



2.4 & 5.0 GHz WLAN (DTS Systems) FCC/IC Test Report

FOR:
Intel Corporation

Model Name: EP110

Product Description: Intel 4.7-inch Smartphone with GSM, GPRS, EDGE, UMTS, HSPA+, LTE, WLAN, BT and GPS radios

FCC ID: O2Z-EP110
IC ID: 1000W – EP110

47 CFR Part 15.247

RSS-210 Issue 8 & RSS-GEN Issue 4

TEST REPORT #: EMC_EMC_INTEL_054_14001_15.247_DTS_WLAN_Rev2_Part1
DATE: 2014-12-15



FCC listed
A2LA Accredited

IC recognized #
3462B

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1 Assessment

The following device was evaluated against the applicable criteria specified in FCC rules Parts 15.247 of Title 47 of the Code of Federal Regulations and the relevant IC standard RSS-210 issue 8, Annex 8. No deviations were ascertained.

Company	Description	Model #
Intel Corporation	Intel 4.7-inch Smartphone with GSM,GPRS,EDGE,UMTS,HSPA+,LTE, WLAN, BT and GPS radios	EP110

Responsible for Testing Laboratory:

Franz Engert

2014-12-15 Compliance (Manager Compliance)

Date	Section	Name	Signature
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Responsible for the Report:

James Donnellan

2014-12-15 Compliance (EMC Engineer)

Date	Section	Name	Signature
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The test results of this test report relate exclusively to the test item specified in Section3.

CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Compliance Manager:	Franz Engert
Responsible Project Leader:	Danh Le

2.2 Identification of the Client

Applicant's Name:	Intel Corporation
Street Address:	2200 Mission College Blvd MS:SC1-20
City/Zip Code	Santa Clara / 95054
Country	USA
Contact Person:	Christine Ryan
Phone No.	408 300 2167
Fax:	408-765-2336
e-mail:	Christine.m.ryan@intel.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as Applicant
Manufacturers Address:	---
City/Zip Code	---
Country	---

3 Equipment under Test (EUT)**3.1 General specification of EUT**

Marketing Name / Model No:	Intel 4.7-inch Smartphone / EP110
HW Version :	PR2
FCC-ID:	O2Z-EP110
IC-ID:	1000W- EP110
Product Description:	Intel 4.7-inch Smartphone with GSM,GPRS,EDGE,UMTS,HSPA+,LTE, WLAN, BT and GPS radios
Rated Operating Voltage / Power Supply:	3.6 Vmin/3.8 Vnom/4.2 Vmax; Rechargeable lithium-ion battery
Rated Operating temperature range:	-10oC to +55oC
Test Sample:	Prototype
Radios included in the device:	- Cellular Radio - GSM 850/900/1800/1900 MHz - GPRS / EDGE Multi-slot class 33 operation - WCDMA / HSPA+ 850/900/1700/1900/2100 MHz - LTE 700/800/850/900/1700/1800/1900/2100/2600 MHz - WLAN ISM band, U-NII bands - Bluetooth BDR/EDR/LE - GPS

3.2 Detailed specification of EUT in scope of this report

Operating Frequency bands:	2400 – 2483.5 MHz (ISM) 5725– 5850MHz only 20MHz U-NII-3 40MHz and 80MHz is tested under 15.407 scope
Channel Bandwidths:	20MHz
Modes of Operation	In US, Canada and default mode: client, active scan, P2P, and hot spot Channels 12-14 not supported
Technology/ Type(s) of Modulation:	CCK, BPSK, QPSK, 16QAM, 64QAM
Antenna info:	Internal Monopole (PCB) -3.7 dBi @ 2.4GHz -7.8 dBi @ 5.8GHz
Nominal Conducted Output Powers from manufacturing process:	2400 – 2483.5 MHz (ISM) 14dBm 5.725– 5850 MHz 10dBm
Maximum tune up tolerance in manufacturing process:	+ 2dB

3.3 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Notes/Comments
1	INV141400717	PR2	4.4.4 KTU84P main engineering 53181-dev-keys	Radiated and Conducted RF Sample
2	INV141401015	PR2	4.4.4 KTU84P main engineering 53181-dev-keys	AC Conducted Sample

3.4 Identification of Accessory equipment

STE #	Type	Manufacturer	Model	Serial Number
1	AC/DC Adapter	Salcomp	SC1402	1309500144736

3.5 Environmental conditions during Test:

The following environmental conditions were maintained during the course of testing:

Ambient Temperature: 20-25°C

Relative humidity: 40-60%

3.6 Dates of Testing:

07/21/2014 – 10/06/2014

3.7 Test modes of operation:

The below listed worst case test modulations have been established from the output power measurement and evaluation of long term test data available to the lab for the different data rates and modulations which are supported by the equipment. This has been verified with a spot check for the above product.

Modes of Operation		Data rate (Mbps)	Modulation Scheme
2.4 GHz	802.11b	1.0	CCK
	802.11g	6.0	BPSK
	802.11n (20 MHz)	MCS0: 6.5	BPSK
5 GHz (U-NII-3)	802.11a (20 MHz)	MCS0: 6.5	BPSK
	802.11n (20 MHz)	MCS0: 6.5	BPSK

The device was configured with a manufacturer provided test SW, capable of setting the unit in different supported modulation schemes, data rates and channels of operation.

The Device was set to continuous framed TX (burst) mode per test SW and could thus be operated with > 98% duty cycle during testing.

The validity of these power levels have been verified against the SW running in standard out of the box mode in the report EMC_INTEL-054-14001_CHANNEL_PLAN_COMPLIANCE.

The EUT was tested on low, mid and high channels (2.4GHz) in 802.11a, 802.11b, 802.11g, and 802.11n (HT20) modes. n-mode in the U-NII-3 band is tested with 20 MHz channel bandwidth (HT20) only as 40MHz and 80MHz have been covered under the scope of 15.407 and are dealt with in the U-NII report.

4 Subject Of Investigation

The objective of the measurements applied by CETECOM Inc. was to establish compliance of the EUT as described under Ch. 3 of this Test Report, with the applicable criteria specified in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Radio Standard Specification RSS-210 Issue 8 of Industry Canada.

This test report is to support a request for new equipment authorization under the FCC ID **O2Z-EP110** and IC ID **1000W-EP110**.

5 Summary of Measurement Results

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§15.247(e) RSS210 A8.2(b)	Power Spectral Density	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies
§15.247(a)(1) RSS210 A8.2(a)	Emission Bandwidth	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies
§15.247(b)(3) RSS210 A8.4(4)	Maximum Peak Conducted Output Power	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies
§15.247(d) RSS210 A8.5 RSS Gen 8.10	Band edge compliance	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies
§15.247(d) RSS210 A8.5	TX Spurious emissions-Conducted	Nominal	802.11a 802.11b 802.11g 802.11n	□	□	□	■	See Note
§15.247(d) §15.209(a) RSS210 A8.5 RSS Gen 8.9, 8.10	TX Spurious emissions-Radiated	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies
§15.207(a) RSS Gen 8.8	AC Conducted Emissions <30MHz	Nominal	802.11a 802.11b 802.11g 802.11n	■	□	□	□	Complies

Note: NA= Not Applicable; NP= Not Performed.

Conducted spurious emissions test against non-restricted band limits is NOT PERFORMED since radiated spurious emissions against more stringent restricted band limits over the complete measurement range (9kHz to 40GHz) is passed.

6 Measurements

6.1 Measurement Uncertainty

	Uncertainty in dB radiated <30MHz	Uncertainty in in dB radiated 30MHz - 1GHz	Uncertainty in dB radiated > 1GHz	Uncertainty in dB Conducted measurement
standard deviation k=1	2.48	1.93	2.16	0.63
95% confidence interval in dB	4.86	3.79	4.23	1.24
95% confidence interval in dB in delta to Result	+2.5 dB	+2.0 dB	+2.3dB	+0.7dB

6.2 Test Conditions

Temperature: 19°C to 25°C;

Operating Voltage: 3.8V for radio measurements;

Operating Voltage: 4.2V for emission measurements due to connected charger;

Relative Humidity 20% to 50%

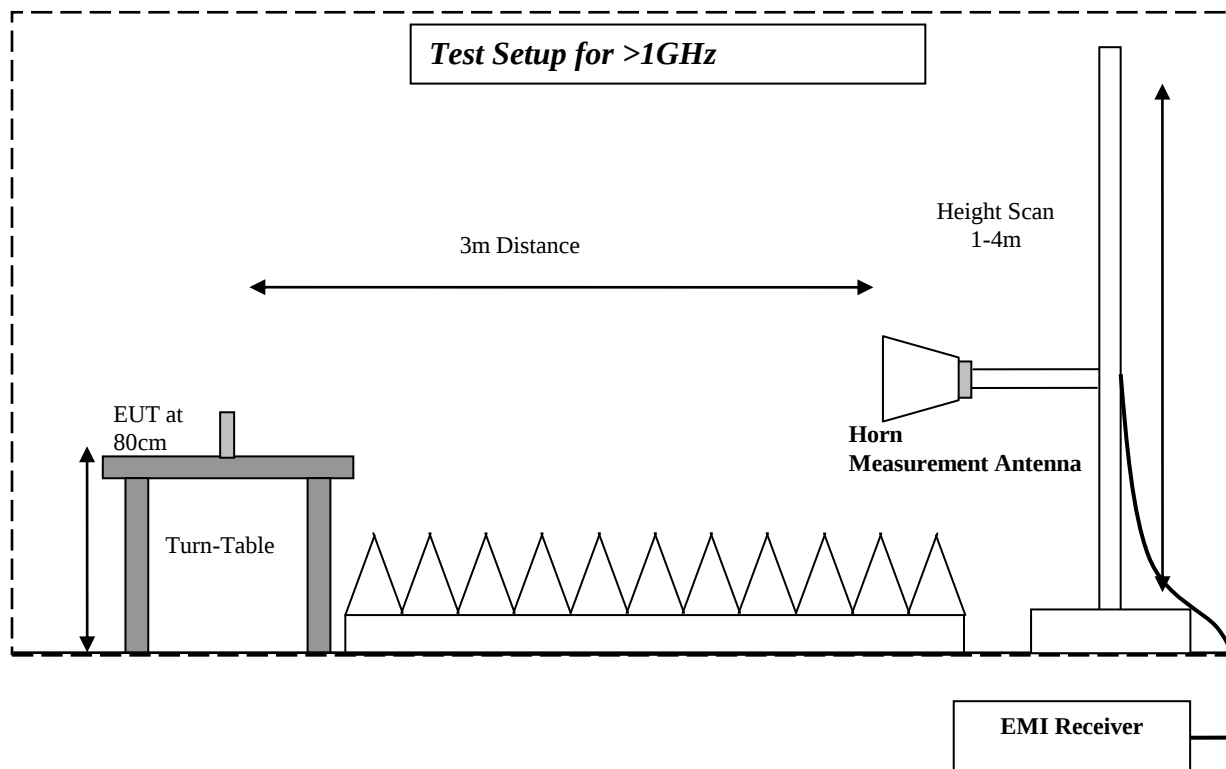
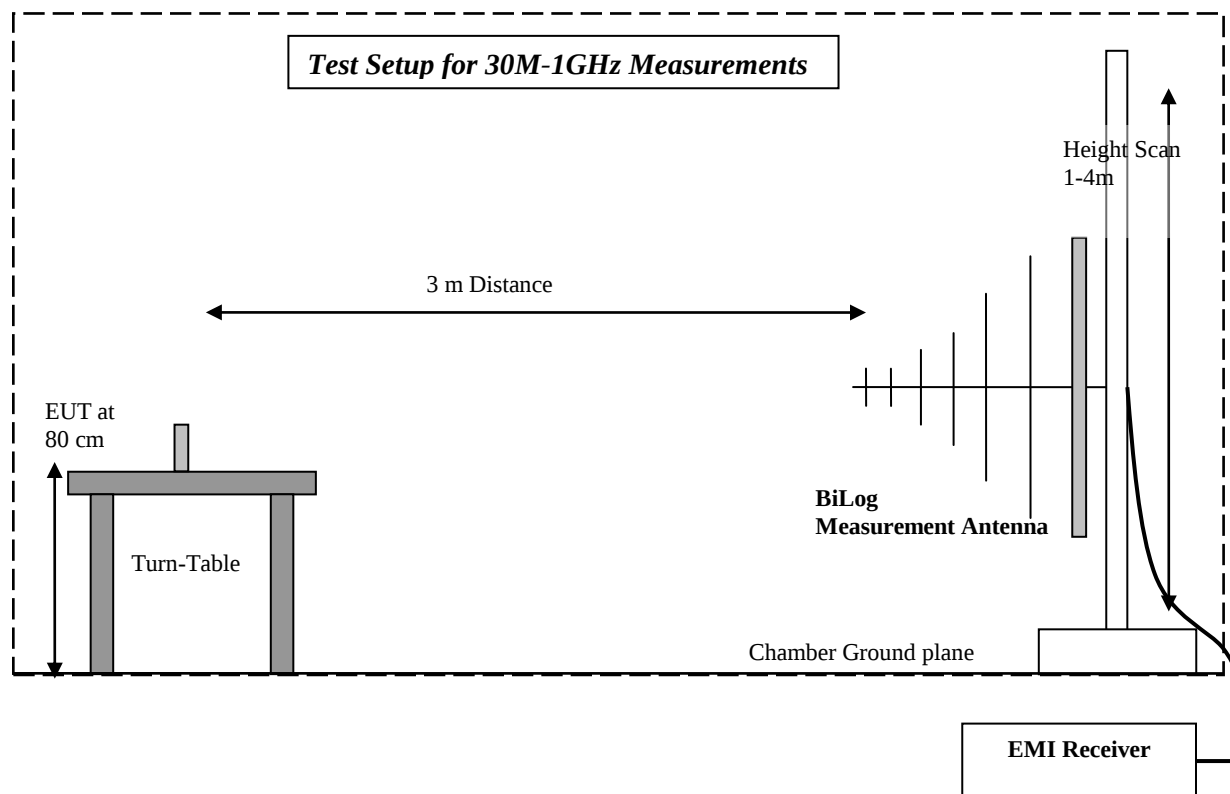
6.3 Radiated Emissions Measurement Setup and Procedure

The radiated measurement is performed according to:

ANSI C63.4 (2009)

ANSI C63.10 (2009)

- The exploratory measurement is accomplished by running a matrix of 16 sweeps over the required frequency range with R&S Test-SW EMC32 for 4 positions of the turntable, two orthogonal positions of the EUT and both antenna polarizations. This procedure exceeds the requirement of the above standards to cover the 3 orthogonal axis of the EUT. A max peak detector is utilized during the exploratory measurement. The Test-SW creates an overall maximum trace for all 16 sweeps and saves the settings for each point of this trace. The maximum trace is part of the test report.
- The 10 highest emissions are selected with an automatic algorithm of EMC32 searching for peaks in the noise floor and ensuring that broadband signals are not selected multiple times.
- The maxima are then put through the final measurement and again maximized in a 90deg range of the turntable, fine search in frequency domain and height scan between 1m and 4m.
- The above procedure is repeated for all possible ways of power supply to EUT and for all supported modulations.
- In case there are no emissions above noise floor level only the maximum trace is reported as described above.
- The results are split up into up to 4 frequency ranges due to antenna bandwidth restrictions. A magnetic loop is used from 9kHz to 30MHz, a Biconlog antenna is used from 30MHz to 1GHz, two different horn antennas are used to cover frequencies up to 40GHz.



6.3.1 Sample Calculations for Radiated Measurements

6.3.1.1 Field Strength Measurements:

Measurements from the Spectrum Analyzer/ Receiver are used to calculate the Field Strength, taking into account the following parameters:

1. Measured reading in dB μ V
2. Cable Loss between the receiving antenna and SA in dB and
3. Antenna Factor in dB/m

FS (dB μ V/m) = Measured Value on SA (dB μ V) + Cable Loss (dB) + Antenna Factor (dB/m)

Eg:

Frequency (MHz)	Measured SA (dB μ V)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dB μ V/m)
1000	80.5	3.5	14	98.0

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the above equation.

6.3.1.2 Power Measurements using Substitution Procedure:

The measurement on the Spectrum Analyzer is used as a basis for the Substitution procedure.

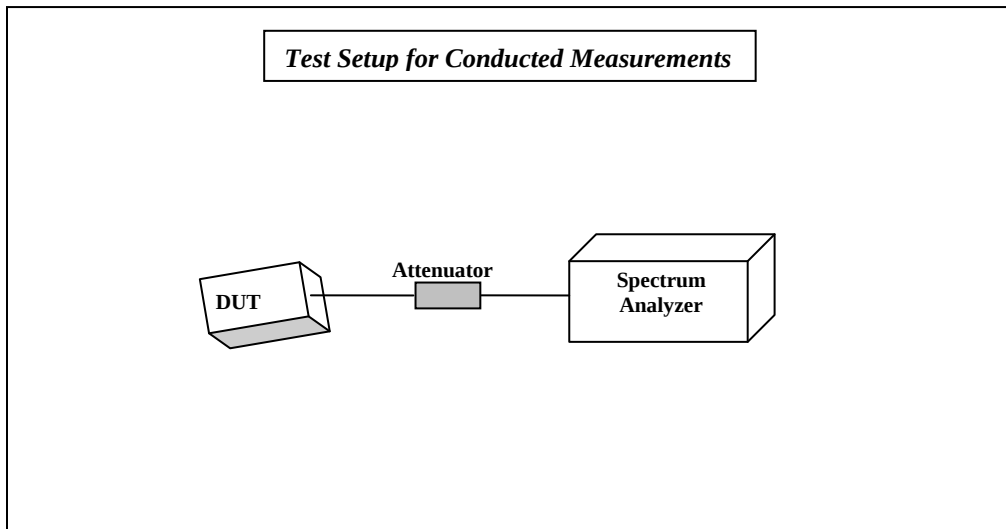
The EUT is replaced with a Signal Generator and an antenna. The setting on the Signal Generator is varied until the Spectrum Analyzer displays the original reading. EIRP is calculated as-

EIRP (dBm) = Signal Generator setting (dBm) - Cable Loss (dB) + Antenna Gain (dBi)

Eg:

Frequency (MHz)	Measured SA (dB μ V)	Signal Generator setting (dBm)	Antenna Gain (dBi)	Dipole Gain (dBd)	Cable Loss (dB)	EIRP (dBm)
1000	95.5	24.5	6.5	0	3.5	27.5

6.4 Conducted Measurement Setup and Procedure



6.5 Maximum Peak Conducted Output Power

6.5.1 Limits:

Maximum Peak Output Power:

FCC §15.247 (b)(3): 1W

IC RSS-210 Issue 8, annex 8.4(2): 1W

EIRP:

IC RSS-210 Issue 8, annex 8.4(2): 4W

6.5.2 Test Conditions:

Tnom: 21°C; Vnom: 3.8V

6.5.3 Test Procedure

Measurement according to FCC KDB 558074 D01 DTS v03r02 section 9.2.2.6 Method AVGSA-3 (RMS detection across on and off times of the EUT with max hold).

Spectrum Analyzer settings:

Peak Output Power

Span = wide enough to capture the entire emission being measured

RBW = 1 MHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Use integrated band power method. Set channel bandwidth $\geq$ 6 dB bandwidth of the emission being measured

6.5.4 Test Result: 2.4 GHz Band

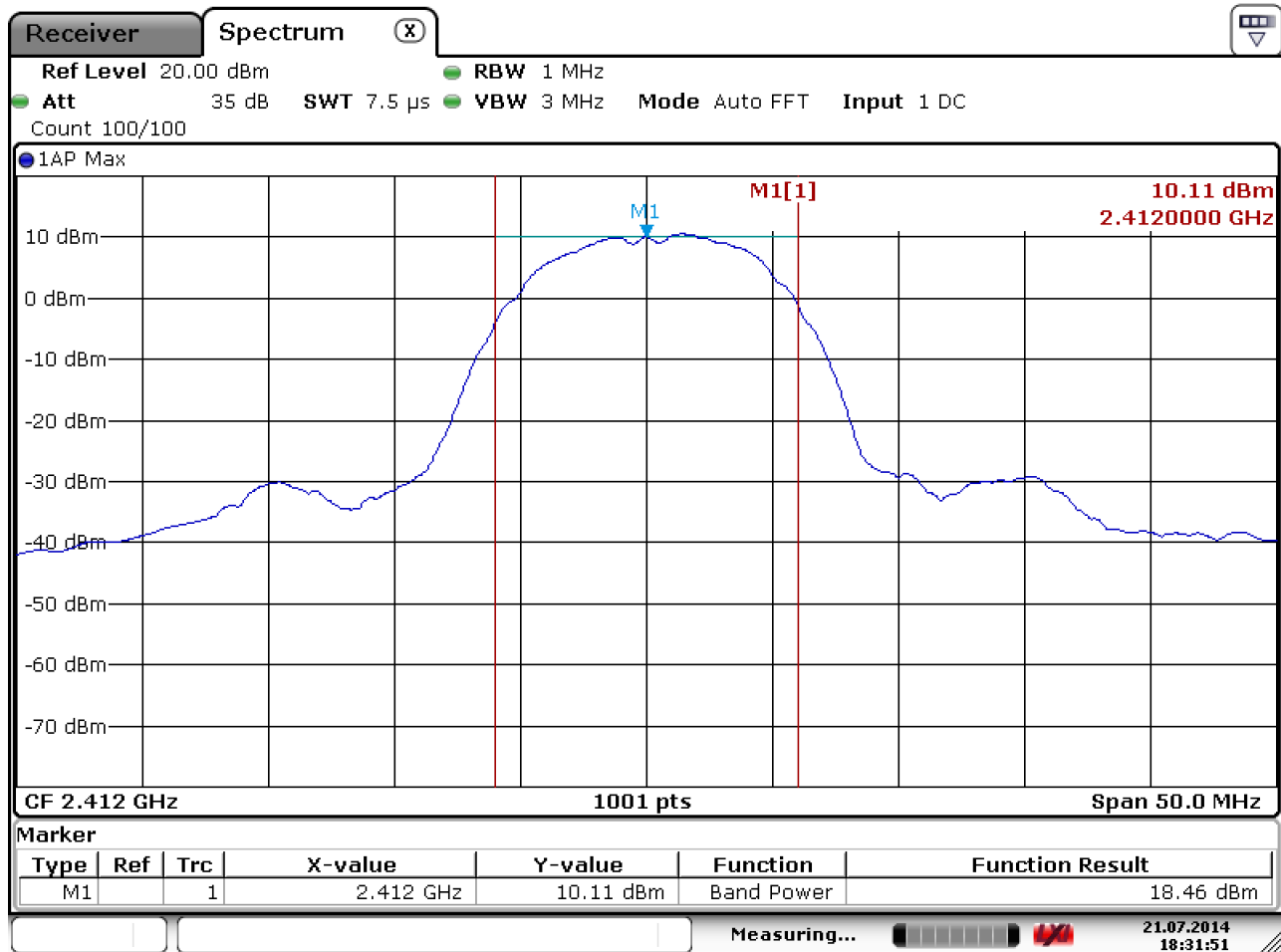
Measured Maximum Peak Conducted Output Power (dBm)						
Mode	Frequency (MHz)					
	2412 Channel 1	Diagram no.	2437 Channel 6	Diagram no.	2462 Channel 11	Diagram no
802.11b	18.46	<u>pcp_c1_2412_11b</u>	17.41	<u>pcp_c6_2437_11b</u>	17.86	<u>pcp_c11_2462_11b</u>
802.11g	23.18	<u>pcp_c1_2412_11g</u>	22.33	<u>pcp_c6_2437_11g</u>	23.17	<u>pcp_c11_2462_11g</u>
802.11n /MCS0 (20 MHz)	21.93	<u>pcp_c1_2412_11n</u>	20.93	<u>pcp_c6_2437_11n</u>	21.98	<u>pcp_c11_2462_11n</u>

Calculated Radiated Output Power EIRP (dBm) Antenna Gain = -3.7 dBi			
Mode	Frequency (MHz)		
	2412 Channel 1	2437 Channel 6	2462 Channel 11
802.11b	14.76	13.71	14.16
802.11g	19.48	18.63	19.47
802.11n /MCS0 (20 MHz)	18.23	17.23	18.28

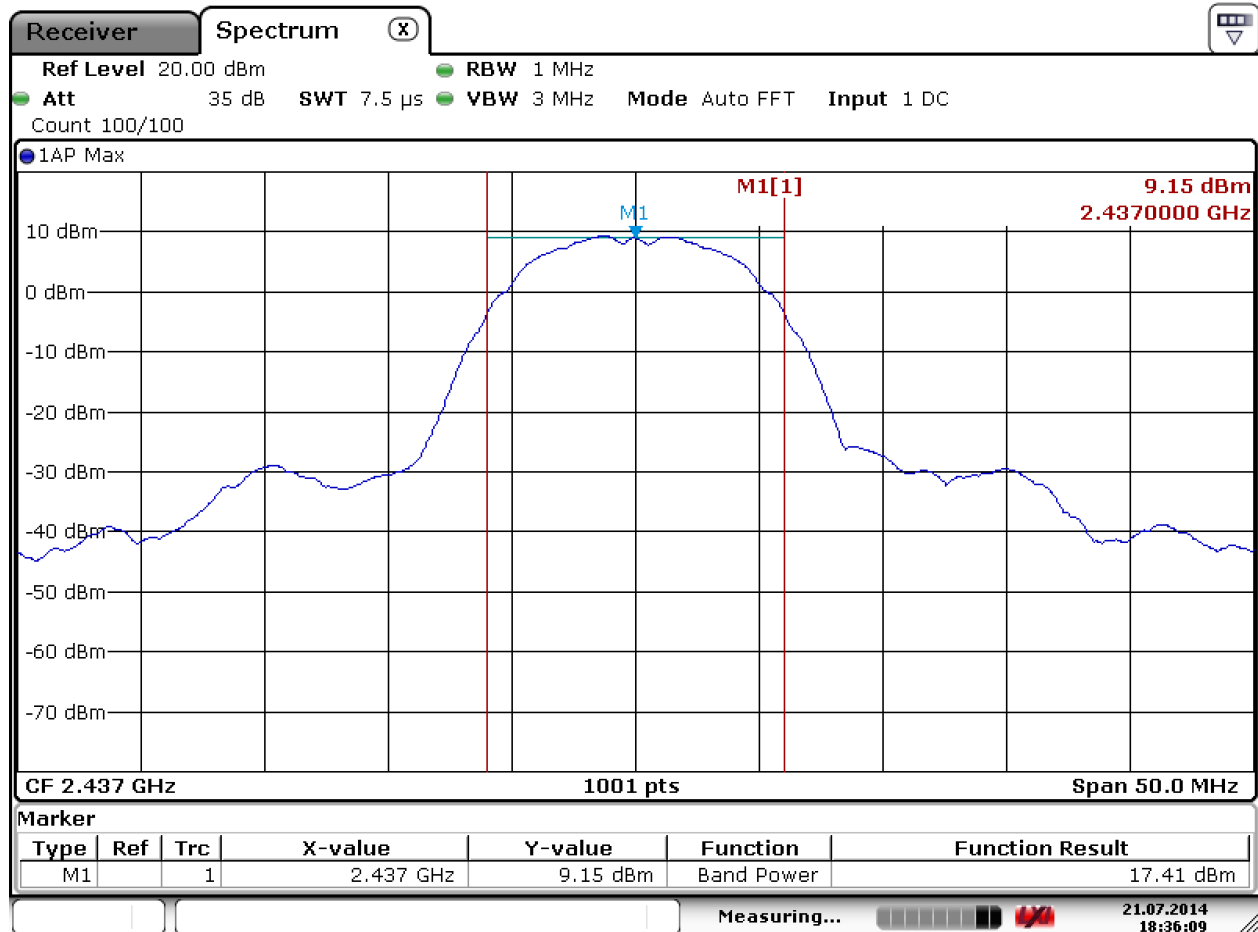
6.5.5 Test Result: 5725-5850 MHz band

Measured Maximum Peak Conducted Output Power (dBm)						
Mode	Frequency (MHz)					
	5745 Ch149	Diagram no.	5785 Ch157	Diagram no.	5825 Ch165	Diagram no.
802.11a	19.17	<u>pcp_c149_5745_11a</u>	18.99	<u>pcp_c157_5785_11a</u>	18.72	<u>pcp_c165_5825_11a</u>
802.11n [20]	19.17	<u>pcp_c149_5745_11n</u>	18.98	<u>pcp_c157_5785_11n</u>	18.82	<u>pcp_c165_5825_11n</u>

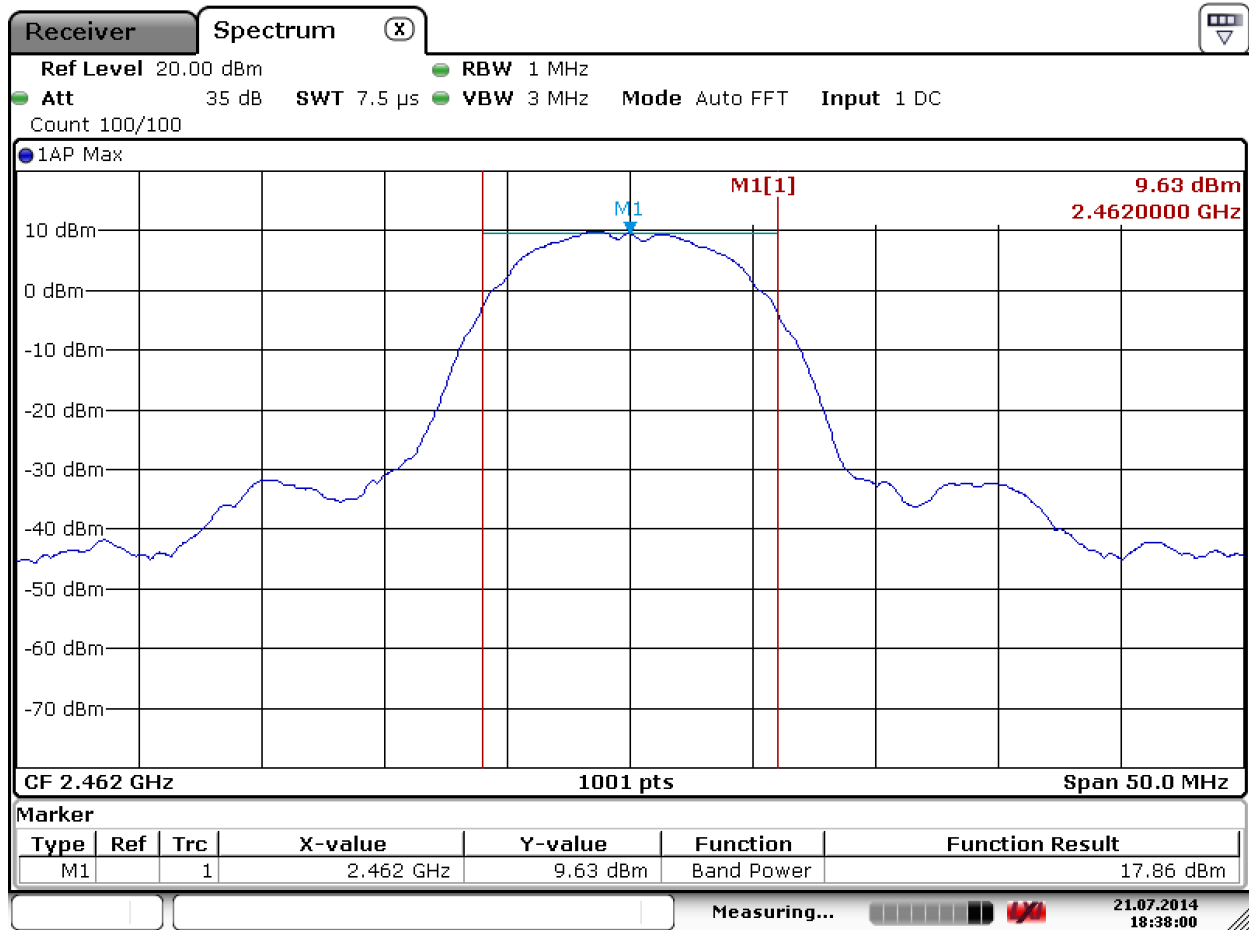
Calculated Radiated Output Power EIRP (dBm)			
Antenna Gain = -7.8 dBi			
Mode	Frequency (MHz)		
	5745 Ch149	5785 Ch157	5825 Ch165
802.11a	11.37	11.19	10.92
802.11n [20]	11.37	11.18	11.02

6.5.6 Test Data/plots: 2.4 GHz Band**Peak Conducted Power 802.11b 2412 MHz**

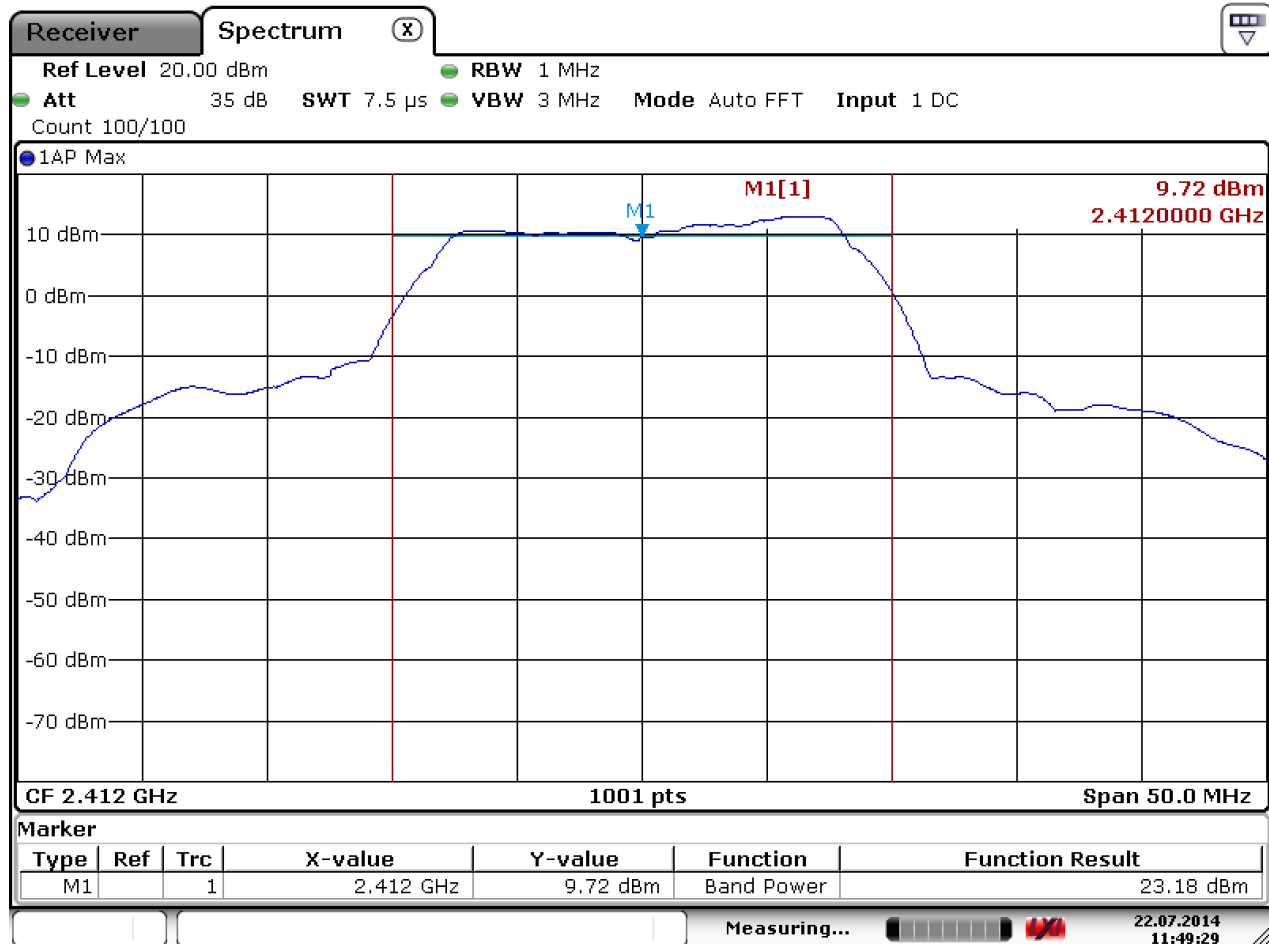
Date: 21.JUL.2014 18:31:50

Peak Conducted Power 802.11b 2437 MHz

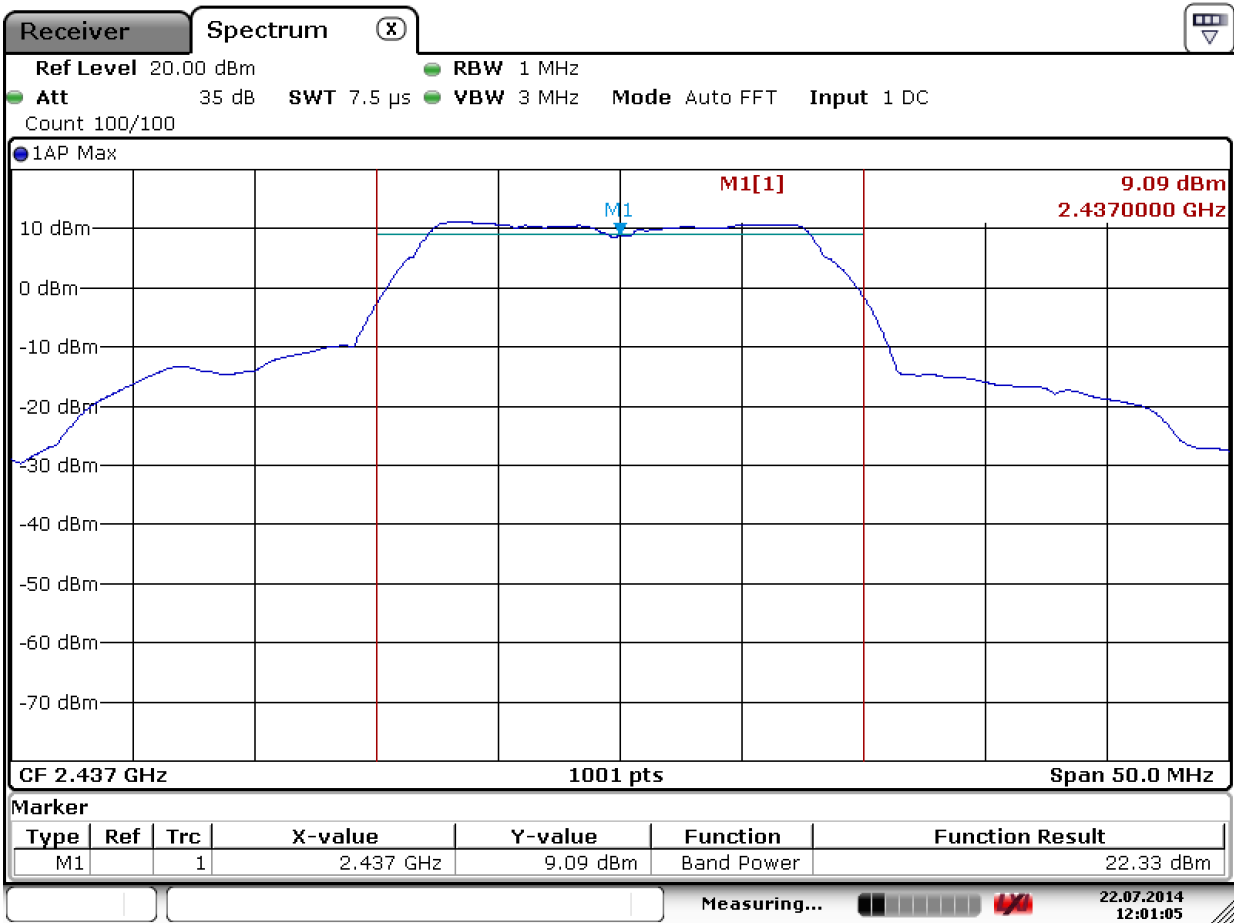
Date: 21.JUL.2014 18:36:08

Peak Conducted Power 802.11b 2462 MHz

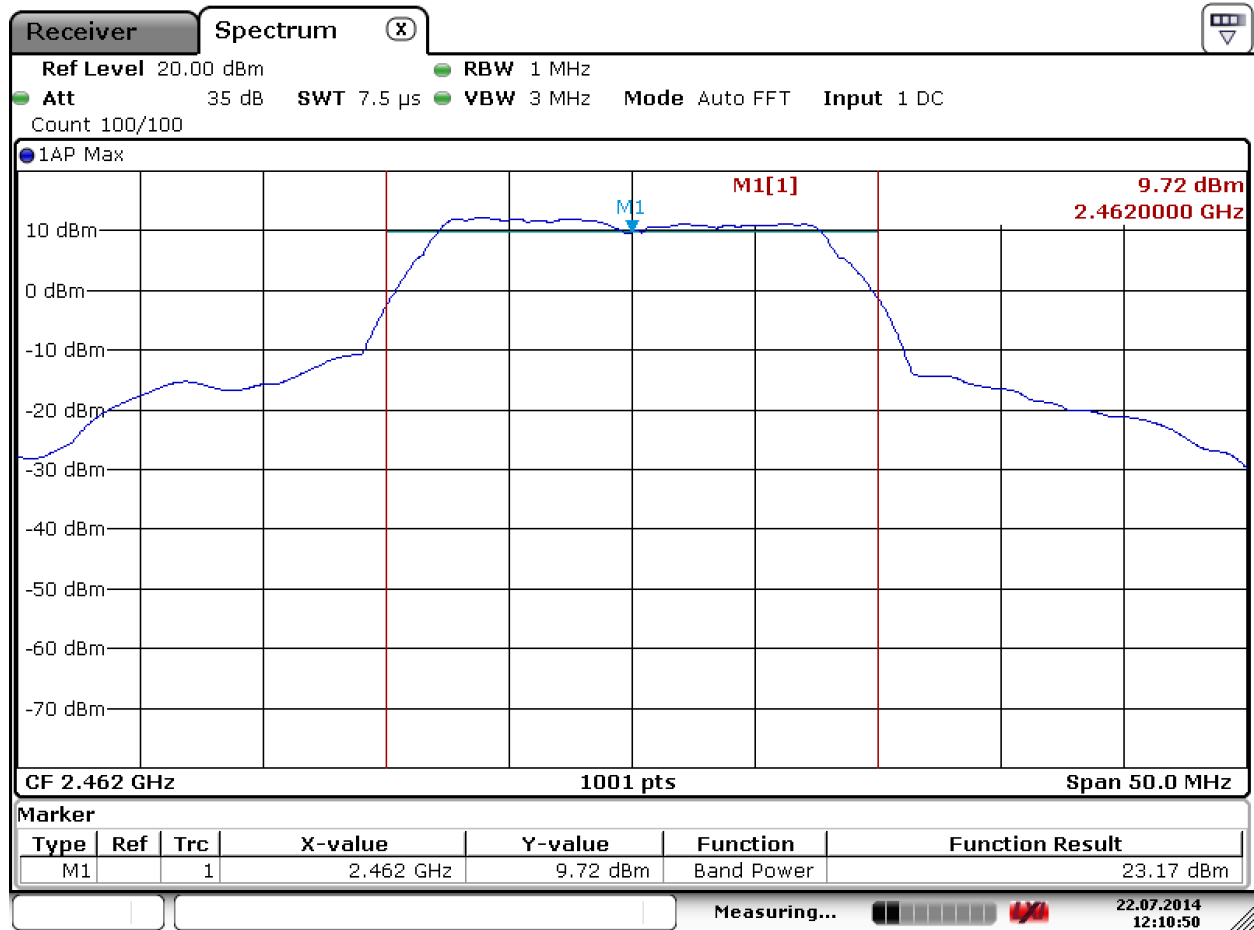
Date: 21.JUL.2014 18:38:00

Peak Conducted Power 802.11g 2412 MHz

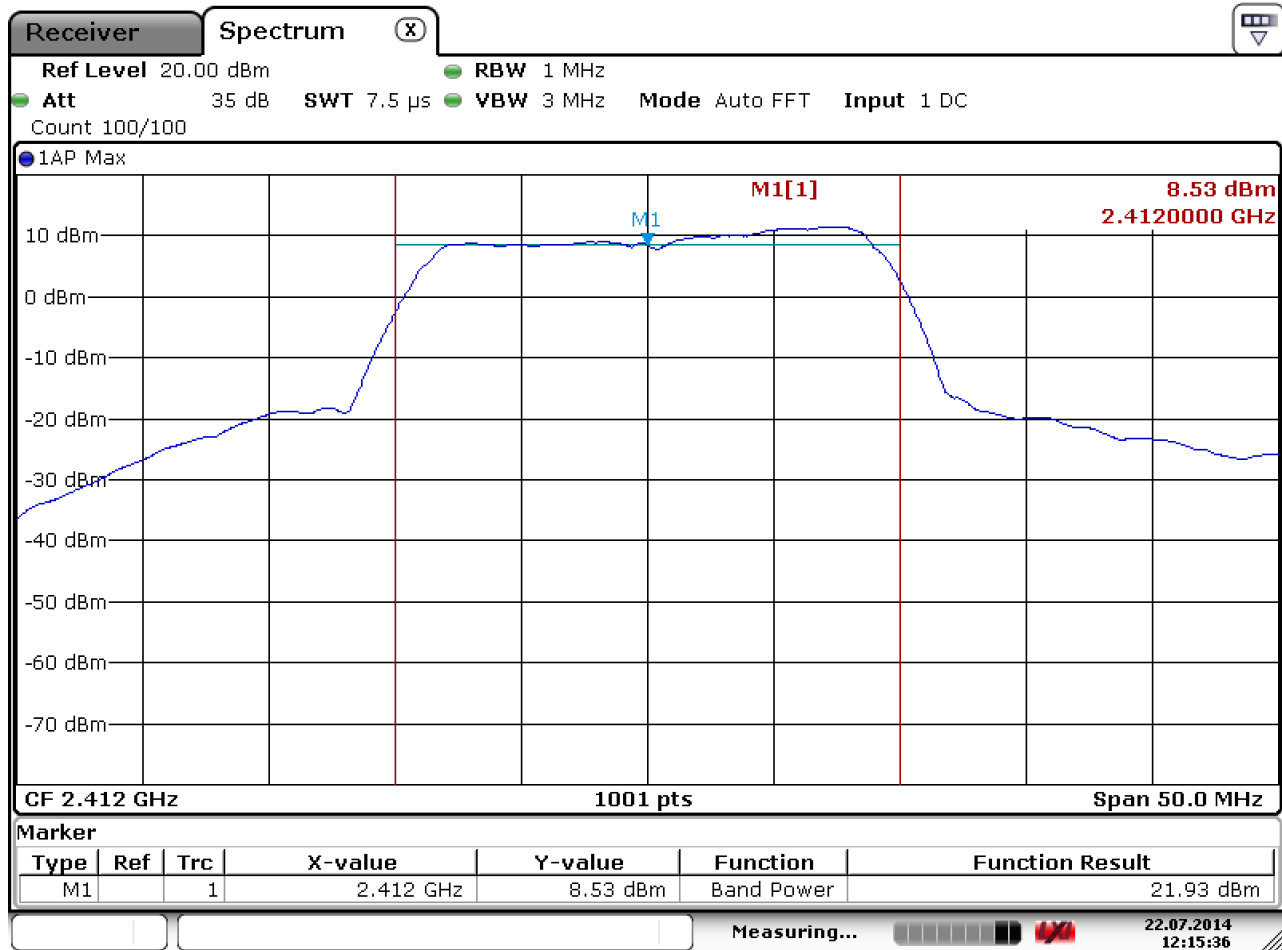
Date: 22.JUL.2014 11:49:29

Peak Conducted Power 802.11g 2437 MHz

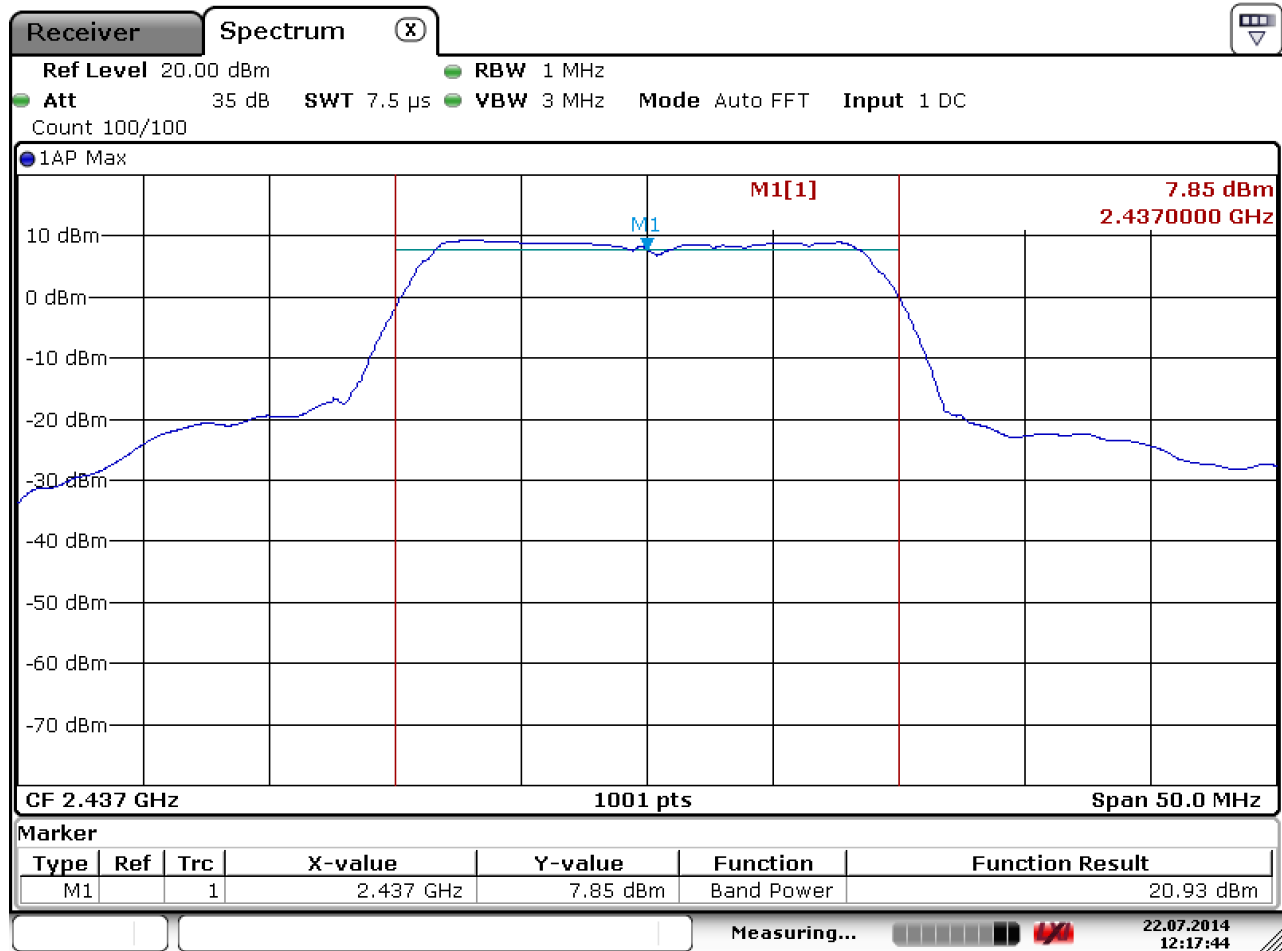
Date: 22.JUL.2014 12:01:04

Peak Conducted Power 802.11g 2462 MHz

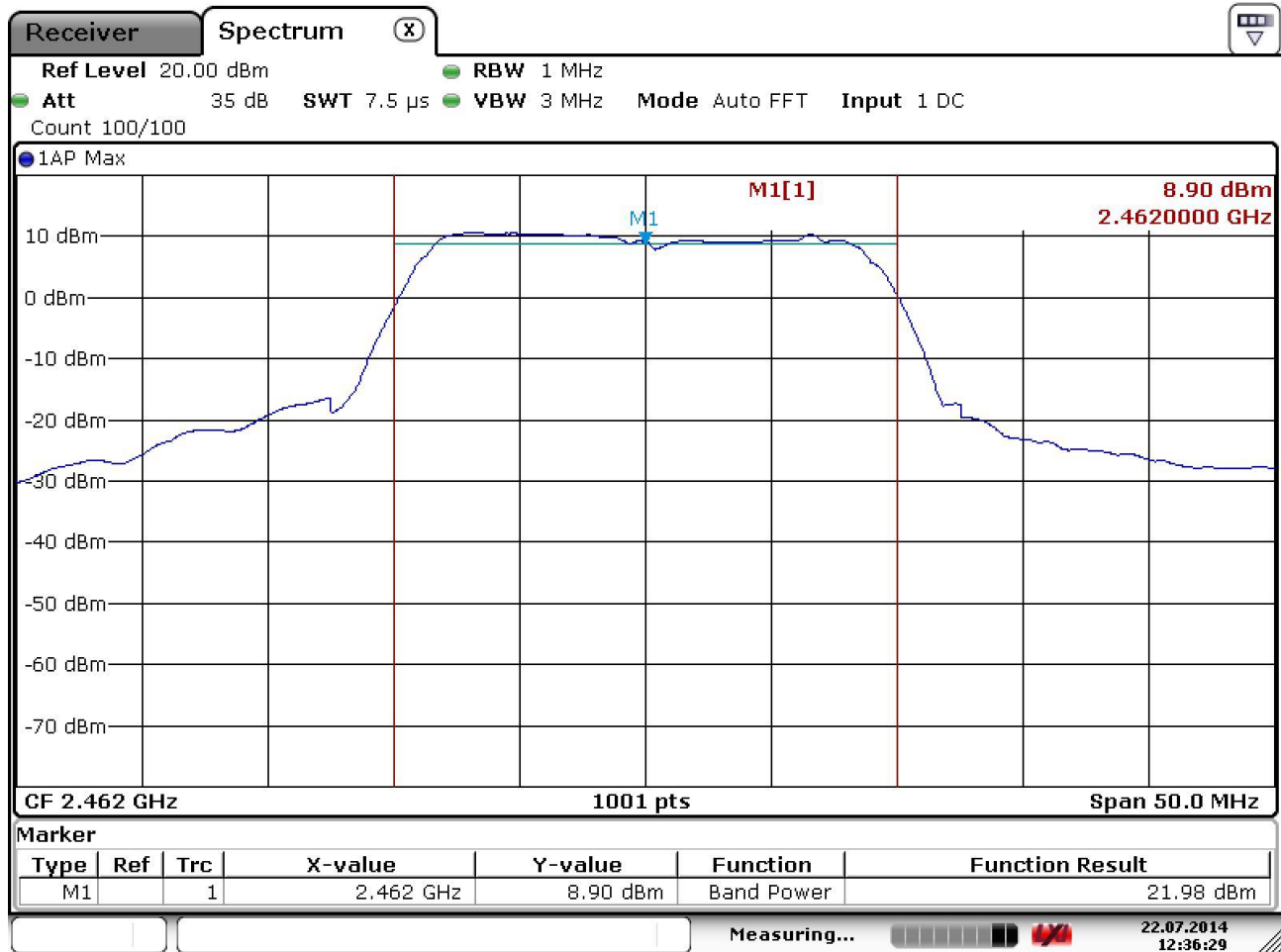
Date: 22.JUL.2014 12:10:50

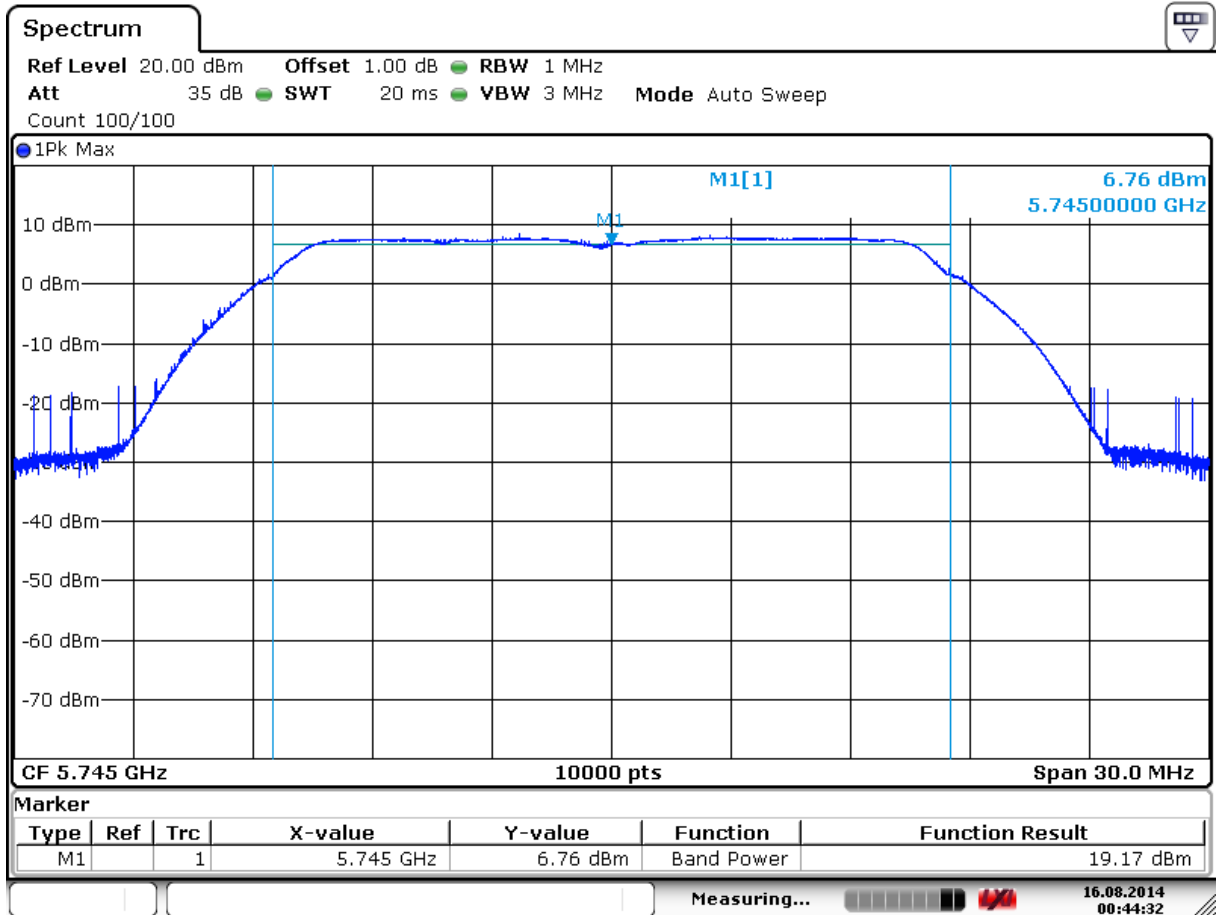
Peak Conducted Power 802.11n-MCS0 (20MHz) 2412 MHz

Date: 22.JUL.2014 12:15:36

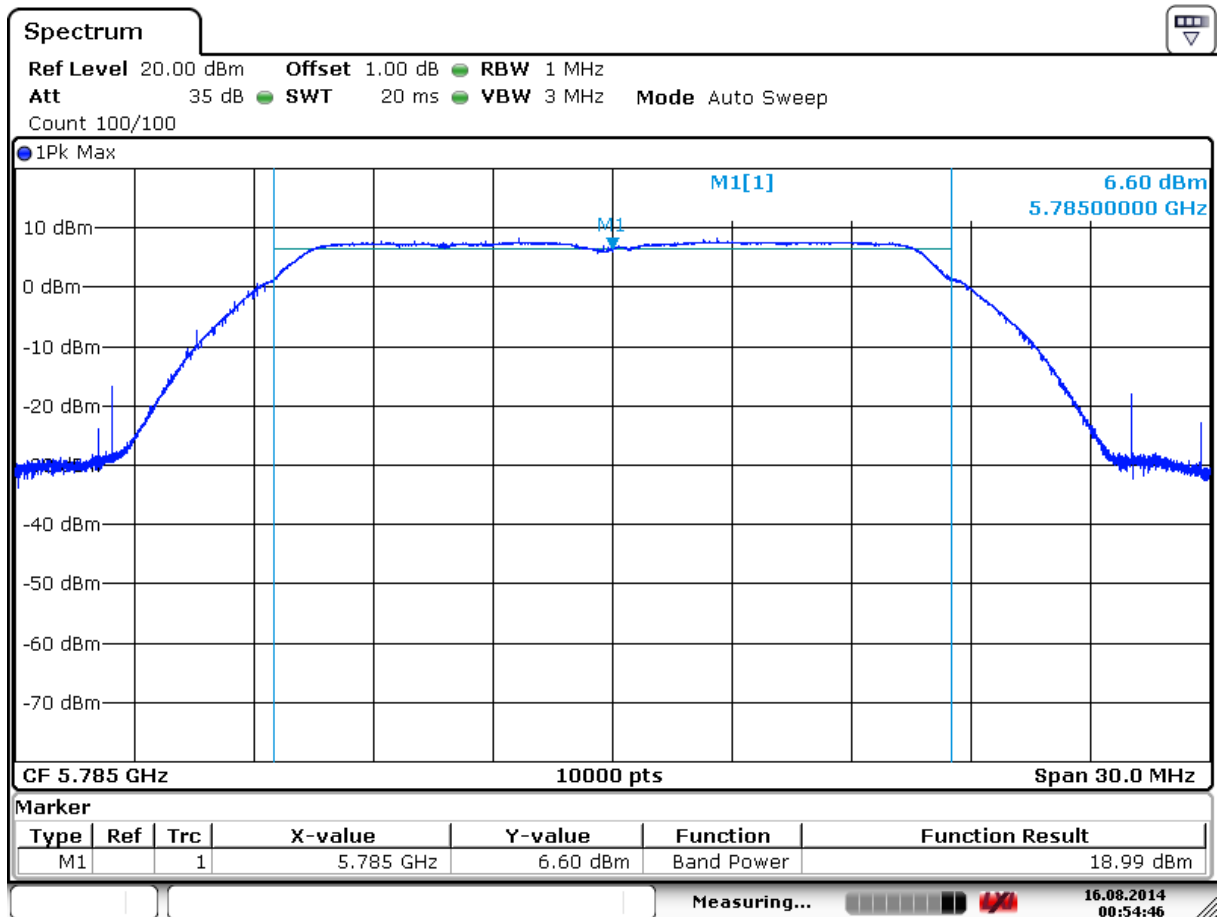
Peak Conducted Power 802.11n-MCSO (20MHz) 2437 MHz

Date: 22.JUL.2014 12:17:44

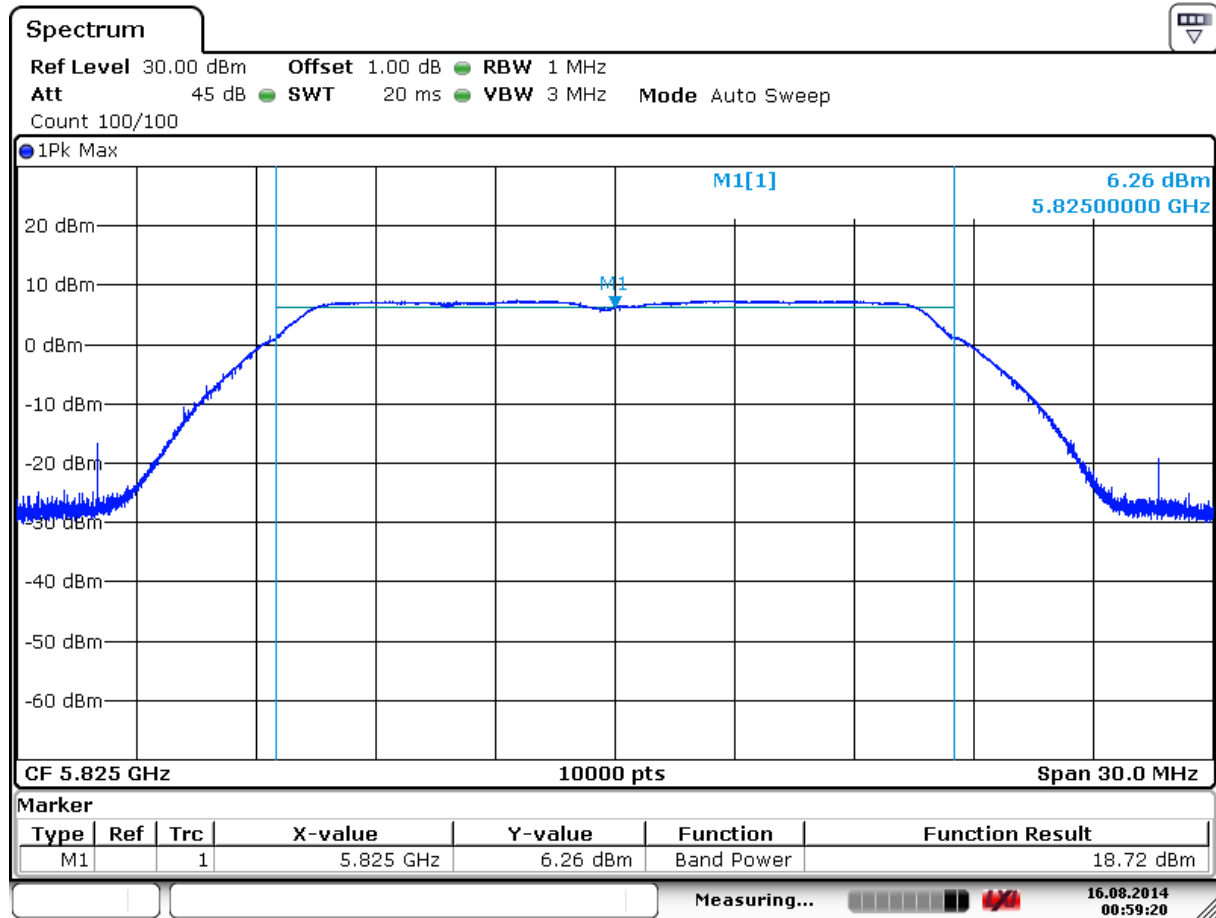
Peak Conducted Power 802.11n-MCSO (20MHz) 2462 MHz

6.5.7 Test Data/plots: 5 GHz Band UNII 3**Peak Conducted Power 802.11a 5745 MHz**

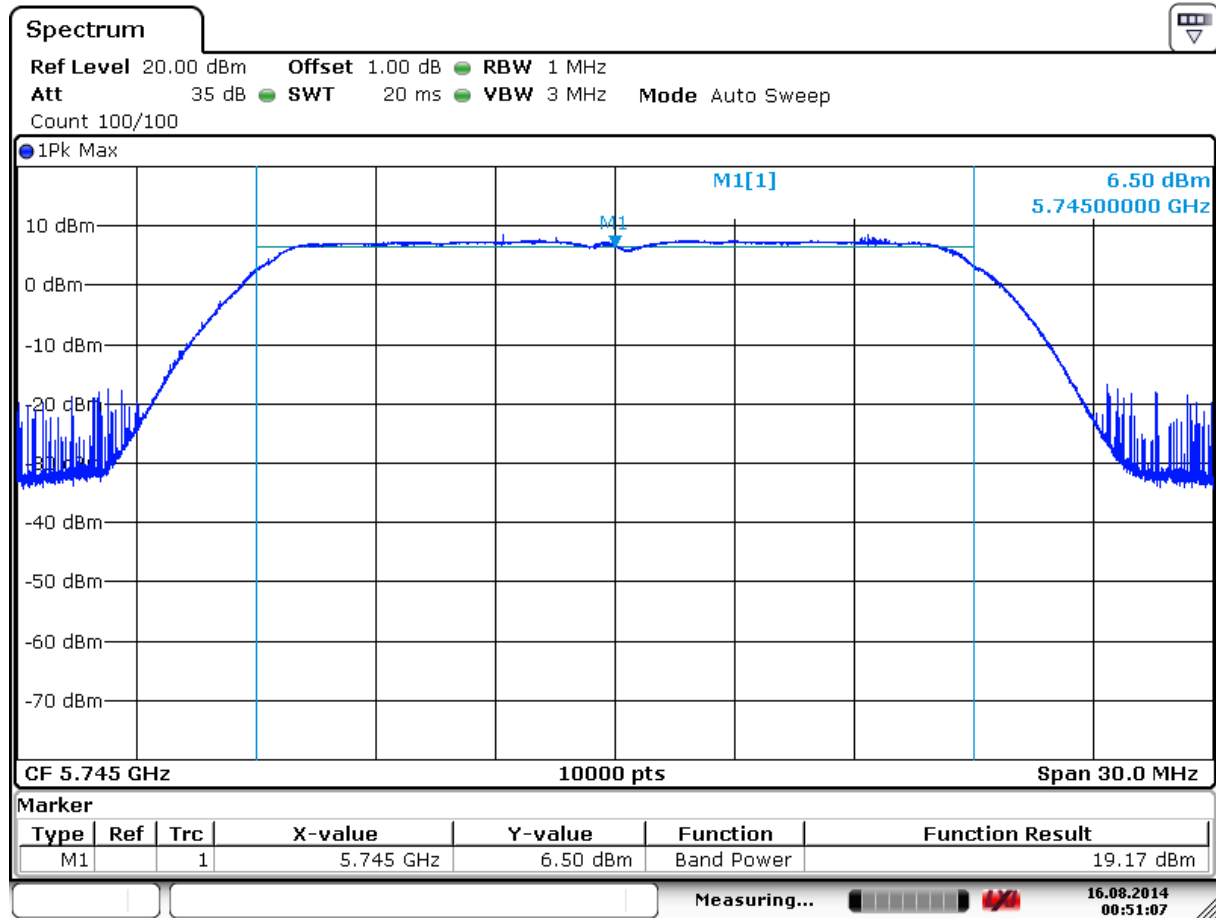
Date: 16 AUG 2014 00:44:32

Peak Conducted Power 802.11a 5785 MHz

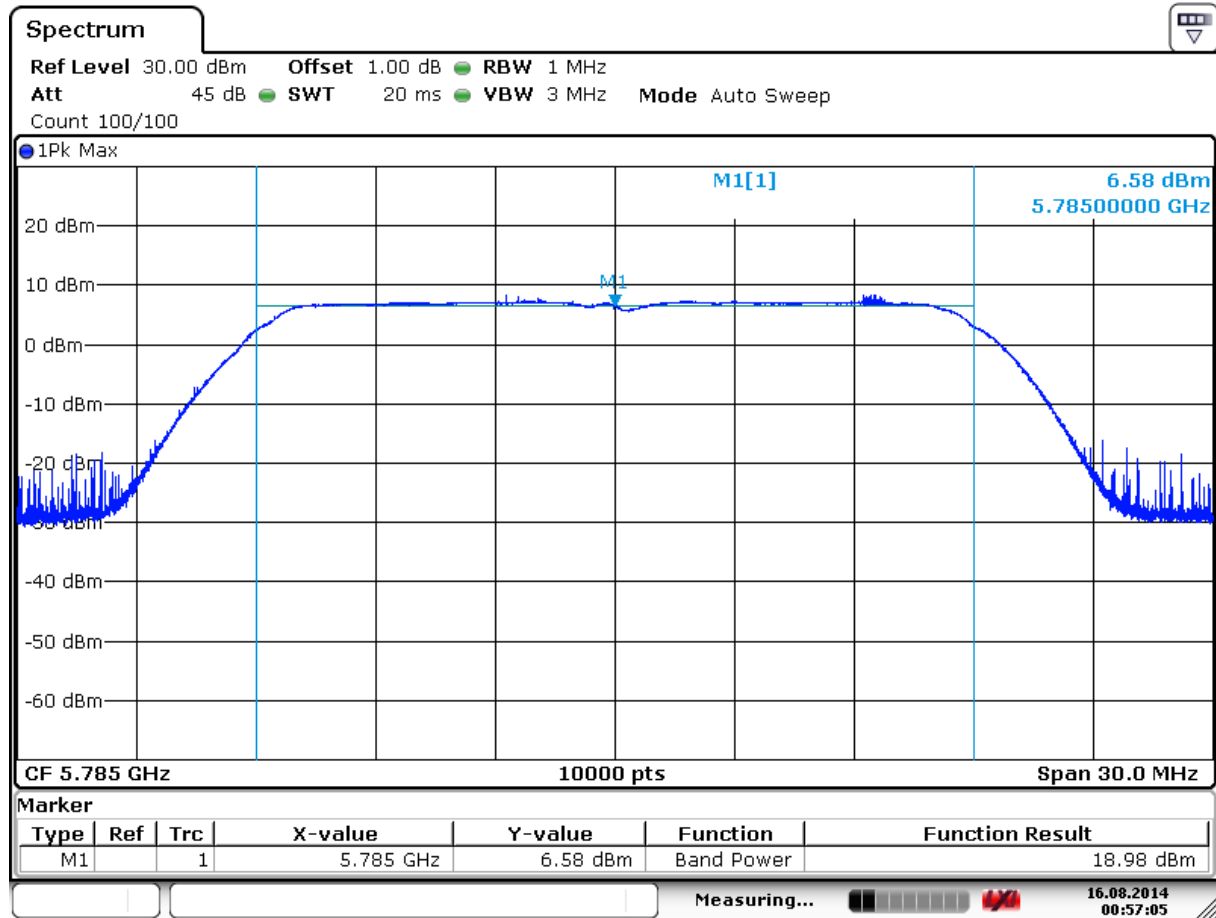
Date: 16 AUG 2014 00:54:46

Peak Conducted Power 802.11a 5825 MHz

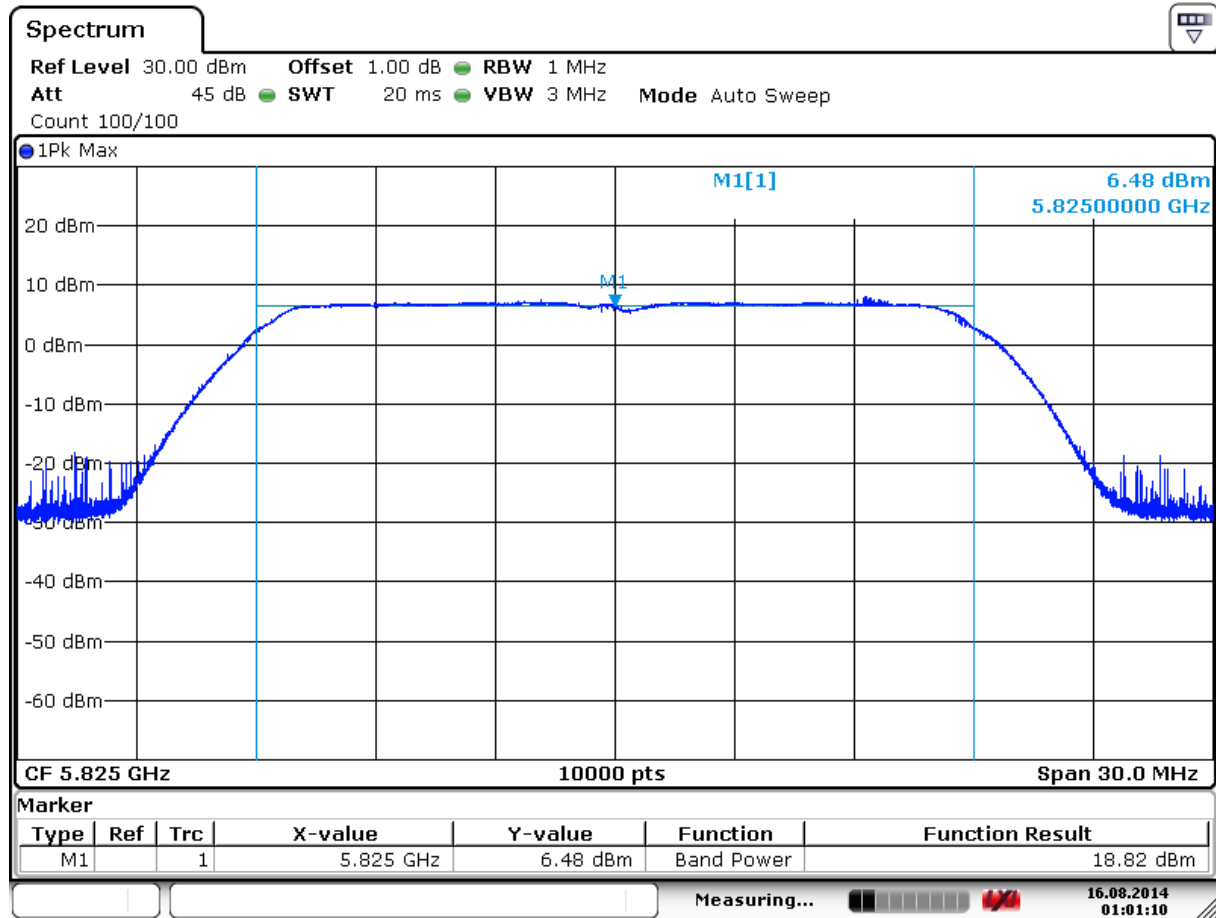
Date: 16 AUG 2014 00:59:20

Peak Conducted Power 802.11n[20] 5745 MHz

Date: 16 AUG 2014 00:51:07

Peak Conducted Power 802.11n[20] 5785 MHz

Date: 16 AUG 2014 00:57:06

Peak Conducted Power 802.11n[20] 5825 MHz

Date: 16 AUG 2014 01:01:10

6.6 Band Edge Compliance for Restricted and Non-restricted Bands**6.6.1 Limits:****6.6.1.1 §15.205 & RSS-Gen 8.9,8.10 for band edges to restricted bands.**

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Peak measurements are made using a peak detector and RBW= 1 MHz

Average measurements performed using a RMS detector.

*PEAK LIMIT= 74dB μ V/m (-21.2 dBm)

*AVG. LIMIT= 54dB μ V/m (-41.2 dBm)

6.6.1.2 §15.247 & RSS-210 A8.5 for band edges to non-restricted bands

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.

For Band Edge measurement

Peak measurements are made using a peak detector and RBW=1MHz.

Average measurements performed using a peak detector and according to video averaging procedure with RBW=1MHz and VBW=10Hz.

*PEAK LIMIT= 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

*AVG. LIMIT= 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

If the peak measurement fulfills the average detector limit the average measurement is omitted.

6.6.2 Measurement Procedure:

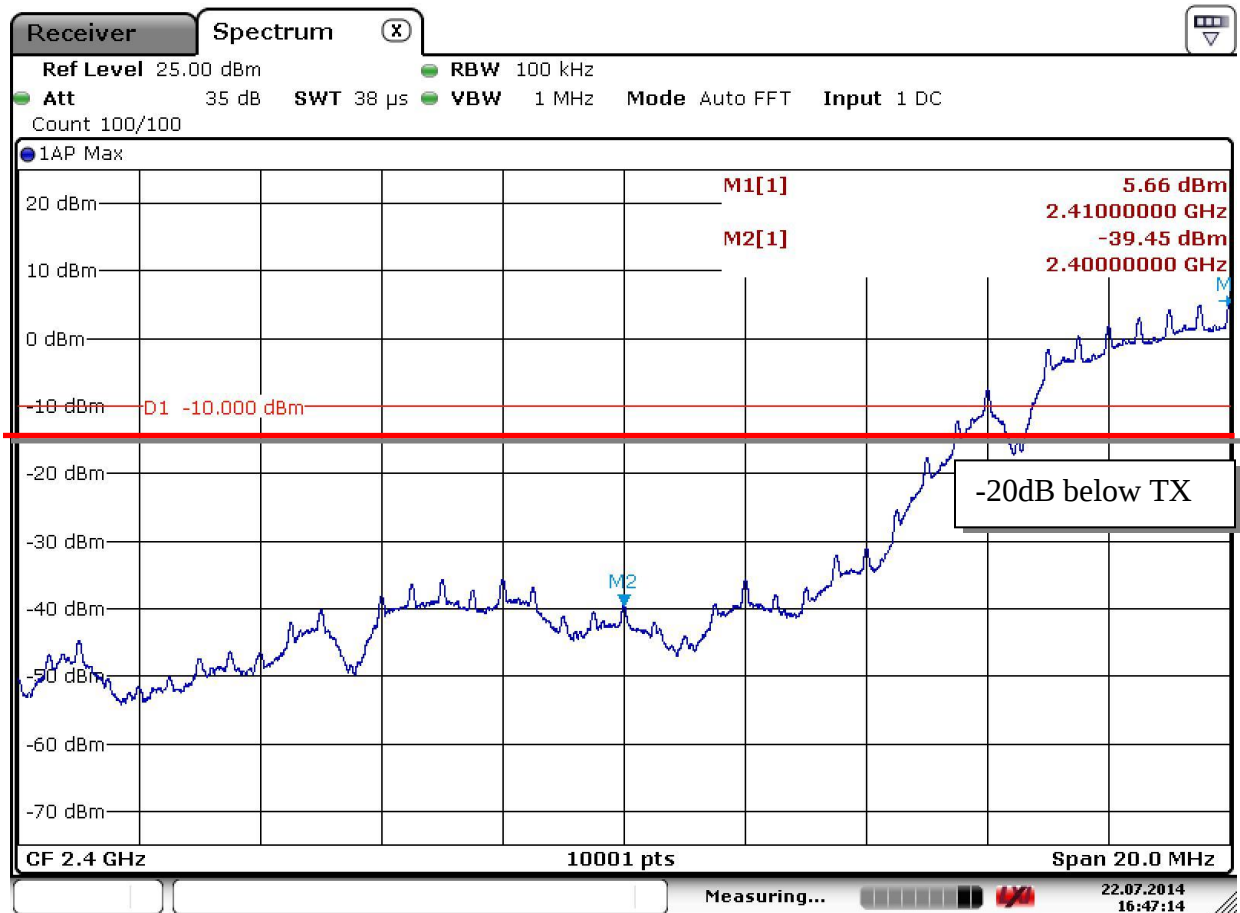
Measurement according to 558074 D01 DTS Meas Guidance v03r02 section 12.2.4 for peak measurements and 12.2.5.1 for average measurements.

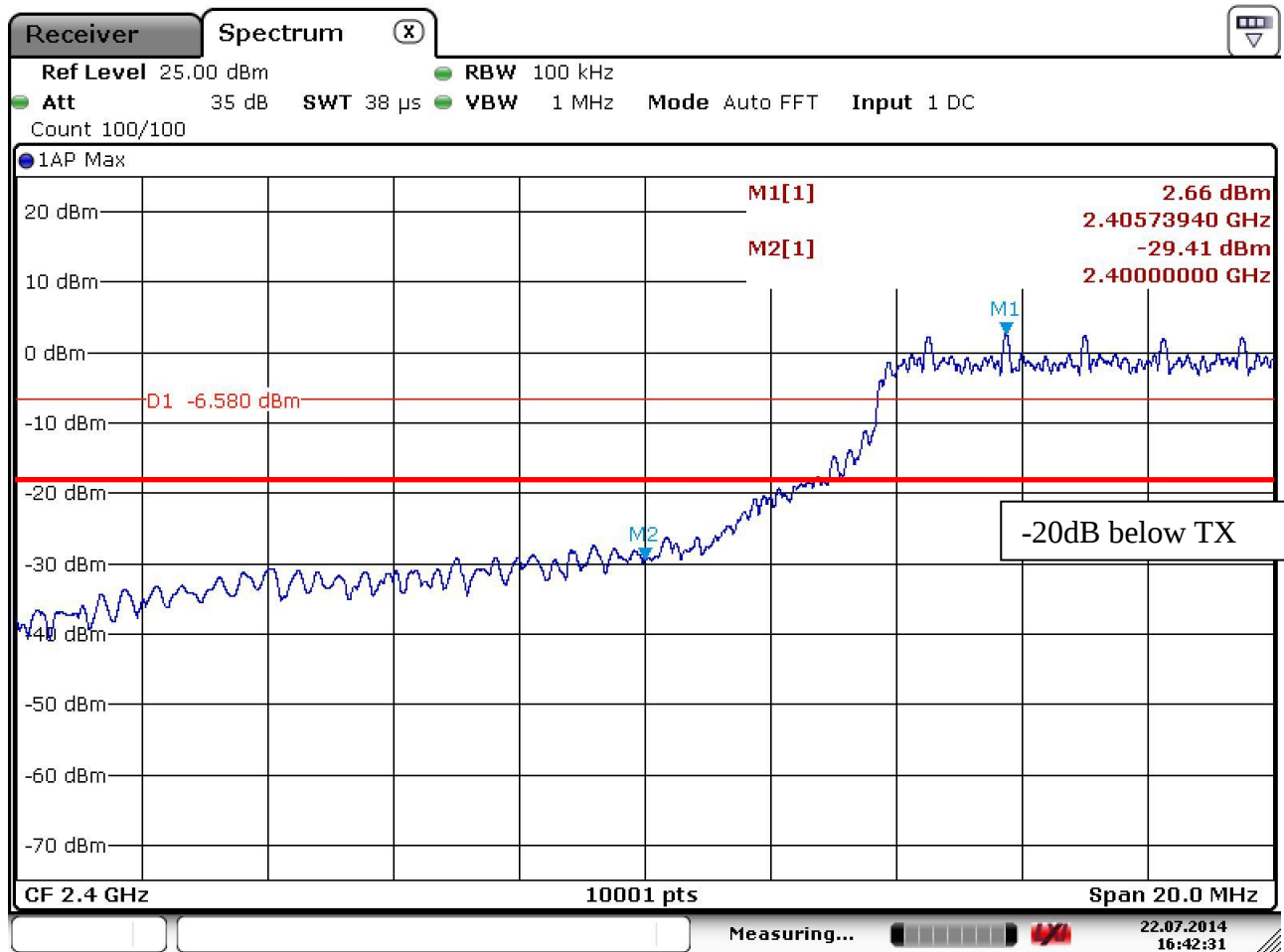
6.6.2.1 Measurement Result

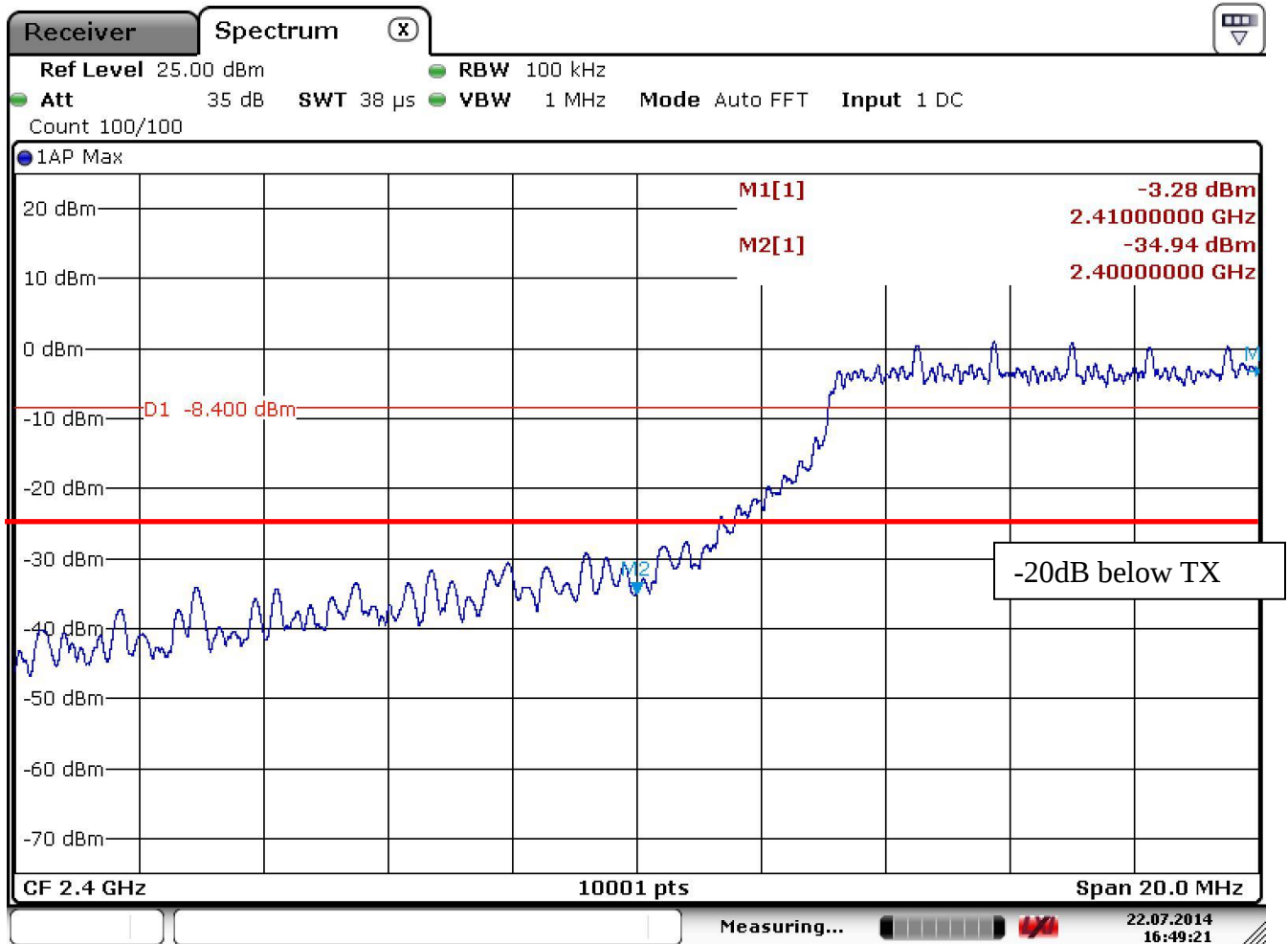
Pass.

6.6.3 2.4GHz Band Edge and Restricted band plots:

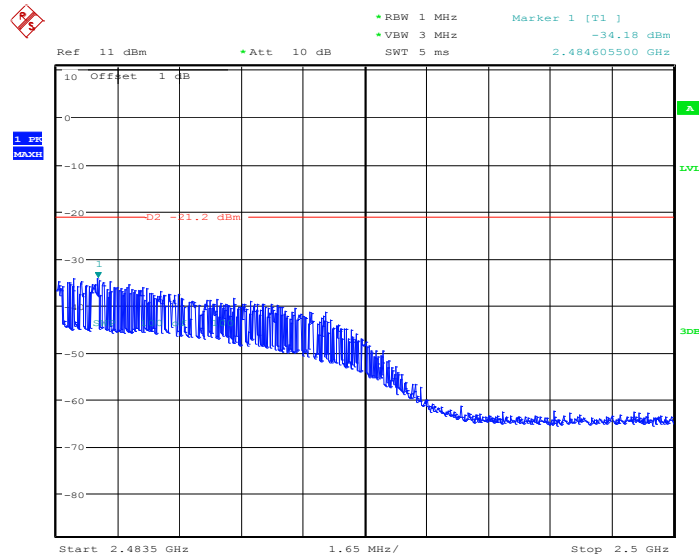
6.6.3.1 Lower non restricted band edge – 802.11b mode – Ch1 (Peak)



6.6.3.2 Lower non restricted band edge – 802.11g mode –Ch 1 (Peak)

6.6.3.3 Lower non restricted band edge – 802.11n mode – Ch 1 (Peak)

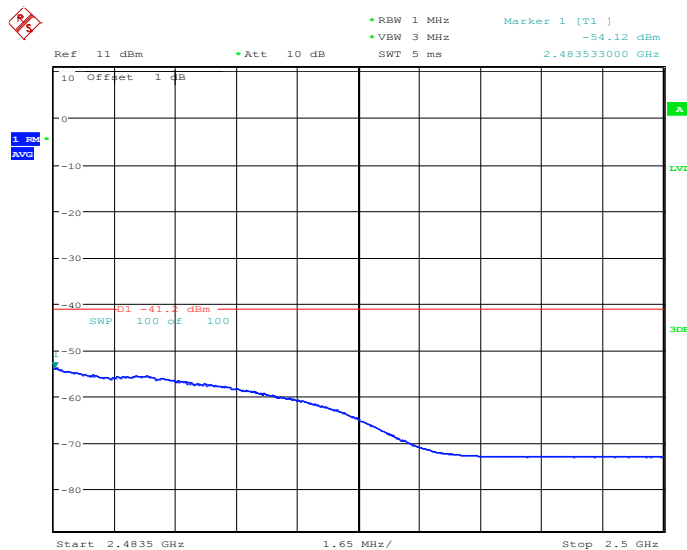
6.6.3.4 Upper restricted band – 802.11b mode – Ch 11 (Peak)



Date: 3.OCT.2014 18:21:09

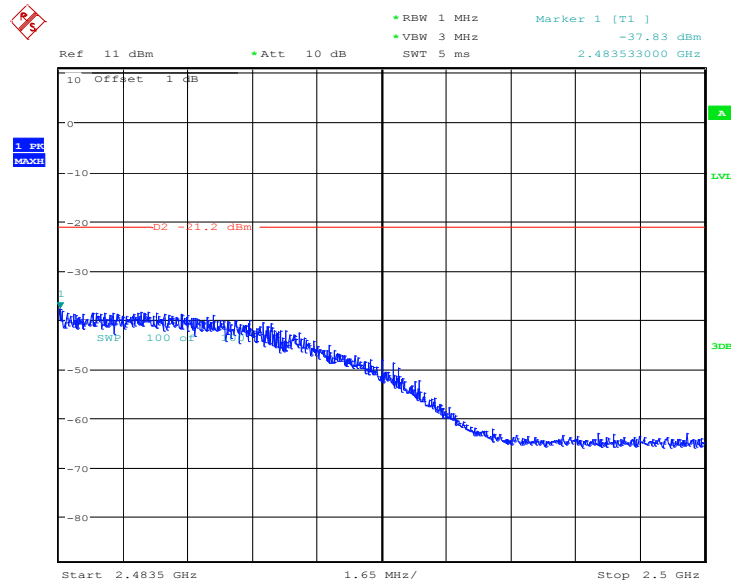
Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS Meas Guidance v03r02

6.6.3.5 Upper restricted band – 802.11b mode – Ch 11 (Average)



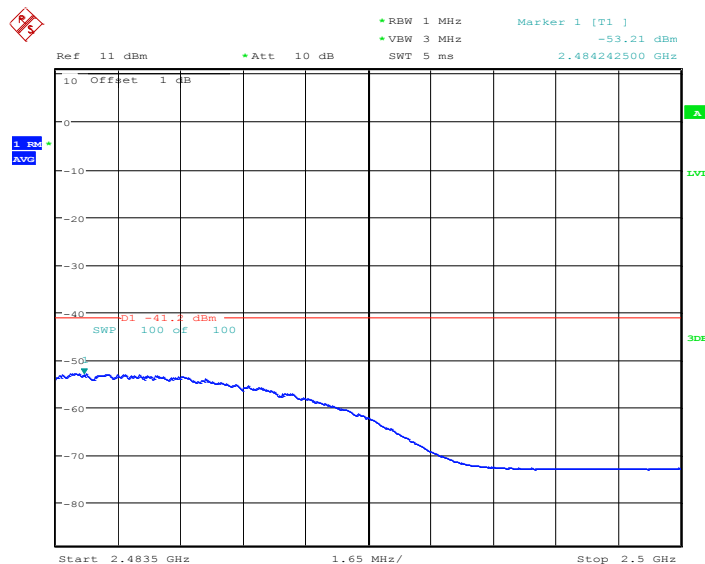
Date: 3.OCT.2014 18:22:21

Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS Meas Guidance v03r02

6.6.3.6 Upper restricted band – 802.11g mode – Ch 11 (Peak)

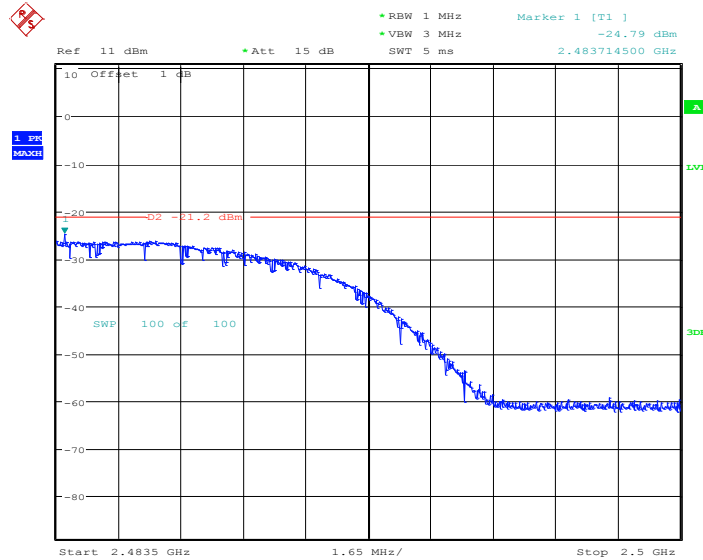
Date: 3.OCT.2014 18:12:12

Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS Meas Guidance v03r02

6.6.3.7 Upper restricted band – 802.11g mode – Ch 11 (Average)

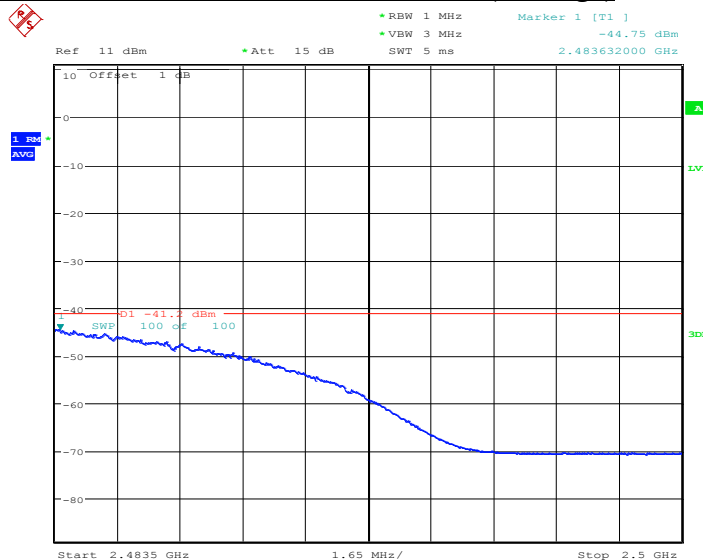
Date: 3.OCT.2014 18:11:11

Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS Meas Guidance v03r02

6.6.3.8 Upper restricted band – 802.11n mode – Ch 11 (Peak)

Date: 3.OCT.2014 18:25:29

Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS
Meas Guidance v03r02

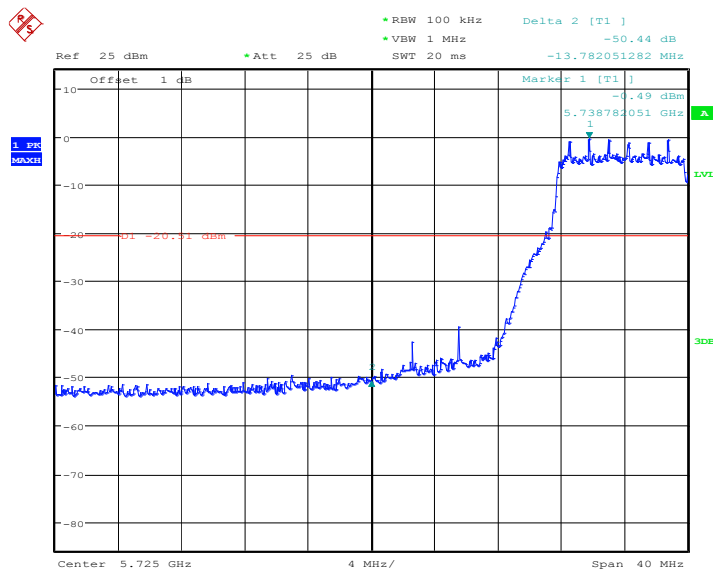
6.6.3.9 Upper restricted band – 802.11n mode – Ch 11 (Average)

Date: 3.OCT.2014 18:24:30

Note: There is a margin of more than 2dB to account for minimum antenna gain acc. 12.2.6 of KDB 558074 D01 DTS
Meas Guidance v03r02

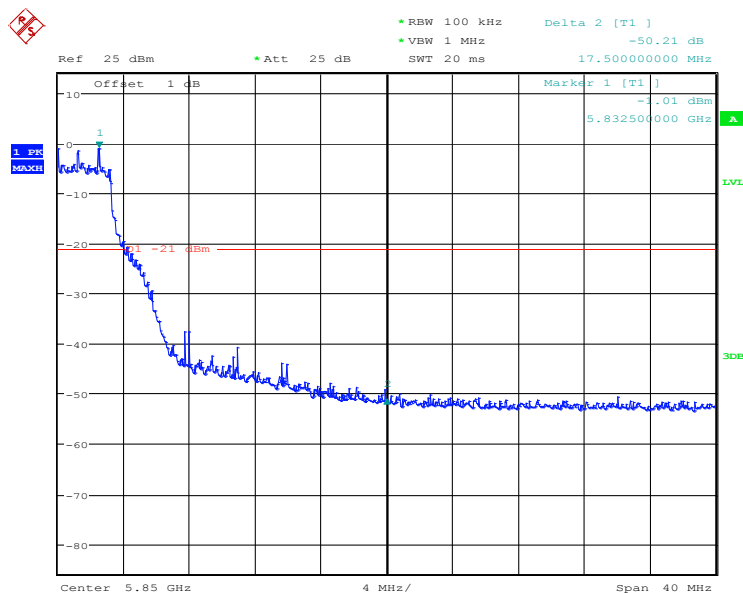
6.6.4 5GHz U-NII-3 Band Edge and Restricted band plots:

6.6.4.1 Lower non restricted band edge – 802.11a mode – Ch149 (Peak)

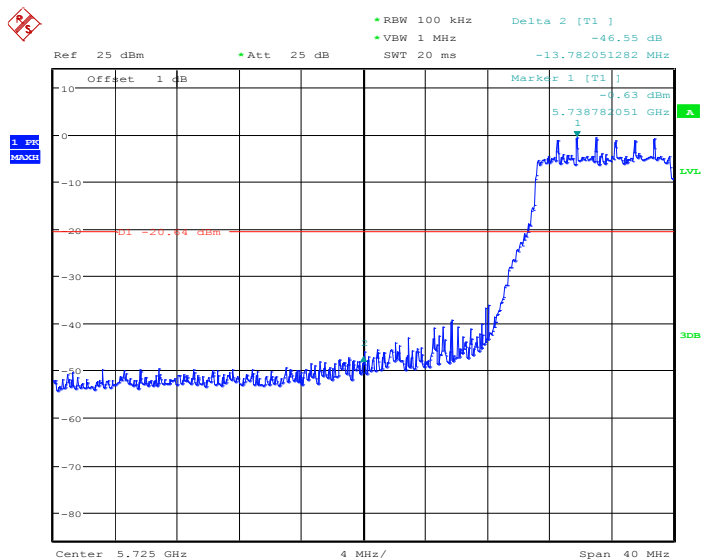


Date: 14.NOV.2014 15:58:56

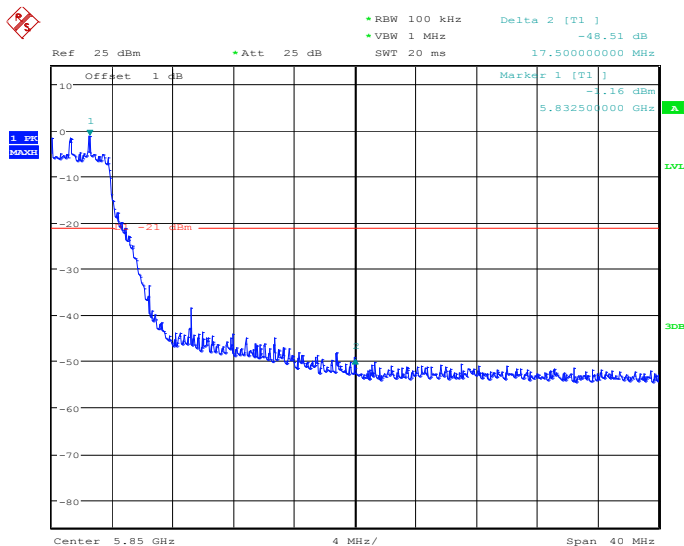
6.6.4.2 Upper non restricted band edge – 802.11a mode – Ch165 (Peak)



Date: 14.NOV.2014 16:09:01

6.6.4.3 Lower non restricted band edge – 802.11n mode – Ch149 (Peak)

Date: 14.NOV.2014 16:05:01

6.6.4.4 Upper non restricted band edge – 802.11n mode – Ch165 (Peak)

Date: 14.NOV.2014 16:10:33

6.7 Occupied Bandwidth (20dB & 99%)

6.7.1 Limits:

§15.247 (a)(2) & RSS-210 A8.2 (a)

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.7.2 Test Conditions:

Tnom: 22 °C; Vnom: 3.8V

6.7.3 Measurement procedure:

Measurement according to 558074 D01 DTS Meas Guidance v03r02 section 8.2 for the 6dB bandwidth and with the 99% bandwidth function of the spectrum analyzer.

Spectrum Analyzer settings:

Span= 2 to 5 x the occupied BW

RBW= 1% to 5 % of the occupied BW, unless otherwise specified

VBW≥ 3xRBW, Detector: Peak- Max hold;

Sweep Time: Auto

Allow the trace to stabilize

6.7.4 Test Result: 2.4 GHz Band

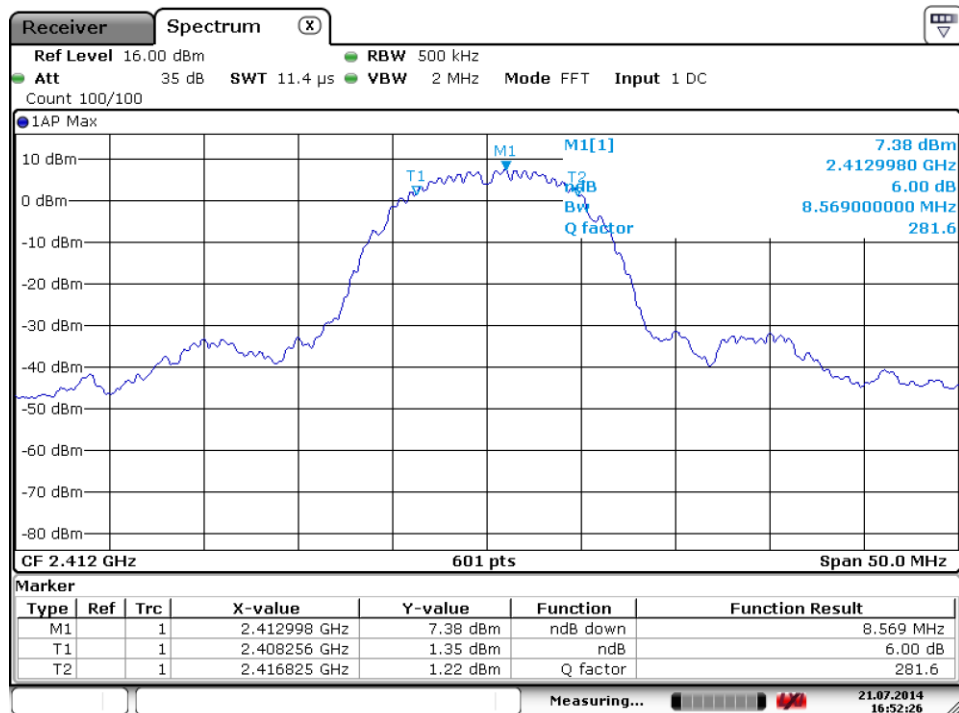
Occupied Bandwidth (MHz)									
Mode	Frequency (MHz)								
	2412 Channel 1			2437 Channel 6			2462 Channel 11		
	6dB	99%	Diagram no.	6dB	99%	Diagram no.	6dB	99%	Diagram no.
802.11b	8.57	11.73	<u>ob_c1_2412_11b</u>	8.49	11.90	<u>ob_c6_2437_11b</u>	8.49	11.81	<u>ob_c11_2462_11b</u>
			<u>ob_c1_2412_11b_9</u> 9			<u>ob_c6_2437_11b_9</u> 9			<u>ob_c11_2462_11b_9</u> 9
802.11g	16.64	18.22	<u>ob_c1_2412_11g</u>	16.81	18.47	<u>ob_c6_2437_11g</u>	16.64	18.05	<u>ob_c11_2462_11g</u>
			<u>ob_c1_2412_11g_9</u> 9			<u>ob_c6_2437_11g_9</u> 9			<u>ob_c11_2462_11g_9</u> 9
802.11n (20 MHz)	18.14	18.97	<u>ob_c1_2412_11n</u>	18.3	19.05	<u>ob_c6_2437_11n</u>	18.22	18.72	<u>ob_c11_2462_11n</u>
			<u>ob_c1_2412_11n_9</u> 9			<u>ob_c6_2437_11n_9</u> 9			<u>ob_c11_2462_11n_9</u> 9
Measurement Uncertainty: ±100 kHz									

6.7.5 Test Result: 5 GHz Band UNII 3

Occupied Bandwidth (MHz)									
Mode	Frequency (MHz)								
	5745 Channel 149			5785 Channel 157			5825 Channel 165		
	6dB	99%	Diagram no.	6dB	99%	Diagram no.	6dB	99%	Diagram no.
802.11a	16.21	16.51	<u>ob_c149_5745_11a</u>	16.03	16.49	<u>ob_c157_5785_11a</u>	16.34	16.49	<u>ob_c165_5825_11a</u>
802.11n[20]	17.59	17.68	<u>ob_c149_5745_11n</u>	17.50	17.69	<u>ob_c157_5785_11n</u>	17.58	17.69	<u>ob_c165_5825_11n</u>
Measurement Uncertainty: ± 100 kHz									

6.7.6 Measurement Result

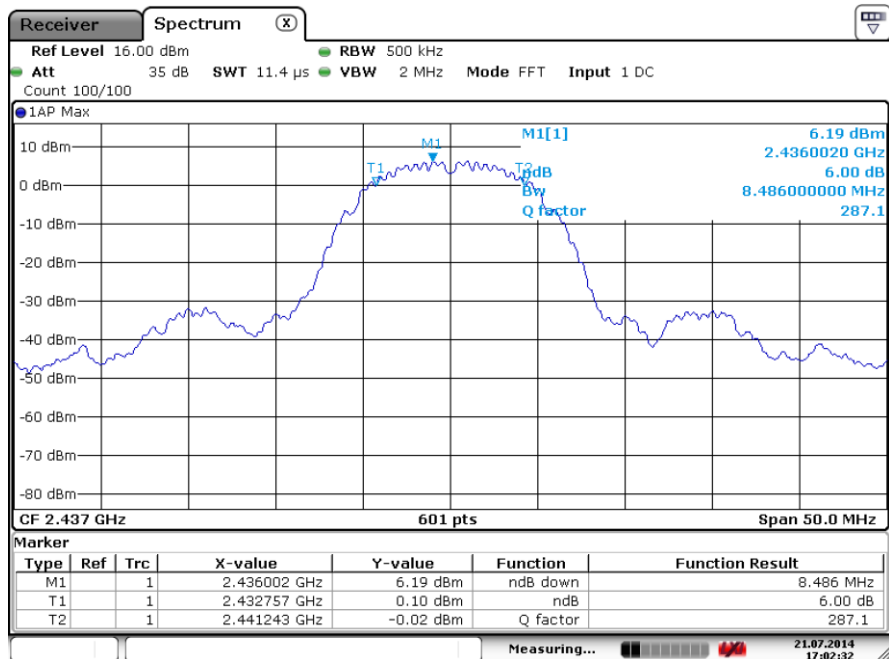
Pass.

6.7.7 Test Data/plots: 2.4 GHz Band**6dB & 99% Bandwidth 802.11b 2412 MHz**

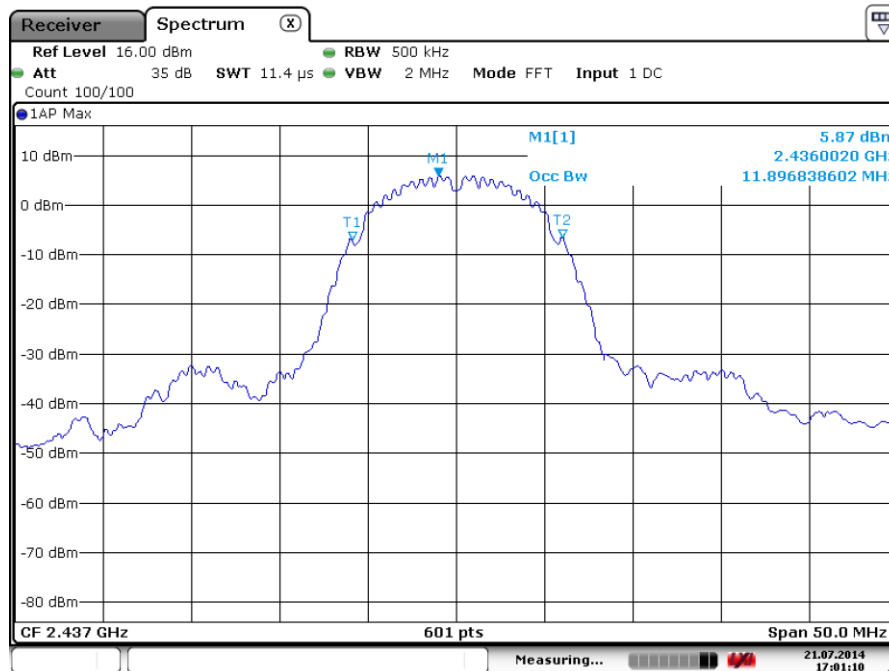
Date: 21.JUL.2014 16:52:26



Date: 21.JUL.2014 16:56:41

6dB & 99% Bandwidth 802.11b 2437 MHz

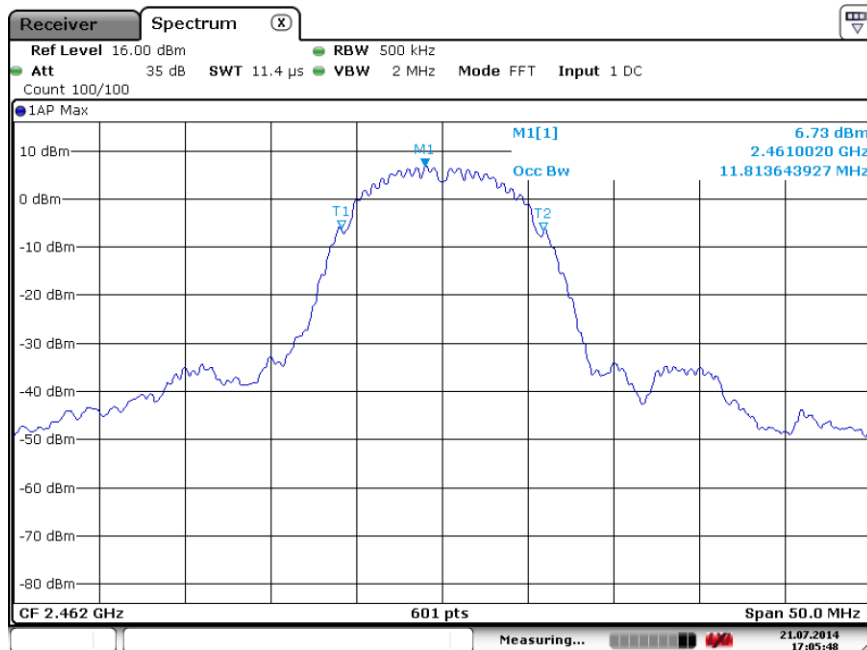
Date: 21.JUL.2014 17:02:31



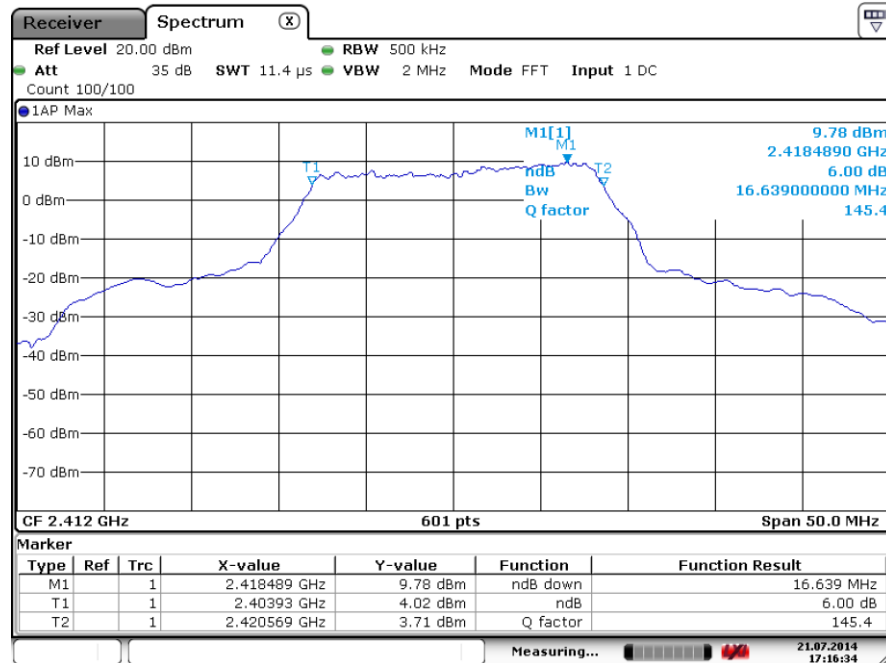
Date: 21.JUL.2014 17:01:10

6dB & 99% Bandwidth 802.11b 2462 MHz

Date: 21.JUL.2014 17:05:01



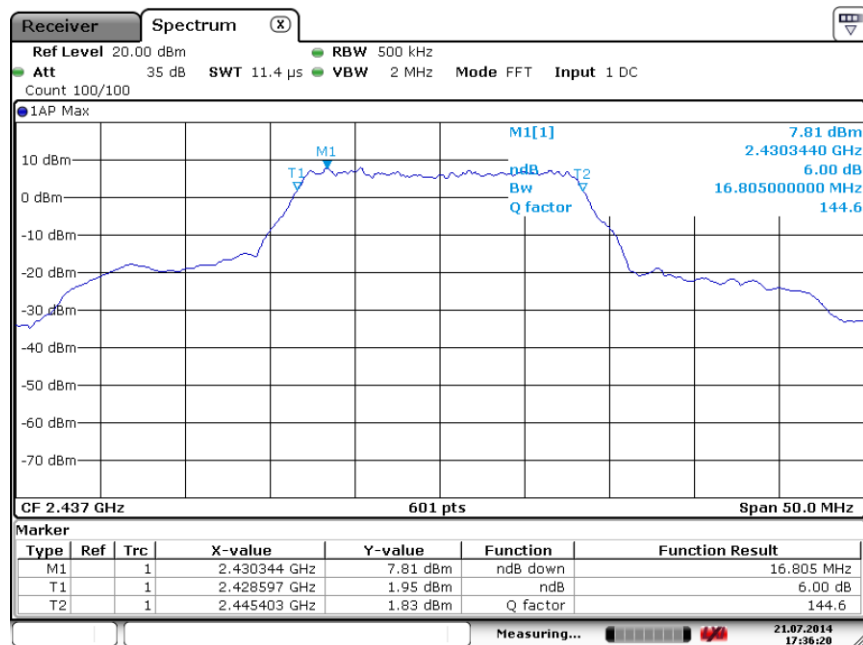
Date: 21.JUL.2014 17:05:48

6dB & 99% Bandwidth 802.11g 2412 MHz

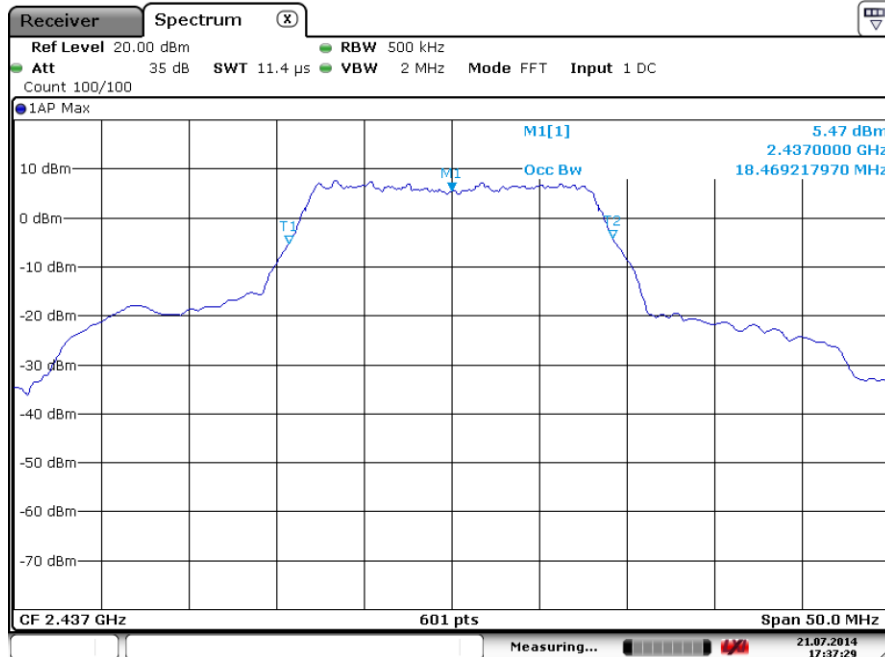
Date: 21.JUL.2014 17:16:33



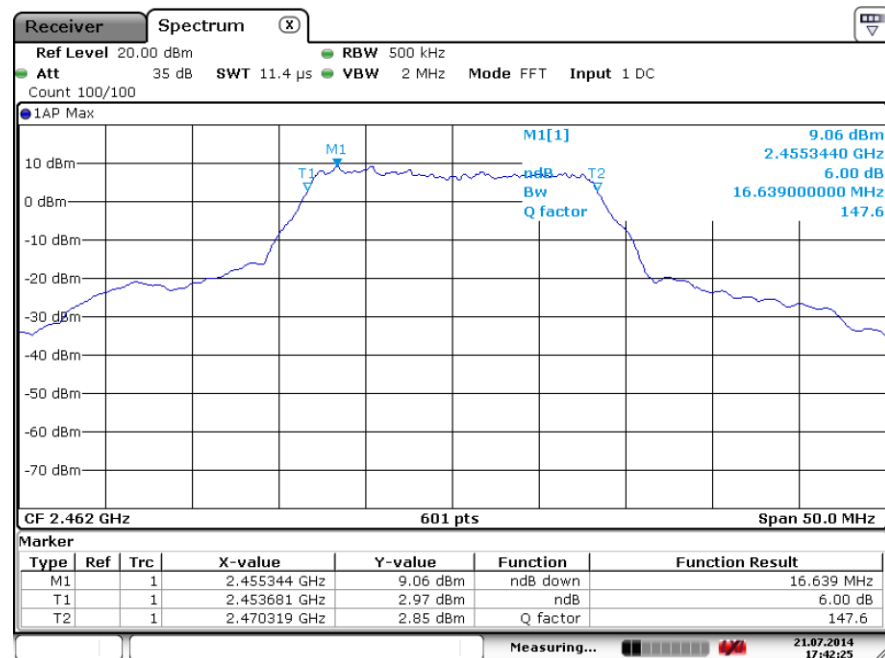
Date: 21.JUL.2014 17:13:51

6dB & 99% Bandwidth 802.11g 2437 MHz

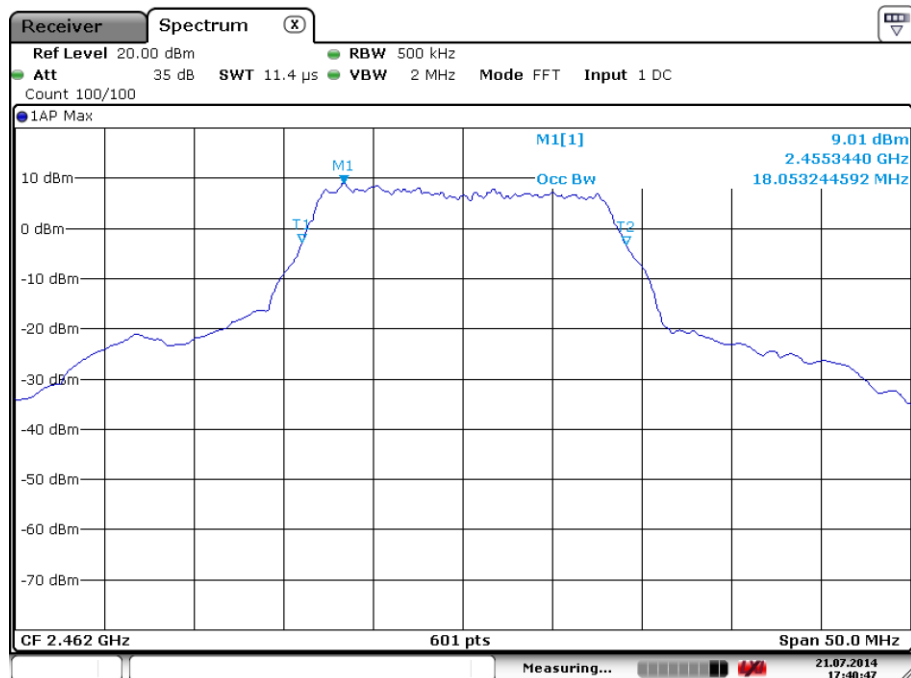
Date: 21.JUL.2014 17:36:20



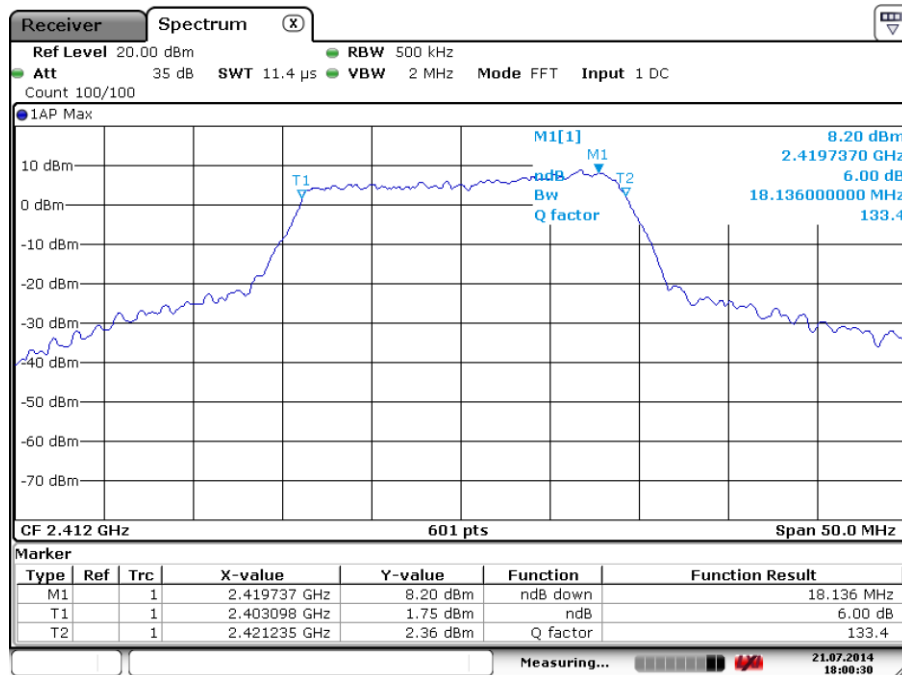
Date: 21.JUL.2014 17:37:28

6dB & 99% Bandwidth 802.11g 2462 MHz

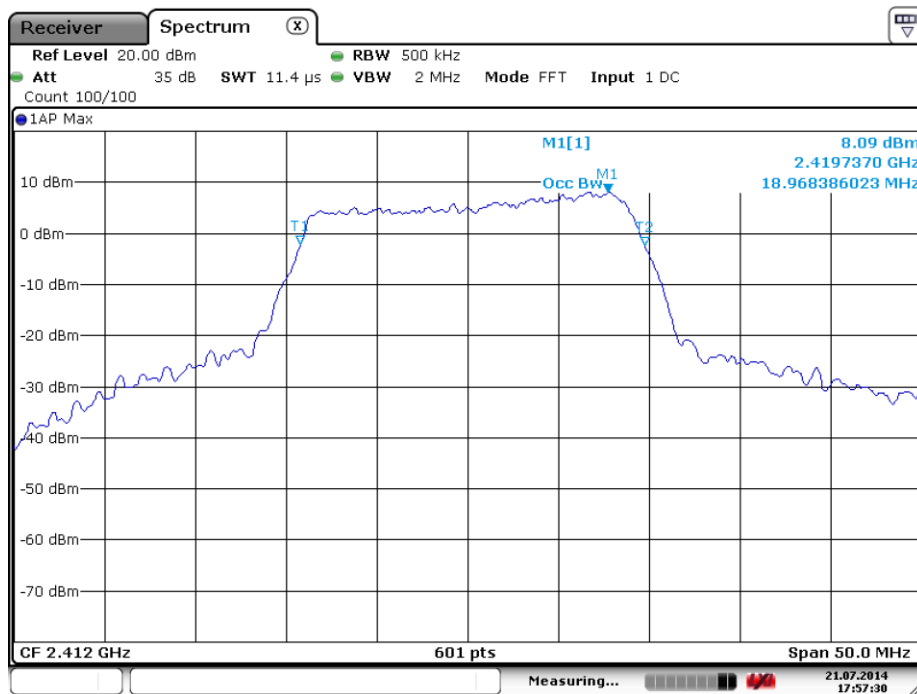
Date: 21.JUL.2014 17:42:24



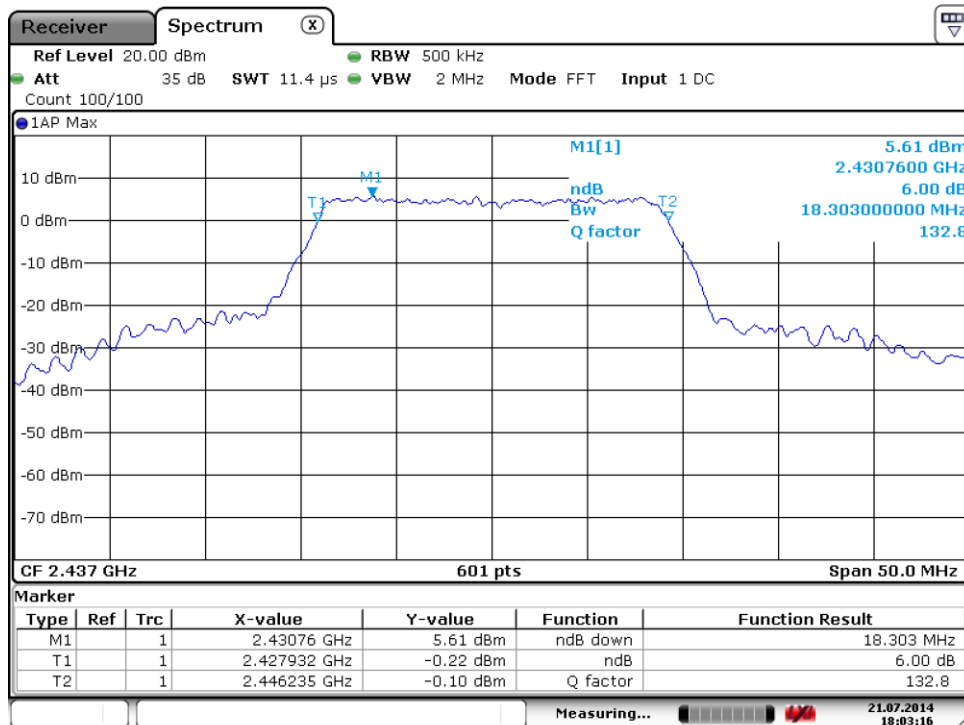
Date: 21.JUL.2014 17:40:47

6dB & 99% Bandwidth 802.11n -MCS0 (20 MHz) 2412 MHz

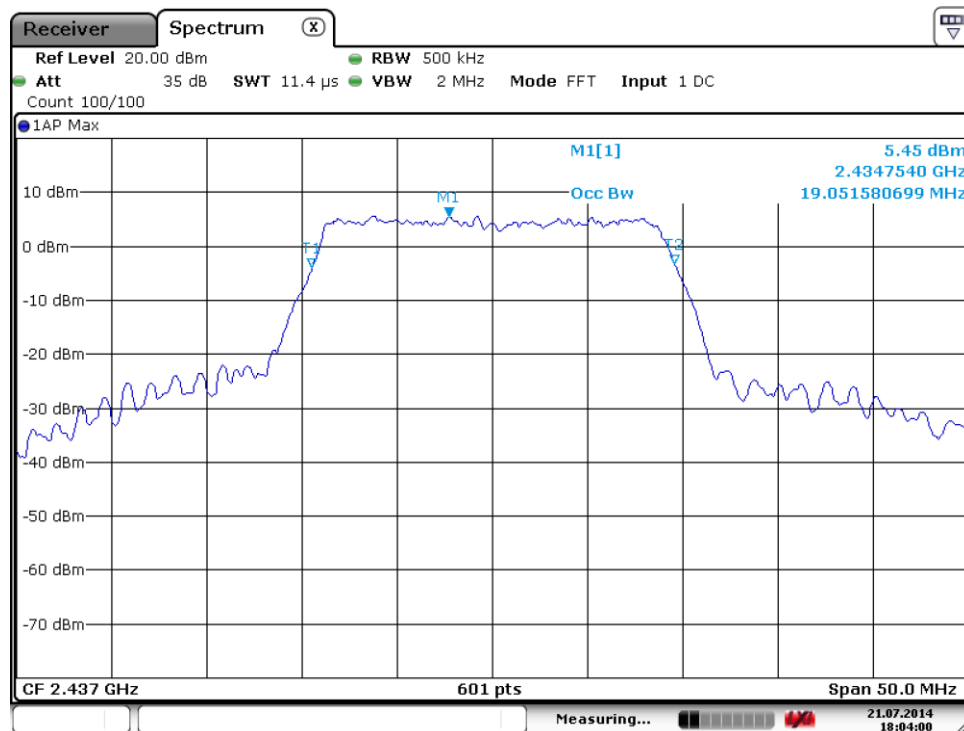
Date: 21.JUL.2014 18:00:30



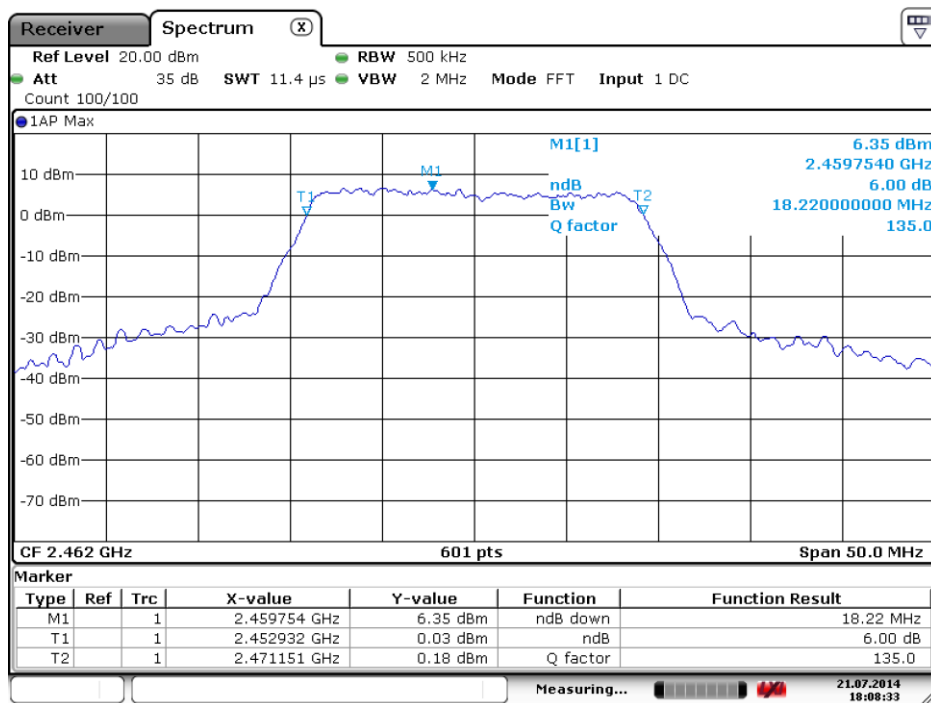
Date: 21.JUL.2014 17:57:29

6dB & 99% Bandwidth 802.11n -MCS0 (20 MHz) 2437 MHz

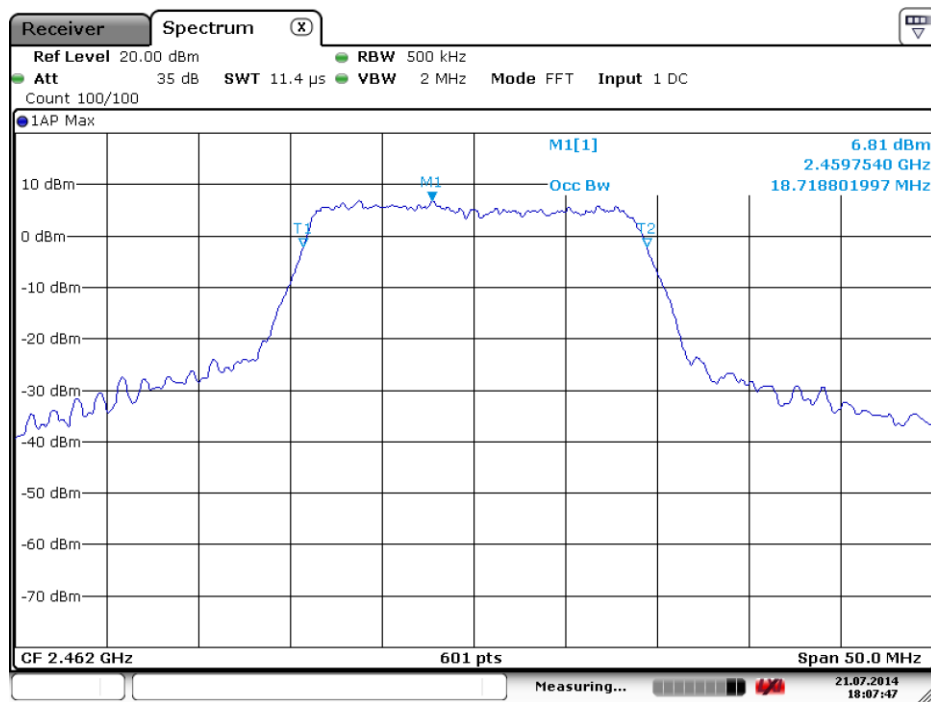
Date: 21.JUL.2014 18:03:16



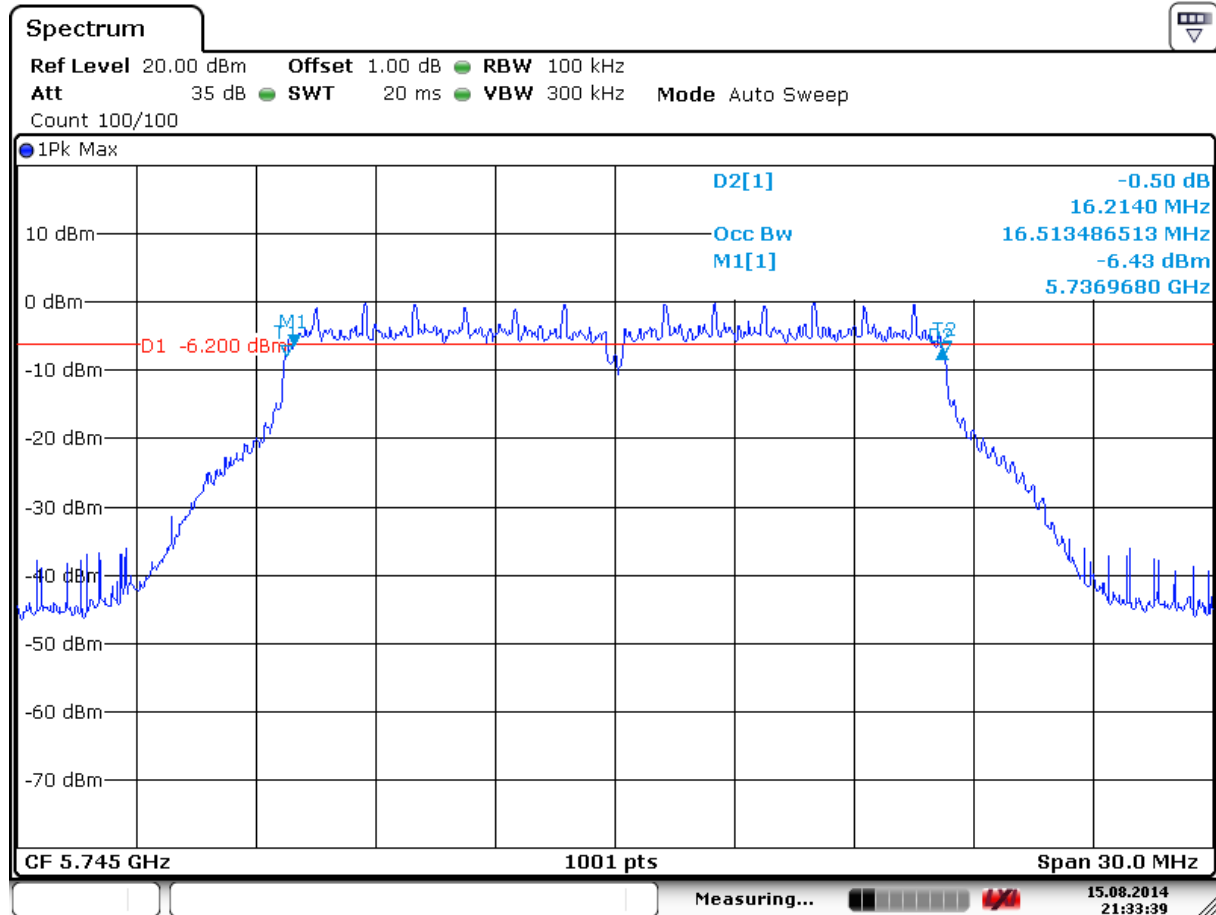
Date: 21.JUL.2014 18:04:00

6dB & 99% Bandwidth 802.11n -MCS0 (20 MHz) 2462 MHz

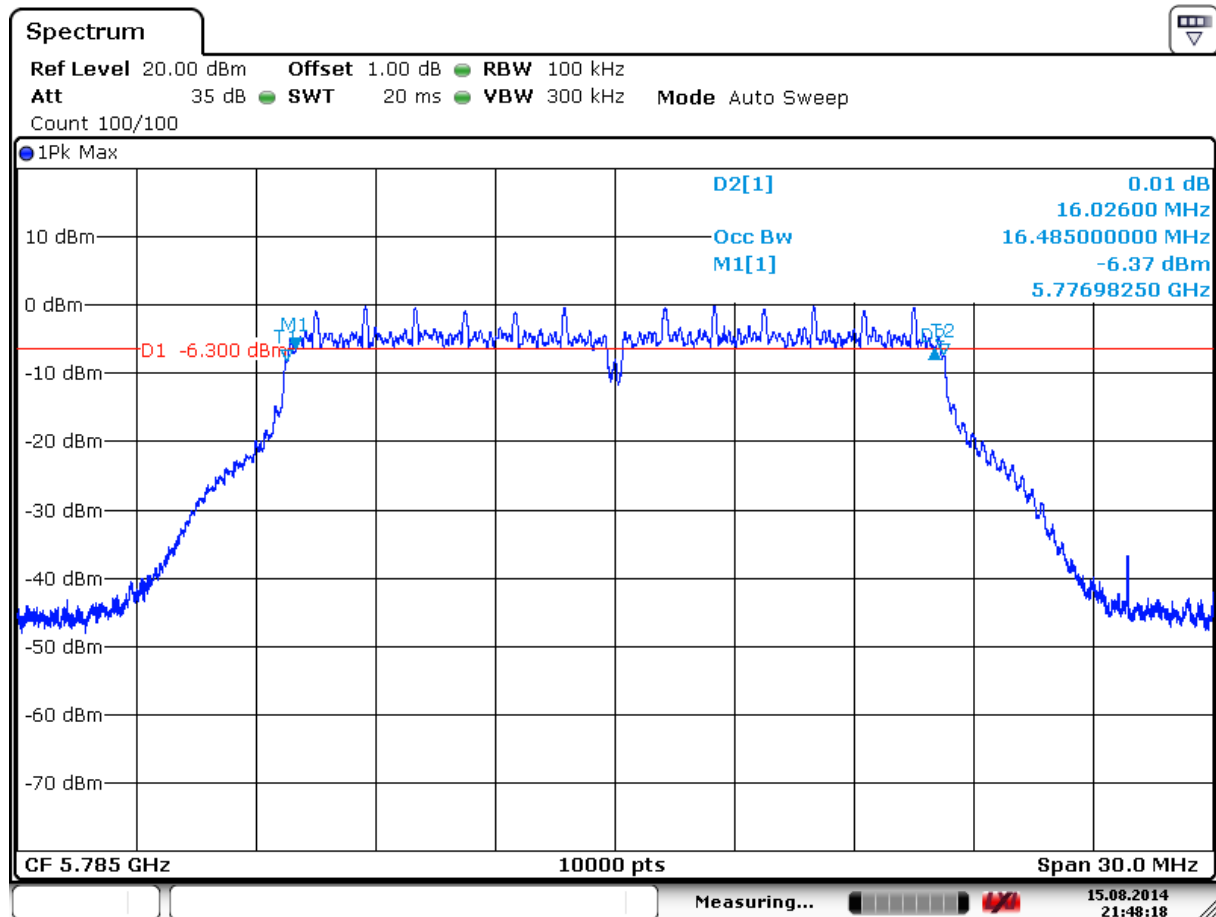
Date: 21.JUL.2014 18:08:33



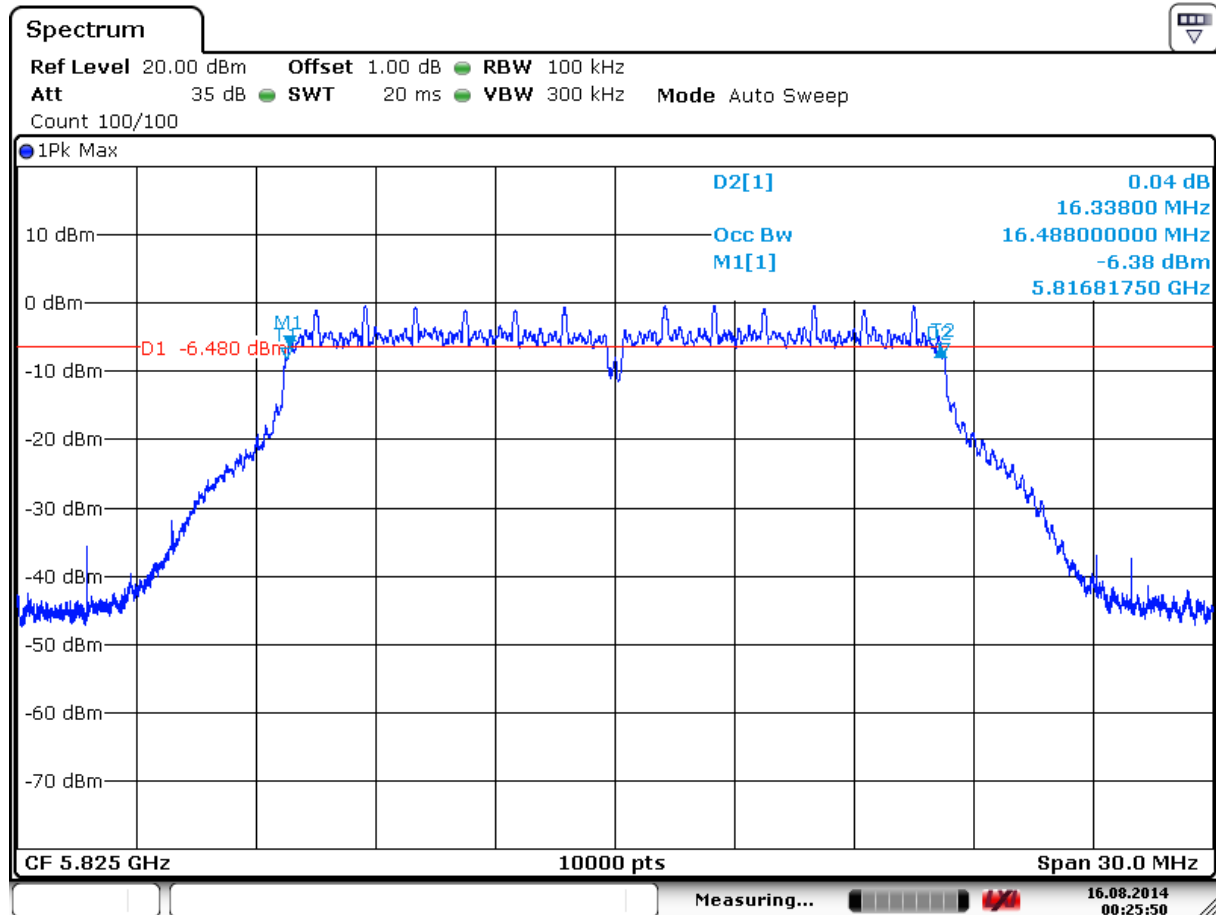
Date: 21.JUL.2014 18:07:47

6.7.8 Test Data/plots: 5 GHz Band UNII 3**6dB & 99% Bandwidth 802.11a 5745 MHz**

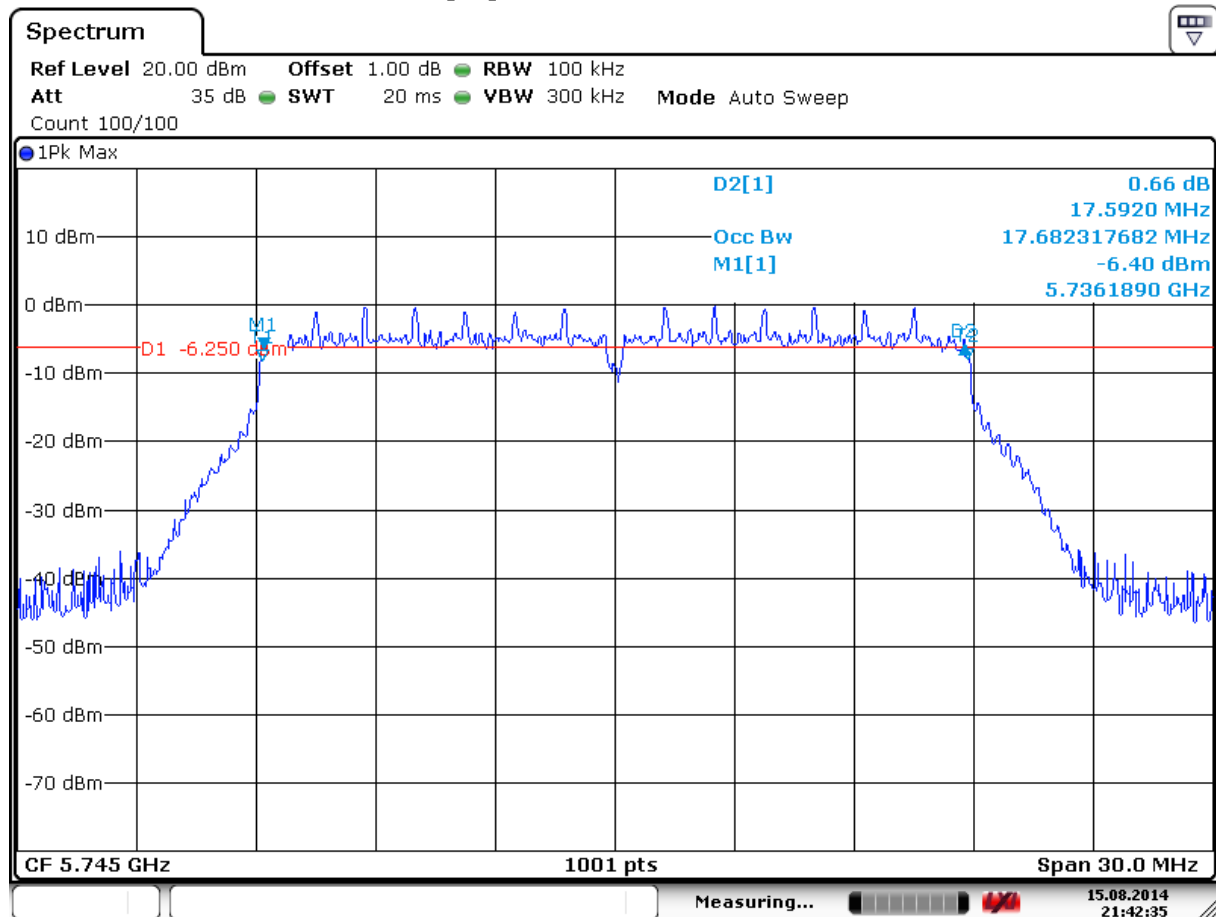
Date: 15 AUG 2014 21:33:39

6dB & 99% Bandwidth 802.11a 5785 MHz

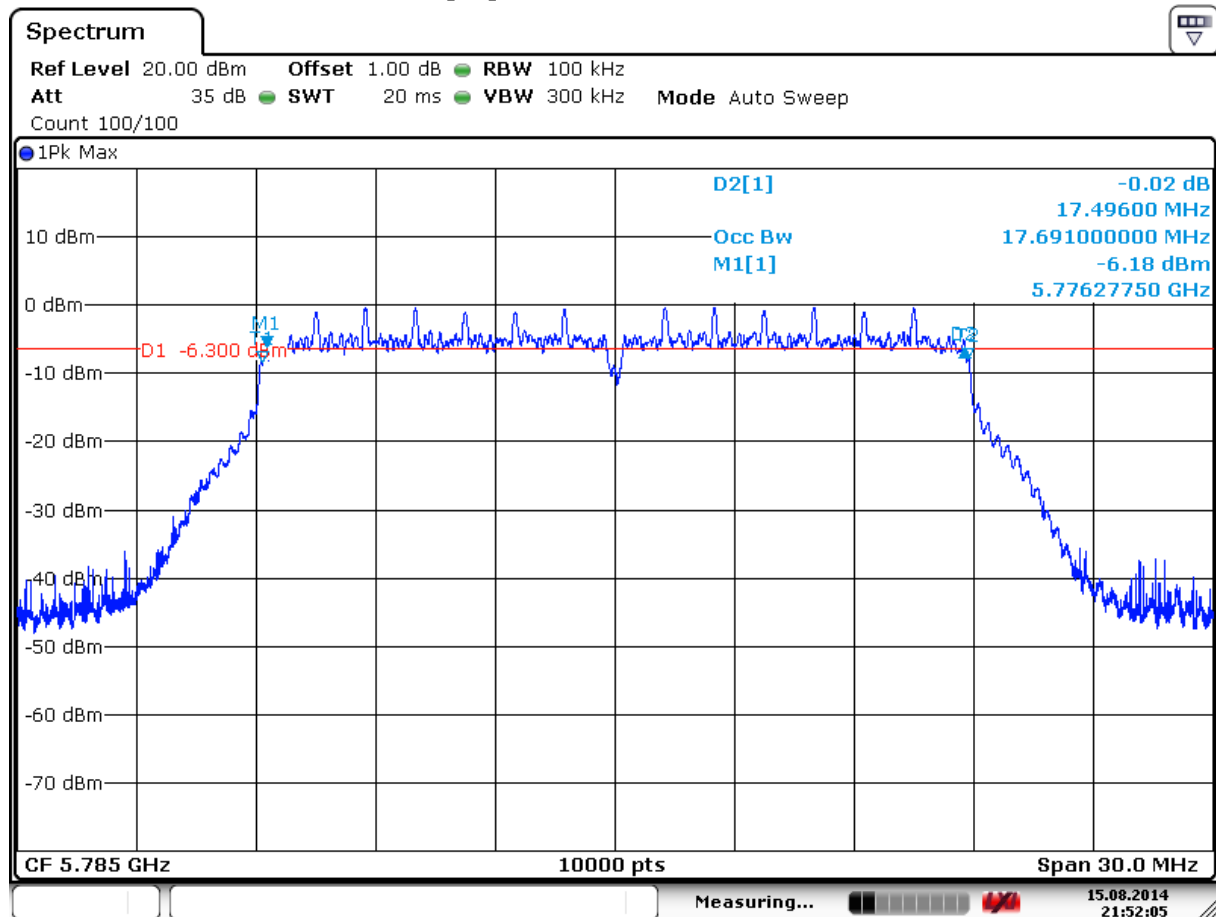
Date: 15 AUG 2014 21:48:18

6dB & 99% Bandwidth 802.11a 5825 MHz

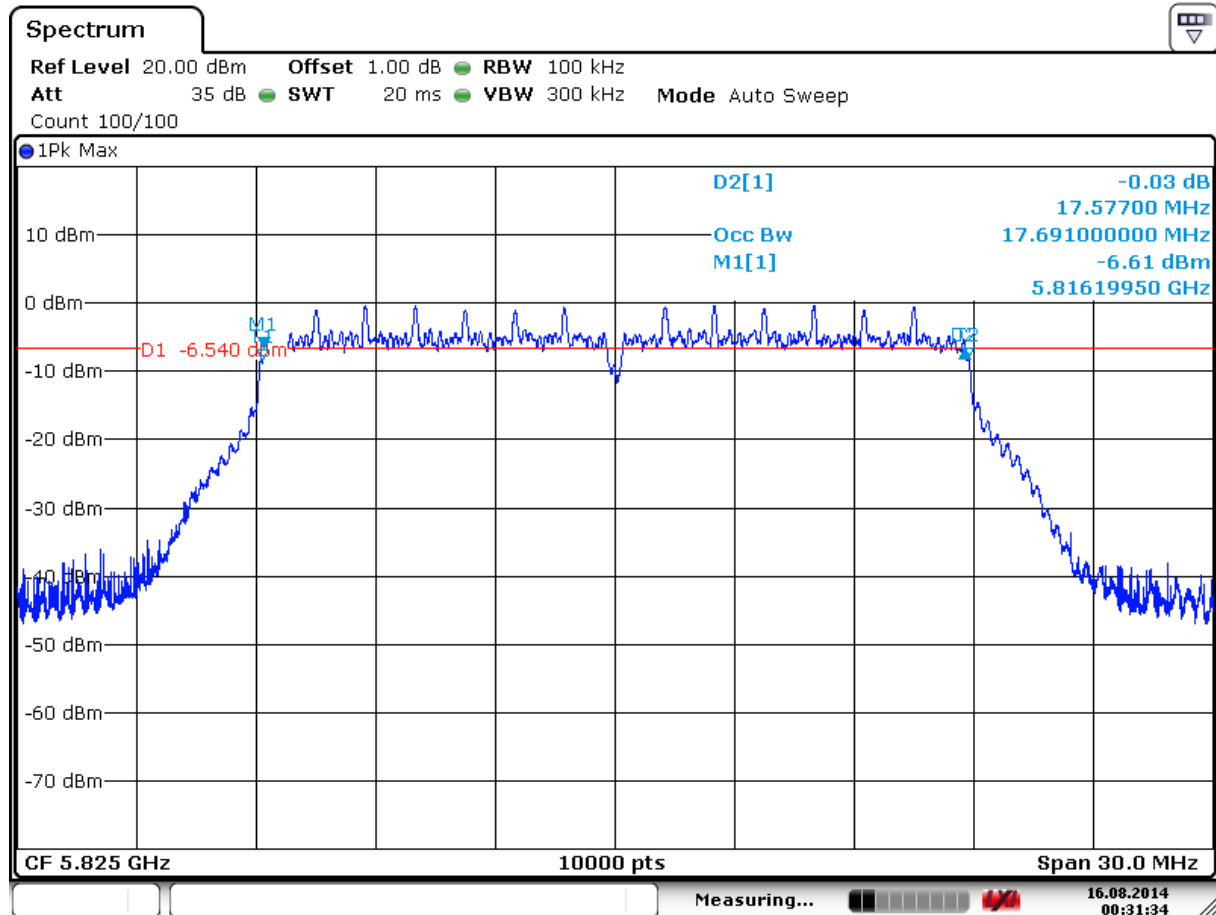
Date: 16 AUG 2014 00:25:50

6dB & 99% Bandwidth 802.11n[20] 5745 MHz

Date: 15 AUG 2014 21:42:35

6dB & 99% Bandwidth 802.11n[20] 5785 MHz

Date: 15 AUG 2014 21:52:05

6dB & 99% Bandwidth 802.11n[20] 5825 MHz

Date: 16 AUG 2014 00:31:34