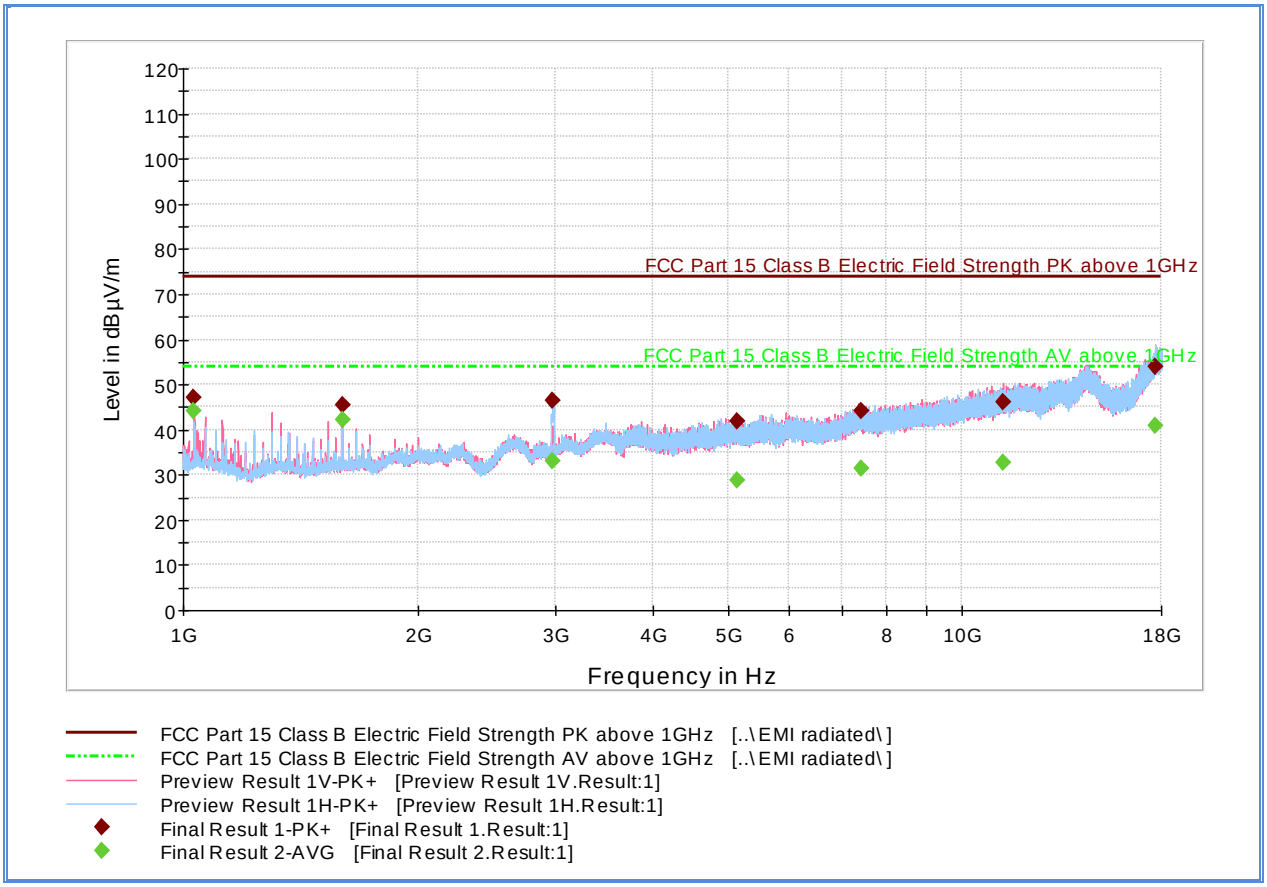
Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.21 Test Results Restricted Band (2483.5MHz to 2500MHz) 802.11 b



Test Notes: Carrier frequency (High Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Marker 2 is peak measurement while Marker 1 is average measurement.

2.1.22 Test Results Above 1GHz (Low Channel -802.11 g)



Peak Data

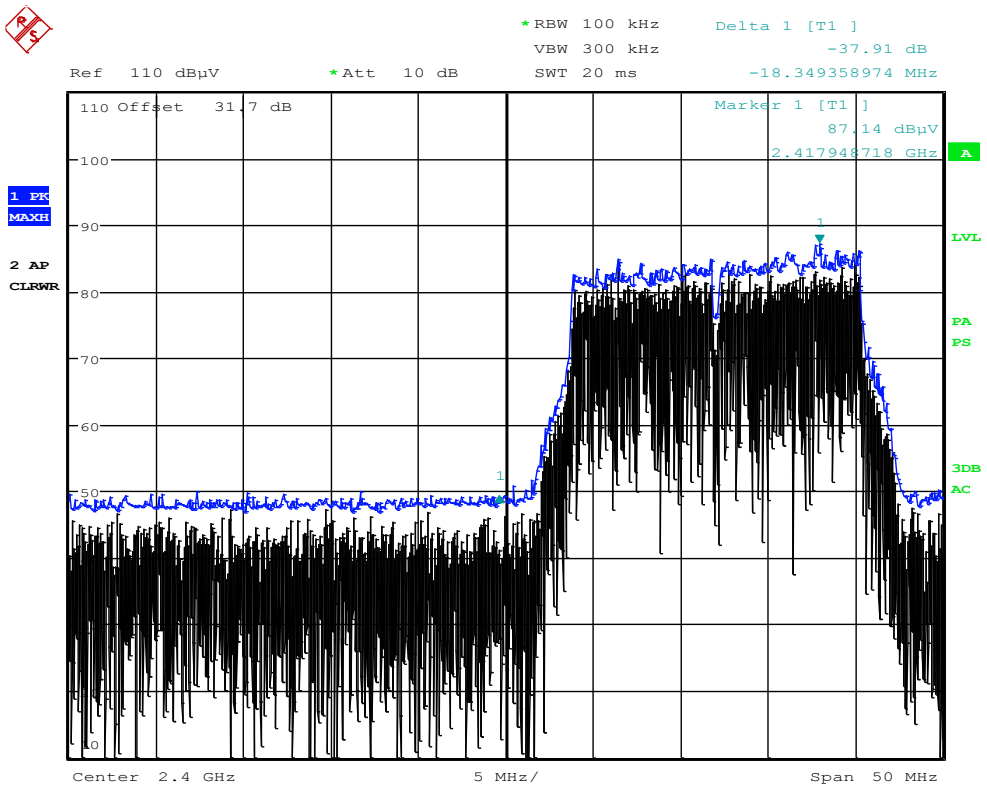
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1033.126667	47.1	1000.0	1000.000	162.0	V	339.0	-11.0	26.8	73.9
1599.633333	45.4	1000.0	1000.000	109.0	V	242.0	-8.9	28.5	73.9
2983.320000	46.4	1000.0	1000.000	150.0	H	357.0	-2.6	27.5	73.9
5150.246667	42.0	1000.0	1000.000	138.0	H	271.0	3.1	31.9	73.9
7405.740000	44.1	1000.0	1000.000	117.0	H	45.0	7.6	29.8	73.9
11280.686667	46.1	1000.0	1000.000	126.0	V	192.0	12.2	27.8	73.9
17721.753333	54.1	1000.0	1000.000	208.0	H	65.0	20.8	19.8	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1033.126667	44.2	1000.0	1000.000	162.0	V	339.0	-11.0	9.7	53.9
1599.633333	42.2	1000.0	1000.000	109.0	V	242.0	-8.9	11.7	53.9
2983.320000	33.0	1000.0	1000.000	150.0	H	357.0	-2.6	20.9	53.9
5150.246667	28.7	1000.0	1000.000	138.0	H	271.0	3.1	25.2	53.9
7405.740000	31.2	1000.0	1000.000	117.0	H	45.0	7.6	22.7	53.9
11280.686667	32.7	1000.0	1000.000	126.0	V	192.0	12.2	21.2	53.9
17721.753333	40.7	1000.0	1000.000	208.0	H	65.0	20.8	13.2	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

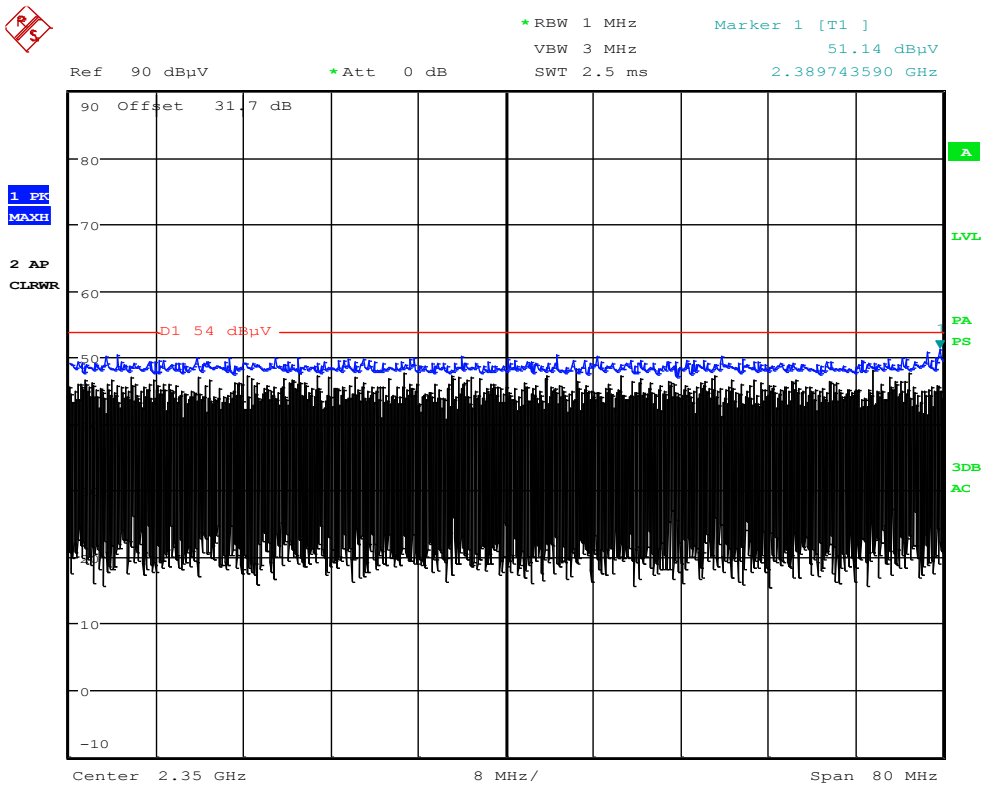
2.1.23 Test Results Lower Band Edge 802.11 g (Radiated - Low Channel using 100 kHz RBW)



Date: 19.FEB.2013 10:46:28

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna used. Limit for this test is 20dBc.

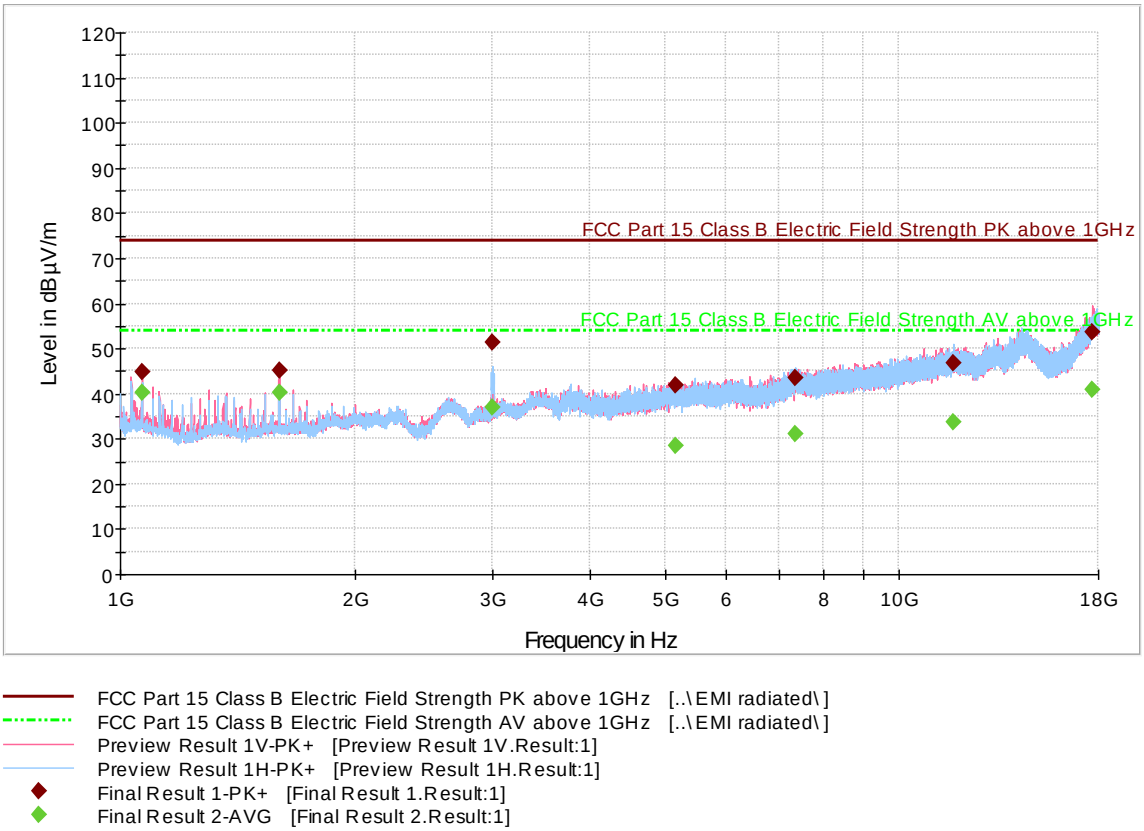
2.1.24 Test Results Restricted Band (2310MHz to 2390MHz) 802.11 g



Date: 19.FEB.2013 11:11:57

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Peak complies with Average limit therefore no Average measurement performed.

2.1.25 Test Results Above 1GHz (Mid Channel -802.11 g)



Peak Data

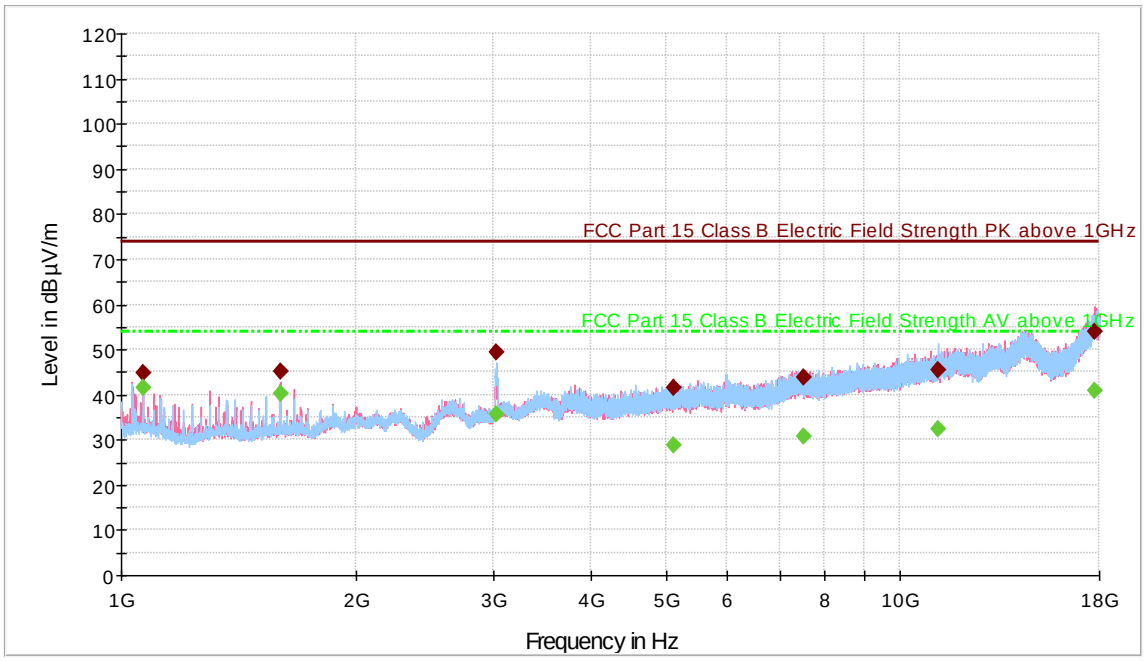
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.480000	44.8	1000.0	1000.000	161.0	V	136.0	-10.7	29.1	73.9
1599.633333	45.0	1000.0	1000.000	104.0	V	0.0	-8.9	28.9	73.9
3003.753333	51.2	1000.0	1000.000	138.0	H	22.0	-2.5	22.7	73.9
5167.246667	41.7	1000.0	1000.000	287.0	V	309.0	3.2	32.2	73.9
7352.386667	43.6	1000.0	1000.000	100.0	H	290.0	7.6	30.3	73.9
11742.593333	46.7	1000.0	1000.000	184.0	H	306.0	12.6	27.2	73.9
17672.486667	53.6	1000.0	1000.000	296.0	V	35.0	20.5	20.3	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.480000	40.1	1000.0	1000.000	161.0	V	136.0	-10.7	13.8	53.9
1599.633333	40.3	1000.0	1000.000	104.0	V	0.0	-8.9	13.6	53.9
3003.753333	37.0	1000.0	1000.000	138.0	H	22.0	-2.5	16.9	53.9
5167.246667	28.6	1000.0	1000.000	287.0	V	309.0	3.2	25.3	53.9
7352.386667	31.1	1000.0	1000.000	100.0	H	290.0	7.6	22.8	53.9
11742.593333	33.8	1000.0	1000.000	184.0	H	306.0	12.6	20.1	53.9
17672.486667	40.7	1000.0	1000.000	296.0	V	35.0	20.5	13.2	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.26 Test Results Above 1GHz (High Channel -802.11 g)



FCC Part 15 Class B Electric Field Strength PK above 1GHz [..\EMI radiated\]
FCC Part 15 Class B Electric Field Strength AV above 1GHz [..\EMI radiated\]
Preview Result 1V-PK+ [Preview Result 1V.Result:1]
Preview Result 1H-PK+ [Preview Result 1H.Result:1]
Final Result 1-PK+ [Final Result 1.Result:1]
Final Result 2-AVG [Final Result 2.Result:1]

Peak Data

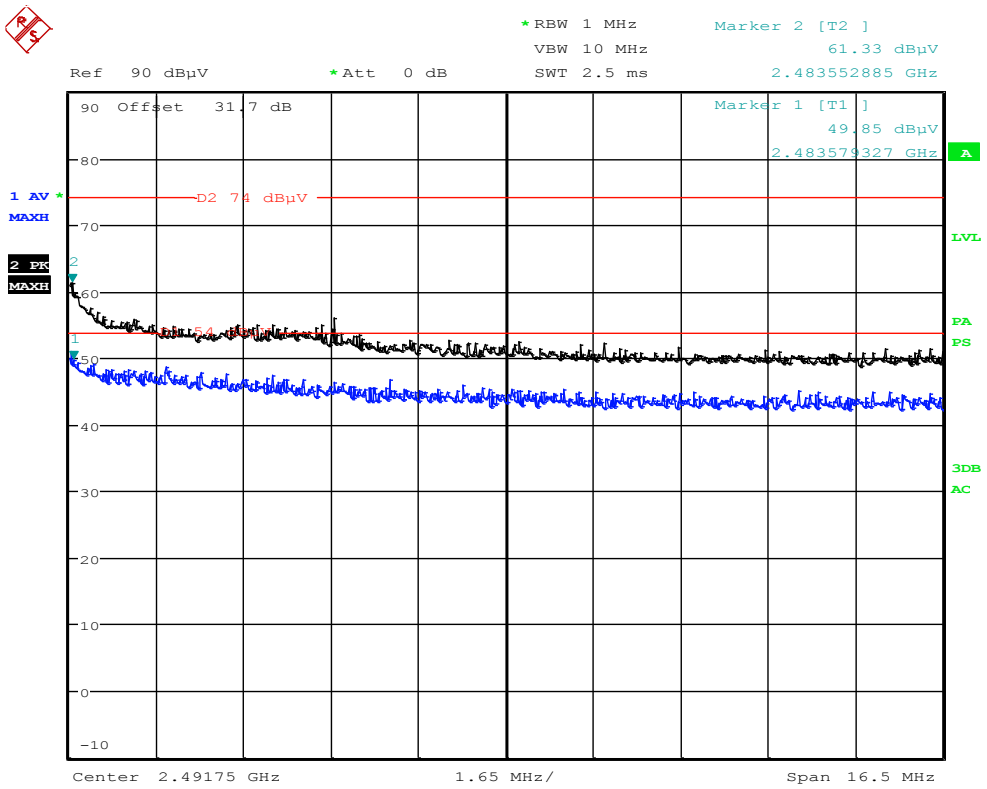
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	44.8	1000.0	1000.000	100.0	V	352.0	-10.7	29.1	73.9
1599.593333	45.3	1000.0	1000.000	100.0	V	11.0	-8.9	28.6	73.9
3030.546667	49.4	1000.0	1000.000	149.0	H	64.0	-2.3	24.5	73.9
5111.473333	41.4	1000.0	1000.000	368.0	V	15.0	2.9	32.5	73.9
7520.973333	43.9	1000.0	1000.000	116.0	H	348.0	7.4	30.0	73.9
11194.686667	45.5	1000.0	1000.000	205.0	H	353.0	11.9	28.4	73.9
17784.880000	53.9	1000.0	1000.000	276.0	V	236.0	21.0	20.0	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	41.4	1000.0	1000.000	100.0	V	352.0	-10.7	12.5	53.9
1599.593333	40.2	1000.0	1000.000	100.0	V	11.0	-8.9	13.7	53.9
3030.546667	35.8	1000.0	1000.000	149.0	H	64.0	-2.3	18.1	53.9
5111.473333	28.7	1000.0	1000.000	368.0	V	15.0	2.9	25.2	53.9
7520.973333	30.7	1000.0	1000.000	116.0	H	348.0	7.4	23.2	53.9
11194.686667	32.5	1000.0	1000.000	205.0	H	353.0	11.9	21.4	53.9
17784.880000	40.8	1000.0	1000.000	276.0	V	236.0	21.0	13.1	53.9

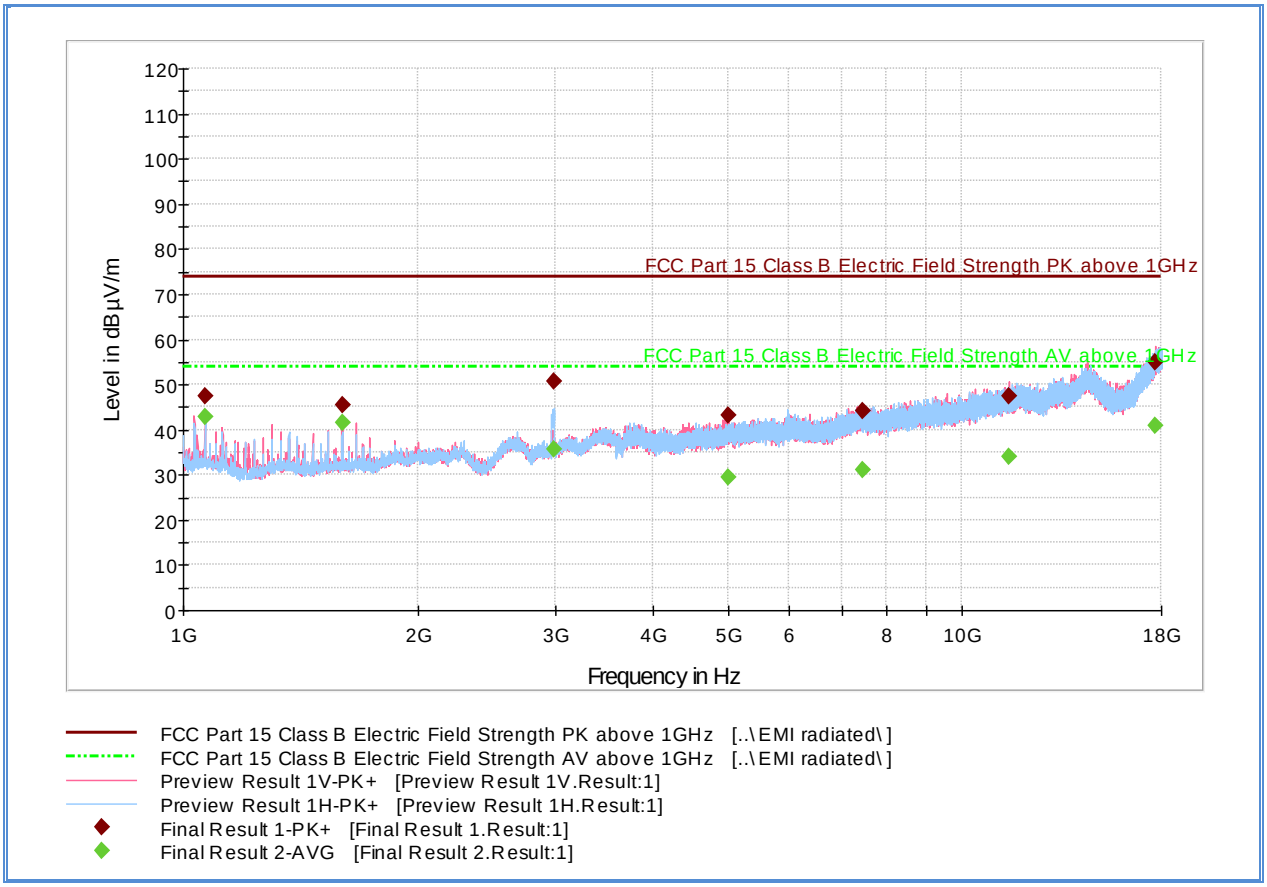
Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.27 Test Results Restricted Band (2483.5MHz to 2500MHz) 802.11 g



Test Notes: Carrier frequency (High Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Marker 2 is peak measurement while Marker 1 is average measurement.

2.1.28 Test Results Above 1GHz (Low Channel -802.11 n HT20)



Peak Data

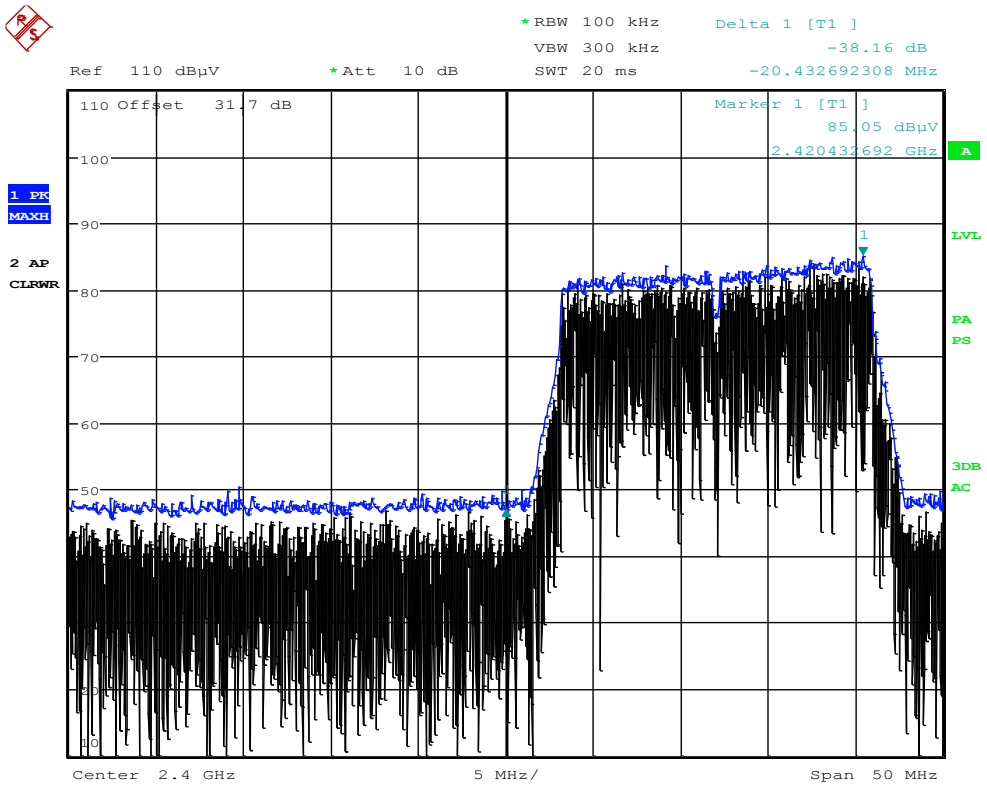
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.433333	47.3	1000.0	1000.000	149.0	V	136.0	-10.7	26.6	73.9
1599.593333	45.5	1000.0	1000.000	100.0	V	16.0	-8.9	28.4	73.9
2987.486667	50.8	1000.0	1000.000	138.0	H	4.0	-2.6	23.1	73.9
5007.973333	43.0	1000.0	1000.000	217.0	V	258.0	2.4	30.9	73.9
7460.146667	44.1	1000.0	1000.000	109.0	H	262.0	7.4	29.8	73.9
11470.560000	47.5	1000.0	1000.000	251.0	V	138.0	12.4	26.4	73.9
17706.400000	54.8	1000.0	1000.000	390.0	V	332.0	20.7	19.1	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.433333	42.9	1000.0	1000.000	149.0	V	136.0	-10.7	11.0	53.9
1599.593333	41.4	1000.0	1000.000	100.0	V	16.0	-8.9	12.5	53.9
2987.486667	35.6	1000.0	1000.000	138.0	H	4.0	-2.6	18.3	53.9
5007.973333	29.5	1000.0	1000.000	217.0	V	258.0	2.4	24.4	53.9
7460.146667	31.0	1000.0	1000.000	109.0	H	262.0	7.4	22.9	53.9
11470.560000	33.9	1000.0	1000.000	251.0	V	138.0	12.4	20.0	53.9
17706.400000	40.7	1000.0	1000.000	390.0	V	332.0	20.7	13.2	53.9

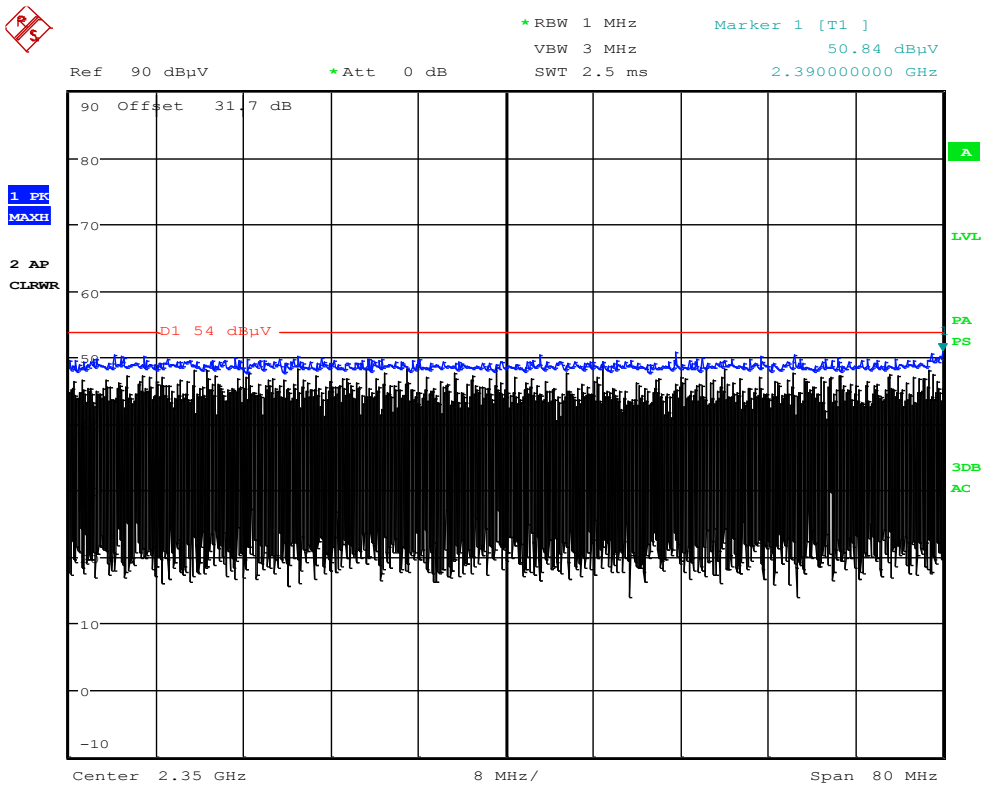
Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.29 Test Results Lower Band Edge 802.11 n HT20 (Radiated - Low Channel using 100 kHz RBW)



Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna used. Limit for this test is 20dBc.

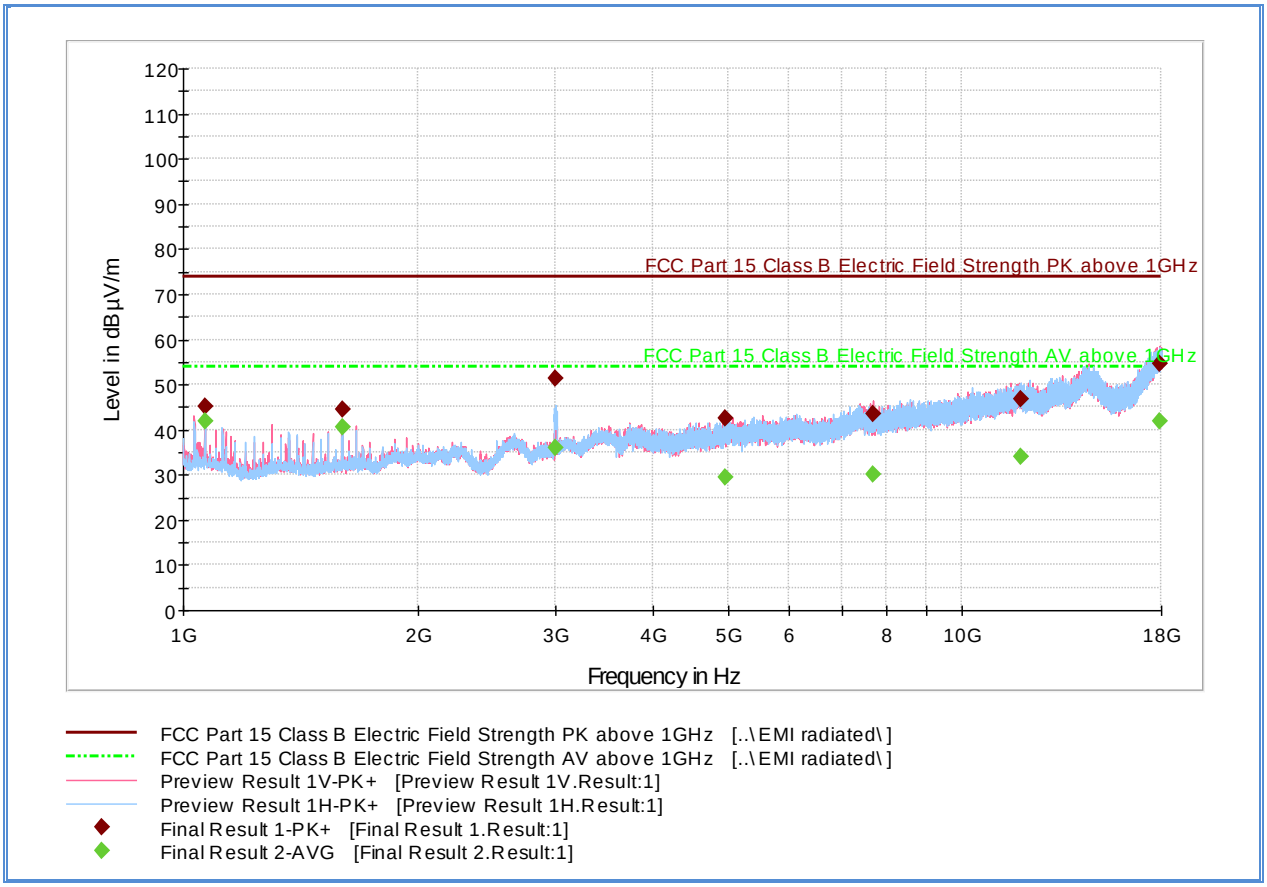
2.1.30 Test Results Restricted Band (2310MHz to 2390MHz) 802.11 n HT20



Date: 19.FEB.2013 11:14:51

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Peak complies with Average limit therefore no Average measurement performed.

2.1.31 Test Results Above 1GHz (Mid Channel -802.11 n HT20)



Peak Data

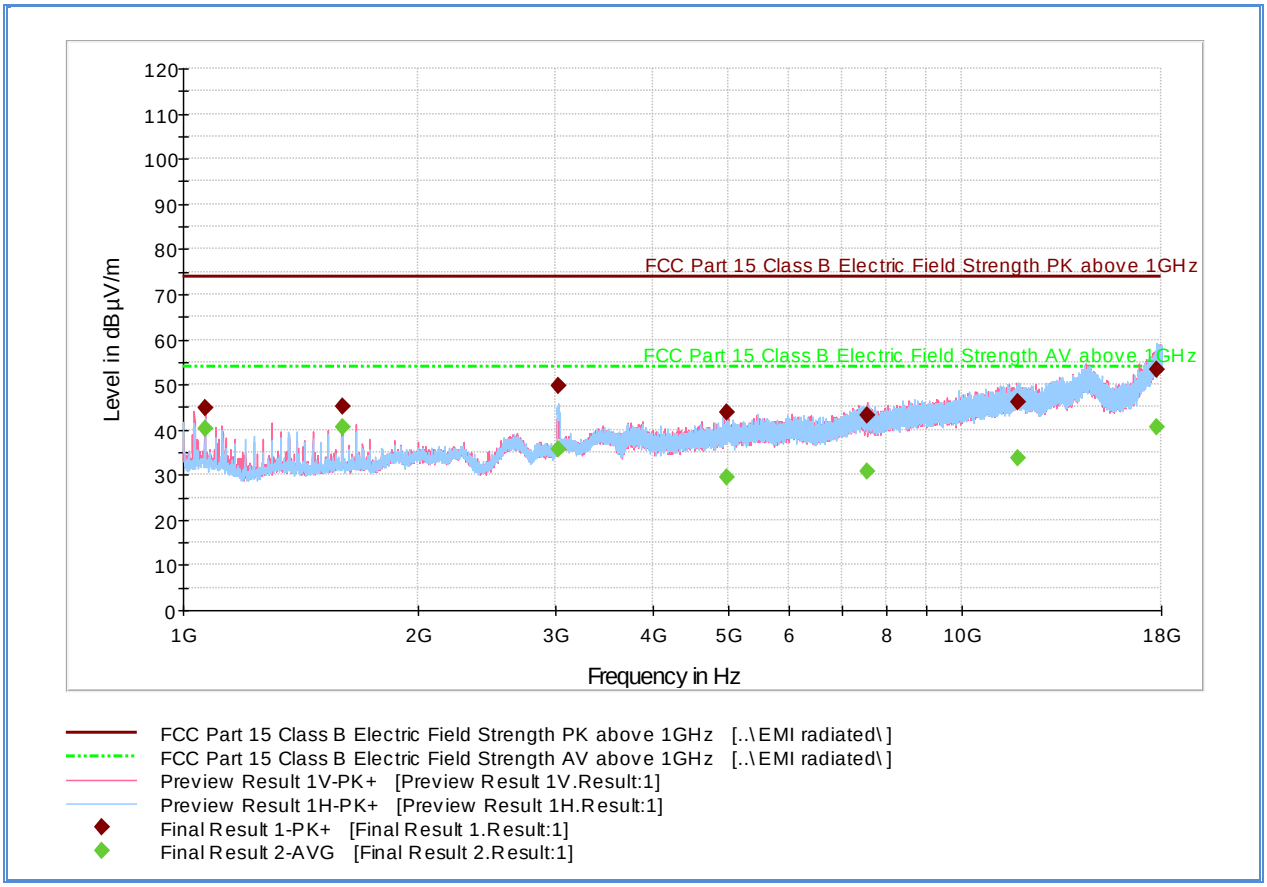
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	45.0	1000.0	1000.000	100.0	V	352.0	-10.7	28.9	73.9
1599.633333	44.4	1000.0	1000.000	100.0	V	20.0	-8.9	29.5	73.9
3006.666667	51.4	1000.0	1000.000	161.0	H	22.0	-2.4	22.5	73.9
4969.226667	42.5	1000.0	1000.000	356.0	H	29.0	2.1	31.4	73.9
7685.960000	43.3	1000.0	1000.000	274.0	V	277.0	7.2	30.6	73.9
11885.680000	46.8	1000.0	1000.000	379.0	H	242.0	12.7	27.1	73.9
17898.380000	54.7	1000.0	1000.000	400.0	V	286.0	21.3	19.2	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	41.8	1000.0	1000.000	100.0	V	352.0	-10.7	12.1	53.9
1599.633333	40.7	1000.0	1000.000	100.0	V	20.0	-8.9	13.2	53.9
3006.666667	36.0	1000.0	1000.000	161.0	H	22.0	-2.4	17.9	53.9
4969.226667	29.3	1000.0	1000.000	356.0	H	29.0	2.1	24.6	53.9
7685.960000	30.2	1000.0	1000.000	274.0	V	277.0	7.2	23.7	53.9
11885.680000	34.1	1000.0	1000.000	379.0	H	242.0	12.7	19.8	53.9
17898.380000	41.8	1000.0	1000.000	400.0	V	286.0	21.3	12.1	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.32 Test Results Above 1GHz (High Channel -802.11 n HT20)



Peak Data

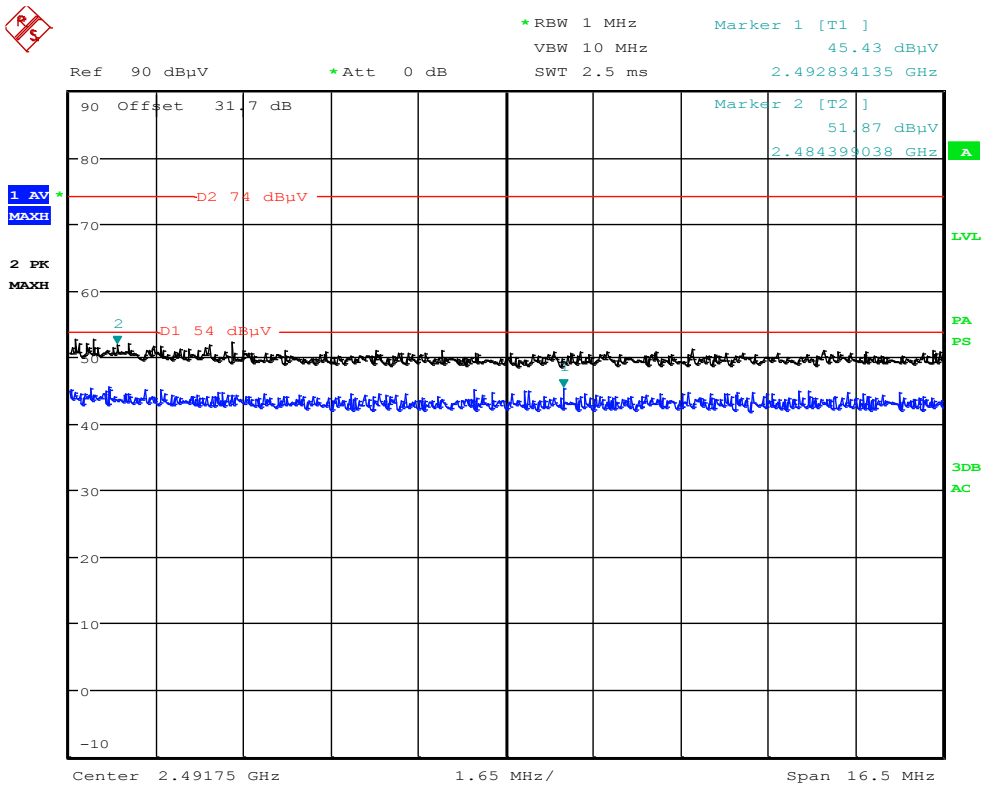
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.400000	44.9	1000.0	1000.000	100.0	V	16.0	-10.7	29.0	73.9
1599.673333	45.1	1000.0	1000.000	100.0	V	10.0	-8.9	28.8	73.9
3026.940000	49.7	1000.0	1000.000	149.0	H	64.0	-2.3	24.2	73.9
4988.626667	43.9	1000.0	1000.000	159.0	H	37.0	2.3	30.0	73.9
7560.640000	43.0	1000.0	1000.000	217.0	V	246.0	7.4	30.9	73.9
11808.253333	46.3	1000.0	1000.000	400.0	H	135.0	12.8	27.6	73.9
17736.146667	53.2	1000.0	1000.000	360.0	H	13.0	20.8	20.7	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.400000	40.1	1000.0	1000.000	100.0	V	16.0	-10.7	13.8	53.9
1599.673333	40.5	1000.0	1000.000	100.0	V	10.0	-8.9	13.4	53.9
3026.940000	35.7	1000.0	1000.000	149.0	H	64.0	-2.3	18.2	53.9
4988.626667	29.5	1000.0	1000.000	159.0	H	37.0	2.3	24.4	53.9
7560.640000	30.6	1000.0	1000.000	217.0	V	246.0	7.4	23.3	53.9
11808.253333	33.7	1000.0	1000.000	400.0	H	135.0	12.8	20.2	53.9
17736.146667	40.7	1000.0	1000.000	360.0	H	13.0	20.8	13.2	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

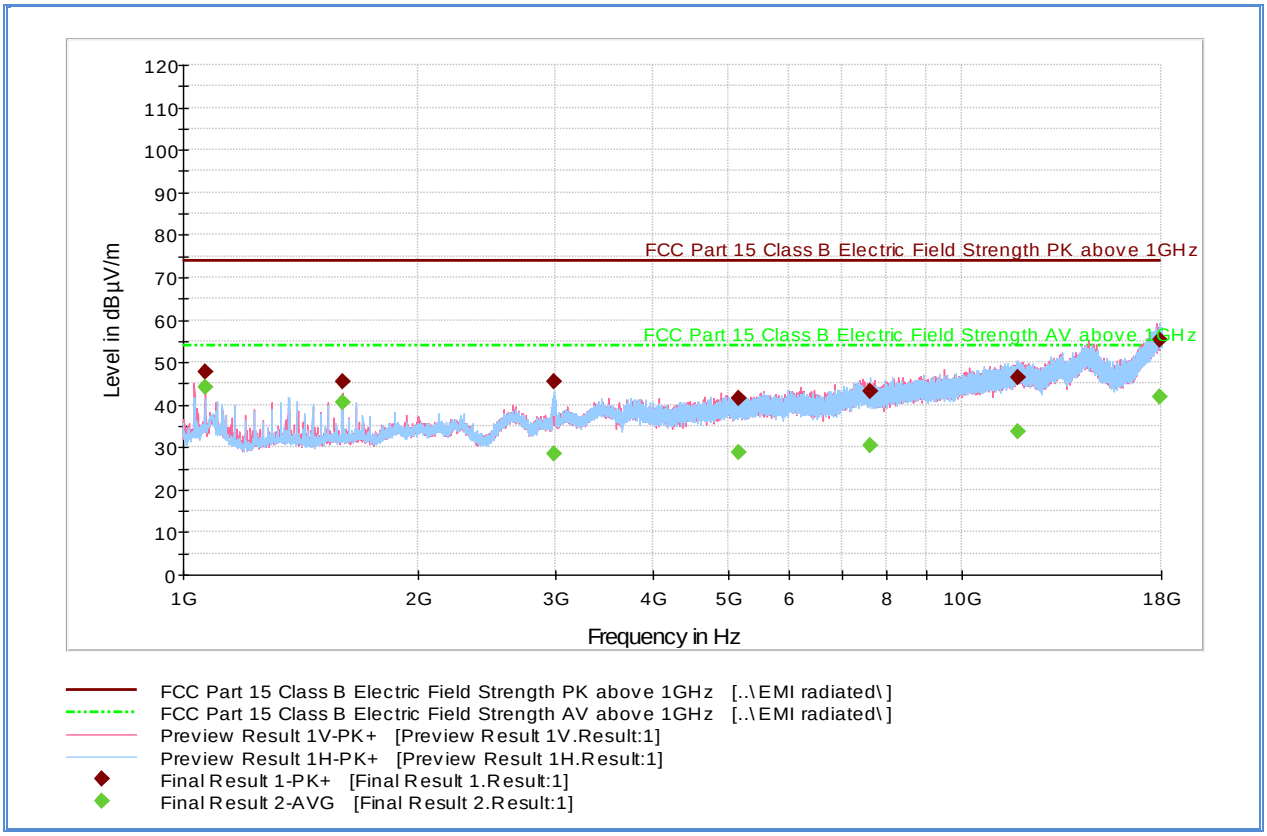
2.1.33 Test Results Restricted Band (2483.5MHz to 2500MHz) 802.11 n HT20



Date: 19.FEB.2013 11:33:21

Test Notes: Carrier frequency (High Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Marker 2 is peak measurement while Marker 1 is average measurement.

2.1.34 Test Results Above 1GHz (Low Channel -802.11 n HT40)



Peak Data

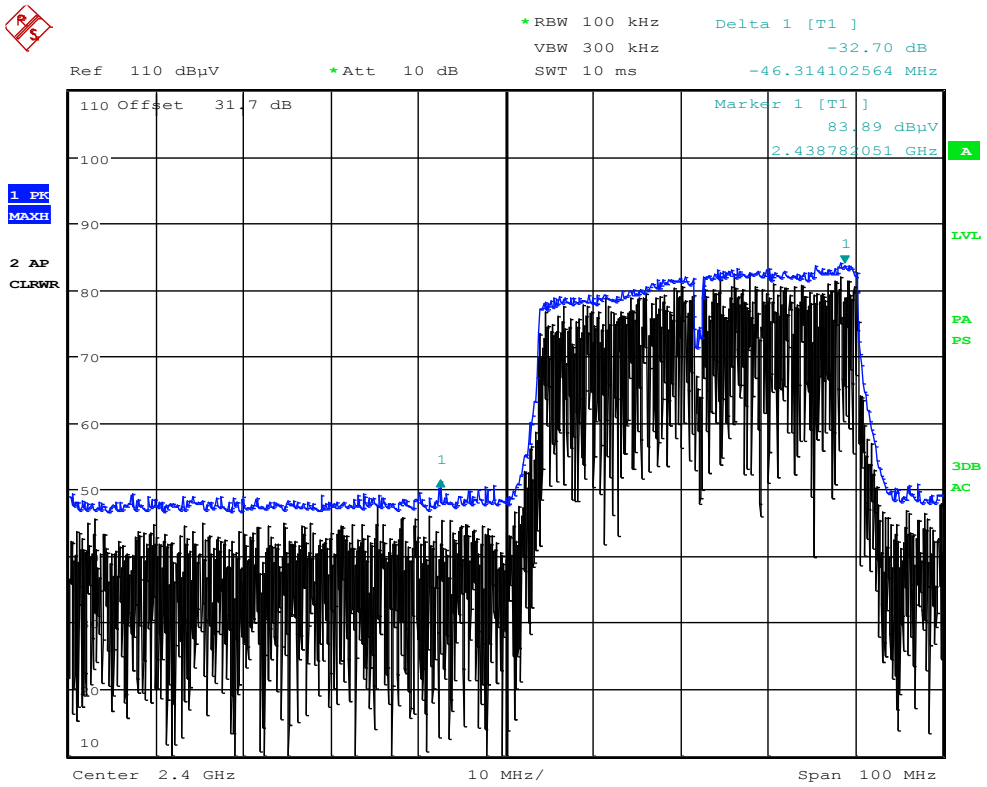
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	47.9	1000.0	1000.000	100.0	V	224.0	-10.7	26.0	73.9
1599.673333	45.5	1000.0	1000.000	104.0	V	349.0	-8.9	28.4	73.9
2992.013333	45.3	1000.0	1000.000	149.0	H	352.0	-2.5	28.6	73.9
5159.846667	41.4	1000.0	1000.000	400.0	H	322.0	3.2	32.5	73.9
7610.680000	43.1	1000.0	1000.000	400.0	H	256.0	7.3	30.8	73.9
11774.213333	46.5	1000.0	1000.000	138.0	H	290.0	12.7	27.4	73.9
17933.966667	55.1	1000.0	1000.000	254.0	H	236.0	21.5	18.8	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	44.0	1000.0	1000.000	100.0	V	224.0	-10.7	9.9	53.9
1599.673333	40.7	1000.0	1000.000	104.0	V	349.0	-8.9	13.2	53.9
2992.013333	28.3	1000.0	1000.000	149.0	H	352.0	-2.5	25.6	53.9
5159.846667	28.9	1000.0	1000.000	400.0	H	322.0	3.2	25.0	53.9
7610.680000	30.3	1000.0	1000.000	400.0	H	256.0	7.3	23.6	53.9
11774.213333	33.8	1000.0	1000.000	138.0	H	290.0	12.7	20.1	53.9
17933.966667	42.0	1000.0	1000.000	254.0	H	236.0	21.5	11.9	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

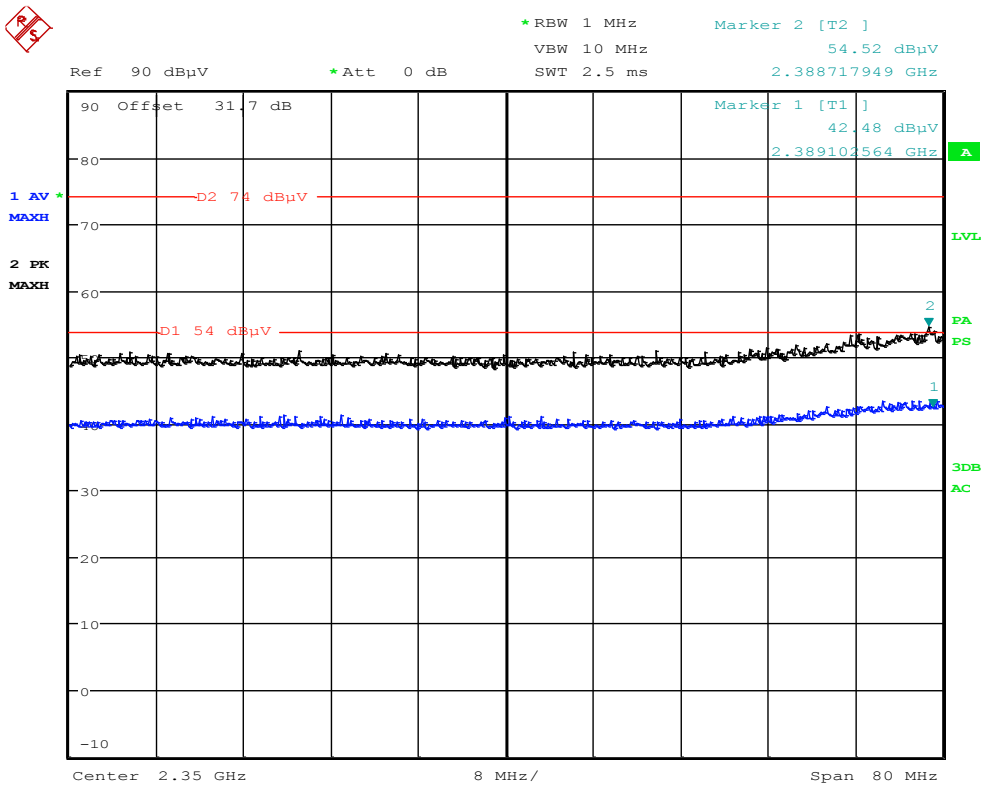
2.1.35 Test Results Lower Band Edge 802.11 n HT40 (Radiated - Low Channel using 100 kHz RBW)



Date: 19.FEB.2013 10:50:37

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna used. Limit for this test is 20dBc.

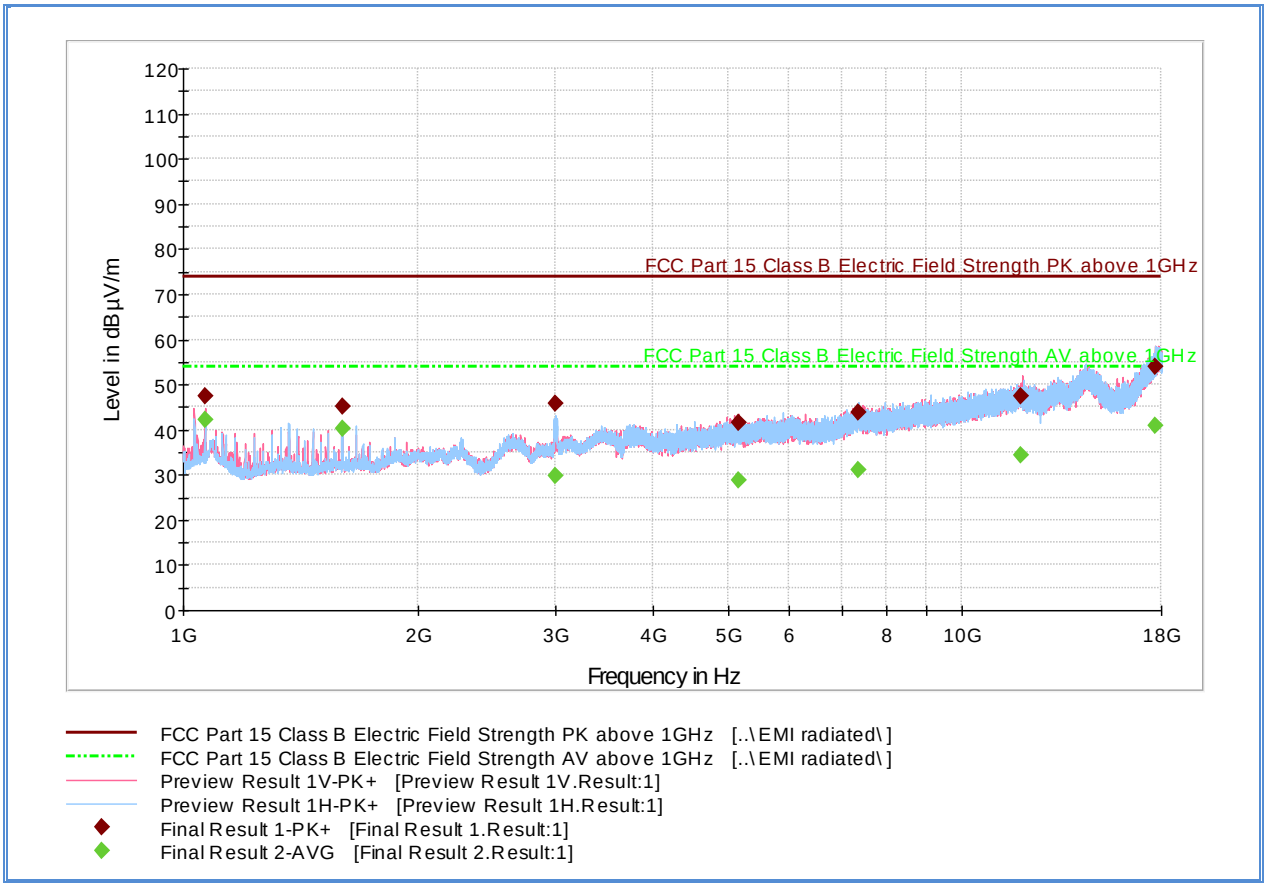
2.1.36 Test Results Restricted Band (2310MHz to 2390MHz) 802.11 n HT40



Date: 19.FEB.2013 11:18:25

Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Marker 2 is peak measurement while Marker 1 is average measurement.

2.1.37 Test Results Above 1GHz (Mid Channel -802.11 n HT40)



Peak Data

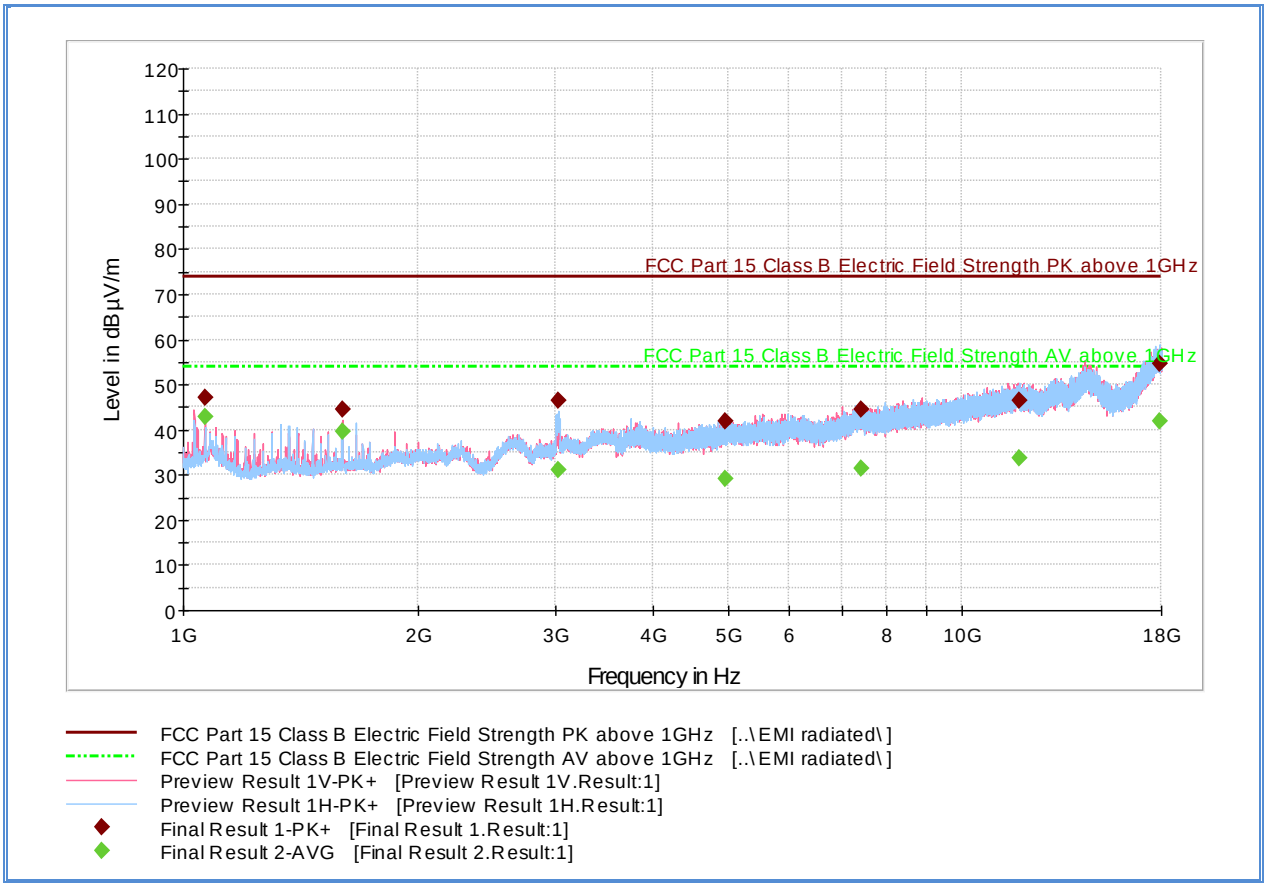
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.400000	47.4	1000.0	1000.000	104.0	V	220.0	-10.7	26.5	73.9
1599.633333	45.0	1000.0	1000.000	104.0	V	350.0	-8.9	28.9	73.9
3008.166667	45.8	1000.0	1000.000	149.0	H	21.0	-2.4	28.1	73.9
5155.193333	41.6	1000.0	1000.000	243.0	V	103.0	3.2	32.3	73.9
7356.640000	43.8	1000.0	1000.000	359.0	H	324.0	7.6	30.1	73.9
11903.620000	47.3	1000.0	1000.000	325.0	V	320.0	12.6	26.6	73.9
17696.766667	54.0	1000.0	1000.000	104.0	H	155.0	20.6	19.9	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.400000	42.0	1000.0	1000.000	104.0	V	220.0	-10.7	11.9	53.9
1599.633333	40.3	1000.0	1000.000	104.0	V	350.0	-8.9	13.6	53.9
3008.166667	29.9	1000.0	1000.000	149.0	H	21.0	-2.4	24.0	53.9
5155.193333	28.8	1000.0	1000.000	243.0	V	103.0	3.2	25.1	53.9
7356.640000	31.1	1000.0	1000.000	359.0	H	324.0	7.6	22.8	53.9
11903.620000	34.4	1000.0	1000.000	325.0	V	320.0	12.6	19.5	53.9
17696.766667	40.8	1000.0	1000.000	104.0	H	155.0	20.6	13.1	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.38 Test Results Above 1GHz (High Channel -802.11 n HT40)



Peak Data

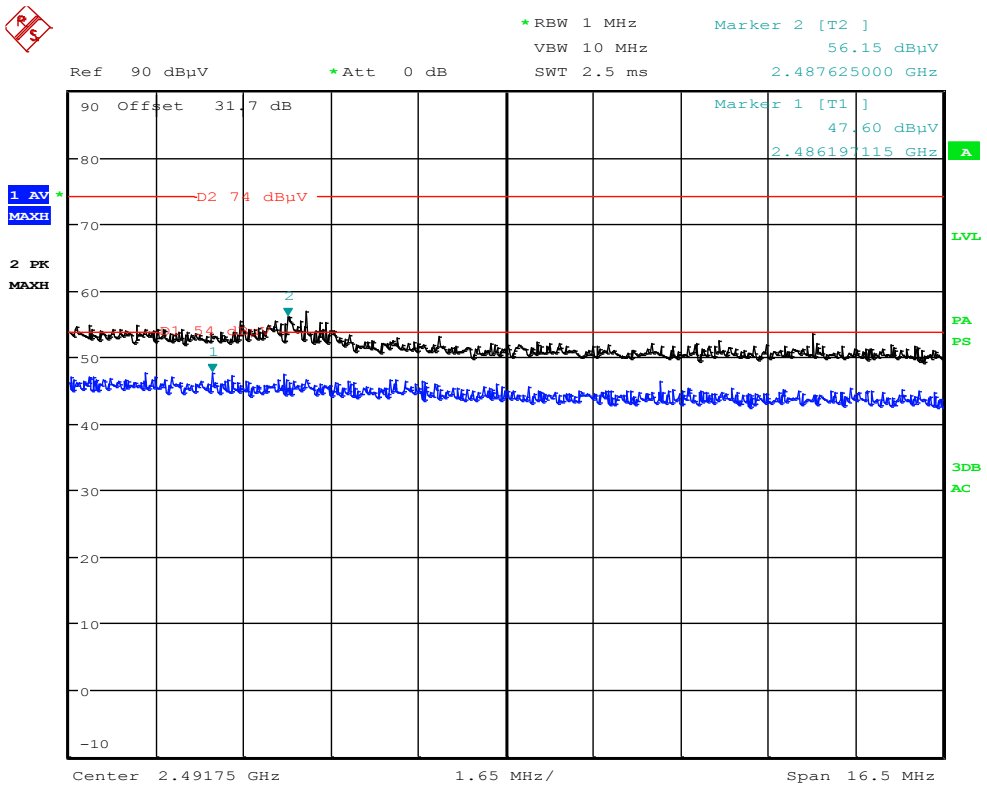
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	47.0	1000.0	1000.000	100.0	V	334.0	-10.7	26.9	73.9
1599.633333	44.6	1000.0	1000.000	110.0	V	349.0	-8.9	29.3	73.9
3025.333333	46.3	1000.0	1000.000	150.0	H	26.0	-2.4	27.6	73.9
4956.526667	41.9	1000.0	1000.000	345.0	H	267.0	2.0	32.0	73.9
7413.073333	44.3	1000.0	1000.000	355.0	V	55.0	7.6	29.6	73.9
11831.333333	46.6	1000.0	1000.000	219.0	H	177.0	12.8	27.3	73.9
17944.933333	54.6	1000.0	1000.000	242.0	H	133.0	21.6	19.3	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1066.440000	43.0	1000.0	1000.000	100.0	V	334.0	-10.7	10.9	53.9
1599.633333	39.5	1000.0	1000.000	110.0	V	349.0	-8.9	14.4	53.9
3025.333333	31.1	1000.0	1000.000	150.0	H	26.0	-2.4	22.8	53.9
4956.526667	29.2	1000.0	1000.000	345.0	H	267.0	2.0	24.7	53.9
7413.073333	31.4	1000.0	1000.000	355.0	V	55.0	7.6	22.5	53.9
11831.333333	33.8	1000.0	1000.000	219.0	H	177.0	12.8	20.1	53.9
17944.933333	41.9	1000.0	1000.000	242.0	H	133.0	21.6	12.0	53.9

Test Notes: A 2.4GHz to 2.5GHz Notch filter was used in this test.

2.1.39 Test Results Restricted Band (2483.5MHz to 2500MHz) 802.11 n HT40



Test Notes: Carrier frequency (High Channel) was maximized for this test. Correction factor of 31.7dB is from the cable and antenna and used. Marker 2 is peak measurement while Marker 1 is average measurement.

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Radiated Test Setup						
1033	Bilog Antenna	3142C	00044556	EMCO	05/23/12	05/23/13
1051	Double-ridged waveguide horn antenna	3115	9408-4329	EMCO	05/24/12	05/24/13
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	08/17/12	08/17/13
1153	High-frequency cable	SucoFlex 100 SX	N/A	Suhner	08/17/12	08/17/13
8543	High-frequency cable	Micropore 19057793	N/A	United Microwave Products	08/17/12	08/17/13
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	08/10/12	08/10/13
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	06/13/12	06/13/13
1016	Pre-amplifier	PAM-0202	187	PAM	08/17/12	08/17/13
Miscellaneous						
6452	Multimeter	3478A	2911A52177	Hewlett Packard	07/16/12	07/16/13
1003	Signal Generator	SMR-40	1104.0002.40	Rhode & Schwarz	11/12/12	11/12/13
7560	Barometer/Temperature /Humidity Transmitter	iBTHX-W	1240476	Omega	07/12/12	07/12/13
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

3.2.1 Radiated Emission Measurements (Below 1GHz)

	Contribution	Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.45	0.26	0.07
2	Cables	Rectangular	0.50	0.29	0.08
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.75	0.43	0.19
5	Site	Rectangular	3.55	2.05	4.20
6	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	2.23
				Coverage Factor (k):	2
				Expanded Uncertainty:	4.45

3.2.2 Radiated Emission Measurements (Above 1GHz)

	Contribution	Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.57	0.33	0.11
2	Cables	Rectangular	0.70	0.40	0.16
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.37	0.21	0.05
5	Site	Rectangular	3.55	2.05	4.20
6	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	2.22
				Coverage Factor (k):	2
				Expanded Uncertainty:	4.44

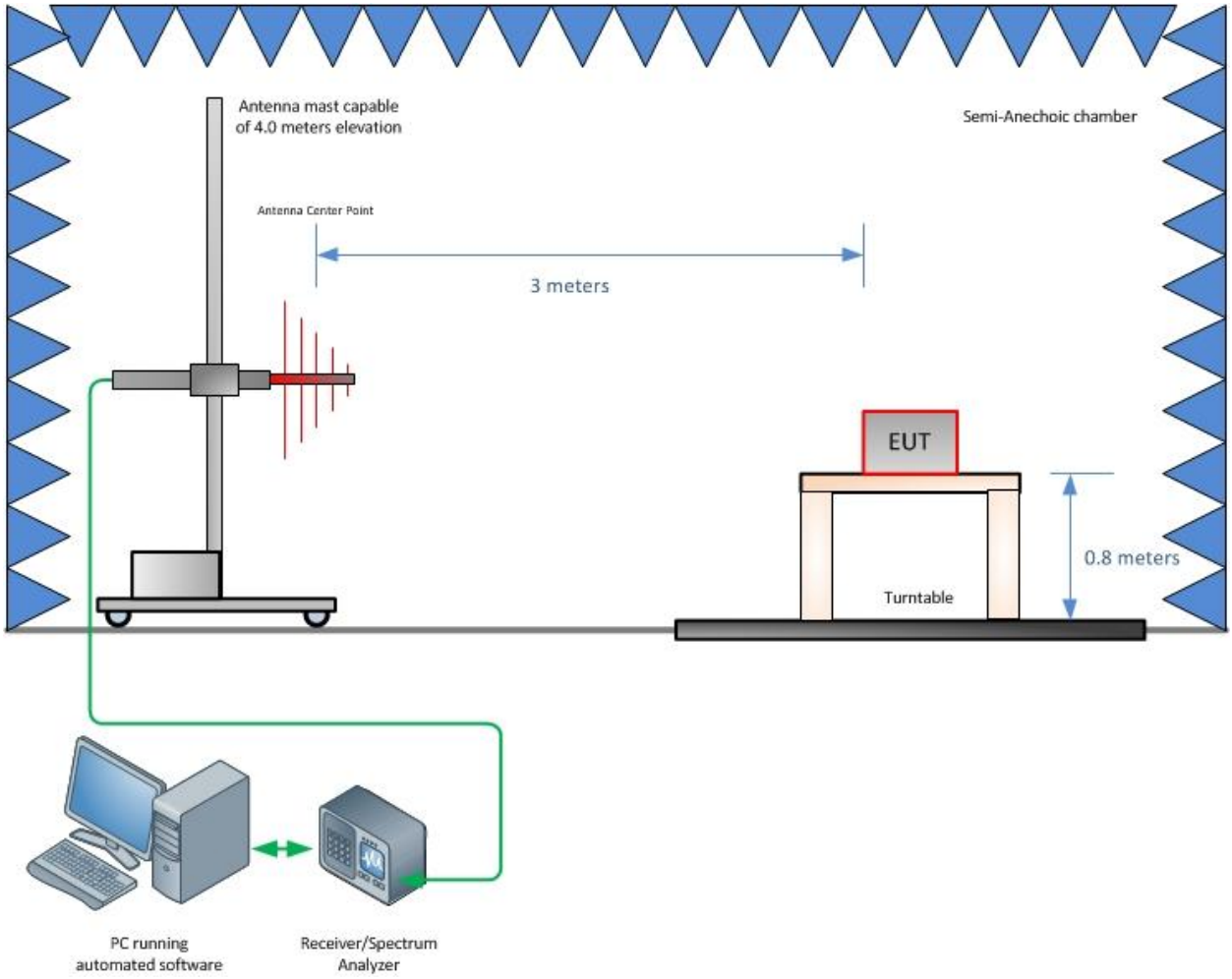
3.2.3 Conducted Antenna Port Measurement

	Contribution	Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.57	0.33	0.11
2	Cables	Rectangular	0.50	0.29	0.08
3	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	0.72
				Coverage Factor (k):	2
				Expanded Uncertainty:	1.45

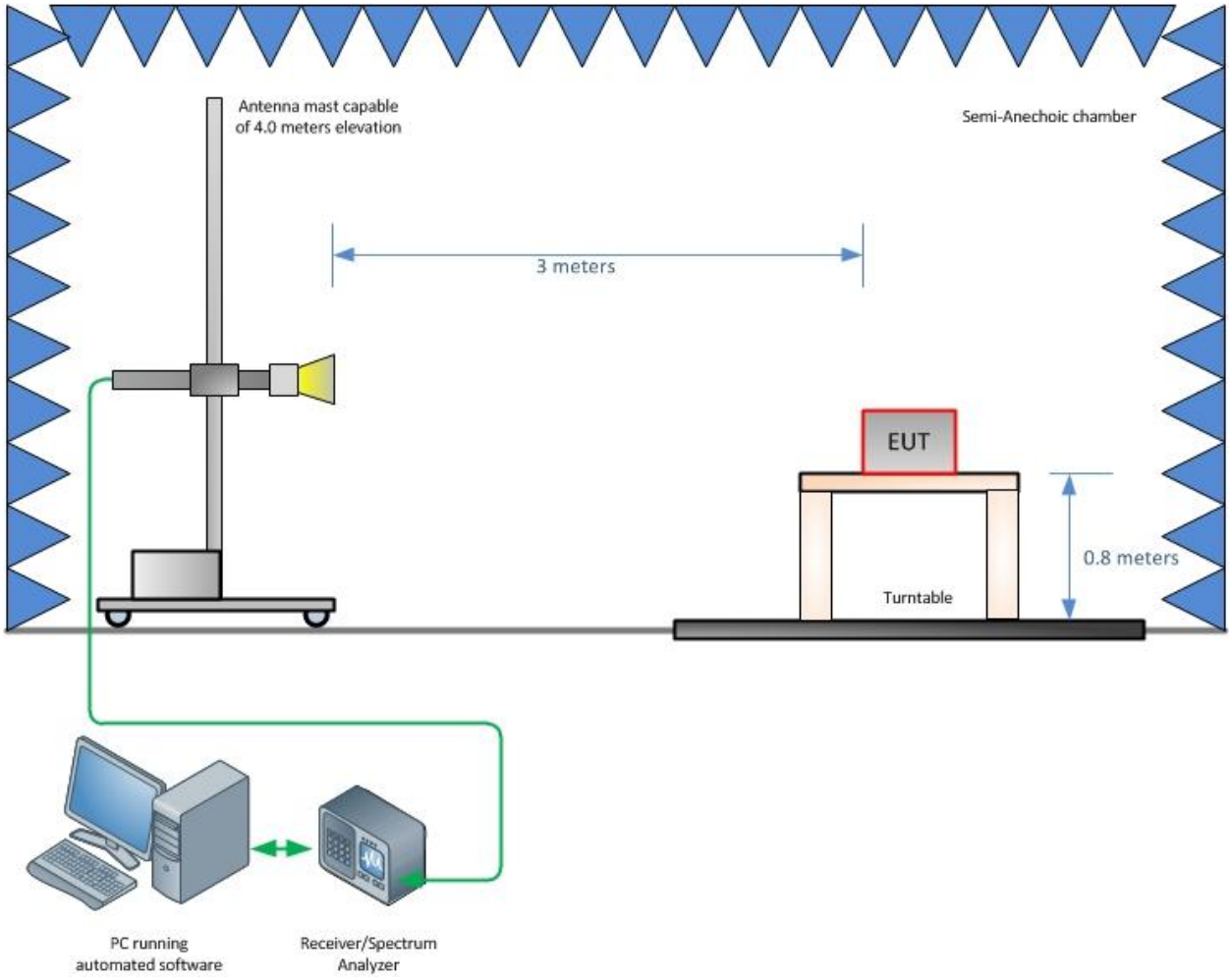
SECTION 4

DIAGRAM OF TEST SETUP

4.1 TEST SETUP DIAGRAM



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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