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Dates of Tests: Aug 06 ~ Aug 18, 2015
 Test Report S/N: LR500111508C
 Test Site : LTA Co., Ltd.

CERTIFICATION OF COMPLIANCE

FCC ID.

2AFBV-MT-WN836NM

APPLICANT

QUBER Co., Ltd.

Equipment Class	: Digital Transmission System (DTS)
Manufacturing Description	: Wlan Module
Manufacturer	: QUBER Co., Ltd.
Model name	: MT-WN836NM
Test Device Serial No.:	: Identical prototype
Rule Part(s)	: FCC Part 15.247 Subpart C; ANSI C-63.4-2009
Frequency Range	: 2412MHz ~ 2462MHz for 802.11b/g/n20 2422MHz ~ 2452MHz for 802.11n40
Max. Output Power	: Max 25.12 dBm - Conducted (802.11b) Max 25.94 dBm - Conducted (802.11g) Max 25.98 dBm - Conducted (802.11n_20MHz) Max 25.45 dBm - Conducted (802.11n_40MHz) Max 26.65 dBm - Conducted (802.11n_20MHz, MIMO) Max 27.55 dBm - Conducted (802.11n_40MHz, MIMO)
Data of issue	: August 19, 2015

This test report is issued under the authority of:

The test was supervised by:

Young-Jin Lee, Manager

Joon-Young Jeon, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. This report must not be used by the applicant to claim product endorsement by any agency.



NVLAP LAB Code.: 200723-0

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1. General information

1-1 Test Performed

Company name : LTA Co., Ltd.
 Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822
 Web site : <http://www.ltalab.com>
 E-mail : chahn@ltalab.com
 Telephone : +82-31-323-6008
 Facsimile : +82-31-323-6010

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2015-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	UPDATING	EMC accredited Lab.
FCC	U.S.A	610755	2017-04-21	FCC filing
FCC	U.S.A	649054	2017-04-13	FCC CAB
VCCI	JAPAN	R2133(10 m), C2307	2017-06-21	VCCI registration
VCCI	JAPAN	T-2009	2016-12-23	VCCI registration
VCCI	JAPAN	G-563	UPDATING	VCCI registration
IC	CANADA	5799A-1	UPDATING	IC filing
KOLAS	KOREA	NO.551	2017-01-08	KOLAS accredited Lab.

2. Information about test item

2-1 Client

Company name : QUBER Co., Ltd.
 Address : B-704 Samwhan Hipex, 230 Pangyoyeok-ro, Bundang-gu, Seongnam-si,
 Gyeonggi-do, 463-400 Republic of Korea
 Tel / Fax TEL No : +82-31-716-2636 / FAX No : +82-31-609-7501

2-2 Manufacturer

Company name : Shenzhen MTN Electronics co.,ltd
 Address : MTN Industrial Park,No.9 South Futai Road,Pingxi
 Community,Pingdi Street,Longgang District,Shenzhen City,518117,China.

2-3 Equipment Under Test (EUT)

Trade name : QUBER
 Model name : MT-WN836NM
 Serial number : Identical prototype
 Date of receipt : Aug 04, 2015
 EUT condition : Pre-production, not damaged
 Antenna type : PCB Antenna, Max Gain 2.1 dBi
 Frequency Range : 2412MHz ~ 2462MHz for 802.11b/g/n20
 2422MHz ~ 2452MHz for 802.11n40
 RF output power : Max 25.12 dBm Conducted (802.11b)
 Max 25.94 dBm - Conducted (802.11g)
 Max 25.98 dBm - Conducted(802.11n_20MHz)
 Max 25.45 dBm – Conducted (802.11n_40MHz)
 Max 26.65 dBm - Conducted(802.11n_20MHz, MIMO)
 Max 27.55 dBm - Conducted(802.11n_40MHz, MIMO)
 Number of channels : 11 for 802.11b & 802.11g & 802.11n_20MHz
 7 for 802.11n_40MHz
 Type of Modulation : CCK, DQPSK, DBPSK for DSSS
 64QAM, 16QAM, QPSK, BPSK for OFDM
 Transfer Rate : 11/5.5/2/1Mbps for 802.11b
 54/48/36/24/18/12/9/6Mbps for 802.11g
 MCS0/ MCS 1/ MCS 2/ MCS 3/ MCS 4/ MCS 5/ MCS 6
 / MCS 7Mbps for 802.11n_20MHz/n_40MHz
 Power Source for Batt. : DC 3.3V
 Firmware : V1.0.0

2-3 Tested frequency

	LOW	MID	HIGH
Frequency (MHz) for 802.11b/g/n20	2412	2437	2462
Frequency (MHz) for 802.11n40	2422	2437	2452

2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
-	-	-	-

2-5 Description of Test modes**For 2.4GHz:****11 channels are provided for 802.11b, 802.11g and 802.11n_20MHz**

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

For 2.4GHz:**7 channels are provided for 802.11n_40MHz**

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500kHz	Conducted	C
15.247(b)	Transmitter Peak Output Power	< 1Watt		C
15.247(d)	Transmitter Power Spectral Density	< 8dBm @ 3kHz		C
15.247(d)	Band Edge & Spurious	> 20 dBc		C
15.209	Field Strength of Harmonics	Emission	Radiated	C
15.207	AC Conducted Emissions	Emissions	Conducted	C
15.203	Antenna requirement	-	-	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

→ Antenna Requirement

The **QUBER Co., Ltd. FCC ID: 2AFBV-MT-WN836NM** unit complies with the requirement of §15.203.

The antenna is connected to the EUT. And type is PCB Antenna

The sample was tested according to the following specification:

*FCC Parts 15.247; ANSI C-63.4-2009

*FCC KDB Publication No. 558074 D01 DTS Meas. Guidance V02

*FCC TCB Workshop 2012, April

3.2 Technical Characteristics Test

3.2.1 6 dB Bandwidth

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The bandwidth at 6dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

Span = 30 MHz

VBW = 100 kHz (VBW $\geq$ RBW)

Sweep = auto

Trace = max hold

Detector function = peak

Measurement Data: Port 1

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Bandwidth (MHz)	Result
802.11b	2412	1	8.42	Complies
	2437	6	8.59	Complies
	2462	11	8.81	Complies
802.11g	2412	1	16.59	Complies
	2437	6	16.59	Complies
	2462	11	16.59	Complies
802.11n _20MHz	2412	1	17.93	Complies
	2437	6	17.84	Complies
	2462	11	17.89	Complies
802.11n _40MHz	2422	3	36.64	Complies
	2437	6	36.64	Complies
	2452	9	36.56	Complies

- See next pages for actual measured spectrum plots.

Measurement Data: Port 2

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Bandwidth (MHz)	Result
802.11b	2412	1	8.99	Complies
	2437	6	8.77	Complies
	2462	11	8.81	Complies
802.11g	2412	1	16.59	Complies
	2437	6	16.59	Complies
	2462	11	16.59	Complies
802.11n _20MHz	2412	1	17.89	Complies
	2437	6	17.89	Complies
	2462	11	17.89	Complies
802.11n _40MHz	2422	3	36.64	Complies
	2437	6	36.64	Complies
	2452	9	36.64	Complies

- See next pages for actual measured spectrum plots.

Measurement Data: MIMO

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Bandwidth (MHz)	Result
802.11n _20MHz	2412	1	17.89	Complies
	2437	6	17.89	Complies
	2462	11	17.84	Complies
802.11n _40MHz	2422	3	36.47	Complies
	2437	6	36.70	Complies
	2452	9	36.58	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

6 dB Bandwidth > 500 kHz

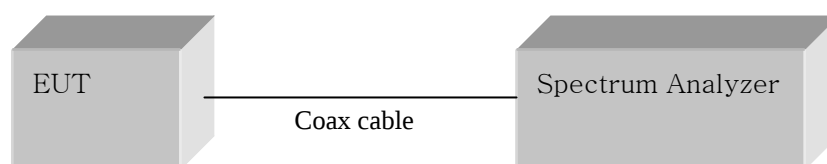
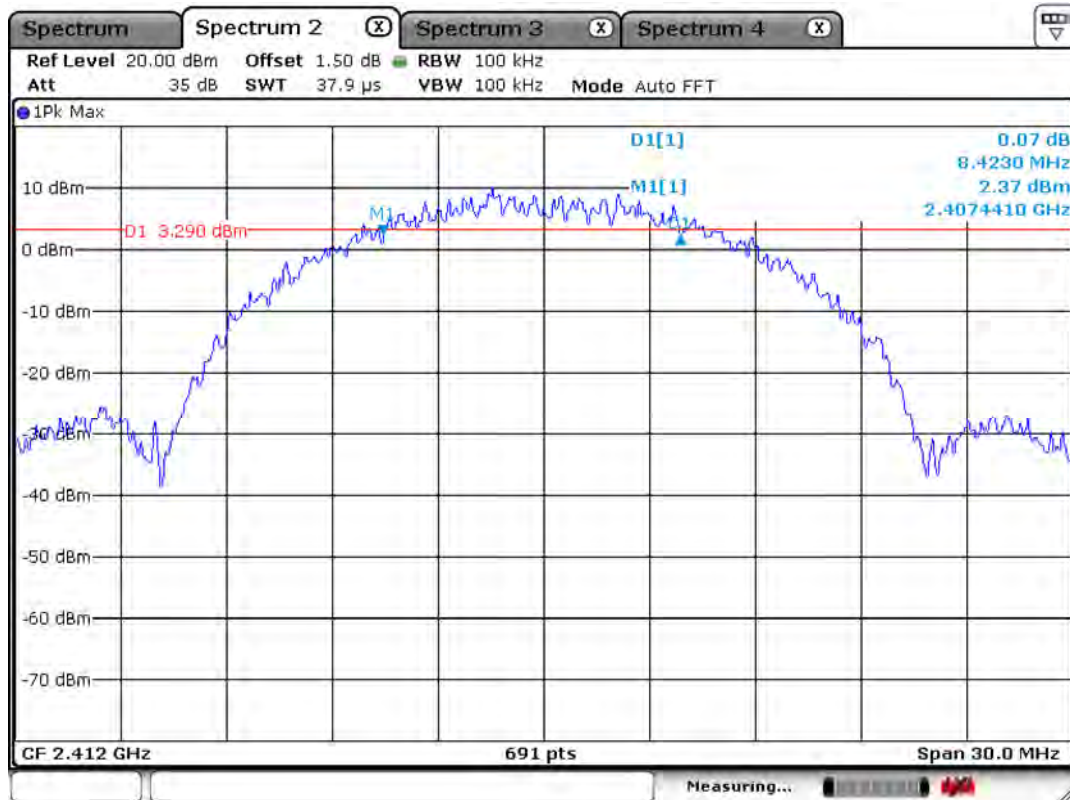
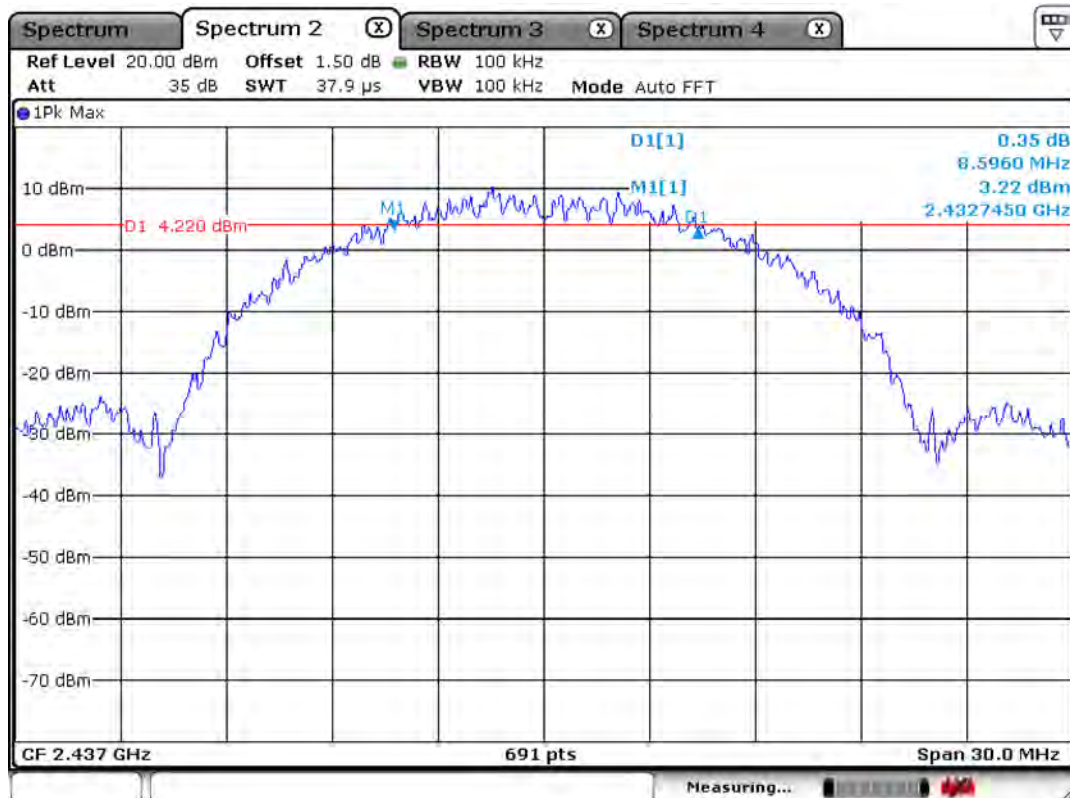
Measurement Setup

Figure 1: Measurement setup for the carrier frequency separation

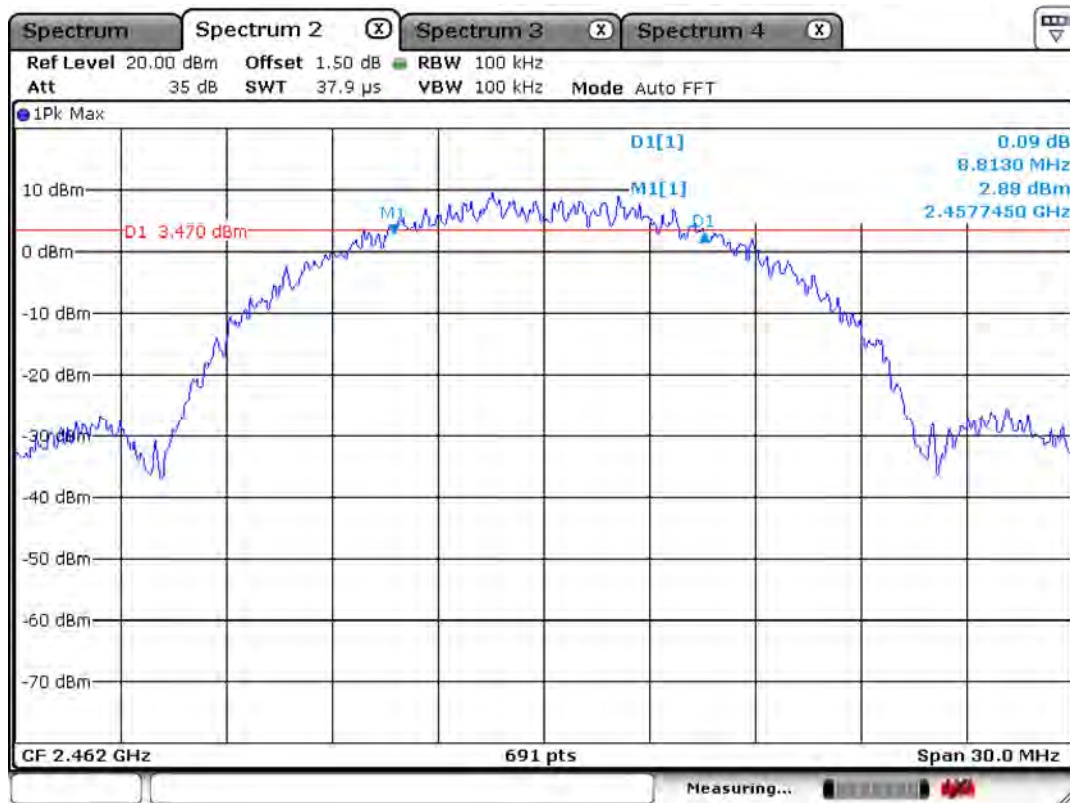
802.11b – Port 1 CH 1



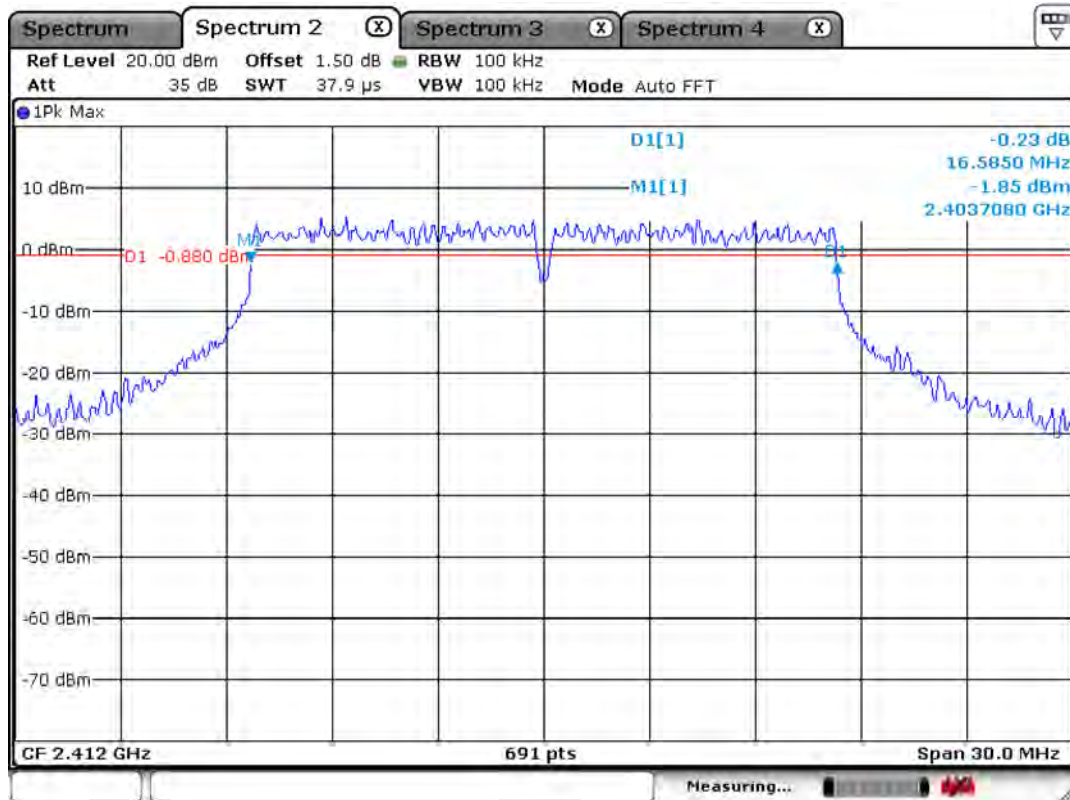
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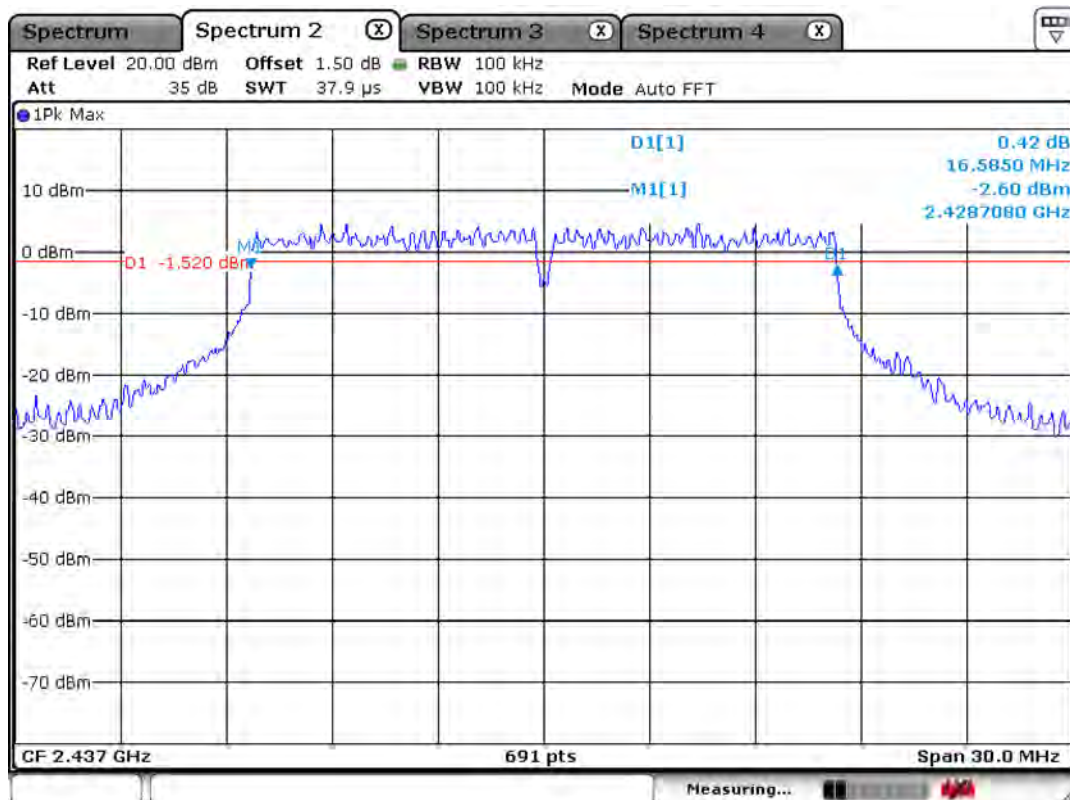
CH 11



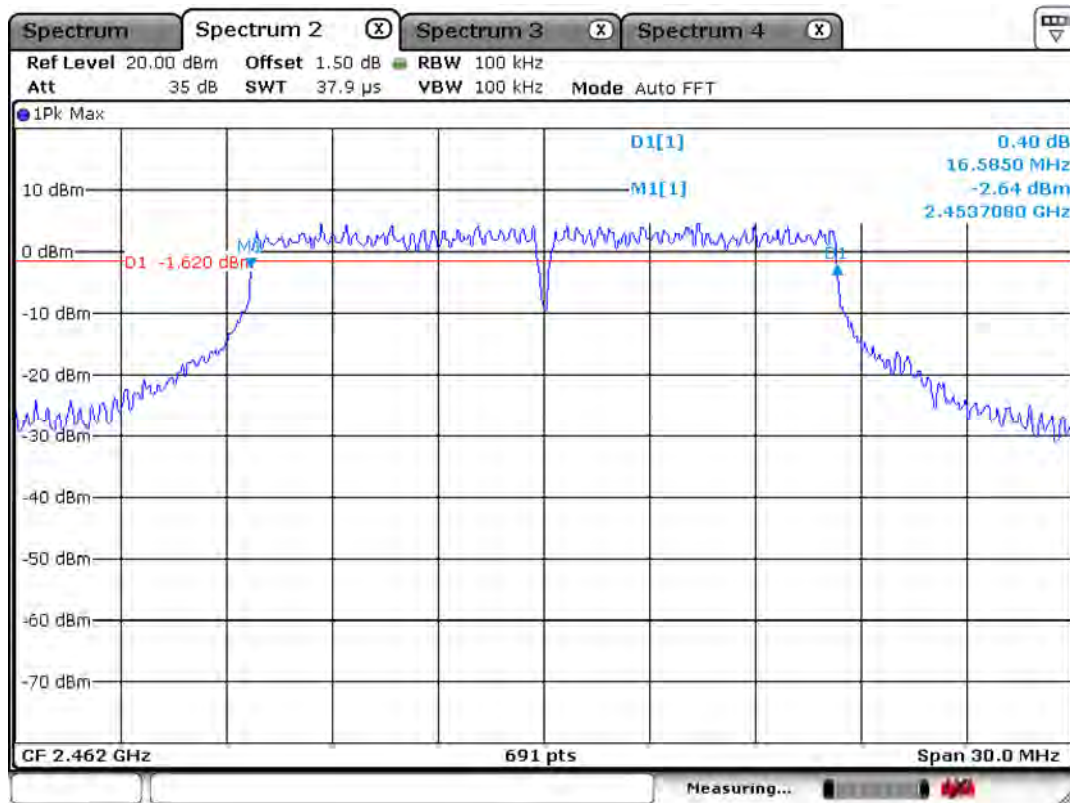
802.11g – Port 1 CH 1



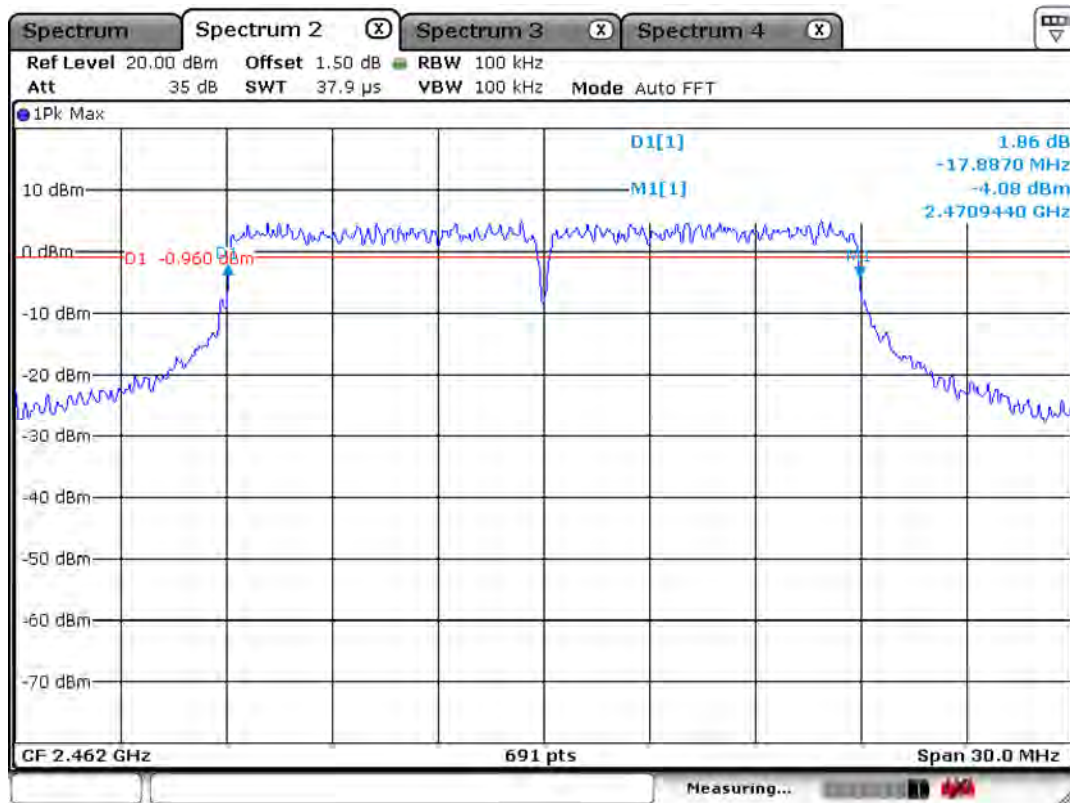
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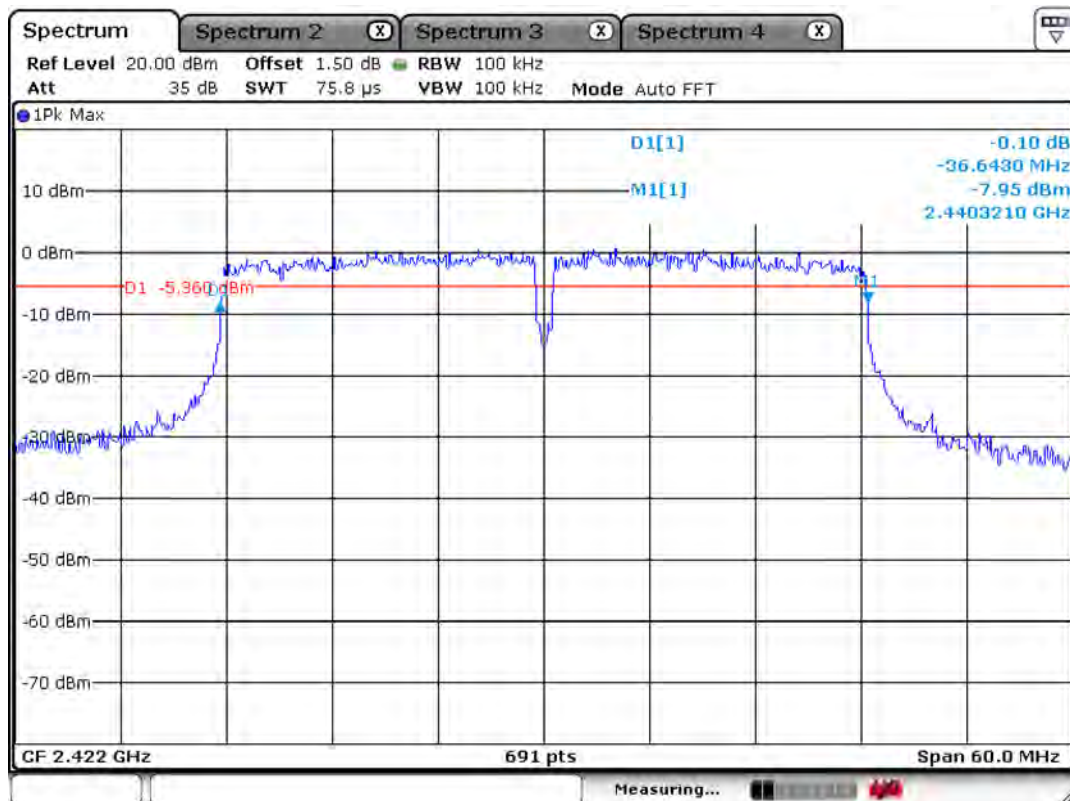


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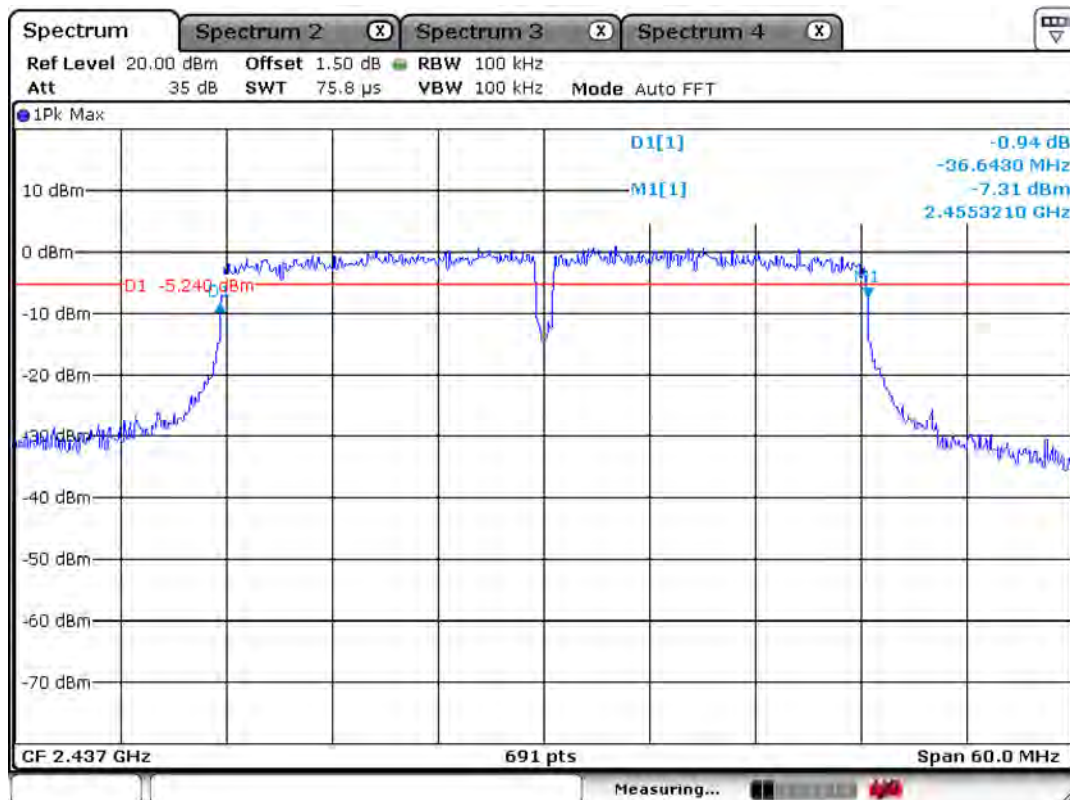


802.11n_40MHz – Port 1

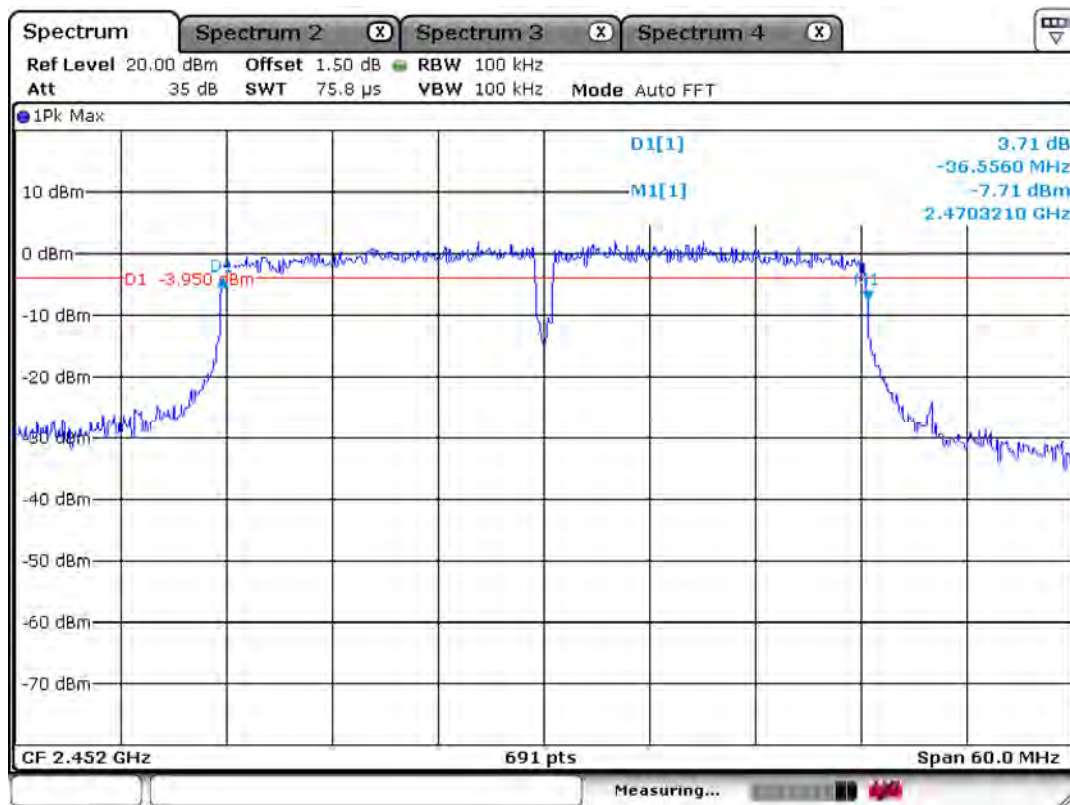
CH 3



CH 6

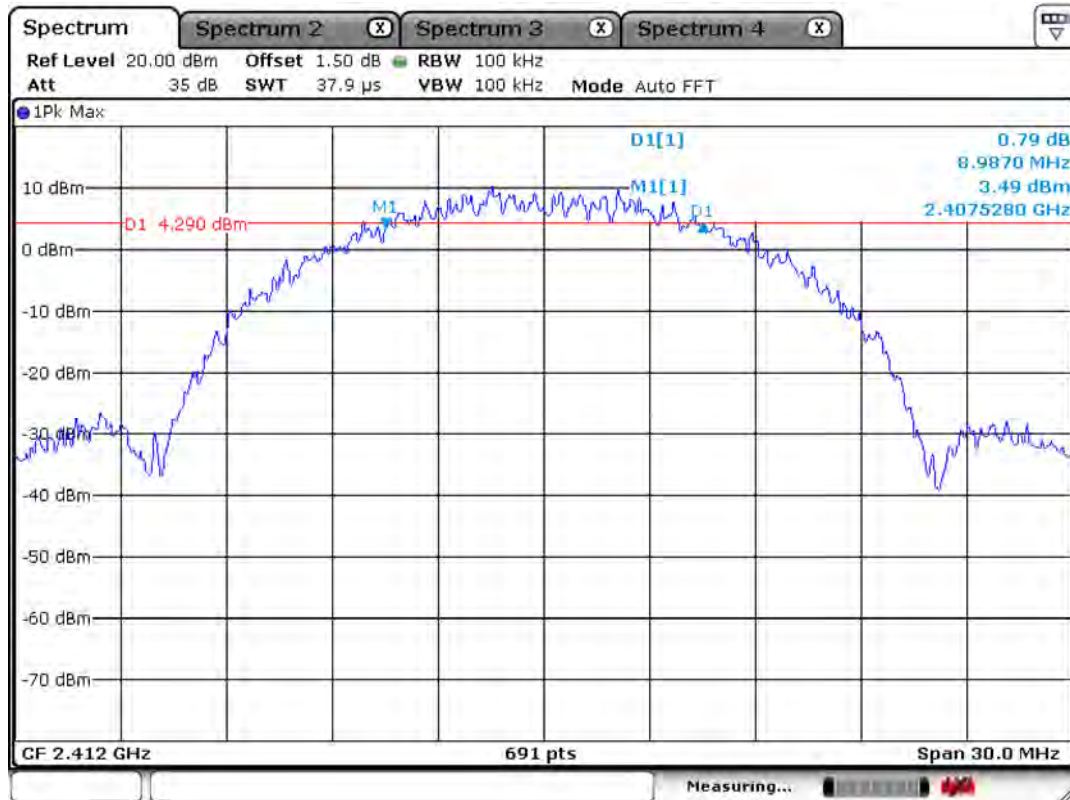


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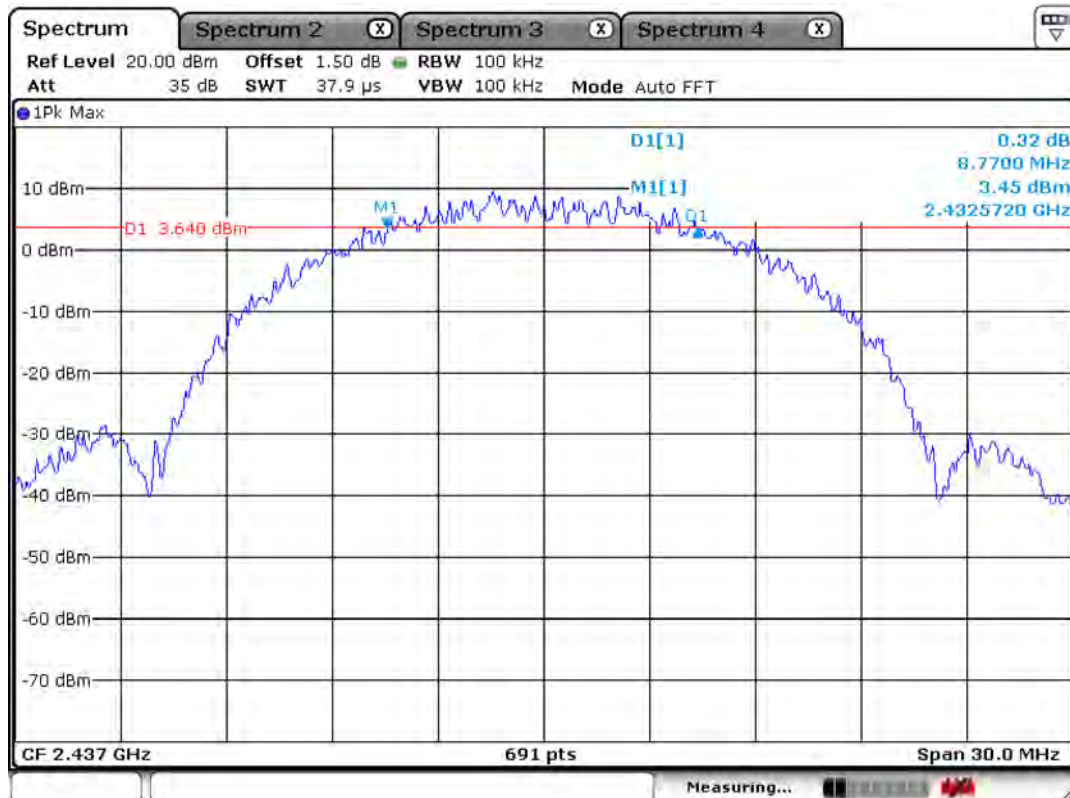


802.11b – Port 2

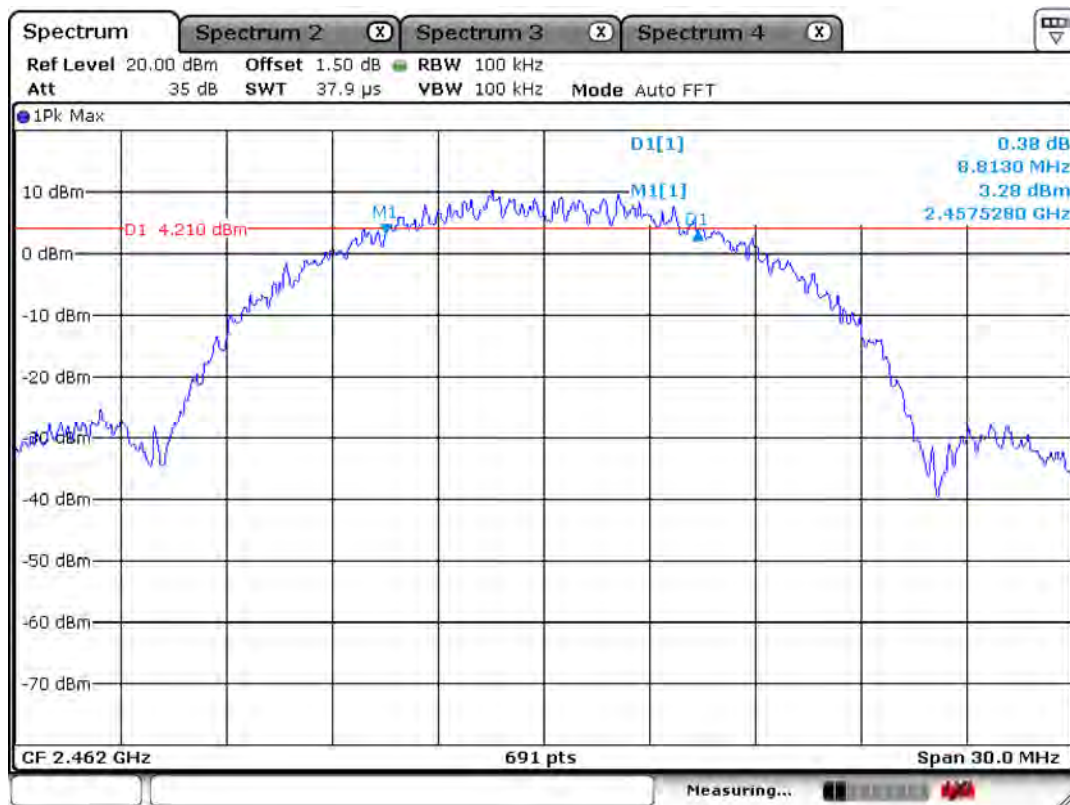
CH 1



CH 6

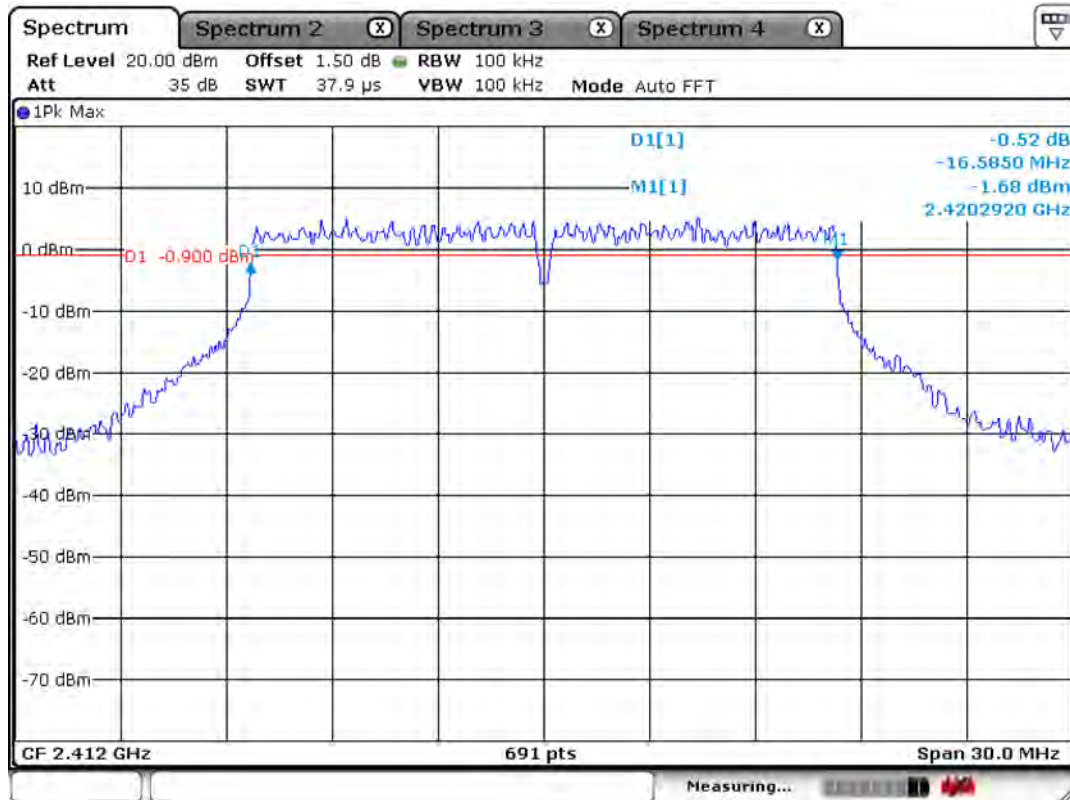


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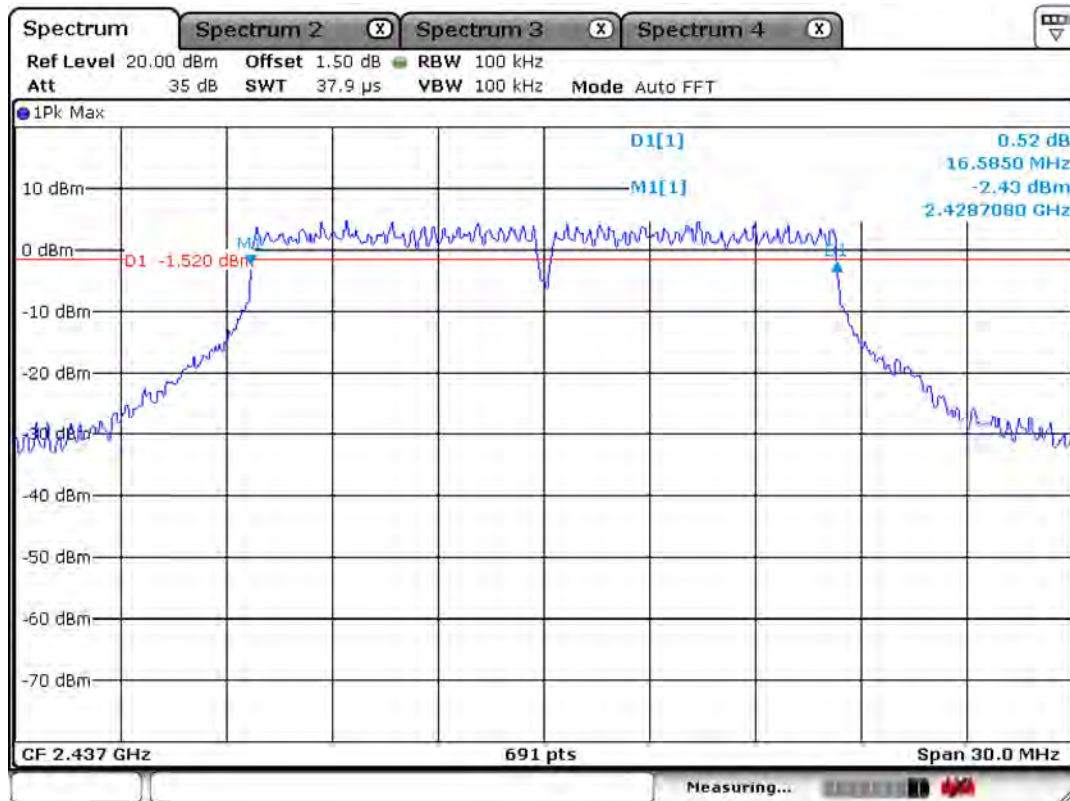


802.11g – Port 2

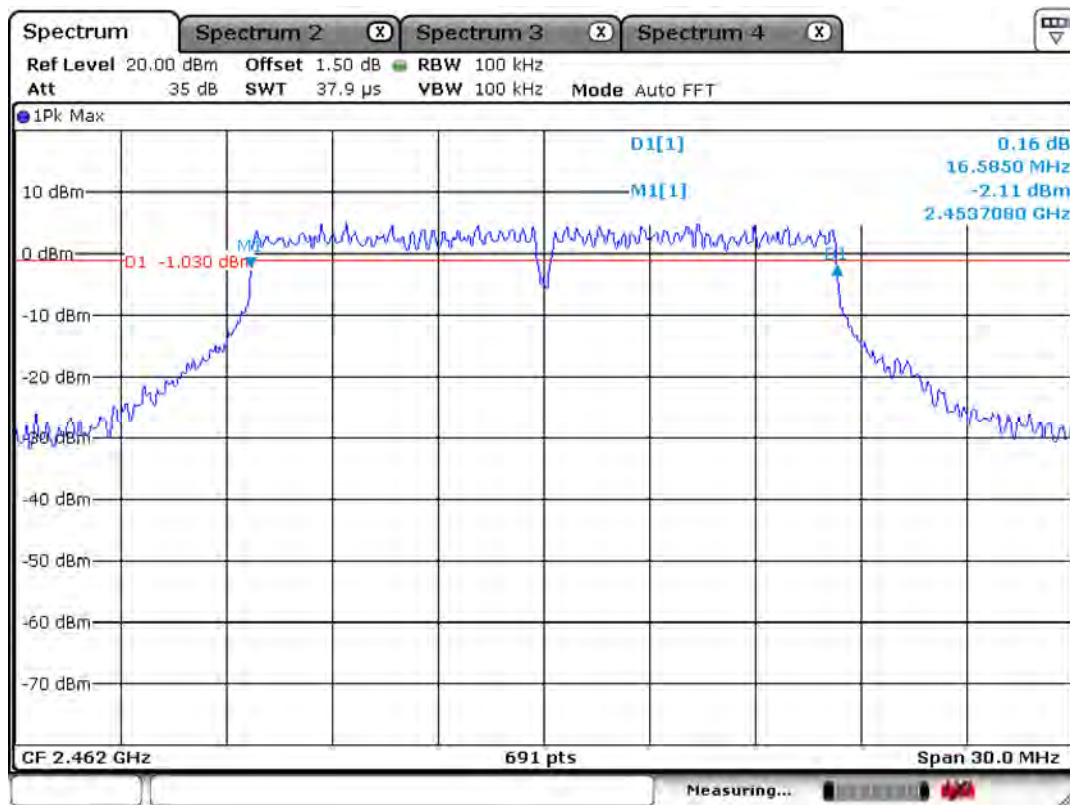
CH 1



CH 6

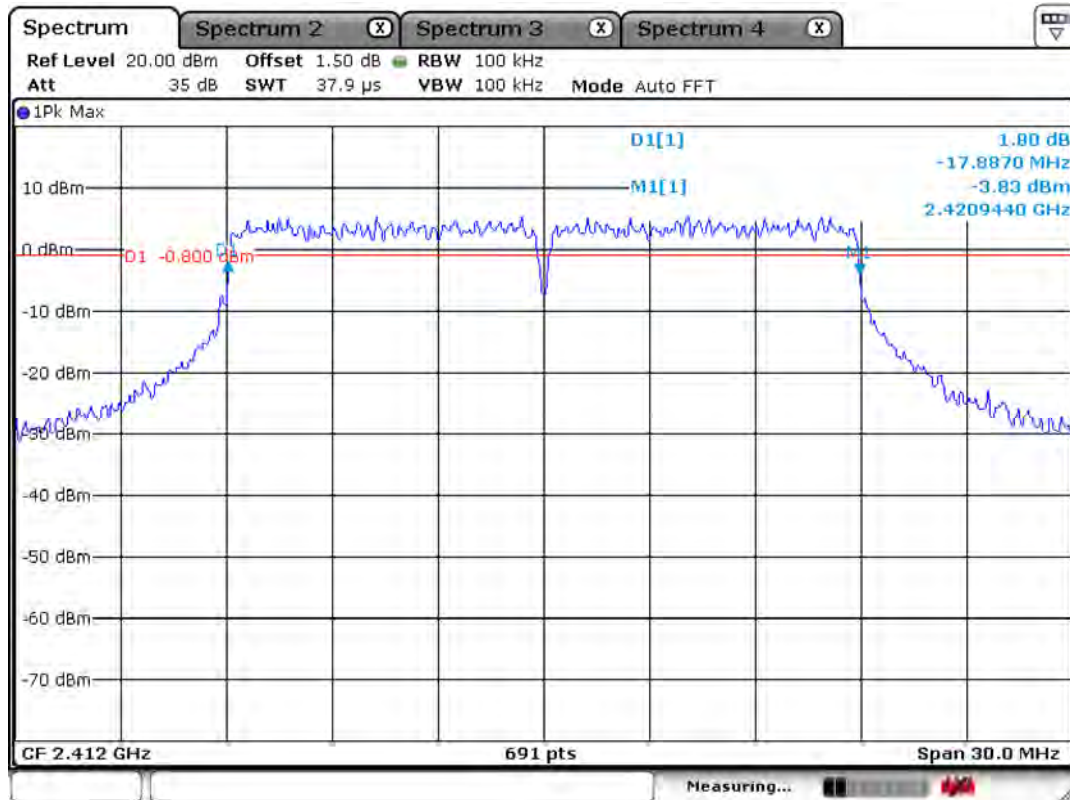


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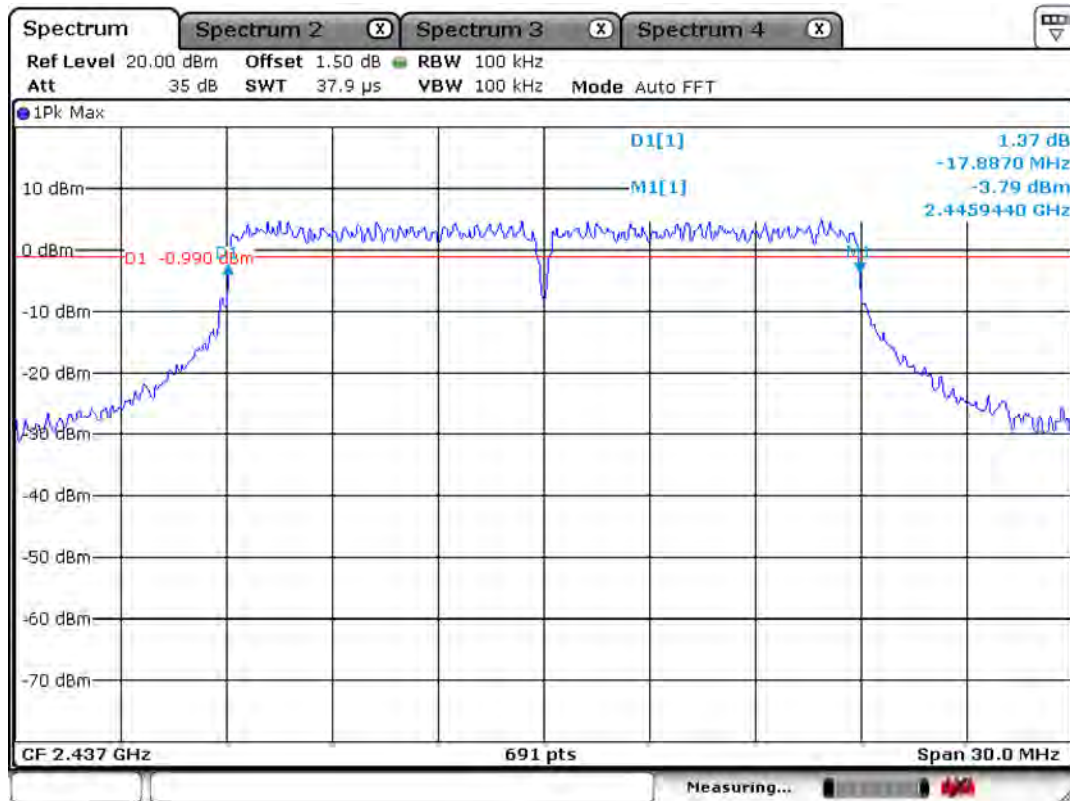


802.11n_20MHz – Port 2

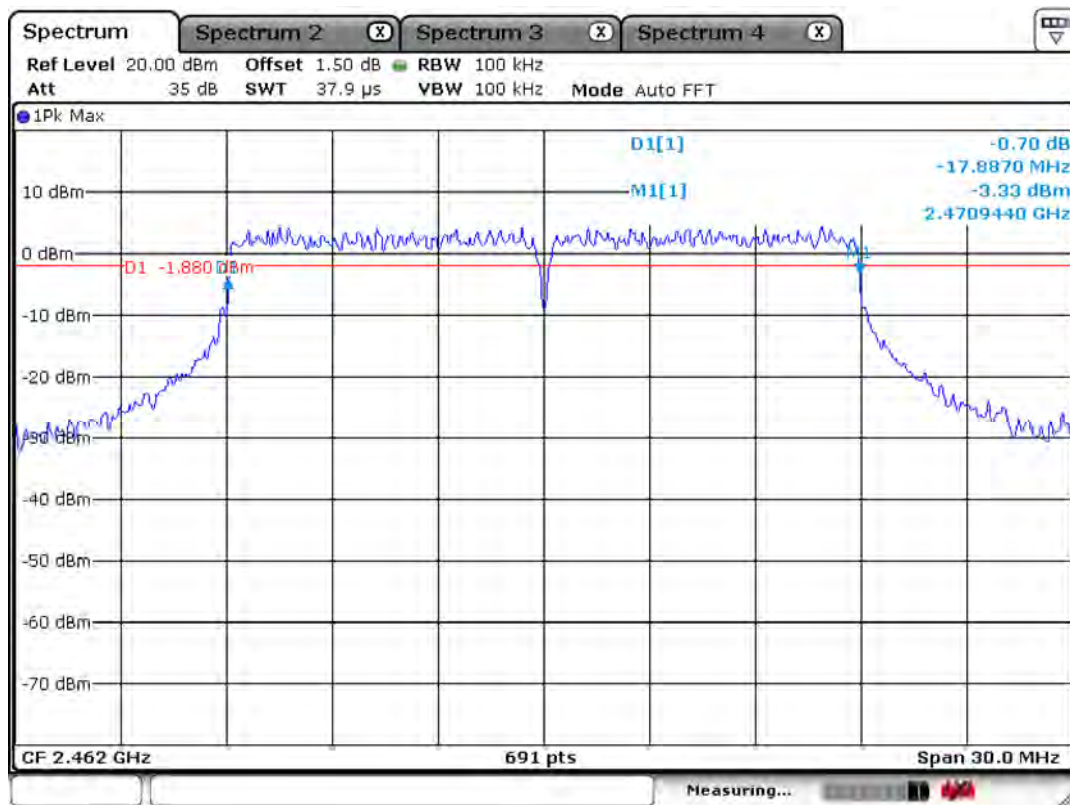
CH 1



CH 6

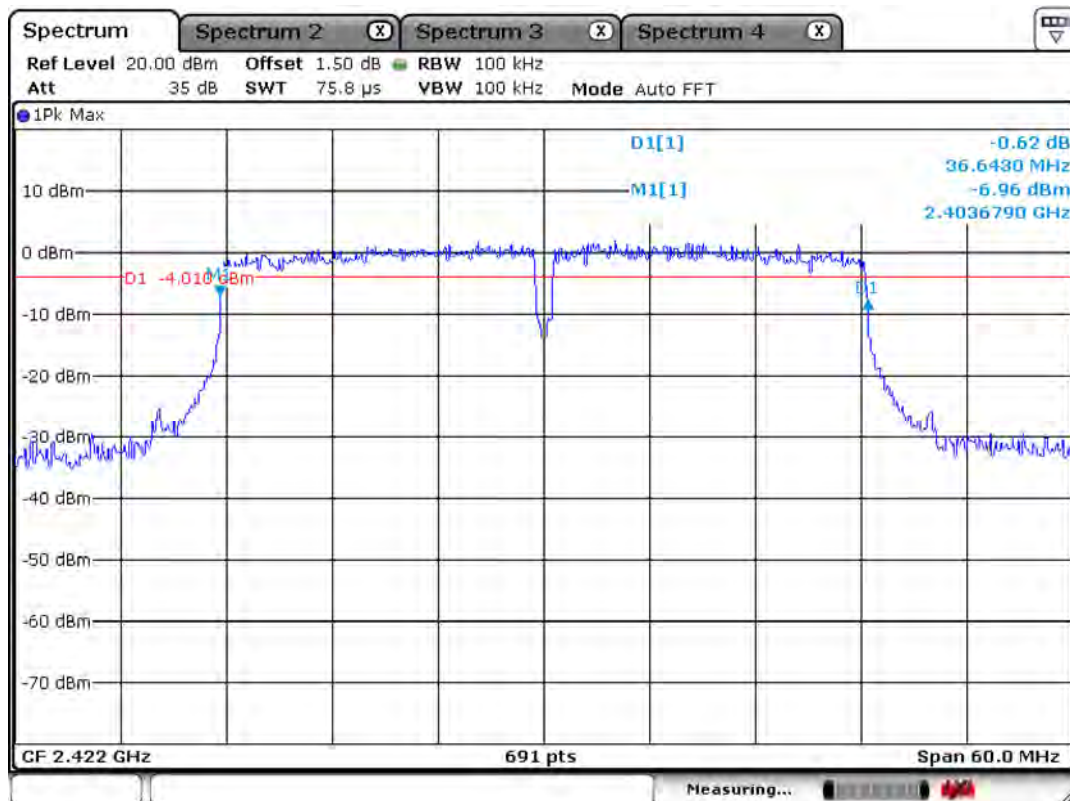


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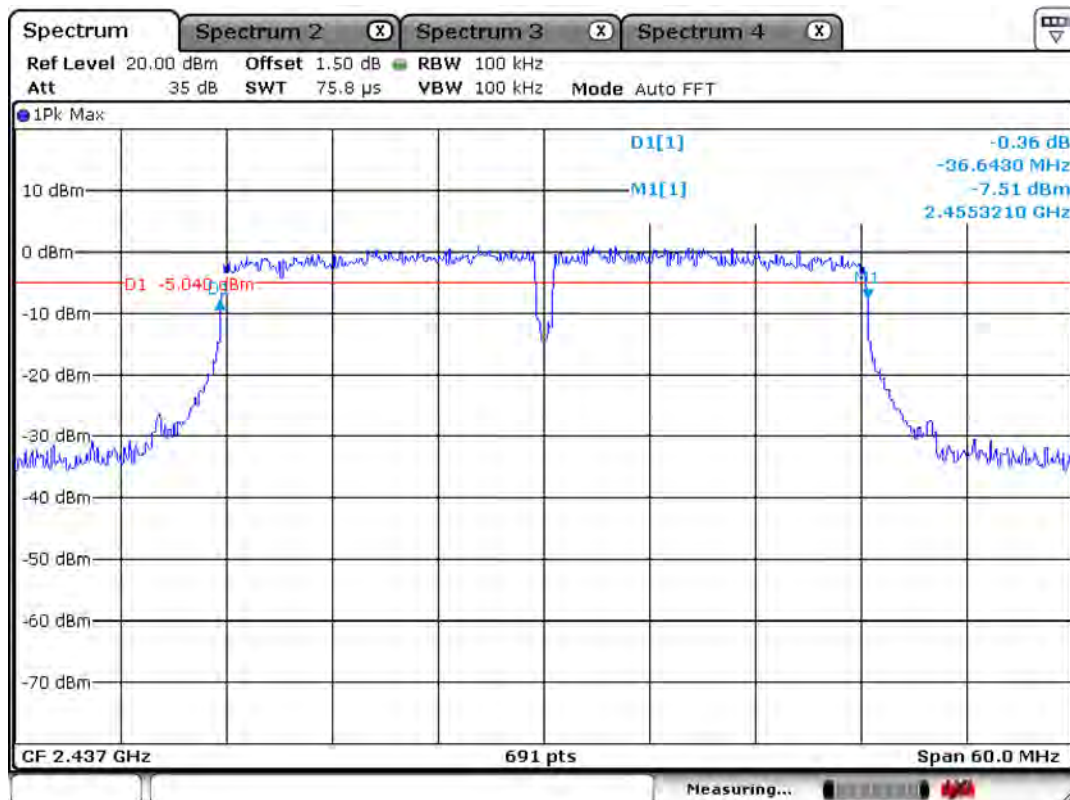


802.11n_40MHz – Port 2

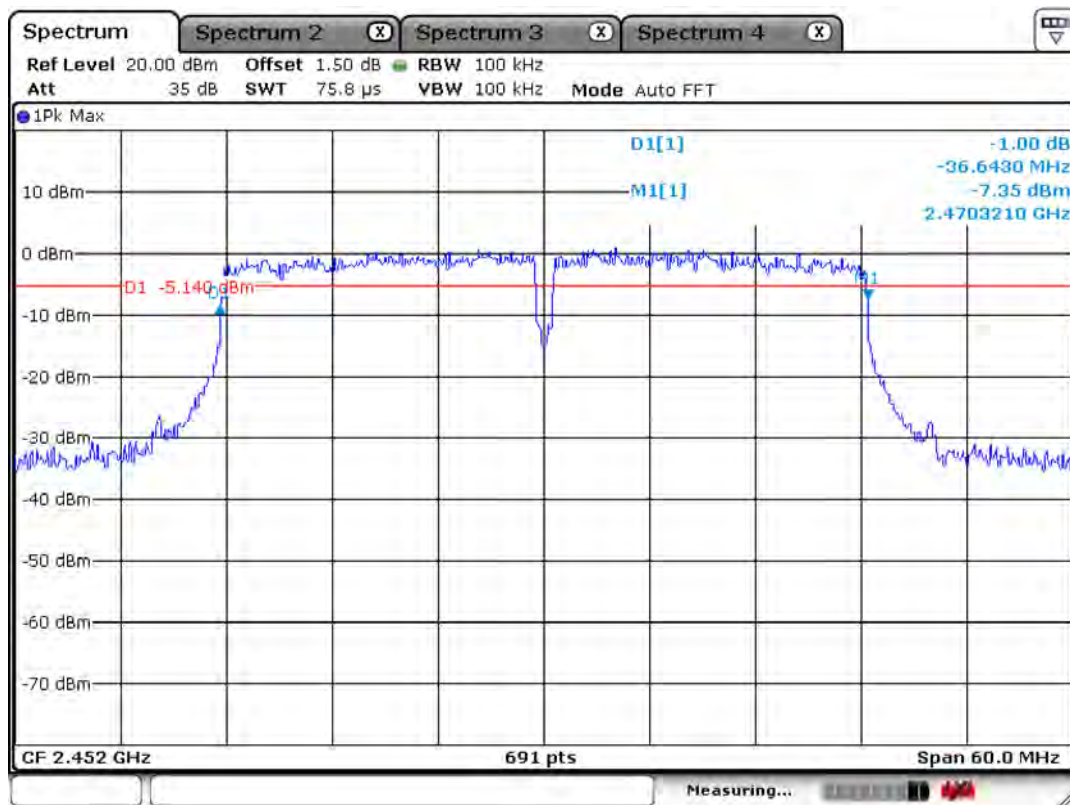
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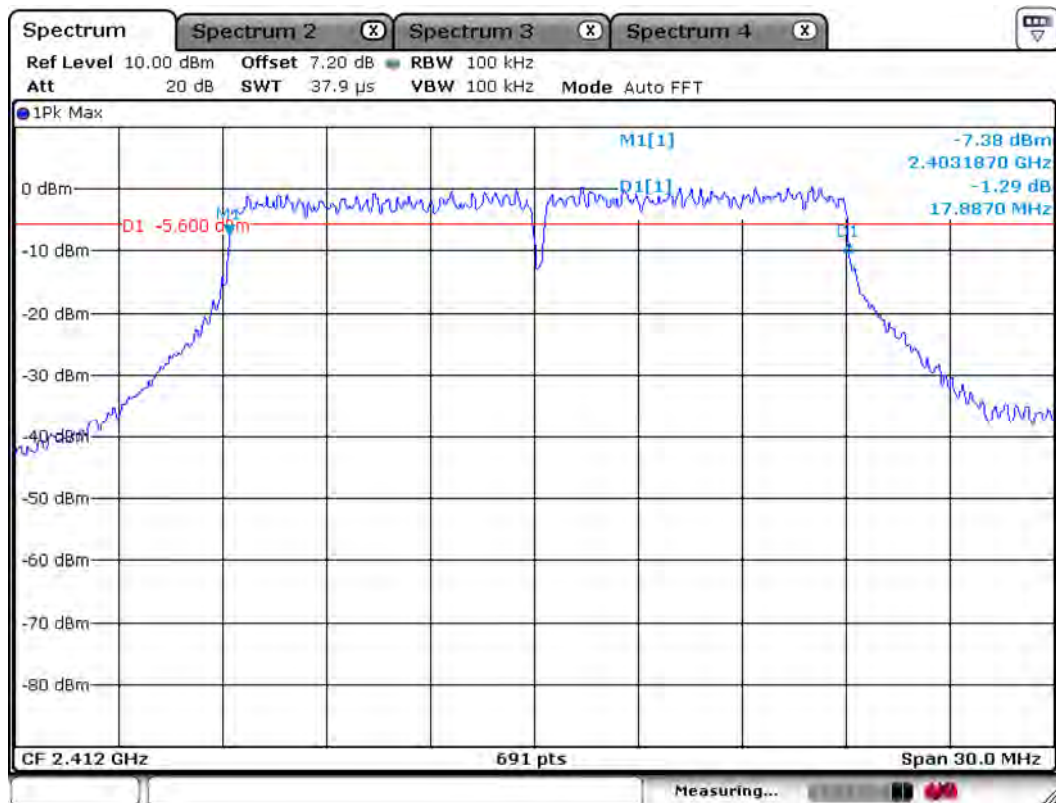


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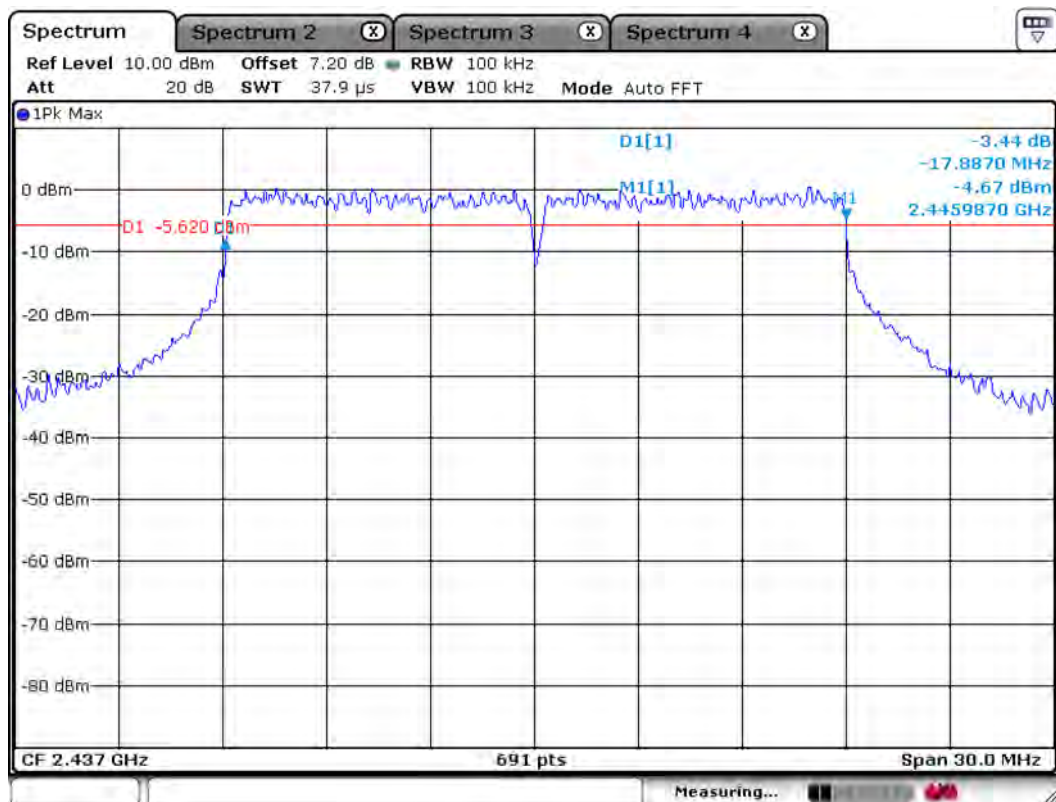


802.11n_20MHz – MIMO

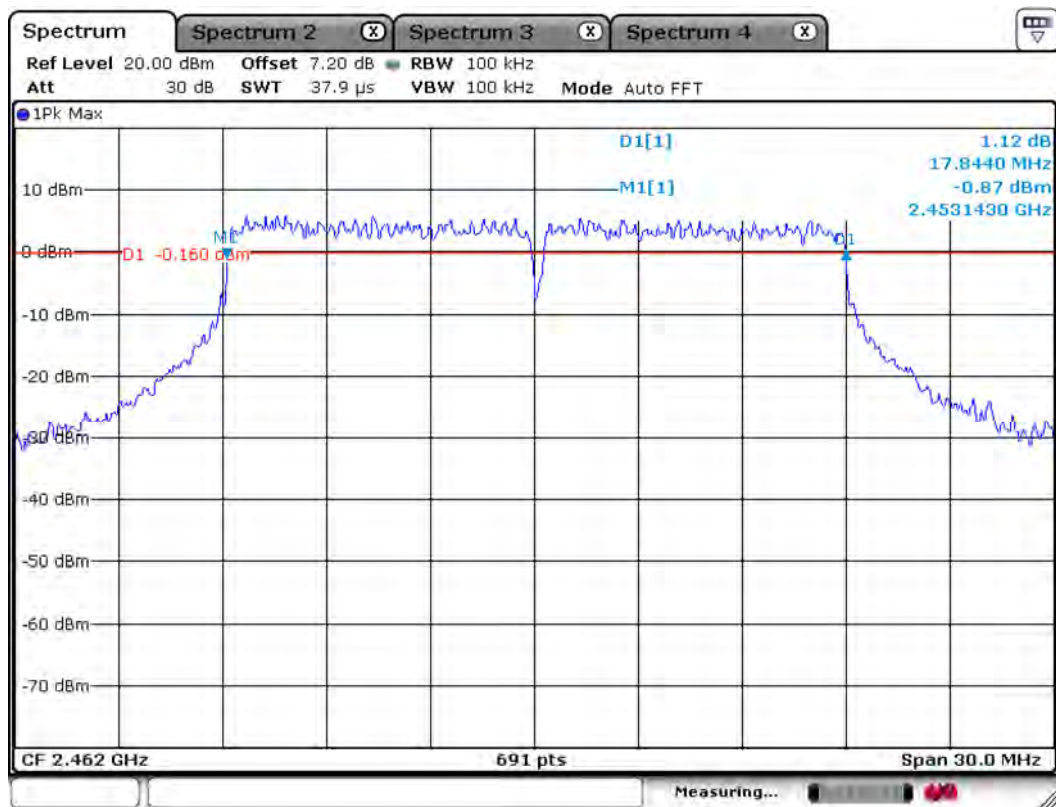
CH 1



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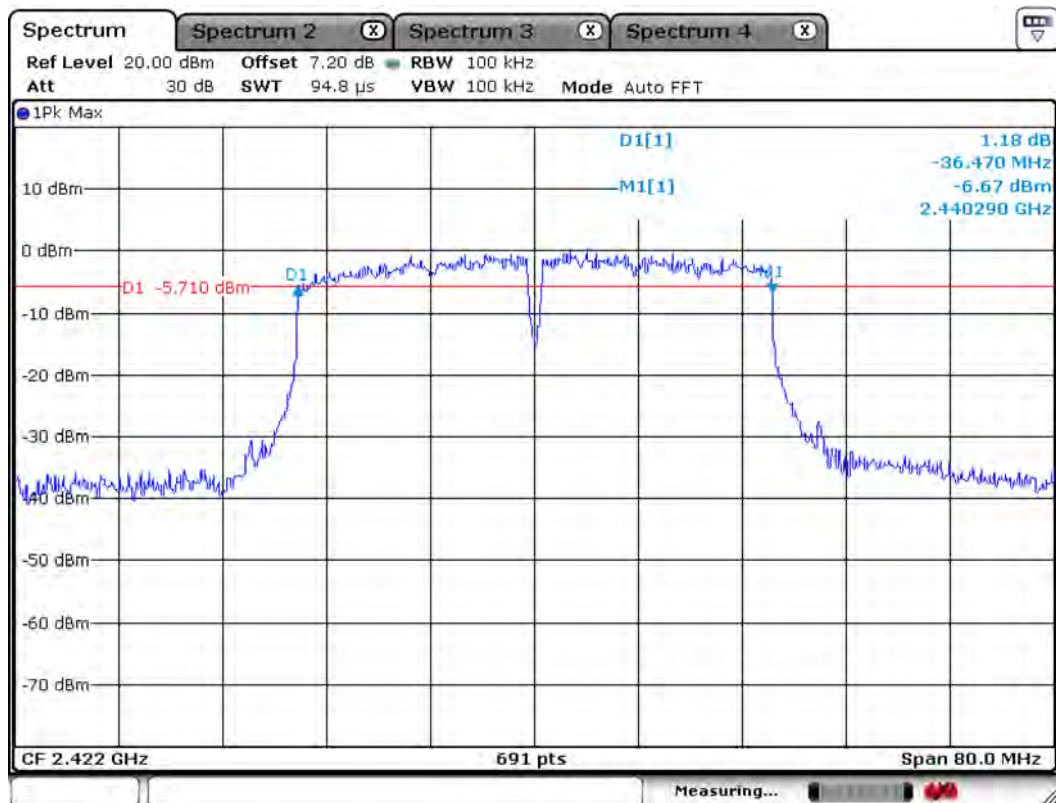


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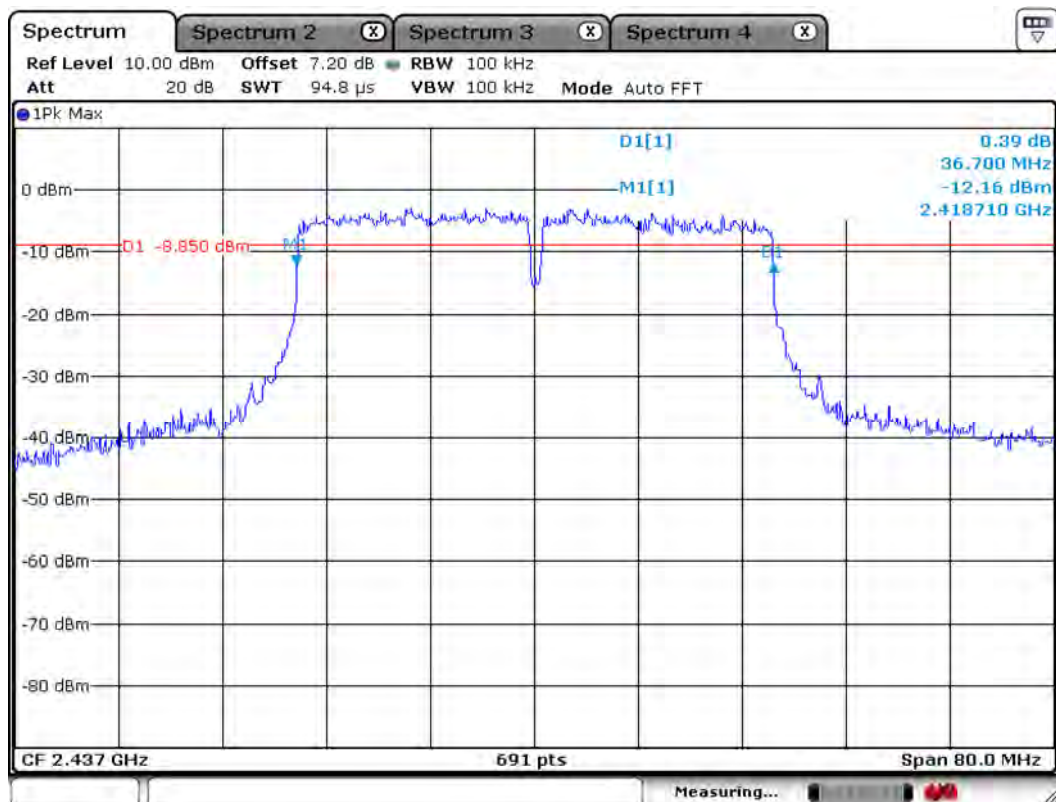


802.11n_40MHz – MIMO

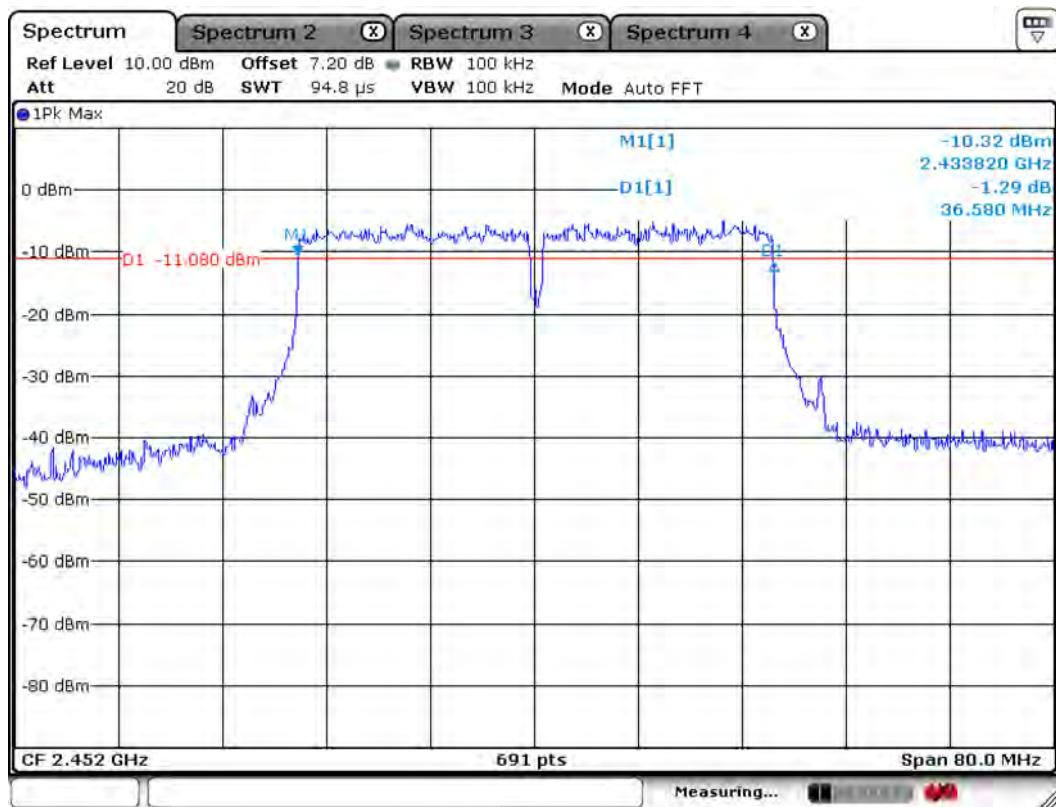
CH 3



CH 6



CH 9



3.2.2 Peak Output Power Measurement

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 1 MHz

Span = auto

VBW = 1 MHz (VBW $\geq$ RBW)

Sweep = auto

Detector function = peak

Measurement Data: Port 1

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11b	2412	1	24.95	Complies
	2437	6	24.97	Complies
	2462	11	25.06	Complies
802.11g	2412	1	25.69	Complies
	2437	6	25.61	Complies
	2462	11	24.96	Complies
802.11n _20MHz	2412	1	25.05	Complies
	2437	6	24.85	Complies
	2462	11	25.92	Complies
802.11n _40MHz	2422	3	24.62	Complies
	2437	6	24.13	Complies
	2452	9	24.44	Complies

Measurement Data: Port 2

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11b	2412	1	24.90	Complies
	2437	6	25.12	Complies
	2462	11	25.04	Complies
802.11g	2412	1	25.94	Complies
	2437	6	25.08	Complies
	2462	11	25.90	Complies
802.11n _20MHz	2412	1	25.98	Complies
	2437	6	25.40	Complies
	2462	11	25.56	Complies
802.11n _40MHz	2422	3	25.45	Complies
	2437	6	24.95	Complies
	2452	9	25.03	Complies

Measurement Data: MIMO

Mode	Frequency (MHz)	Channel No.	Test Results	
			Measured Data (dBm)	Result
802.11n _20MHz	2412	1	21.62	Complies
	2437	6	23.31	Complies
	2462	11	26.65	Complies
802.11n _40MHz	2422	3	27.55	Complies
	2437	6	23.15	Complies
	2452	9	19.35	Complies

Minimum Standard:

Peak output power	< 1 W
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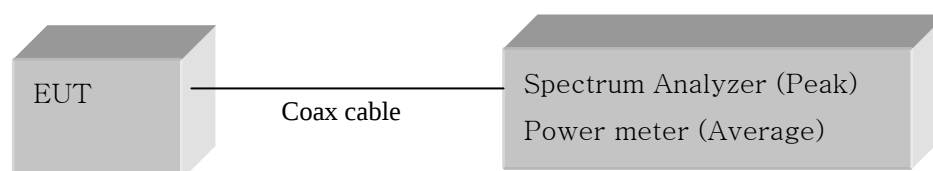
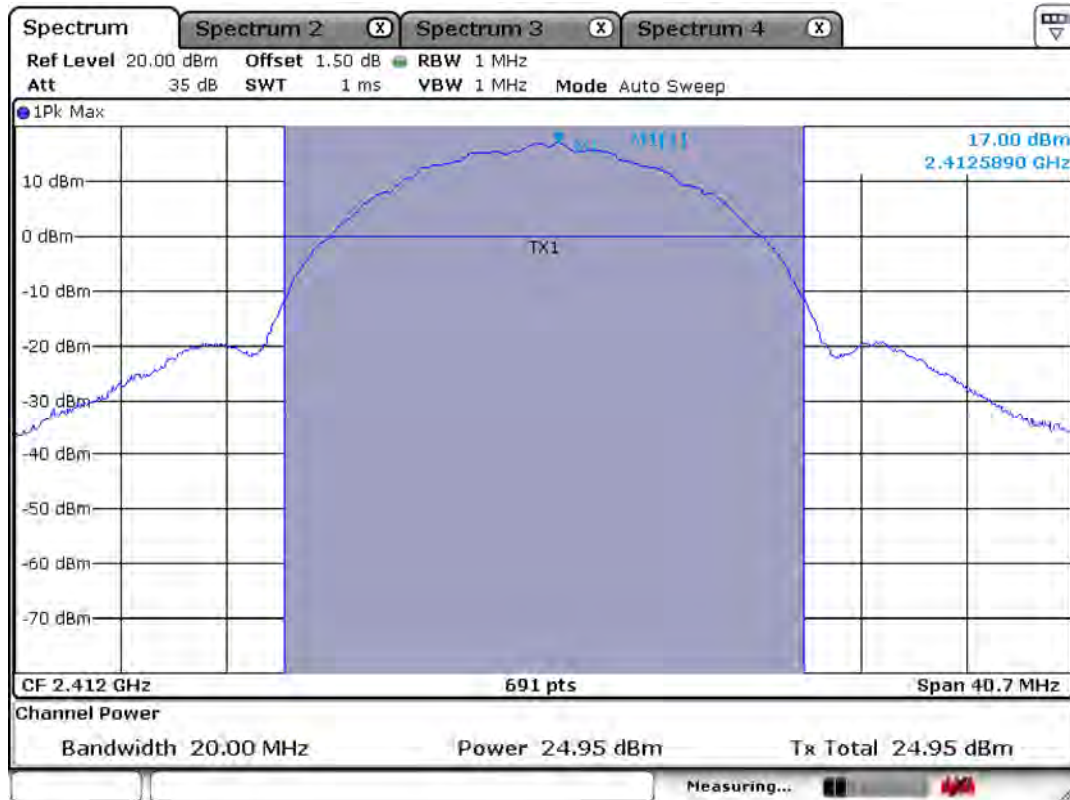
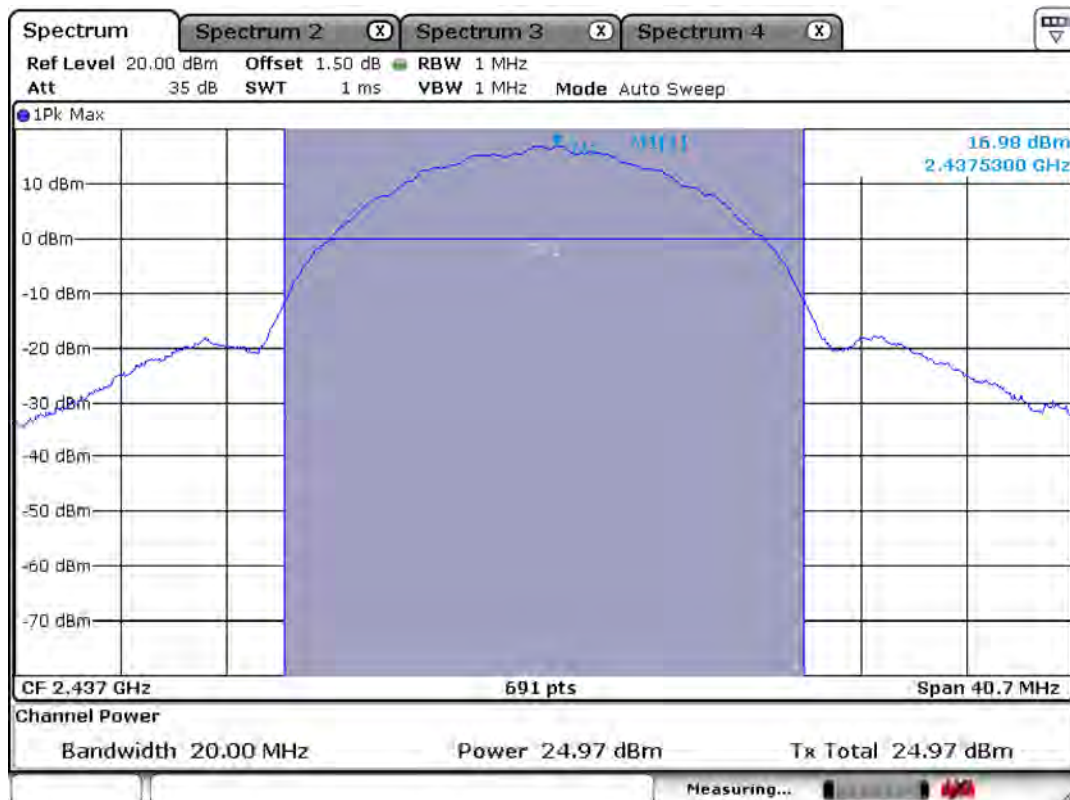
Measurement Setup

Figure 2: Measurement setup for the carrier frequency separation

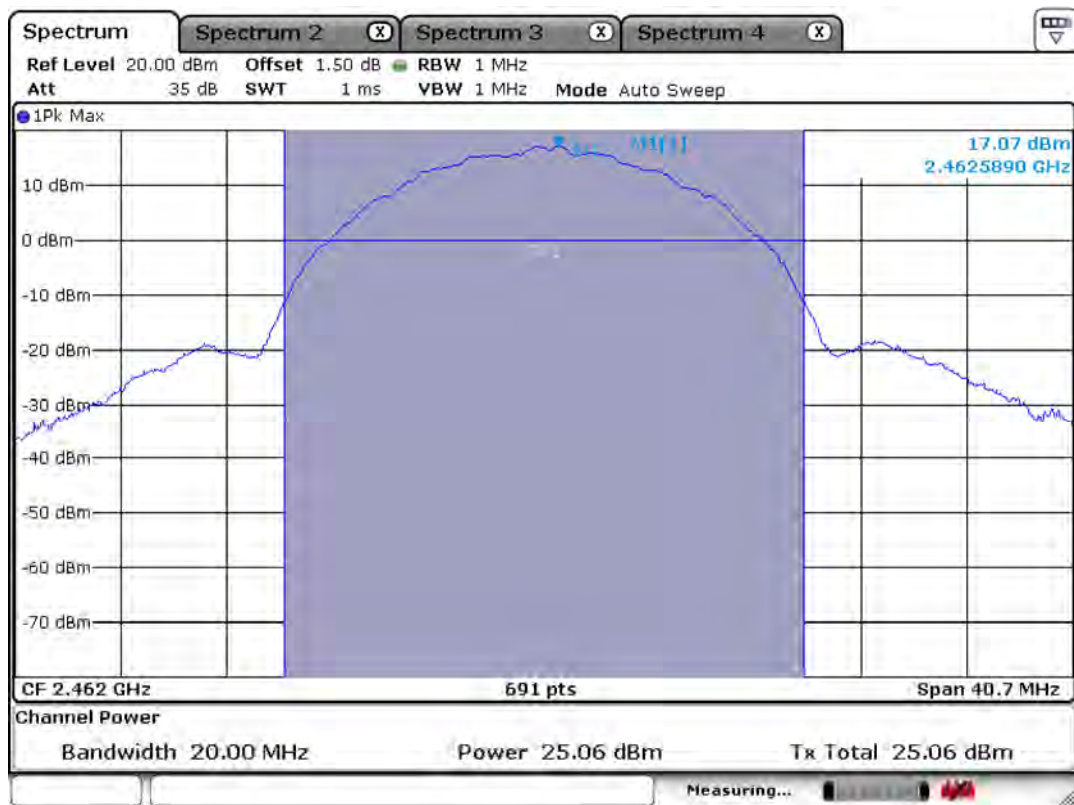
802.11b – Port 1 CH 1



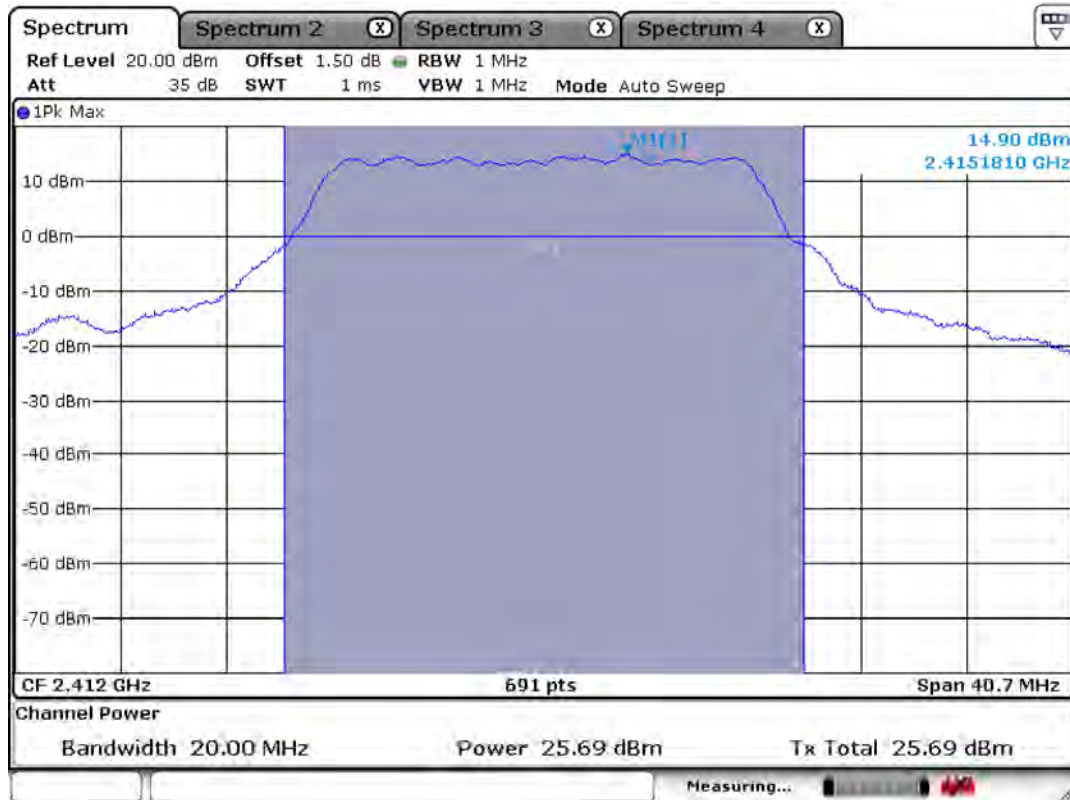
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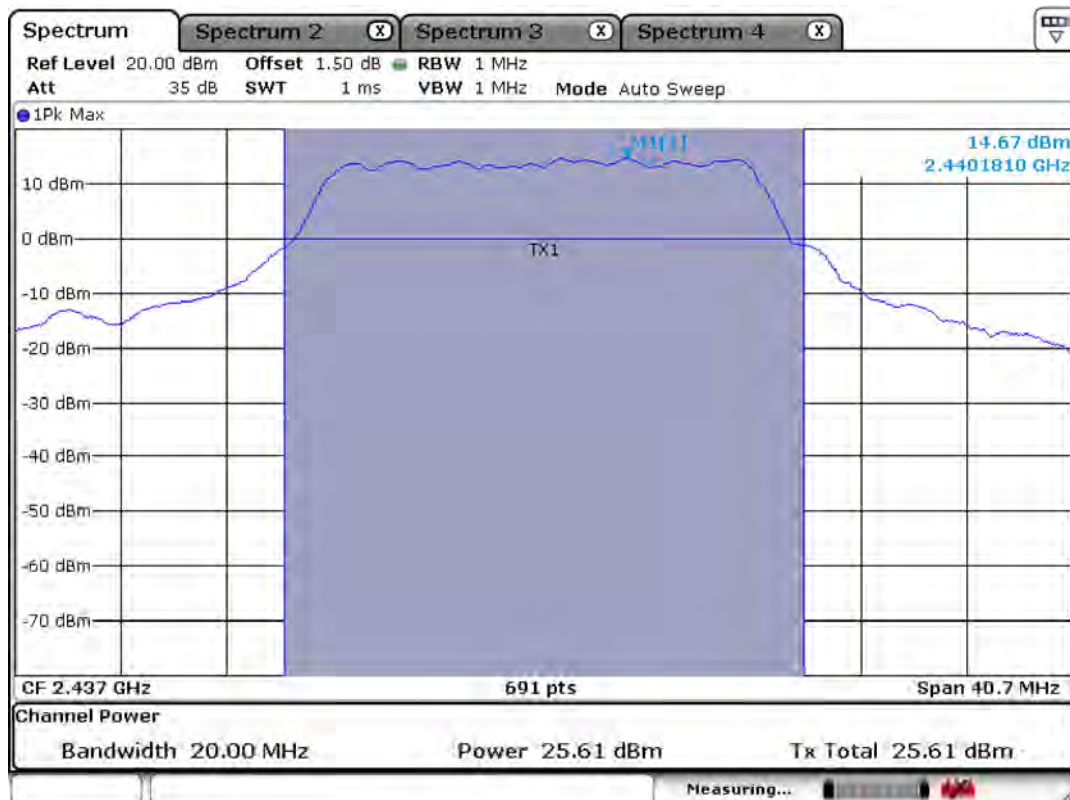
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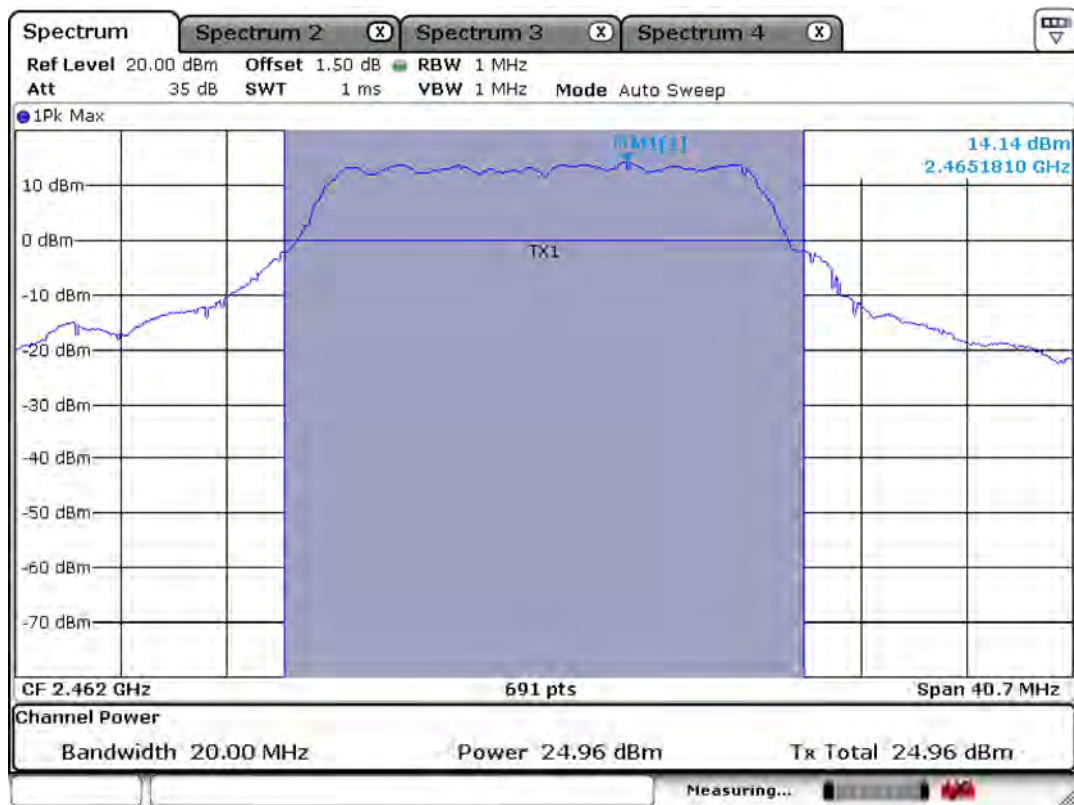
802.11g – Port 1 CH 1



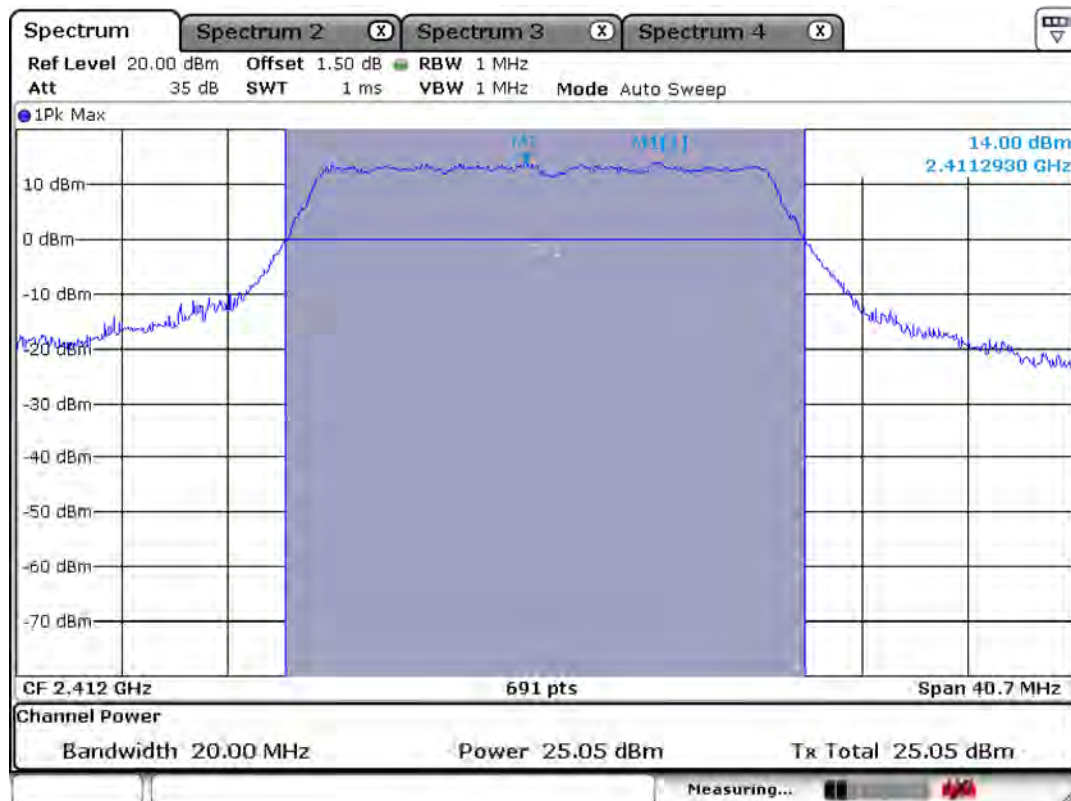
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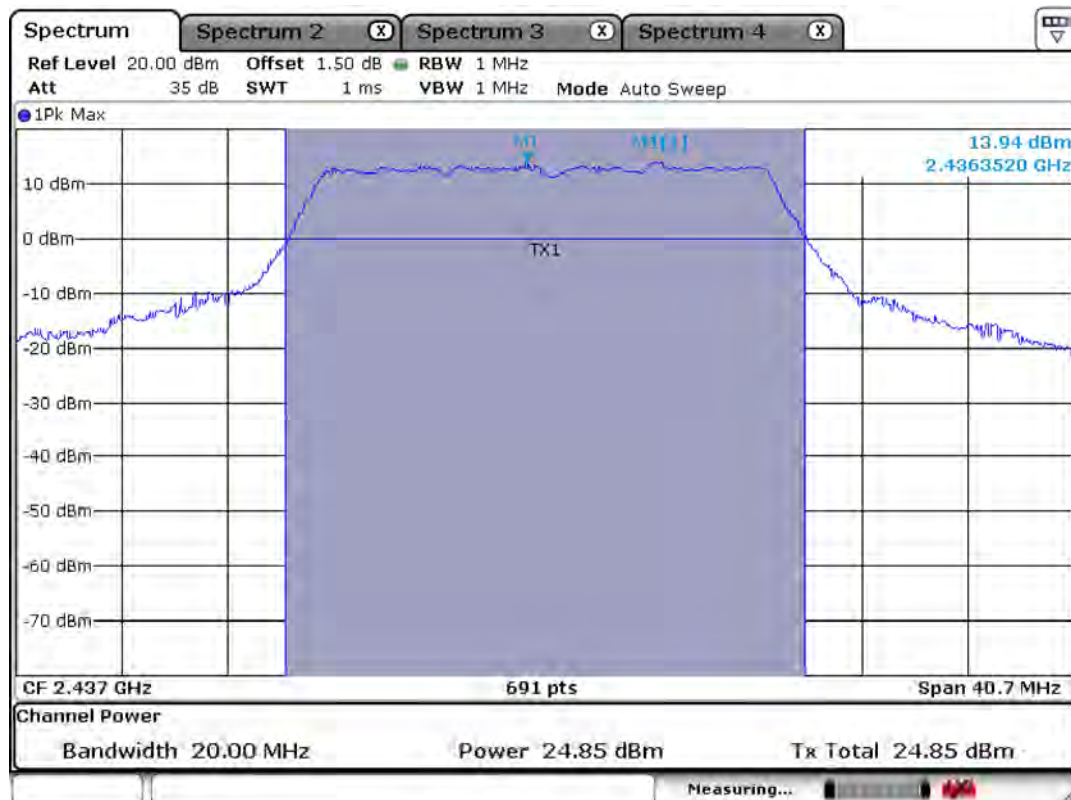
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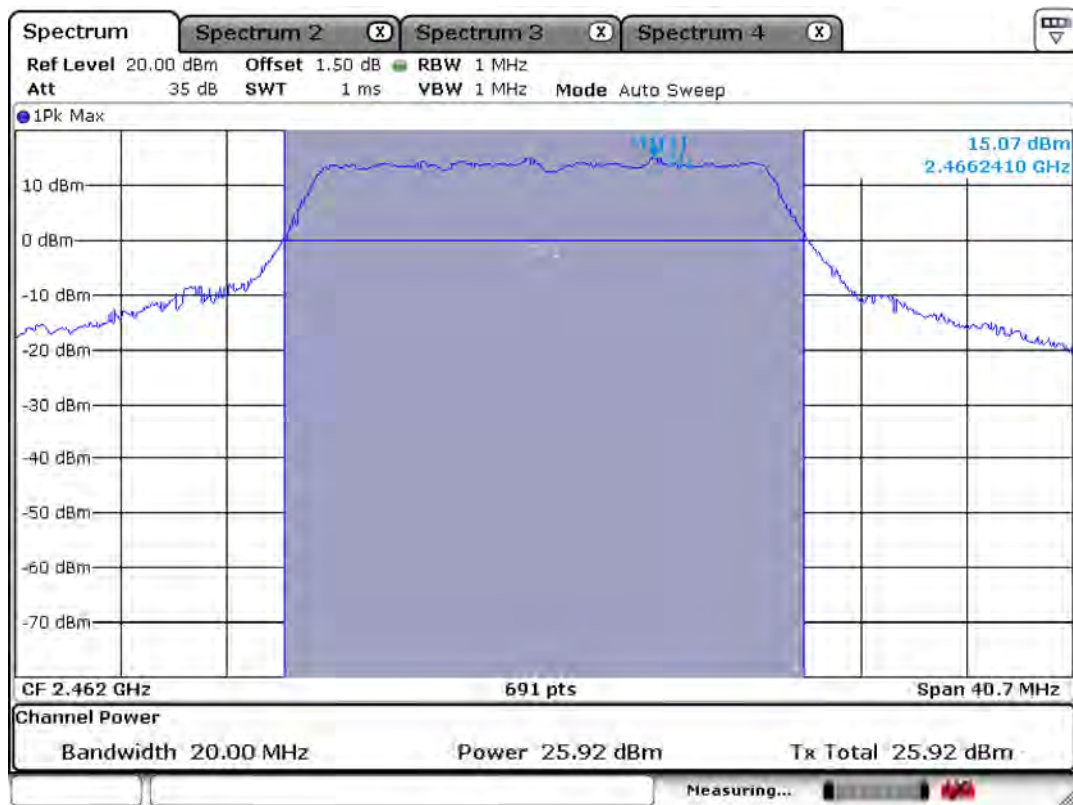
802.11n_20MHz – Port 1 CH 1



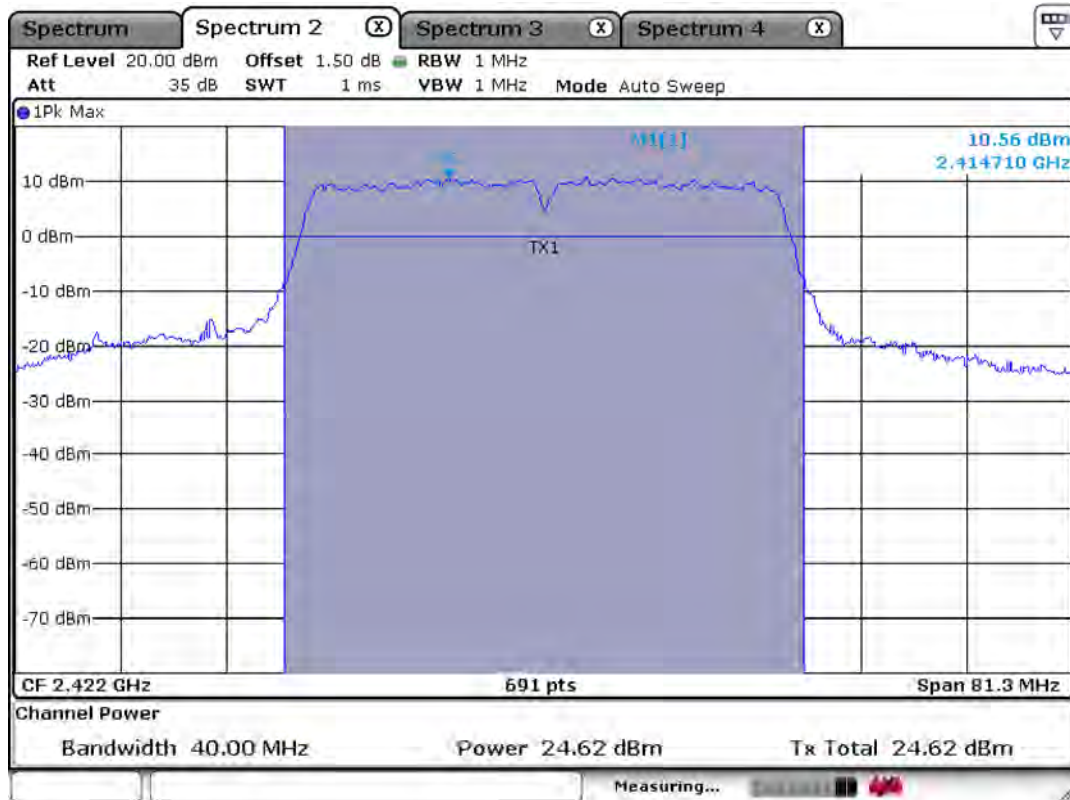
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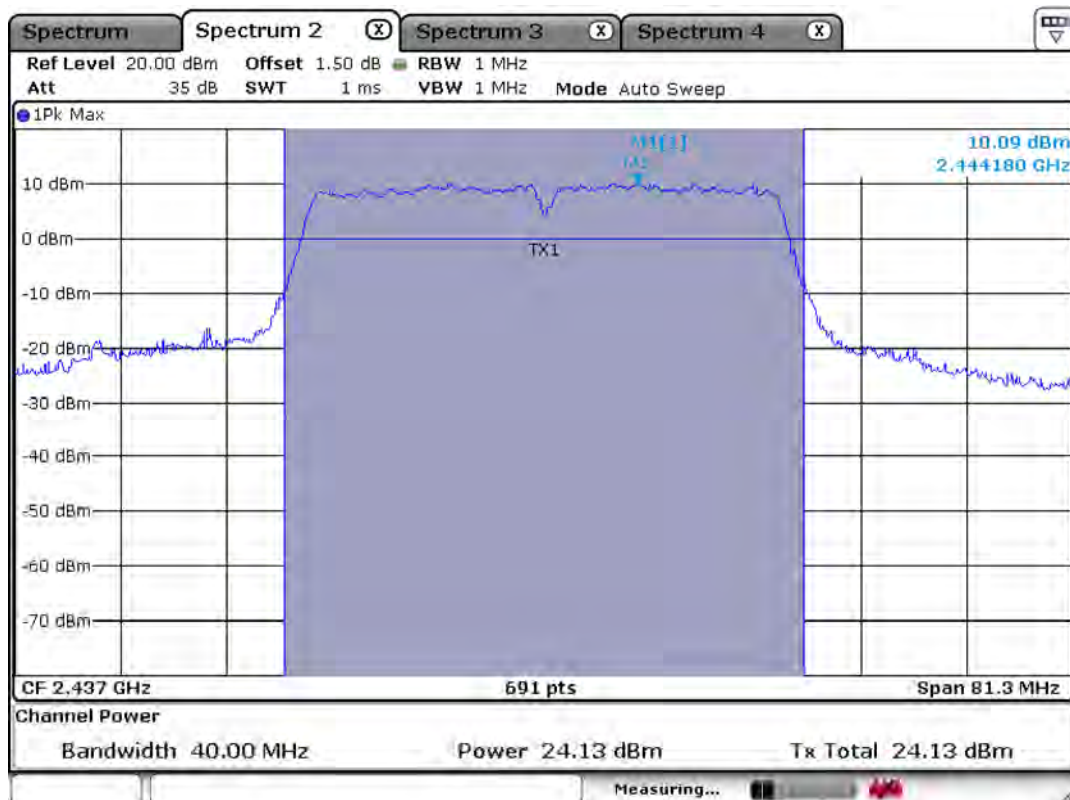
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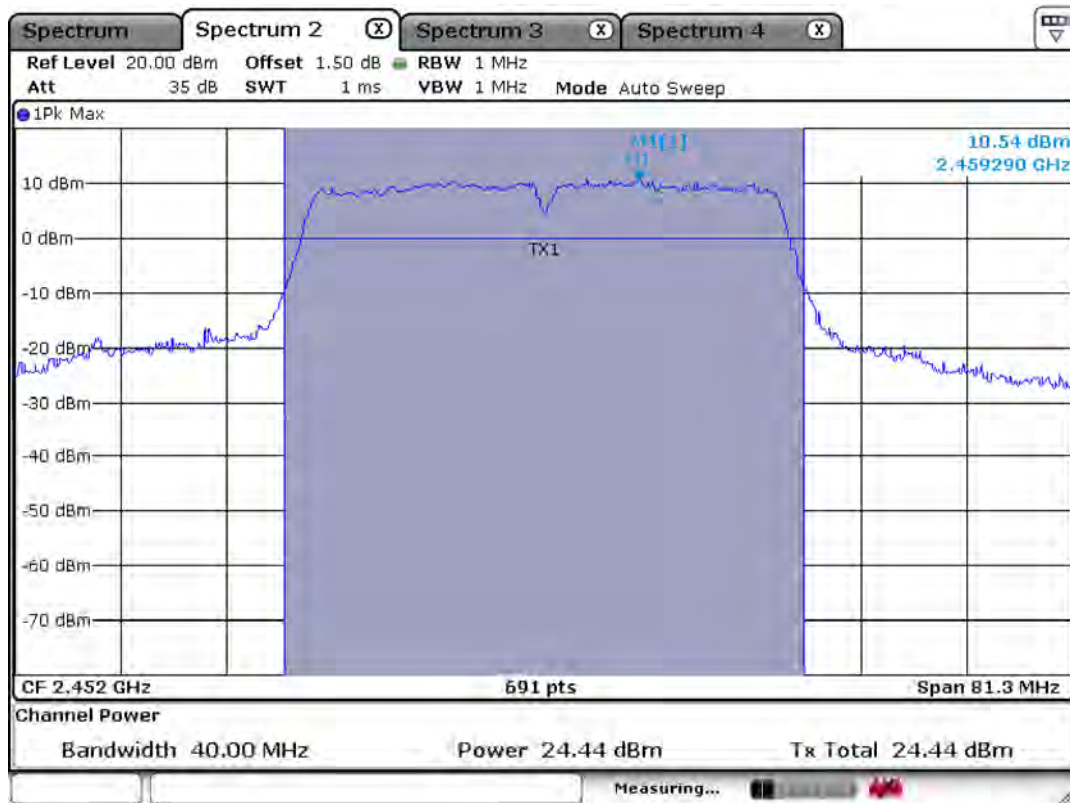
802.11n40MHz – Port 1 CH 3



CH 6

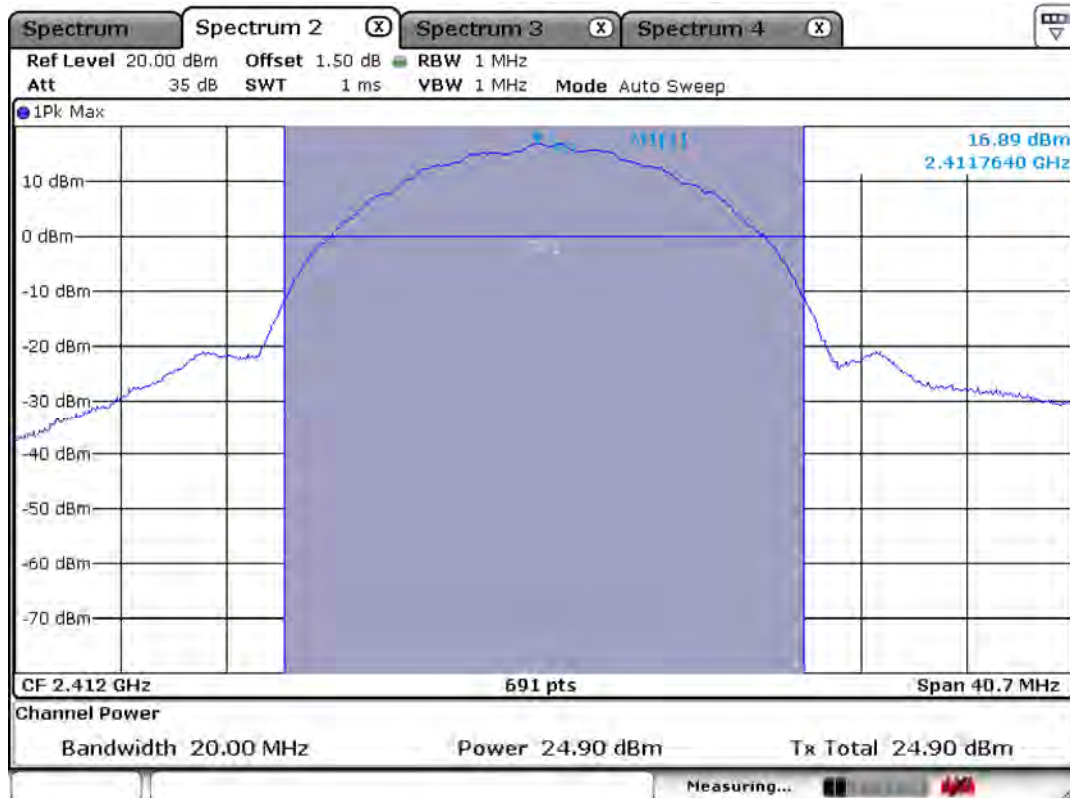


CH 9

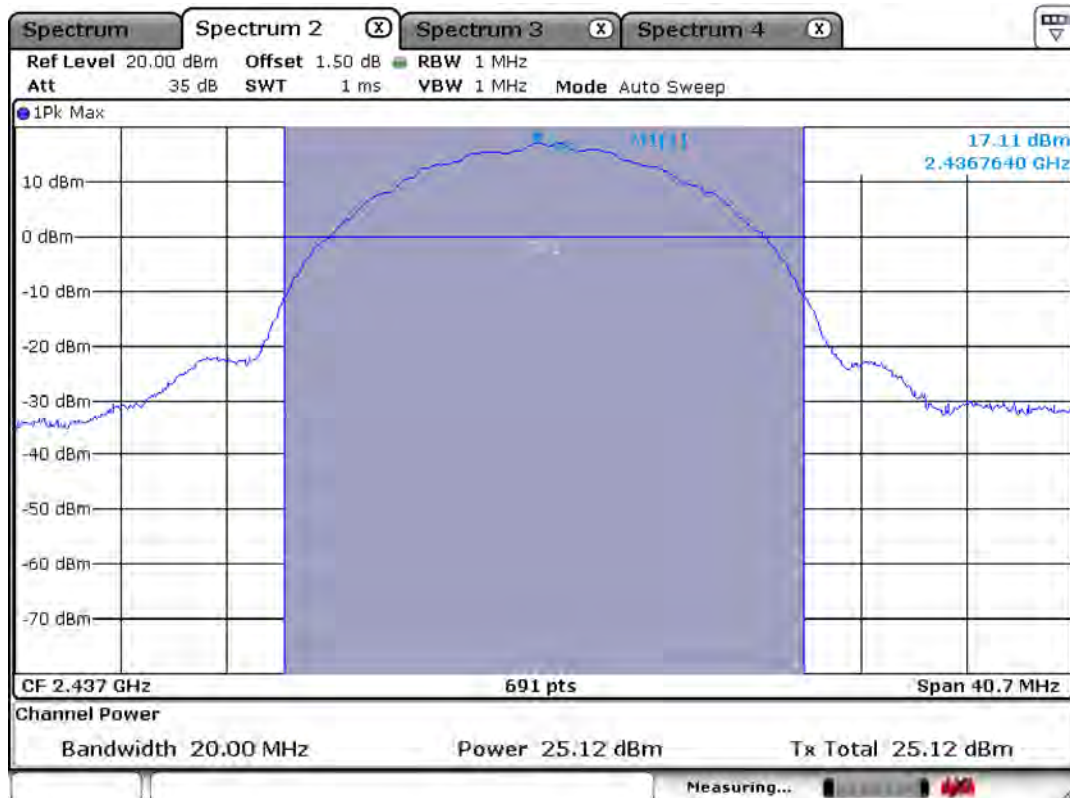


802.11b – Port 2

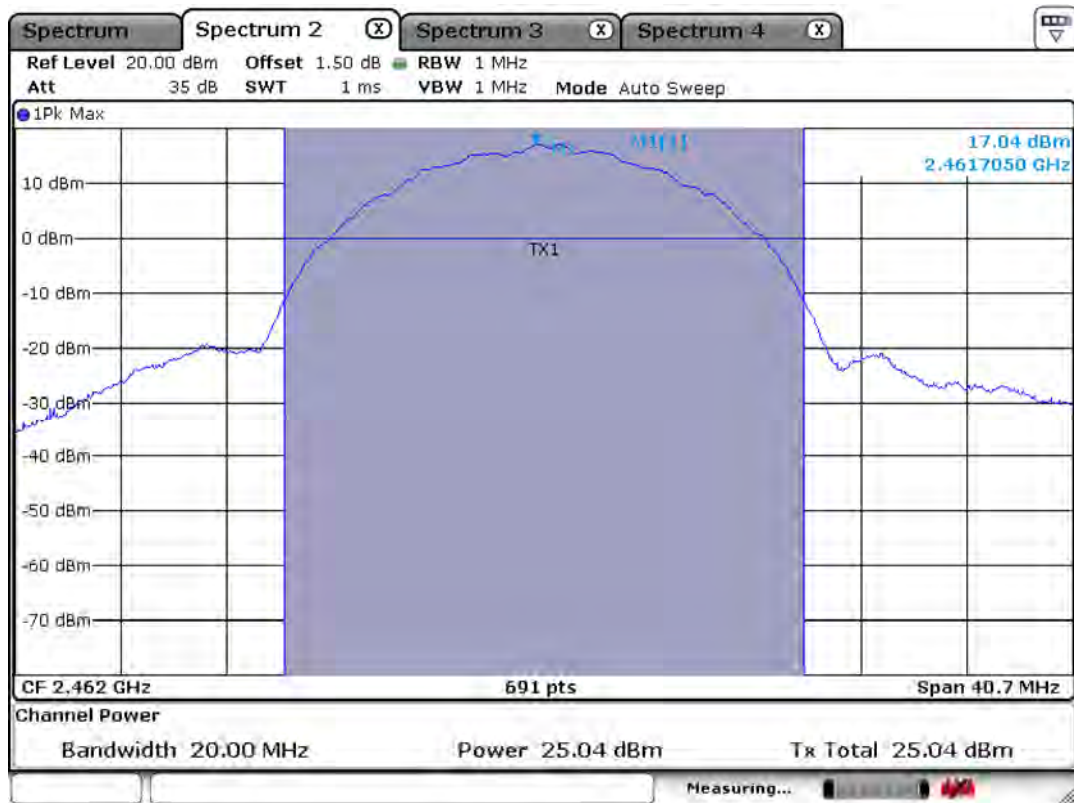
CH 1



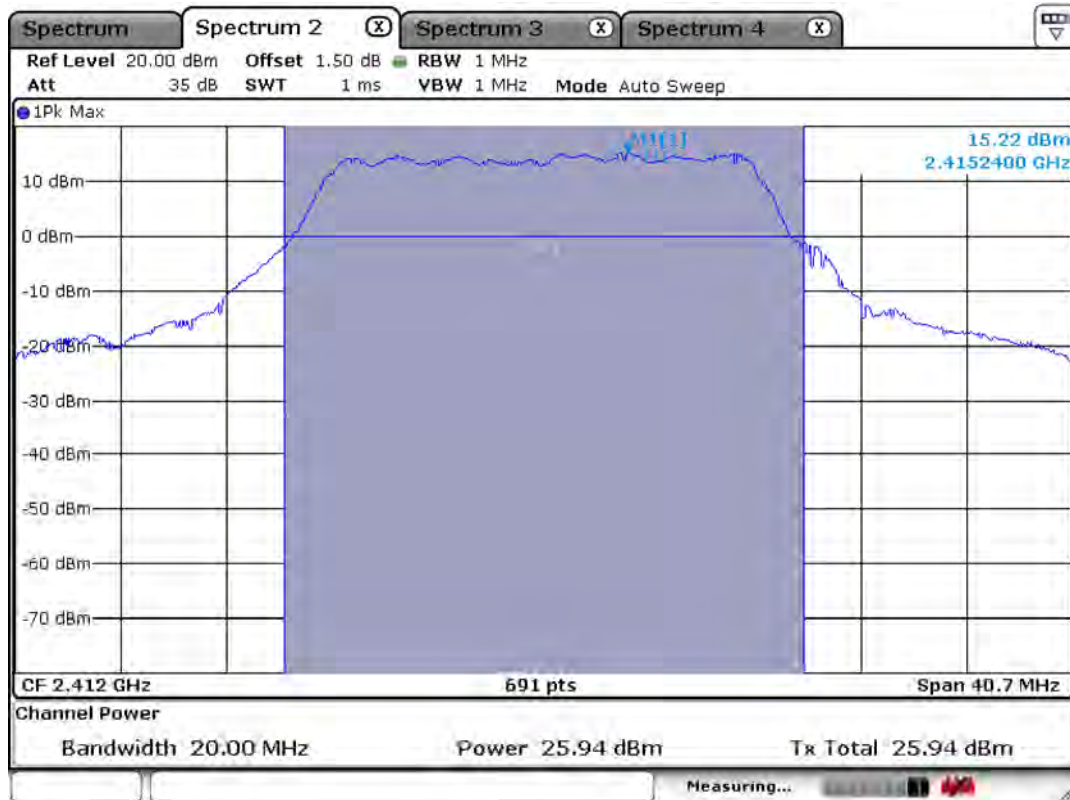
CH 6



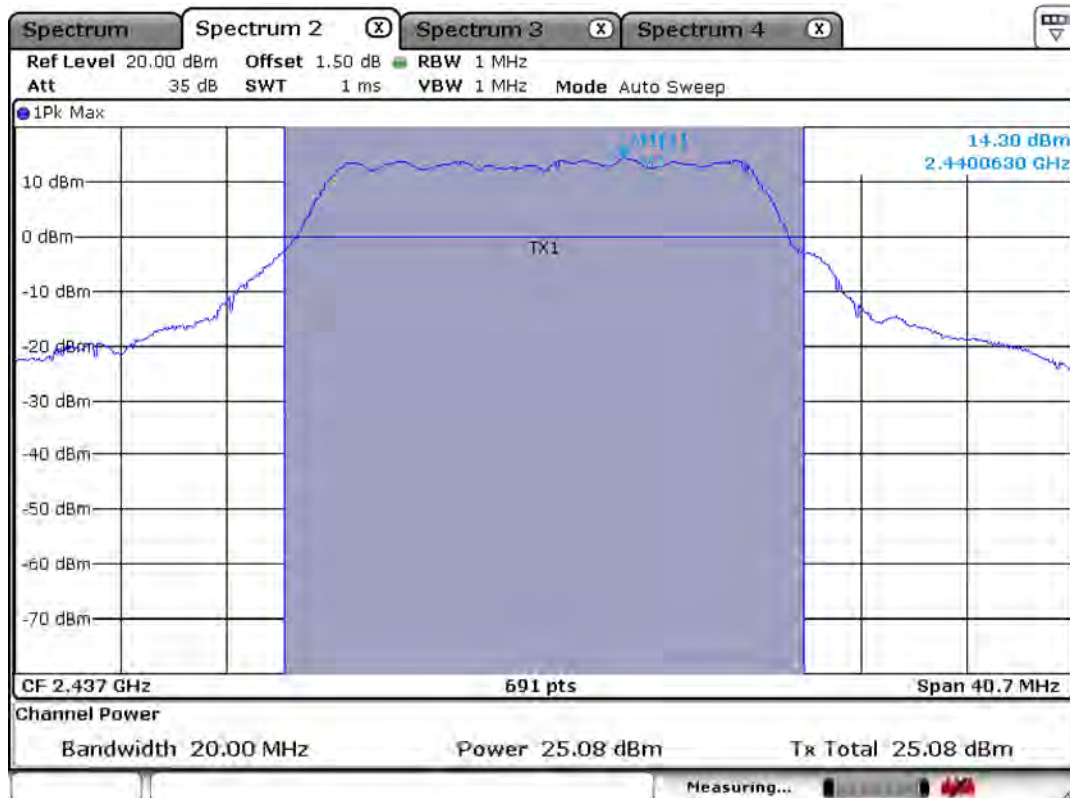
CH 11



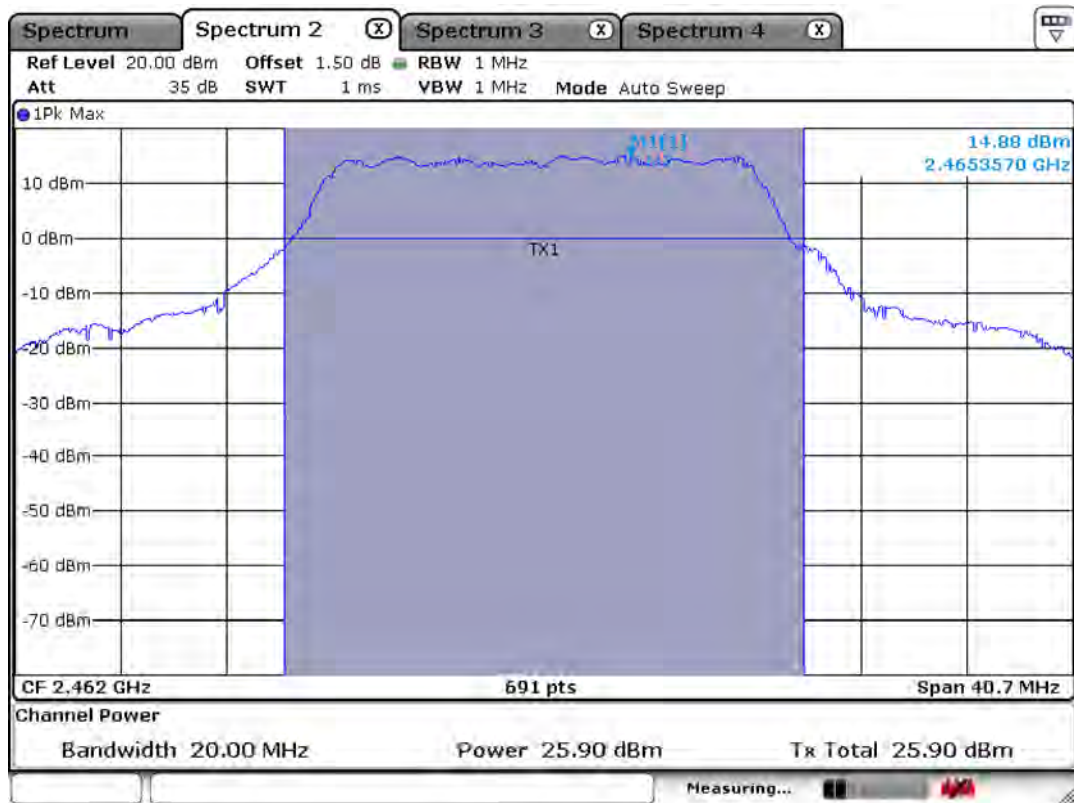
802.11g – Port 2 CH 1



CH 6

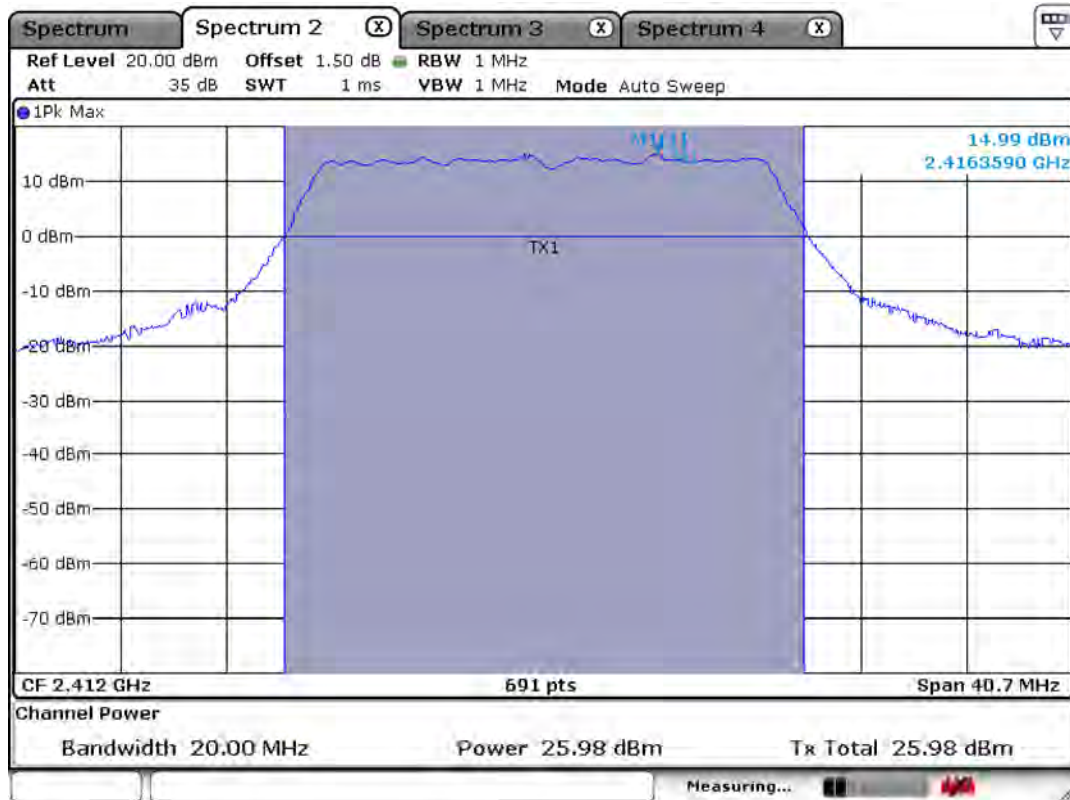


CH 11

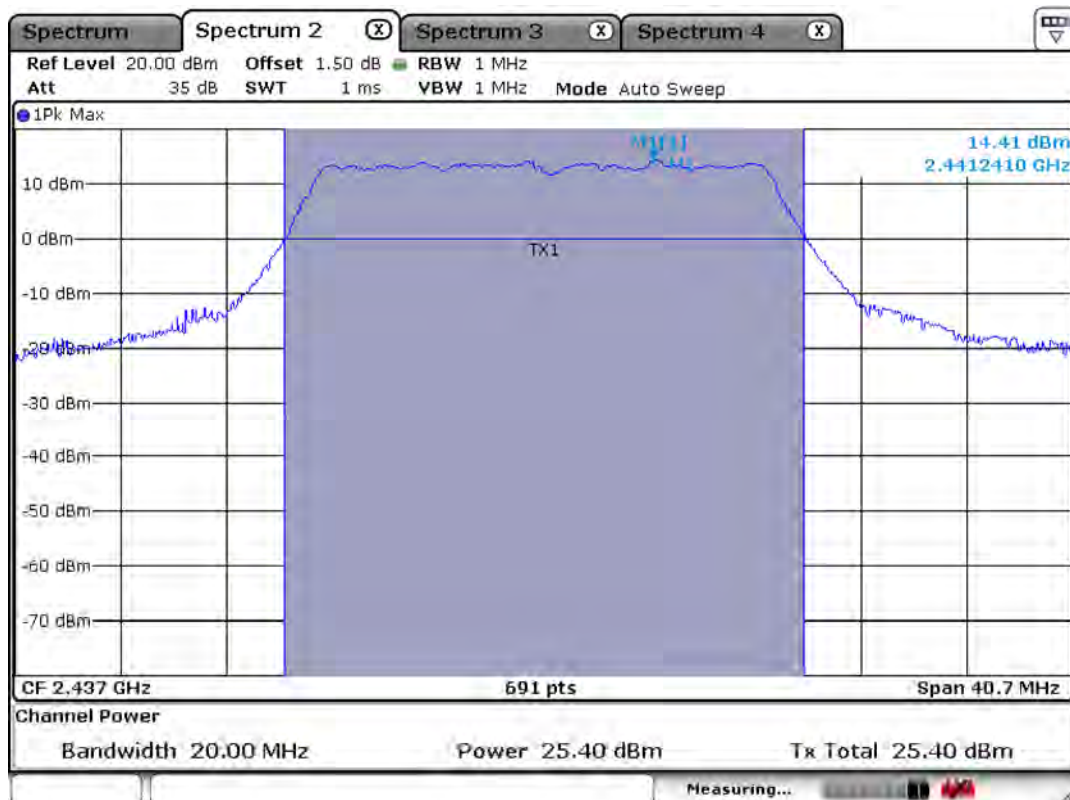


802.11n_20MHz – Port 2

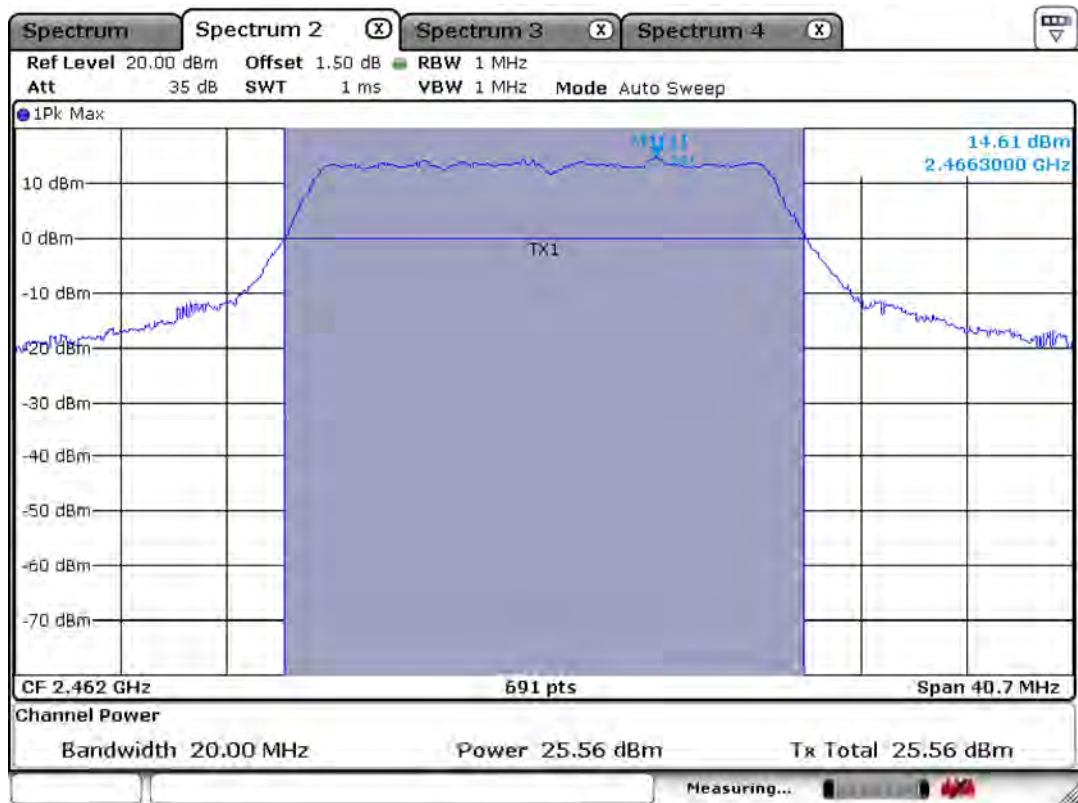
CH 1



CH 6

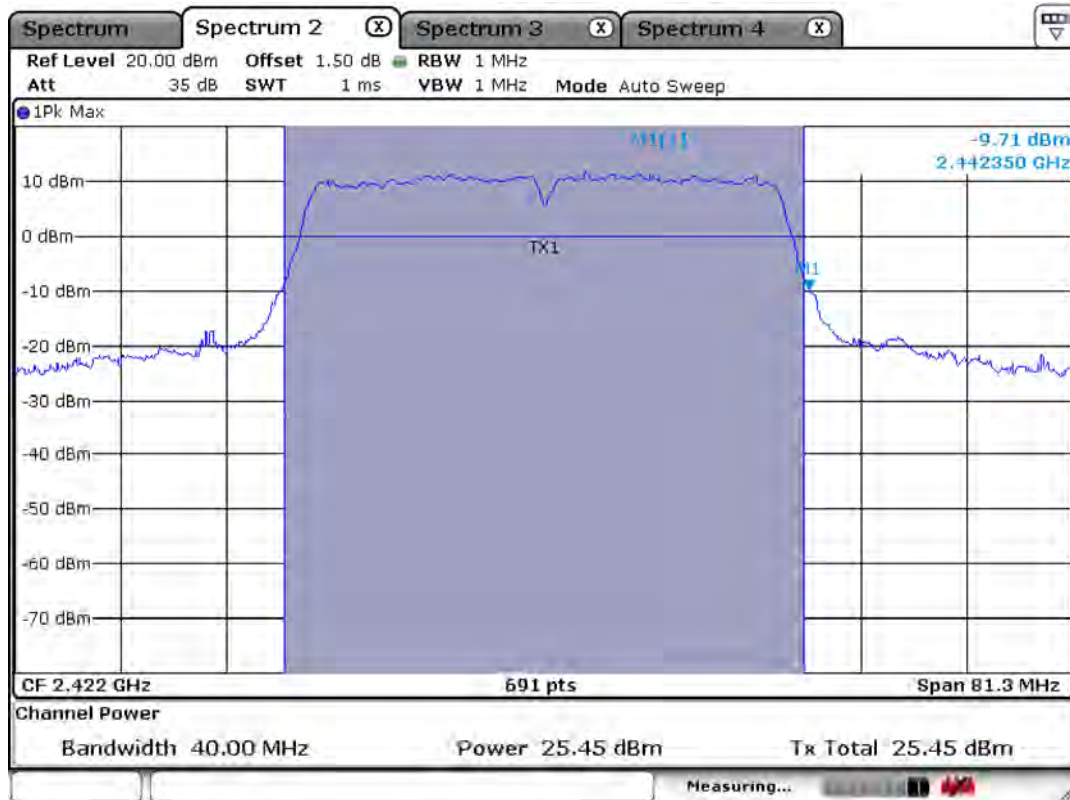


CH 11

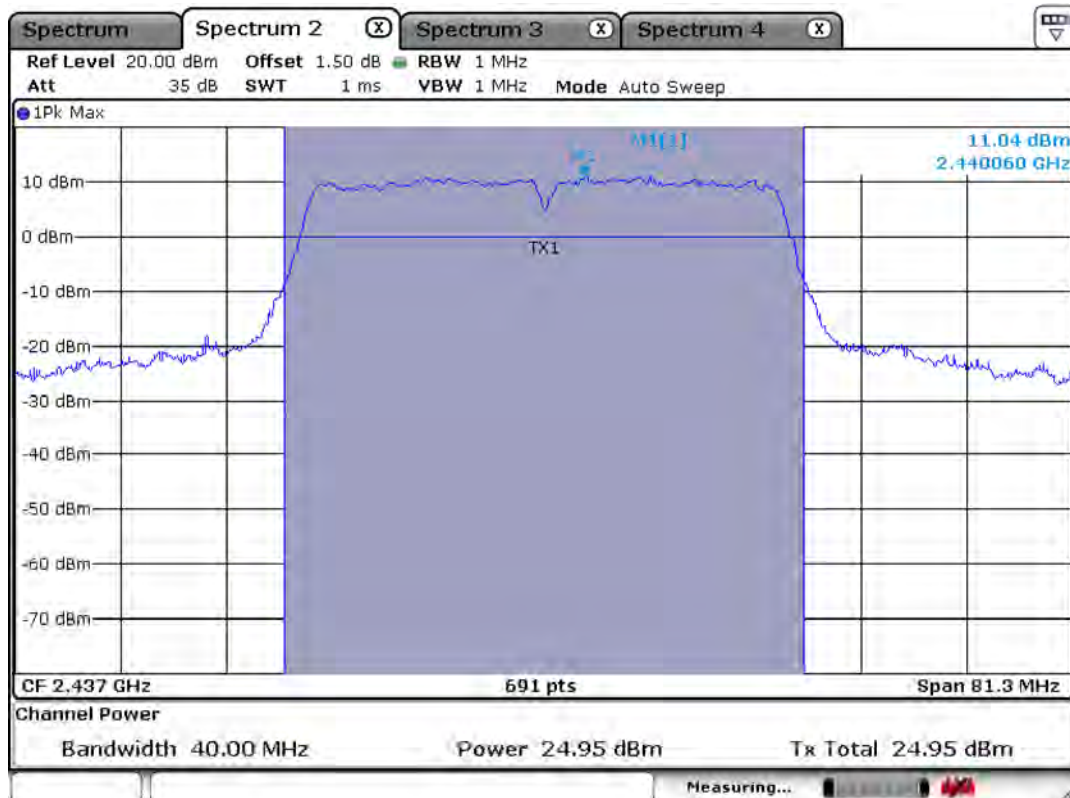


802.11n40MHz – Port 2

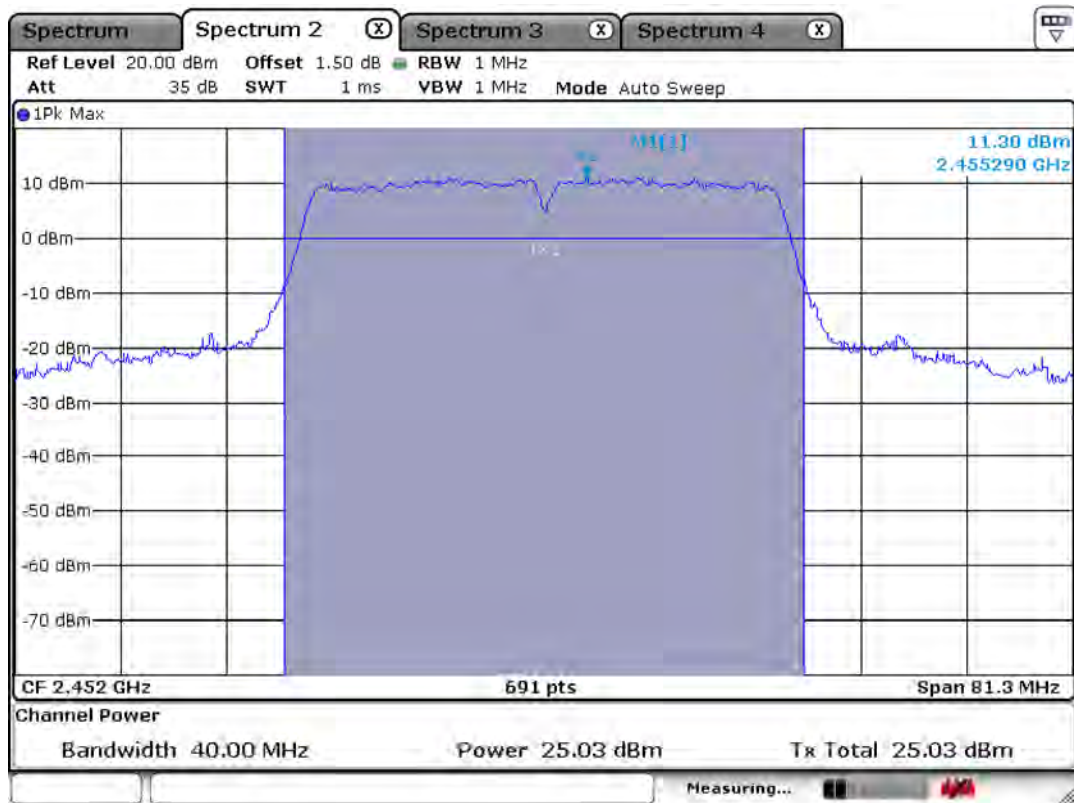
CH 3



CH 6

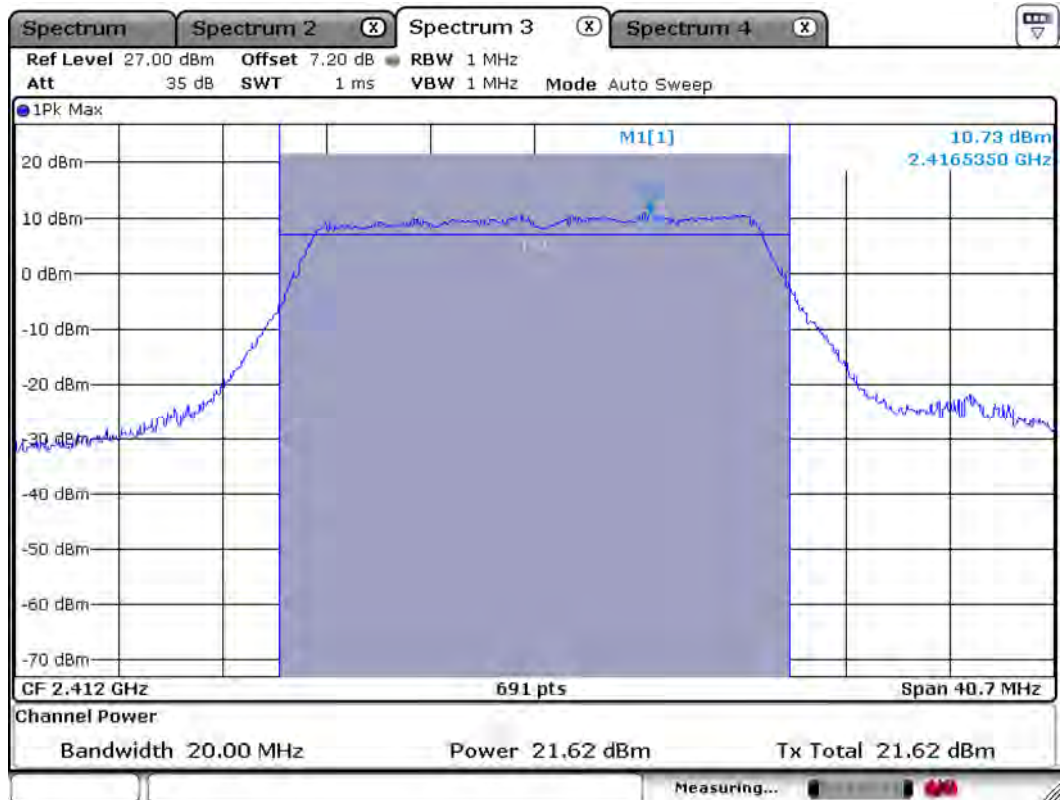


CH 9

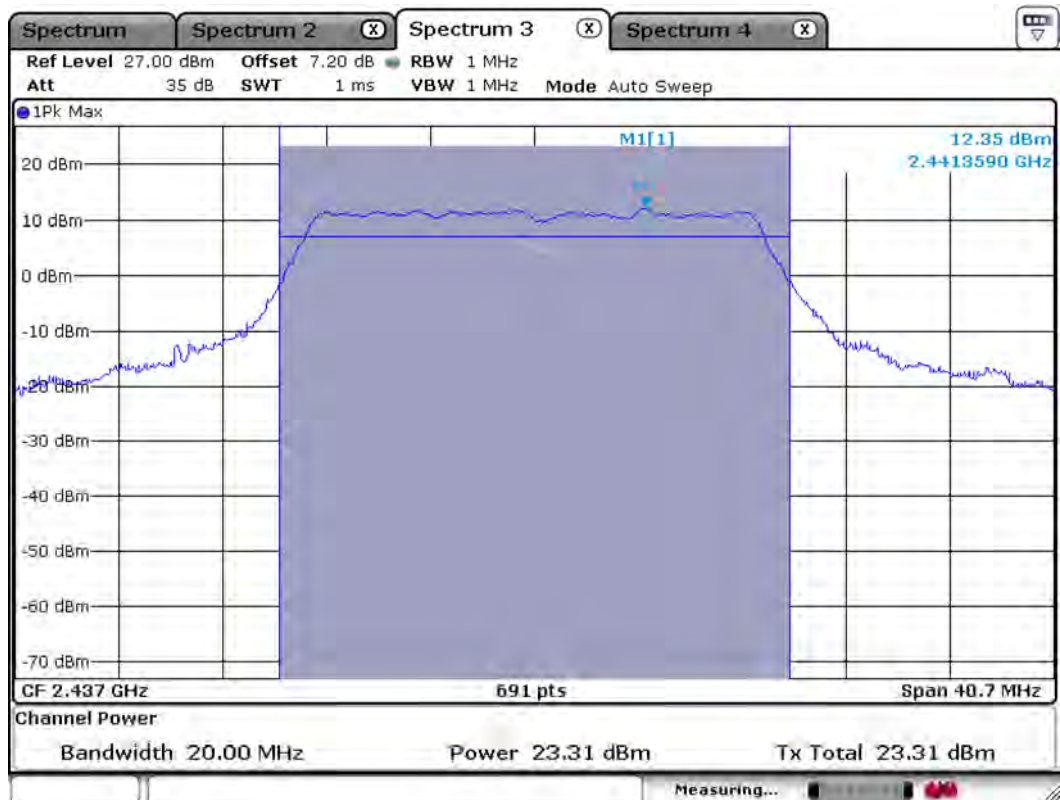


802.11n_20MHz – MIMO

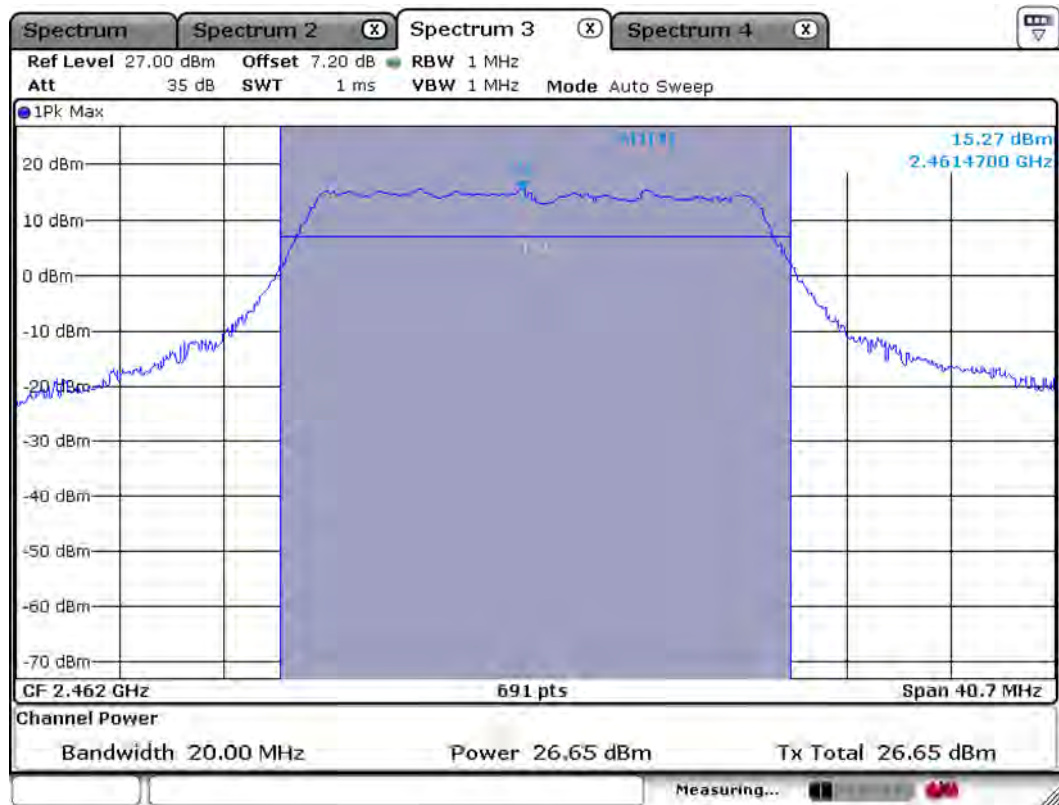
CH 1



CH 6

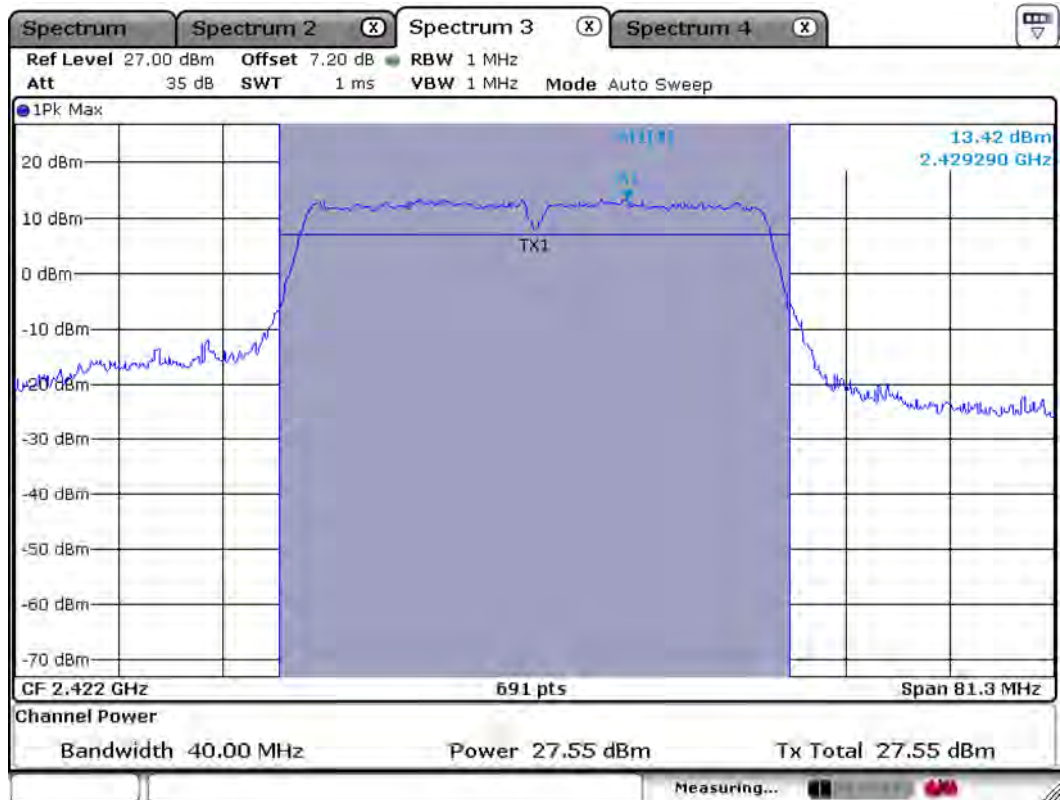


CH 11

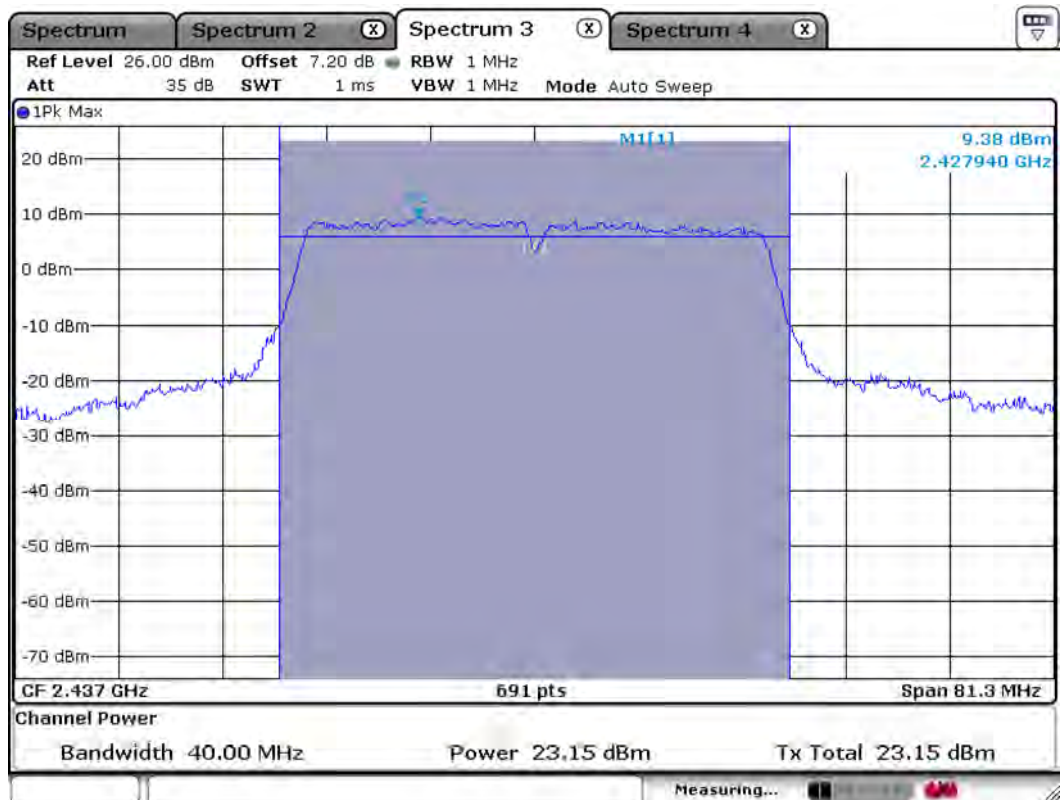


802.11n40MHz – MIMO

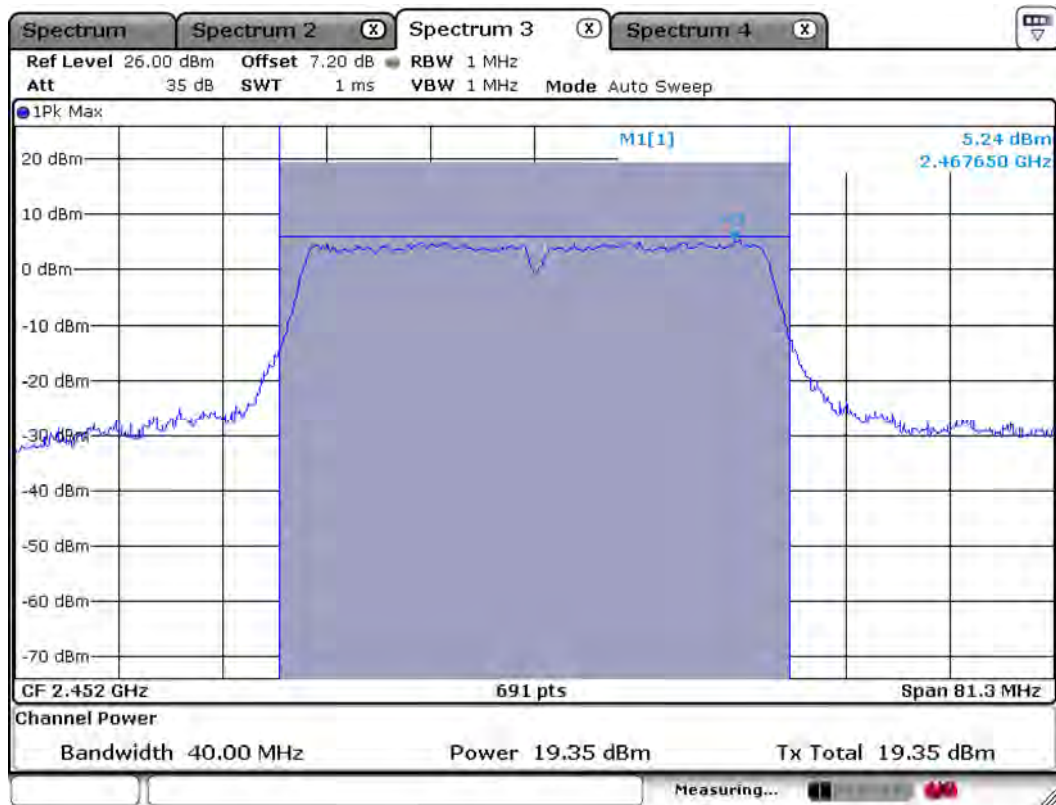
CH 3



CH 6



CH 9



3.2.3 Power Spectral Density

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The spectrum analyzer is set to:

RBW = 3 kHz

Span = 300 kHz

VBW = 3 kHz

Sweep = 100 sec

Detector function = peak

Trace = max hold

Measurement Data: Port 1

Mode	Frequency (MHz)	Channel No.	Test Results	
			dBm	Result
802.11b	2412	1	-4.27	Complies
	2437	6	-4.50	Complies
	2462	11	-3.96	Complies
802.11g	2412	1	-8.83	Complies
	2437	6	-9.41	Complies
	2462	11	-9.25	Complies
802.11n _20MHz	2412	1	-9.17	Complies
	2437	6	-10.15	Complies
	2462	11	-9.44	Complies
802.11n _40MHz	2422	3	-11.44	Complies
	2437	6	-12.12	Complies
	2452	9	-11.60	Complies

- See next pages for actual measured spectrum plots.

Measurement Data: Port 2

Mode	Frequency (MHz)	Channel No.	Test Results	
			dBm	Result
802.11b	2412	1	-3.71	Complies
	2437	6	-4.15	Complies
	2462	11	-4.07	Complies
802.11g	2412	1	-8.94	Complies
	2437	6	-9.14	Complies
	2462	11	-9.49	Complies
802.11n _20MHz	2412	1	-9.06	Complies
	2437	6	-9.41	Complies
	2462	11	-9.27	Complies
802.11n _40MHz	2422	3	-10.14	Complies
	2437	6	-11.15	Complies
	2452	9	-10.93	Complies

- See next pages for actual measured spectrum plots.

Measurement Data: MIMO

Mode	Frequency (MHz)	Channel No.	Test Results	
			dBm	Result
802.11n _20MHz	2412	1	-7.50	Complies
	2437	6	-7.74	Complies
	2462	11	-7.14	Complies
802.11n _40MHz	2422	3	-9.81	Complies
	2437	6	-9.88	Complies
	2452	9	-9.86	Complies

- See next pages for actual measured spectrum plots.

Minimum Standard:

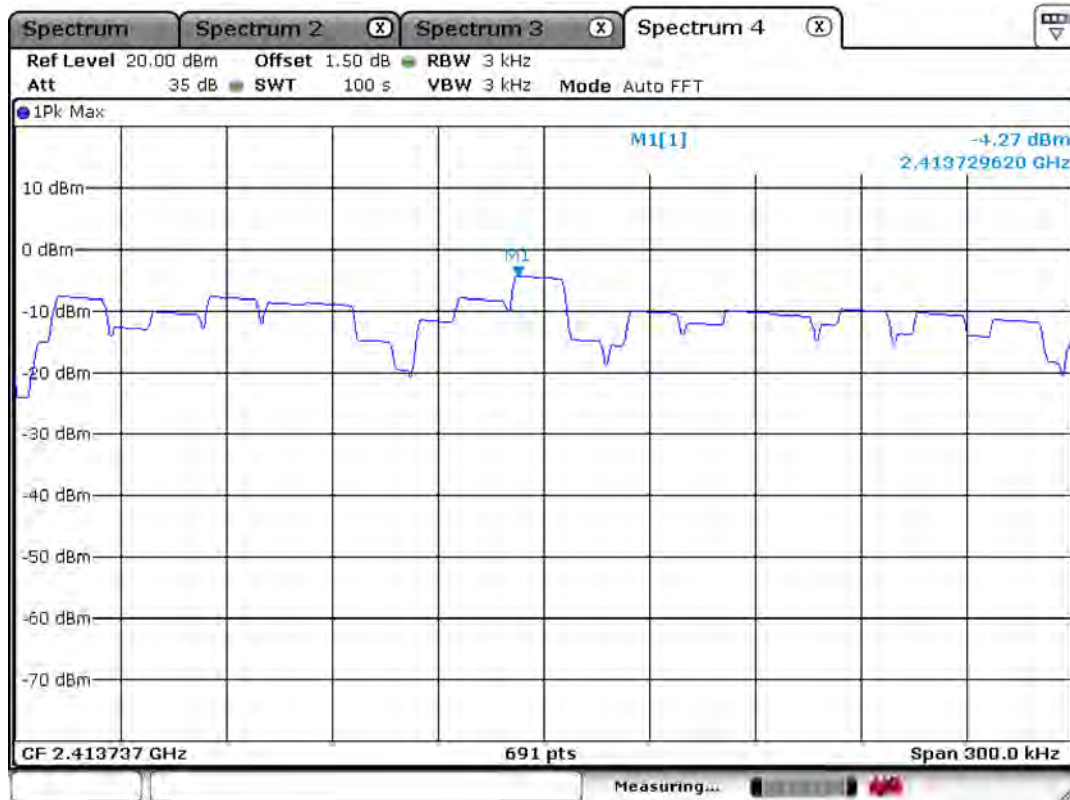
Power Spectral Density	< 8dBm @ 3kHz BW
------------------------	------------------

Measurement Setup

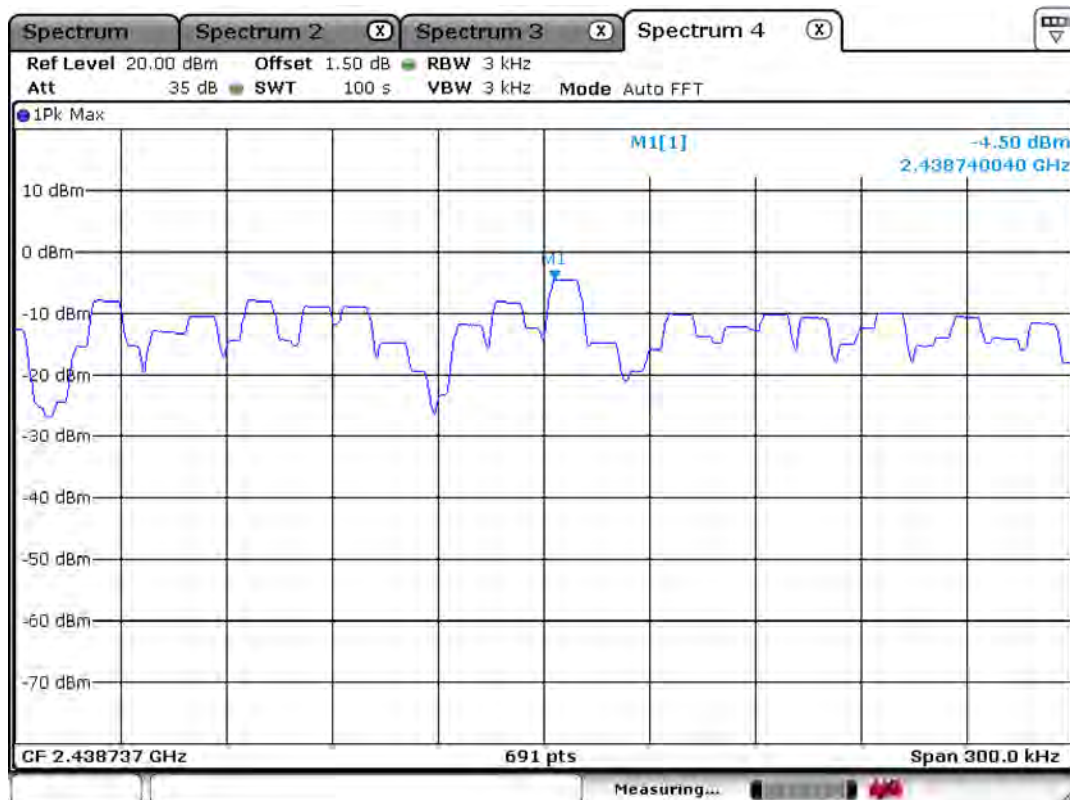
Same as the Chapter 3.2.1 (Figure 1)

802.11b Power Density Measurement – Port 1

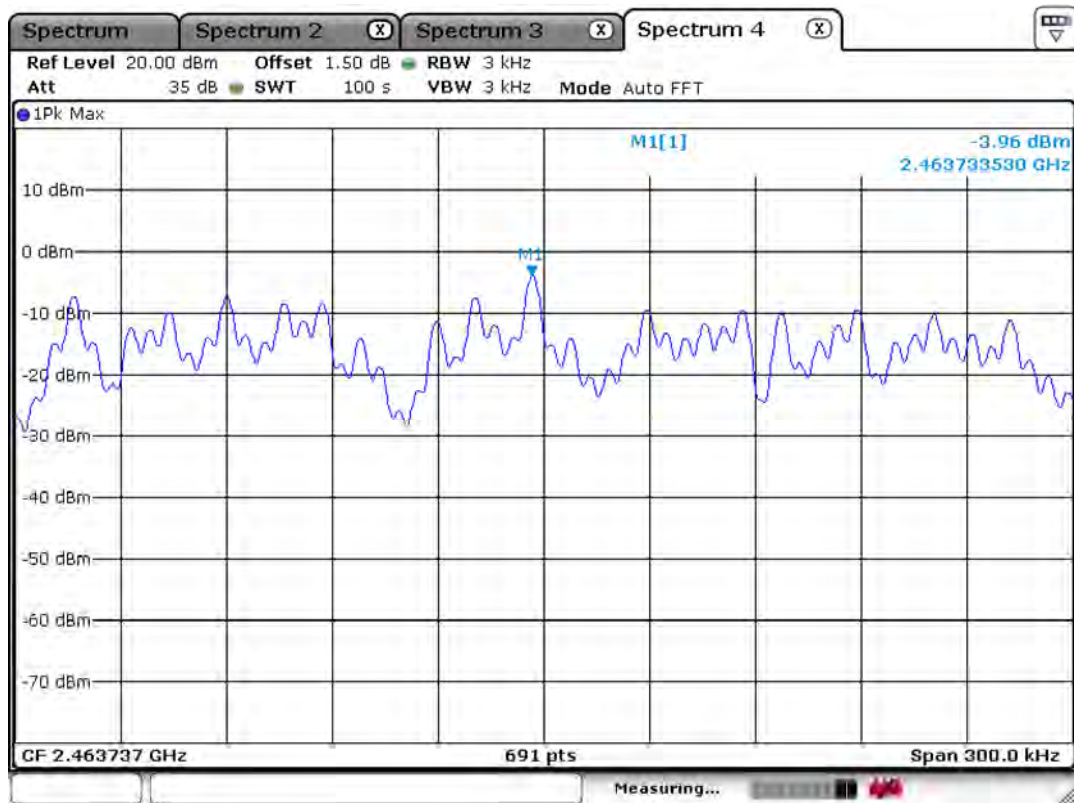
CH 1



CH 6

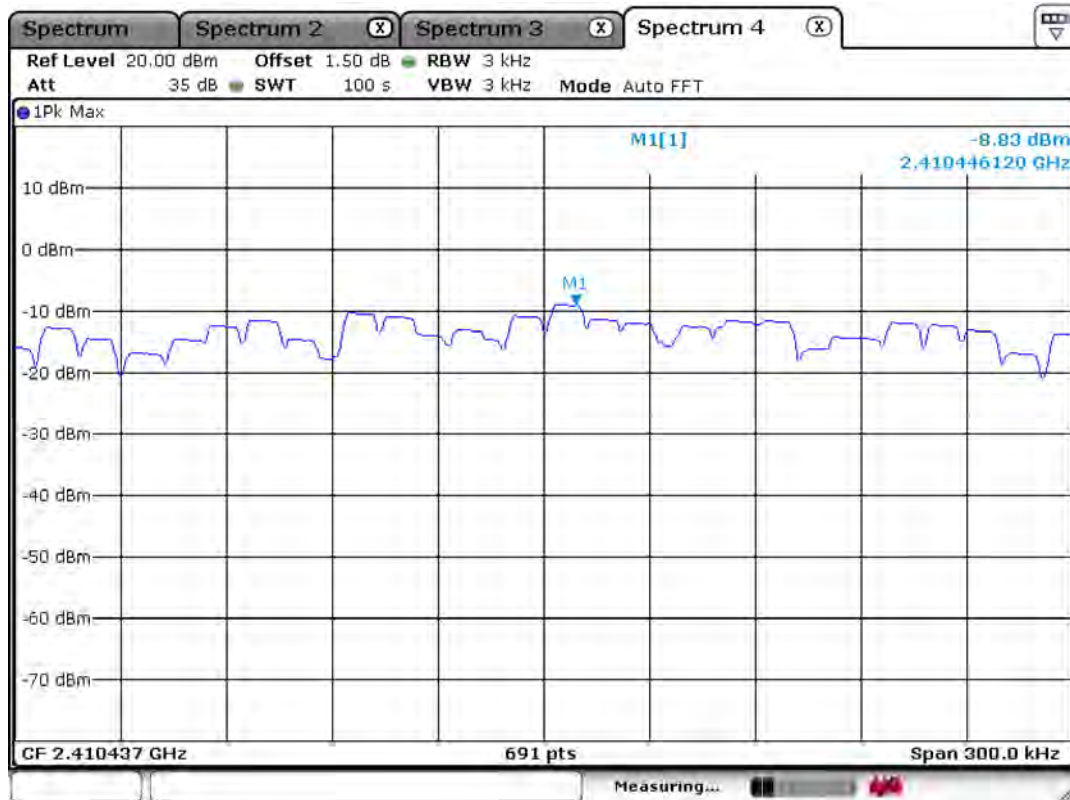


CH 11

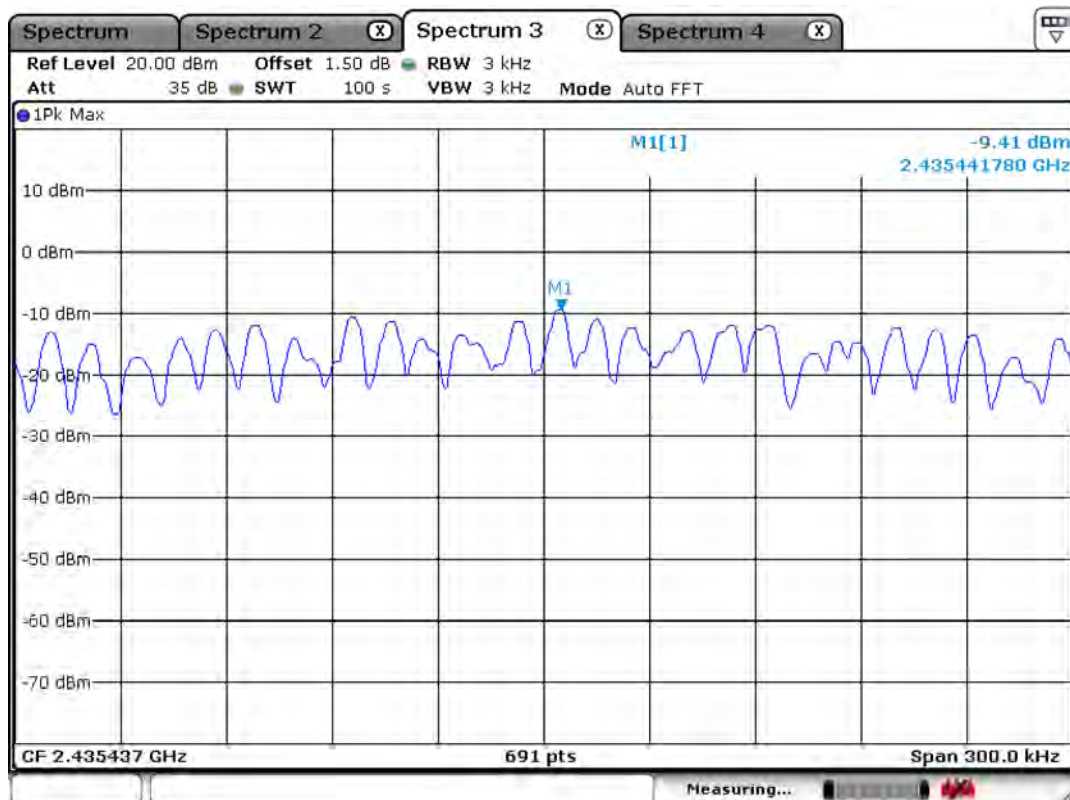


802.11g Power Density Measurement

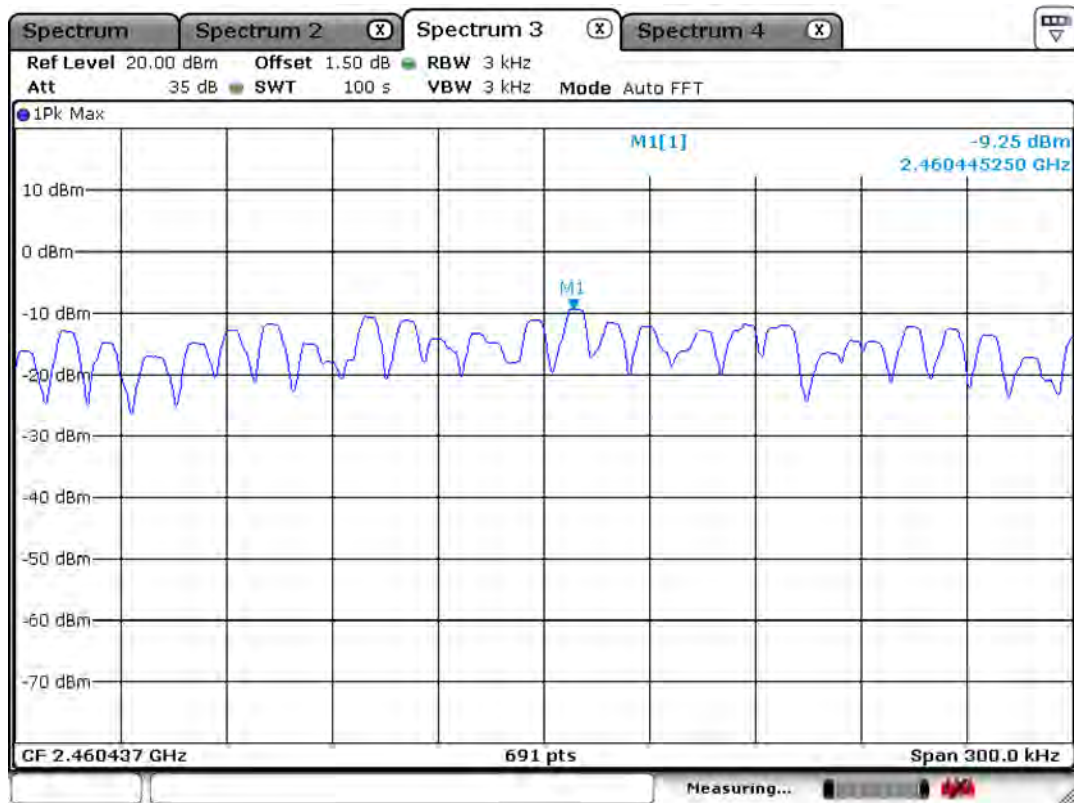
CH 1



CH 6

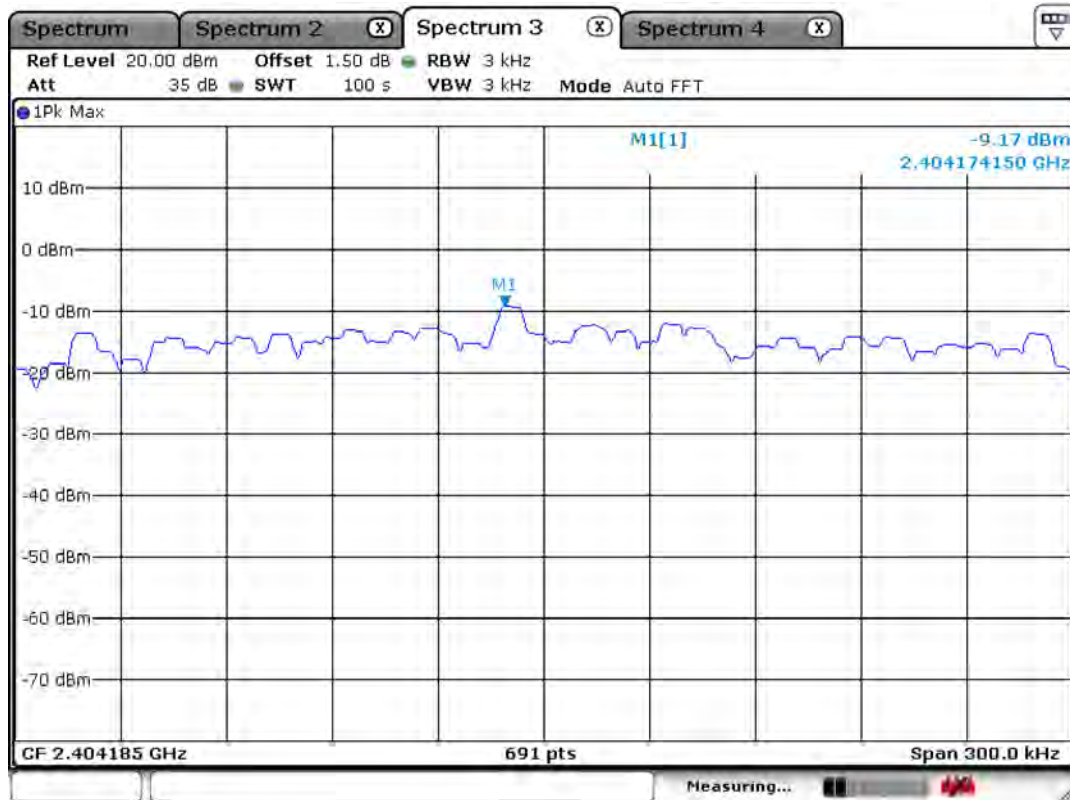


CH 11

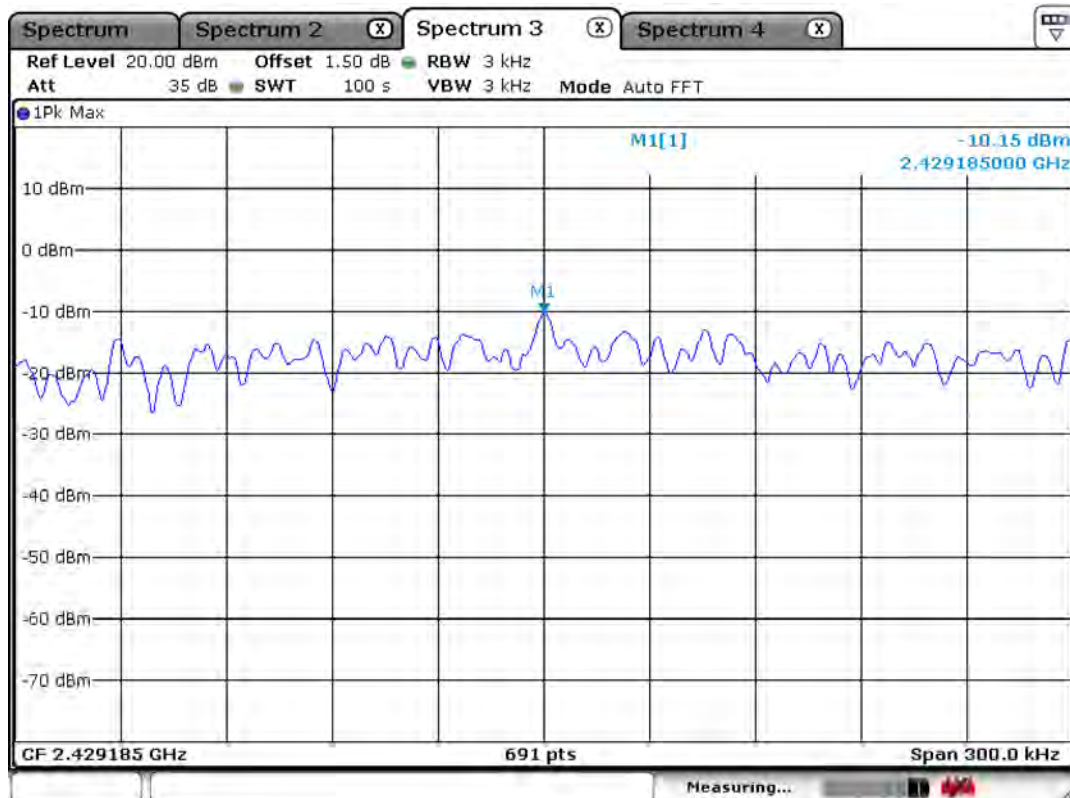


802.11n 20MHz Power Density Measurement

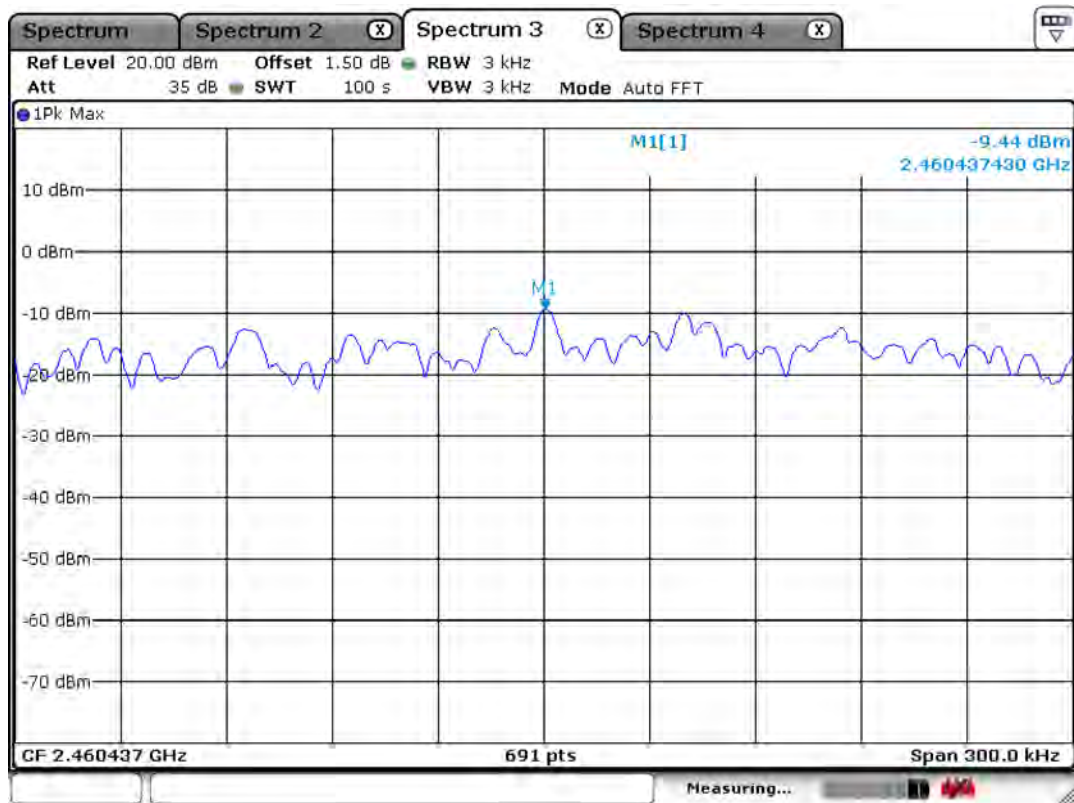
CH 1



CH 6

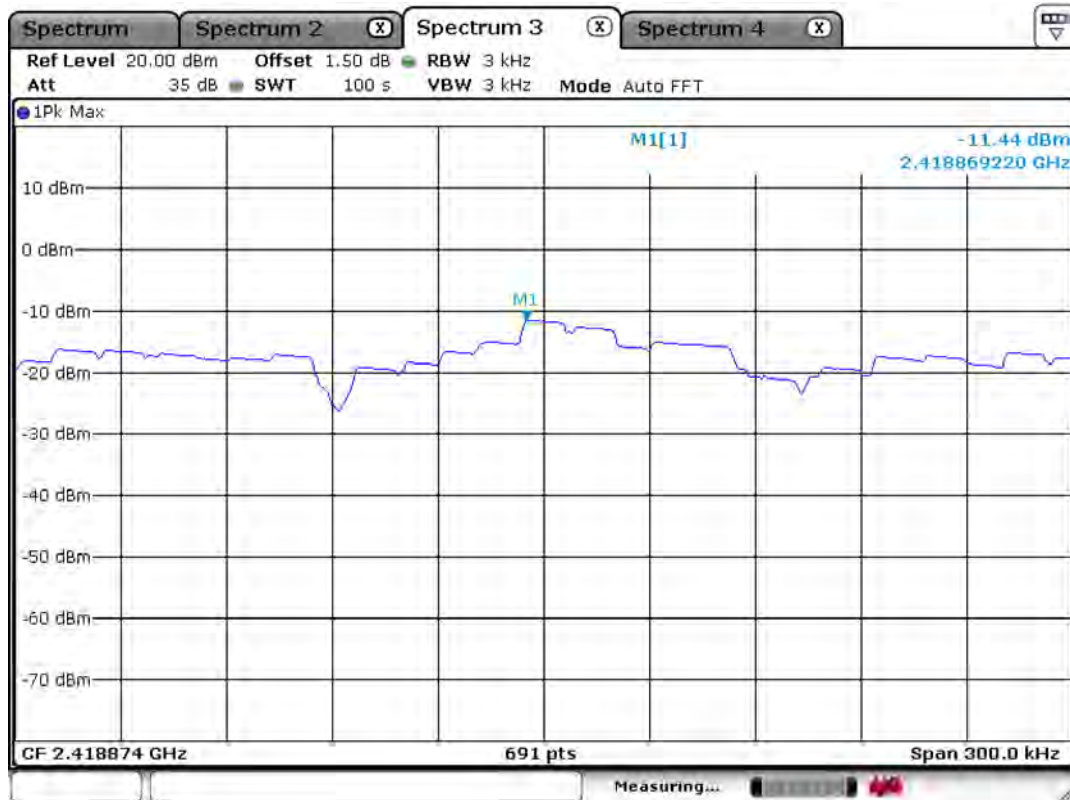


CH 11

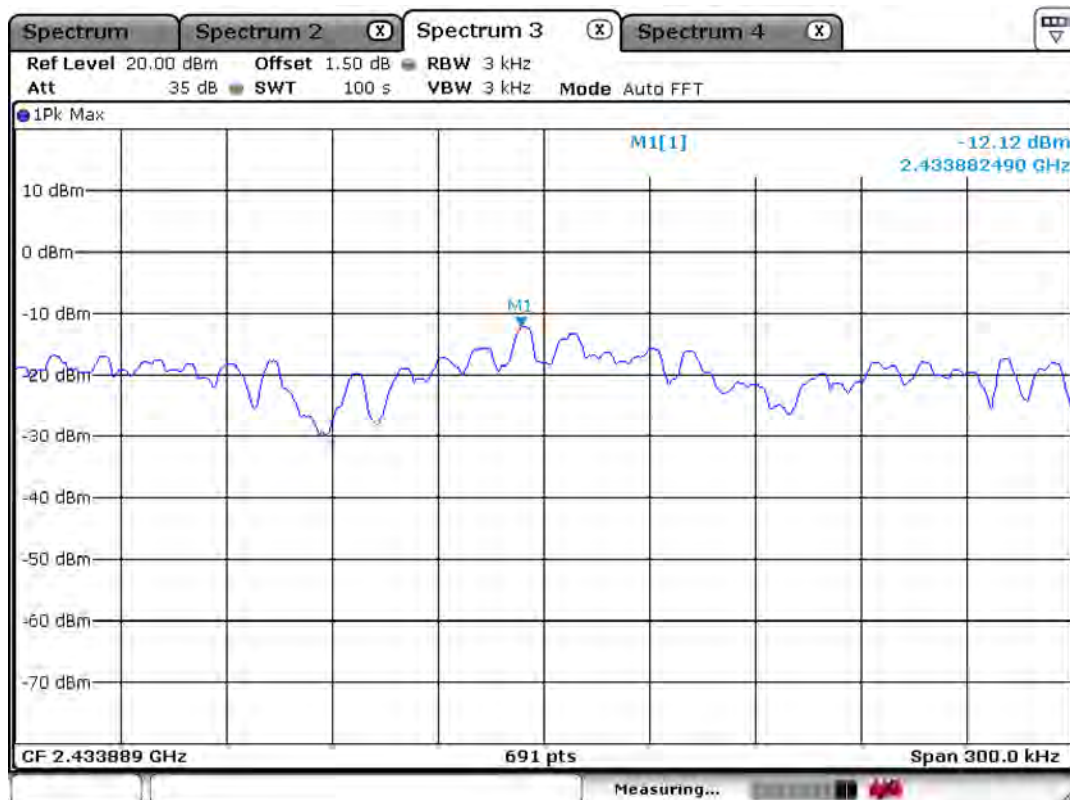


802.11n 40MHz Power Density Measurement

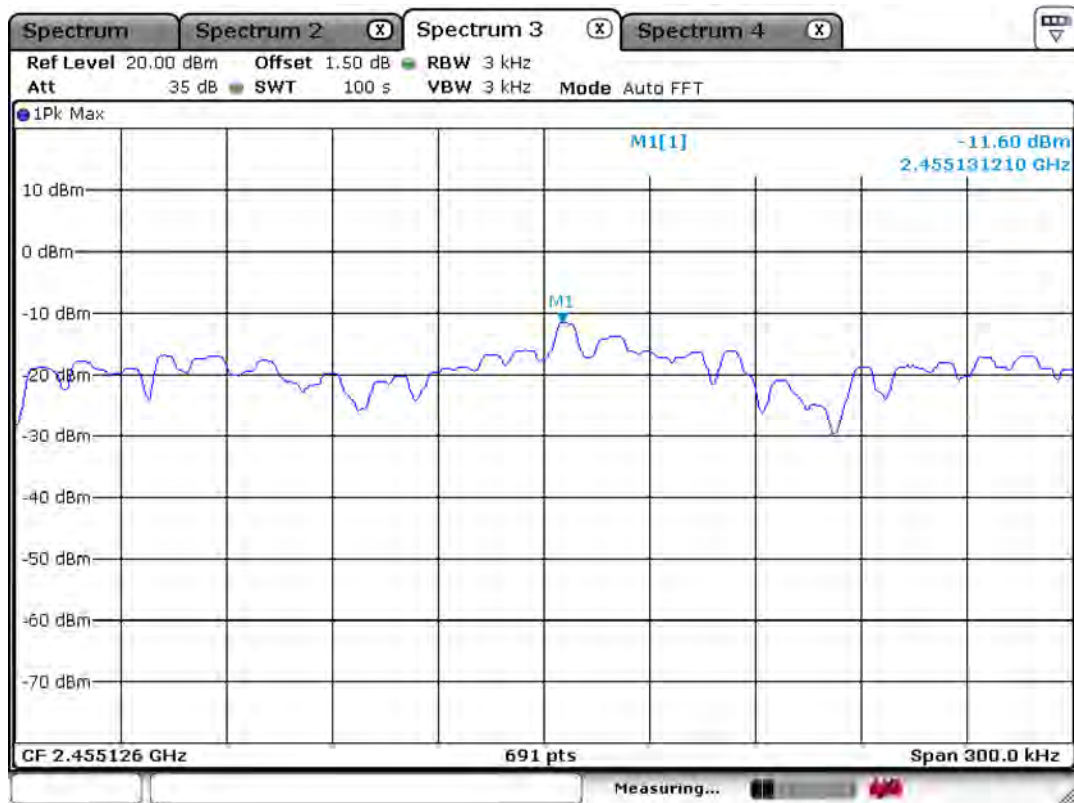
CH 3

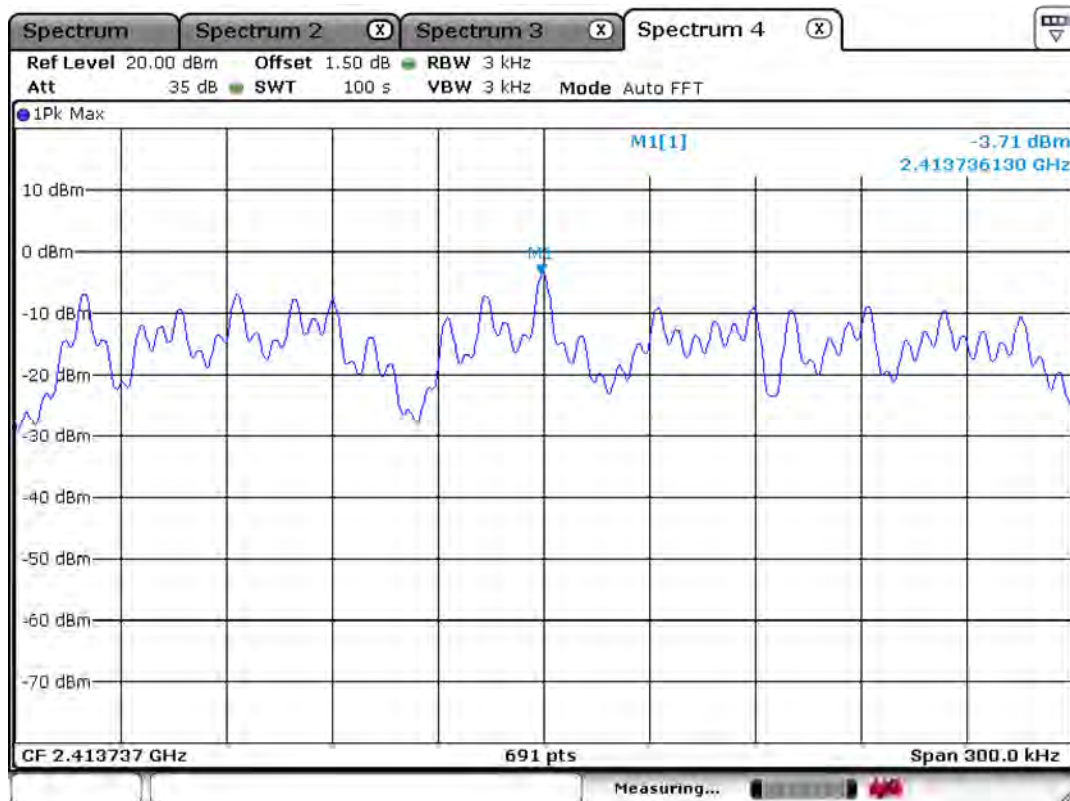
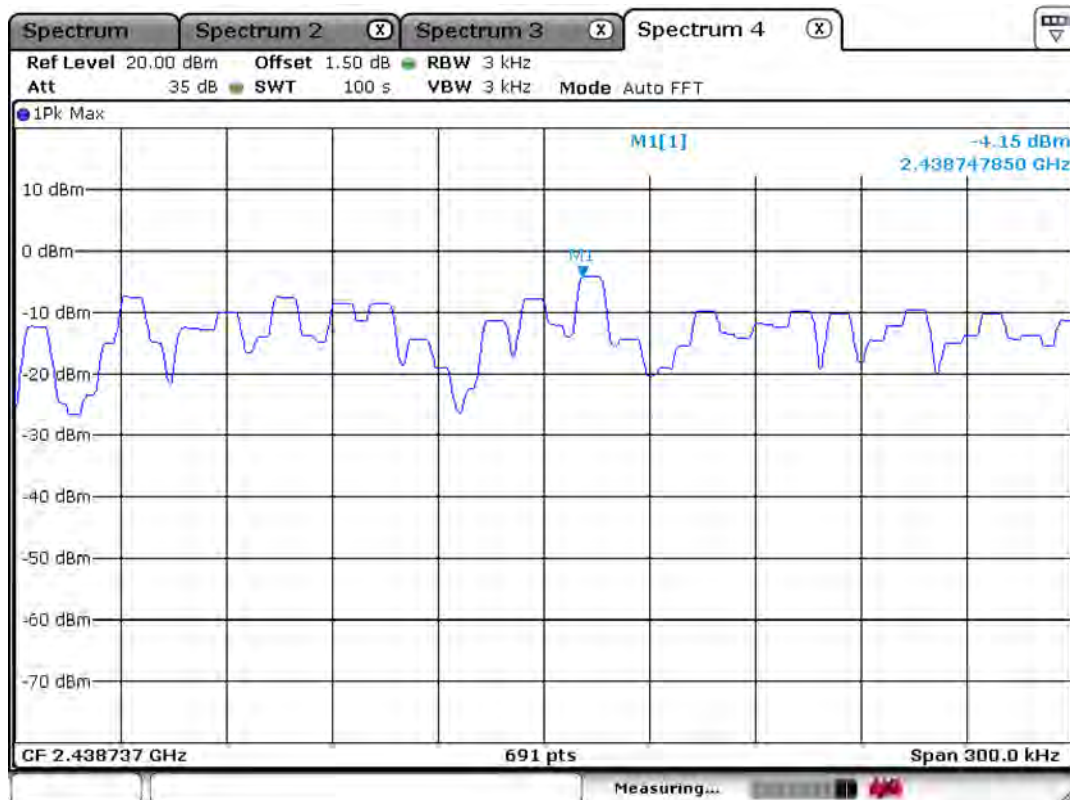


CH 6

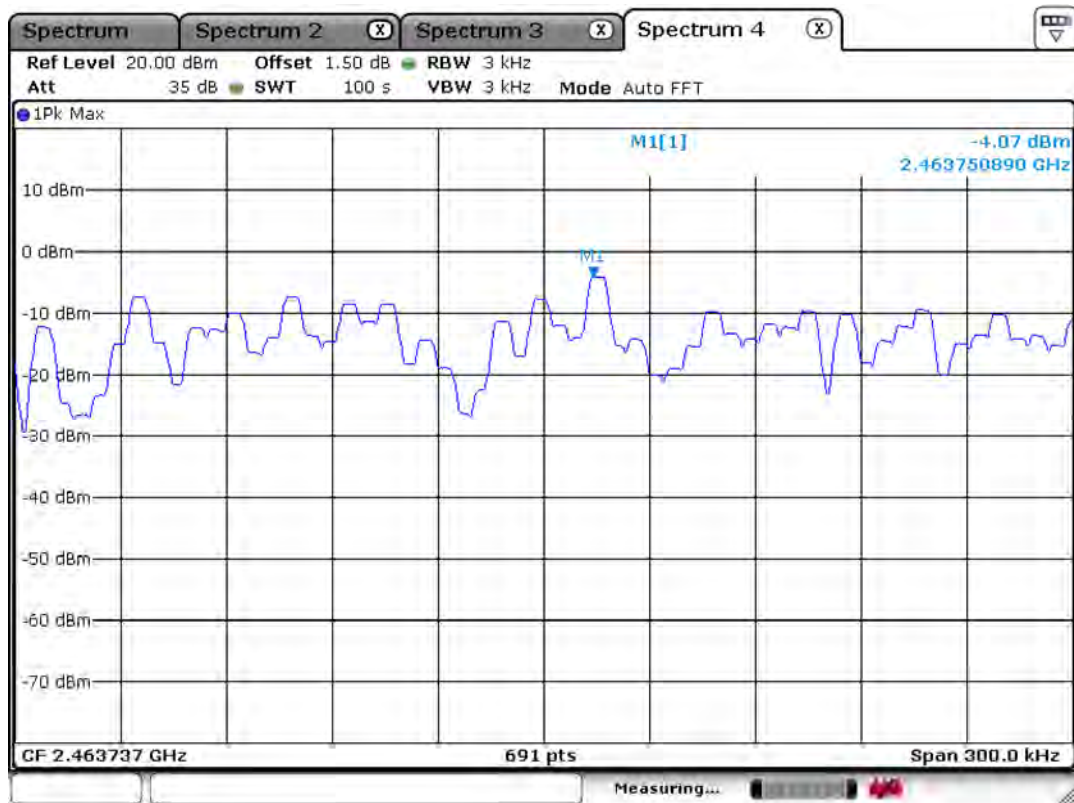


CH 9



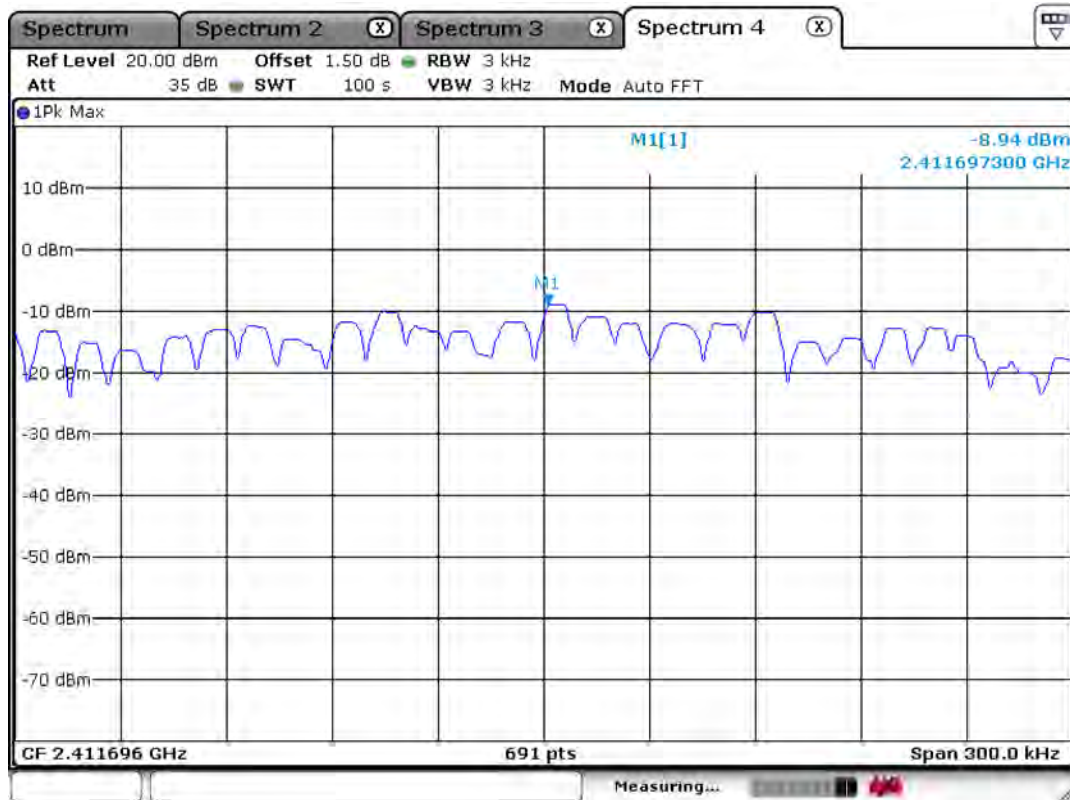
802.11b Power Density Measurement – Port 2**CH 1****CH 6**

CH 11

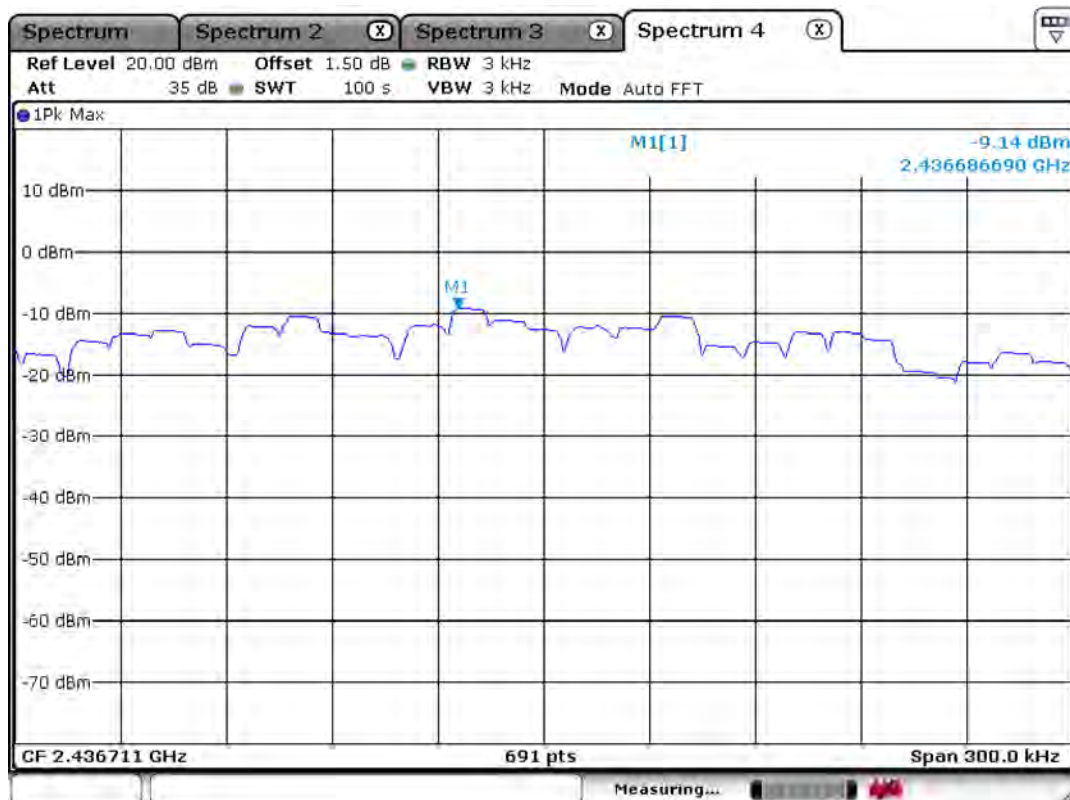


802.11g Power Density Measurement

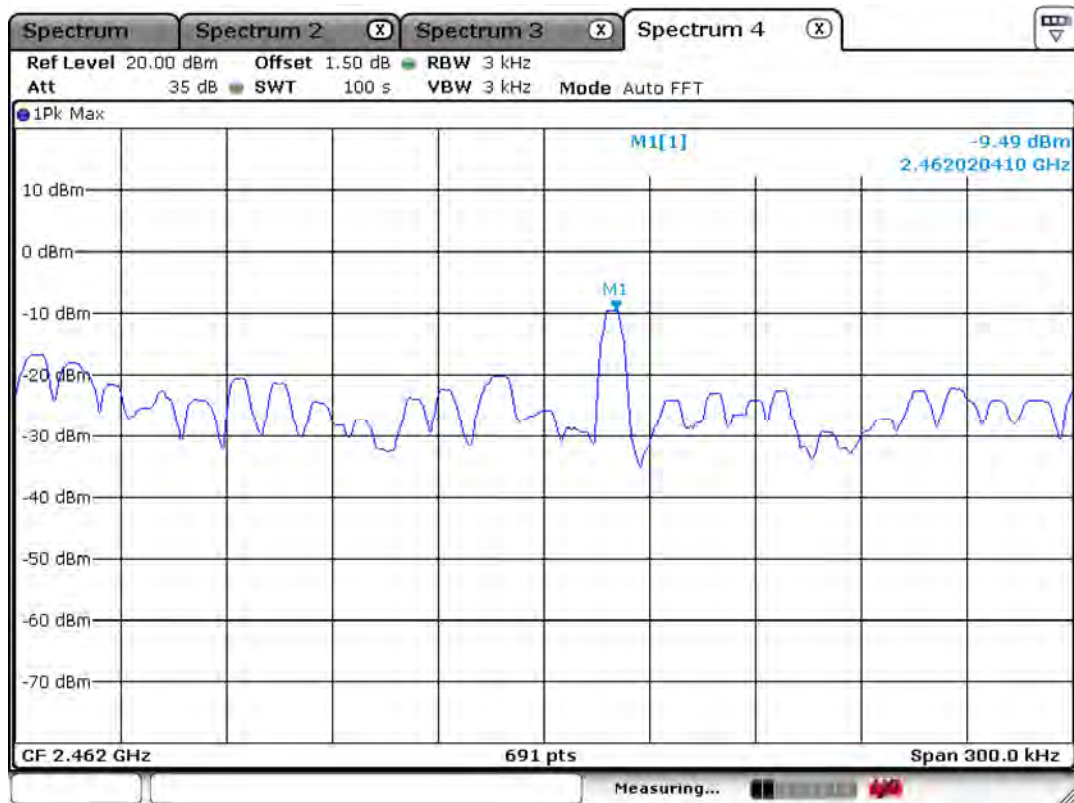
CH 1



CH 6

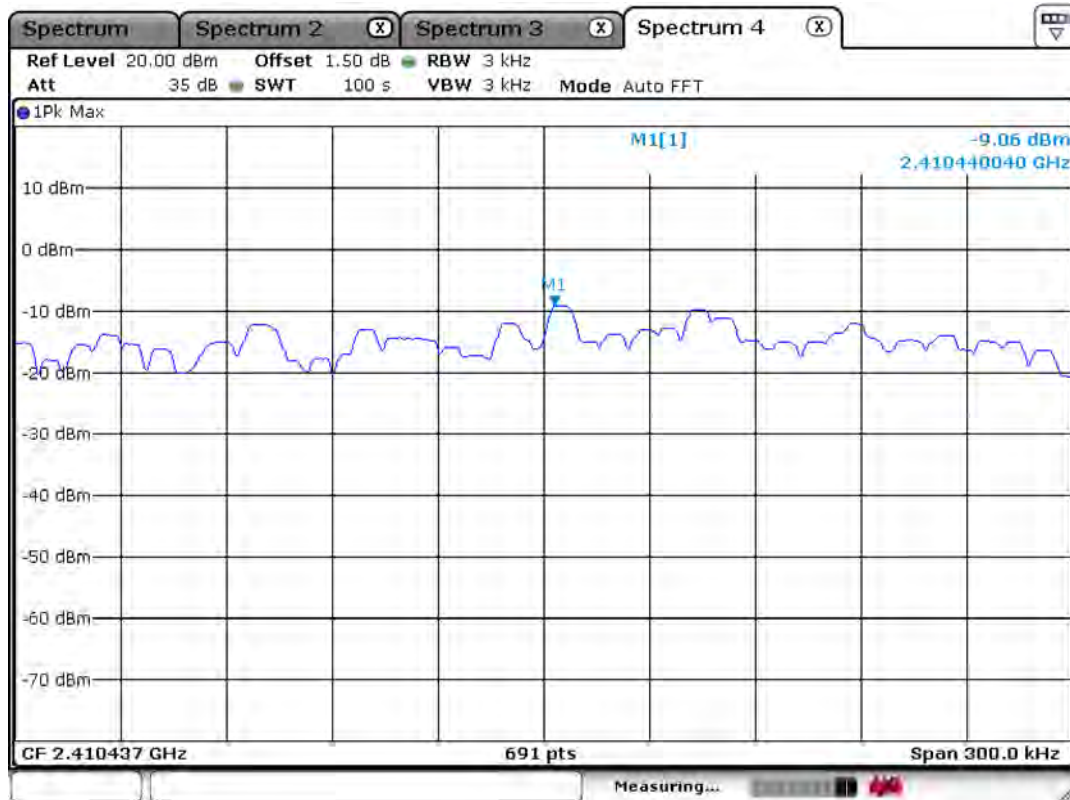


CH 11

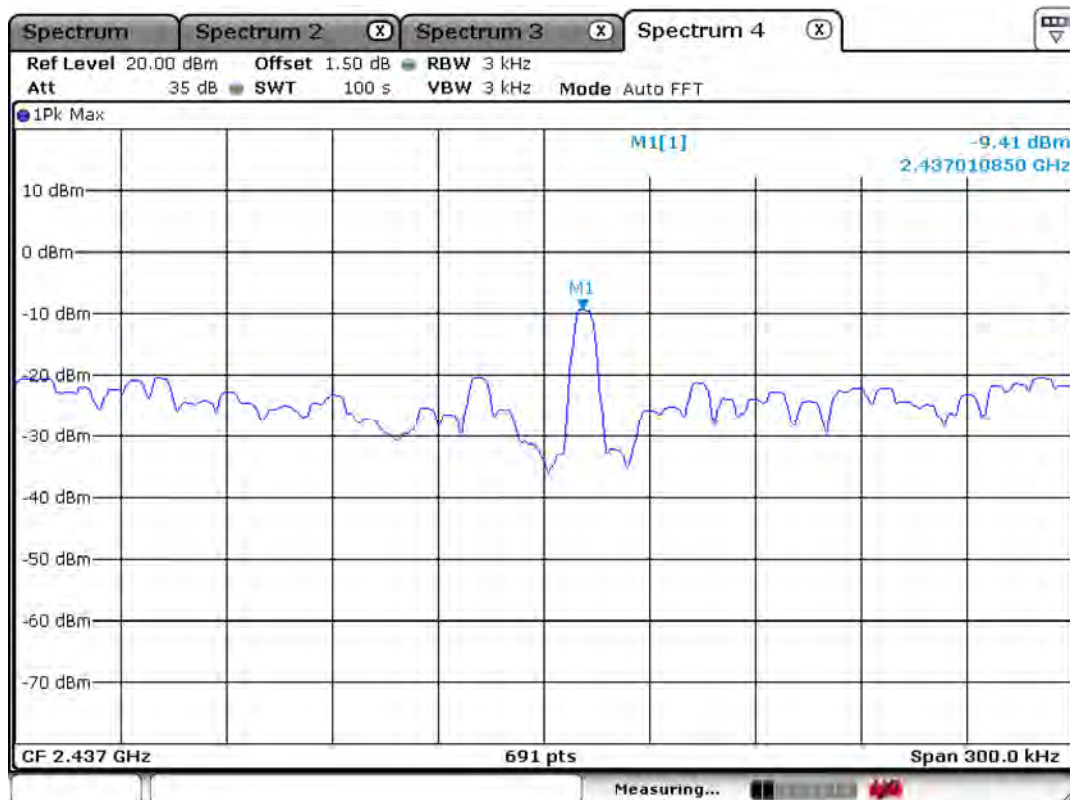


802.11n 20MHz Power Density Measurement

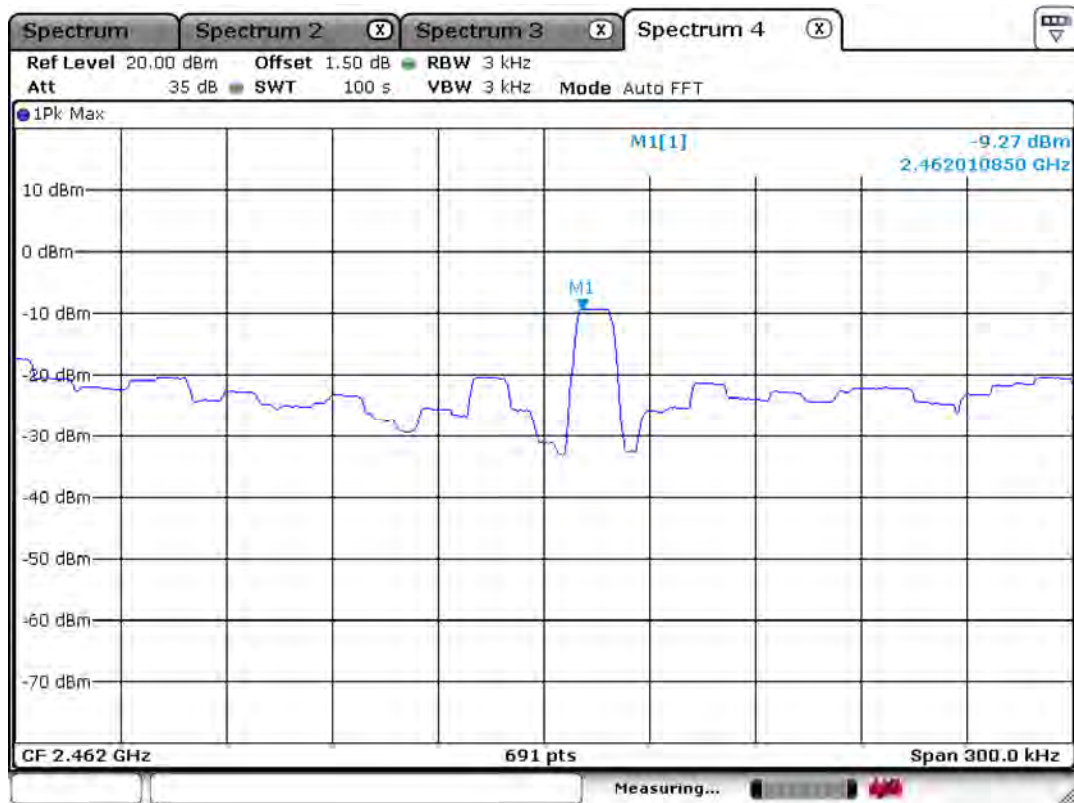
CH 1



CH 6

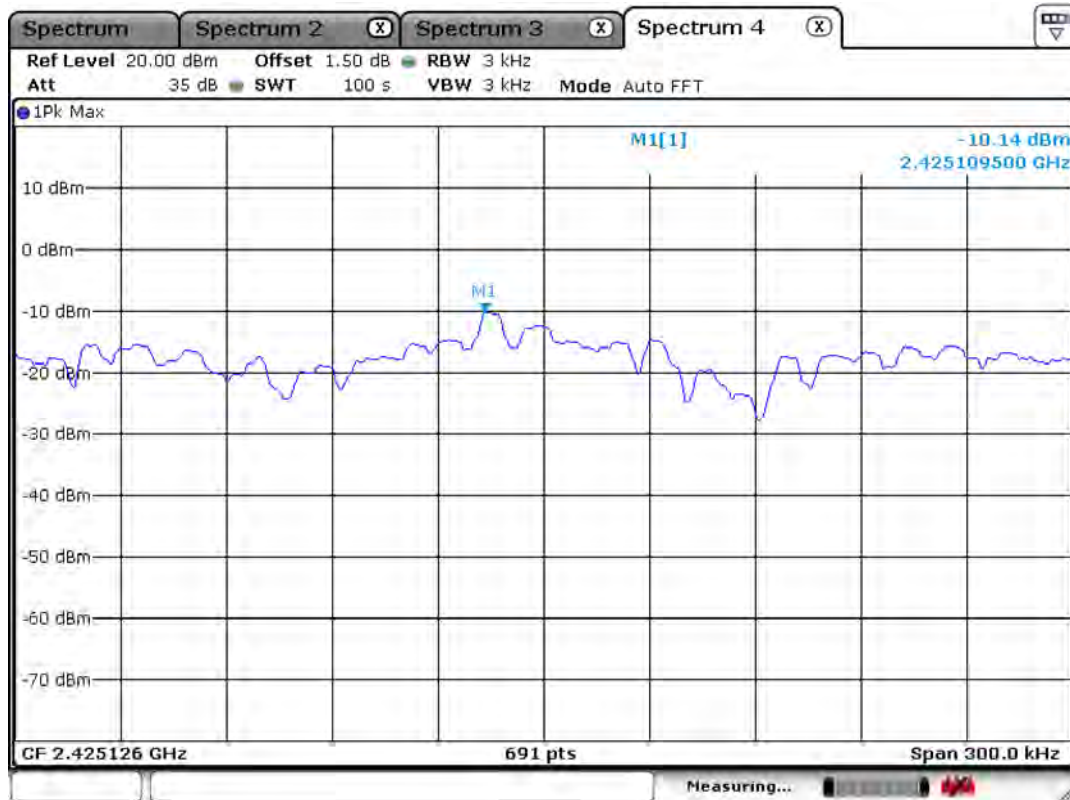


CH 11

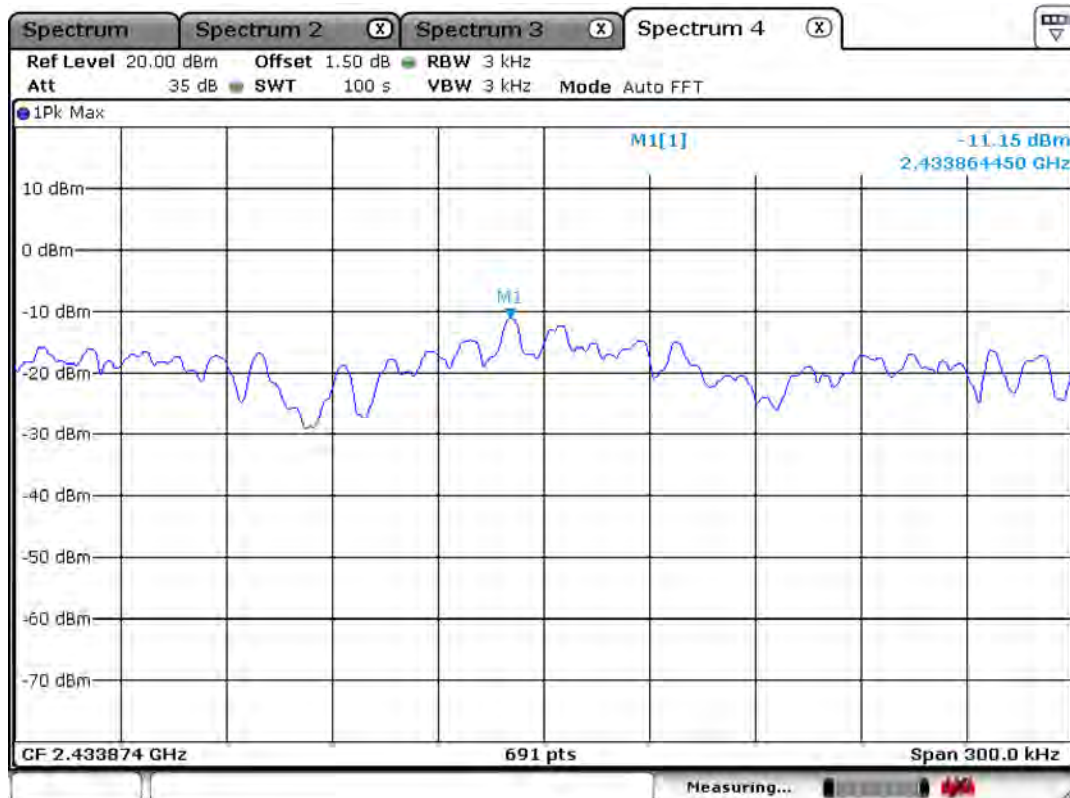


802.11n 40MHz Power Density Measurement

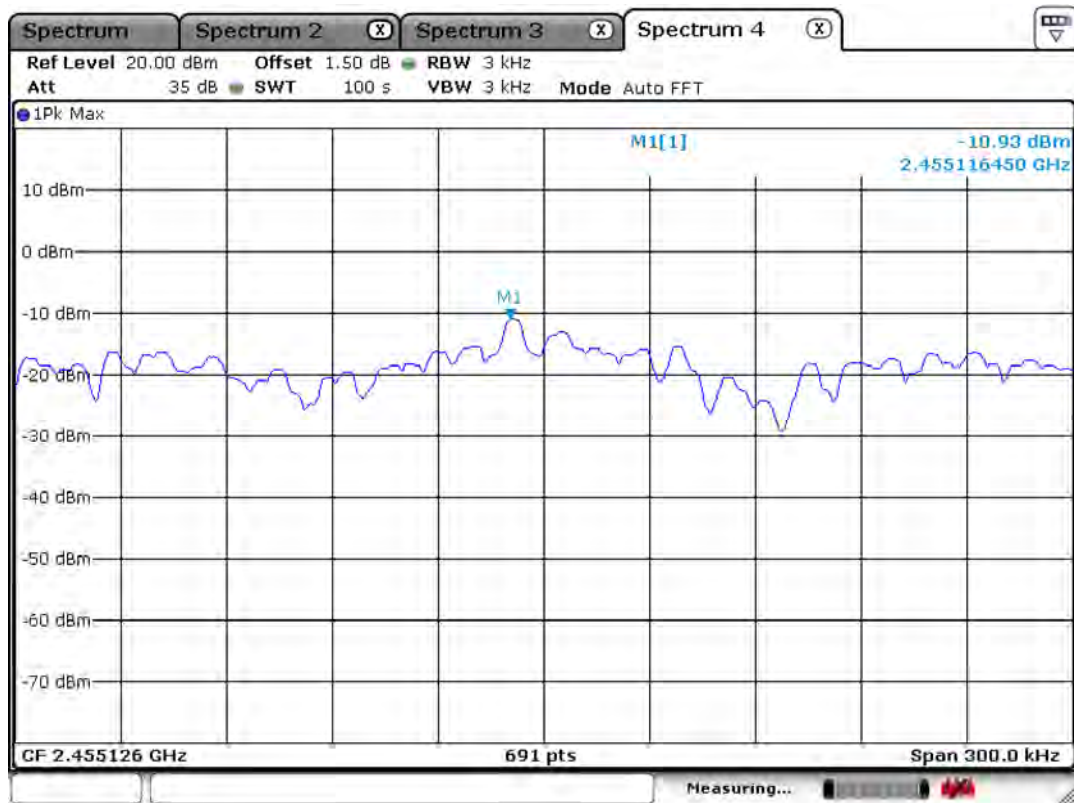
CH 3



CH 6

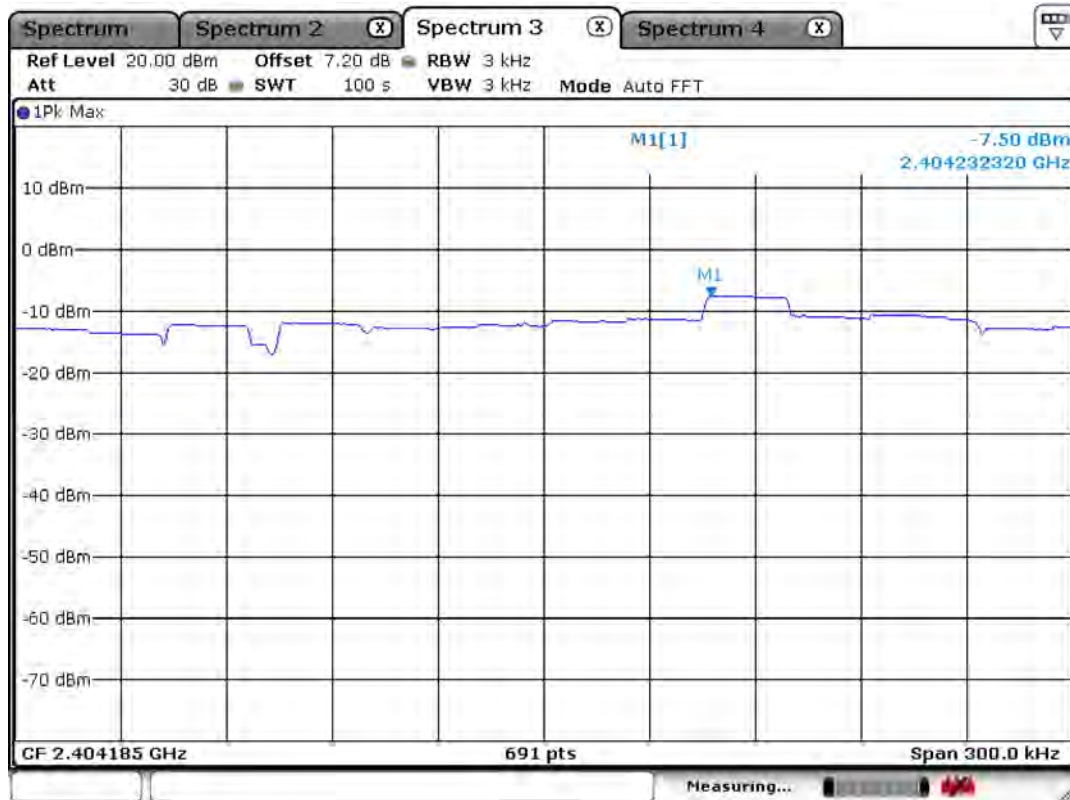


CH 9

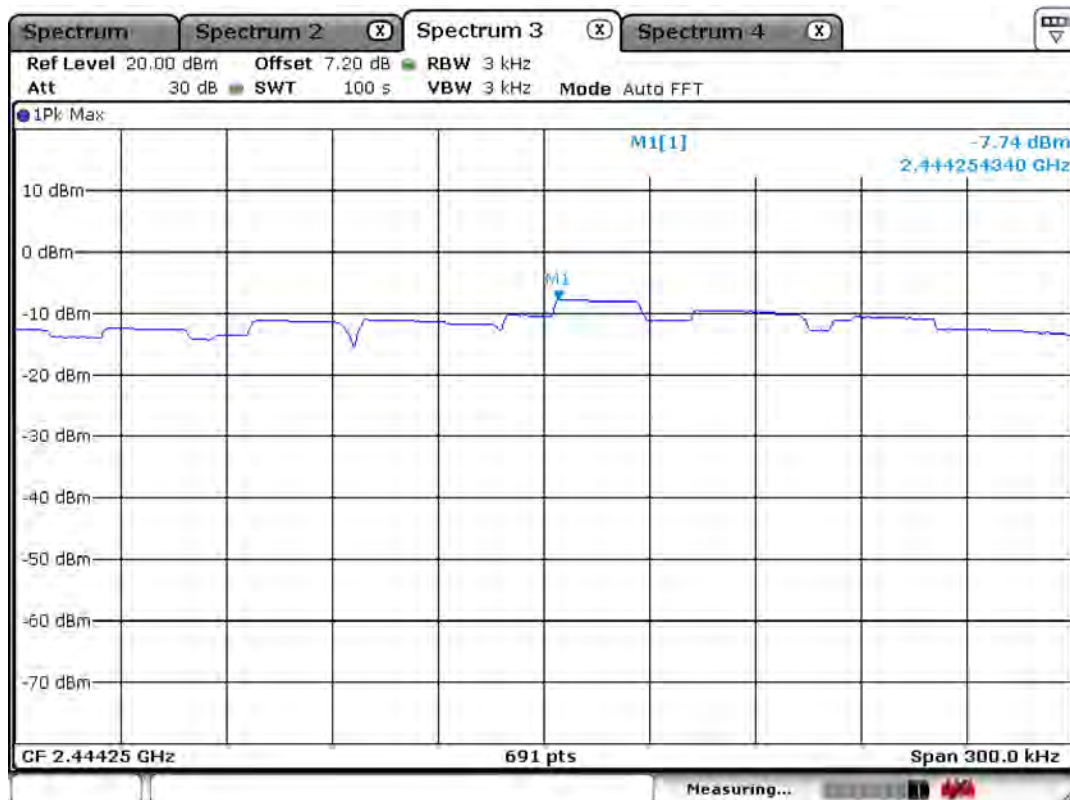


802.11n 20MHz Power Density Measurement - MIMO

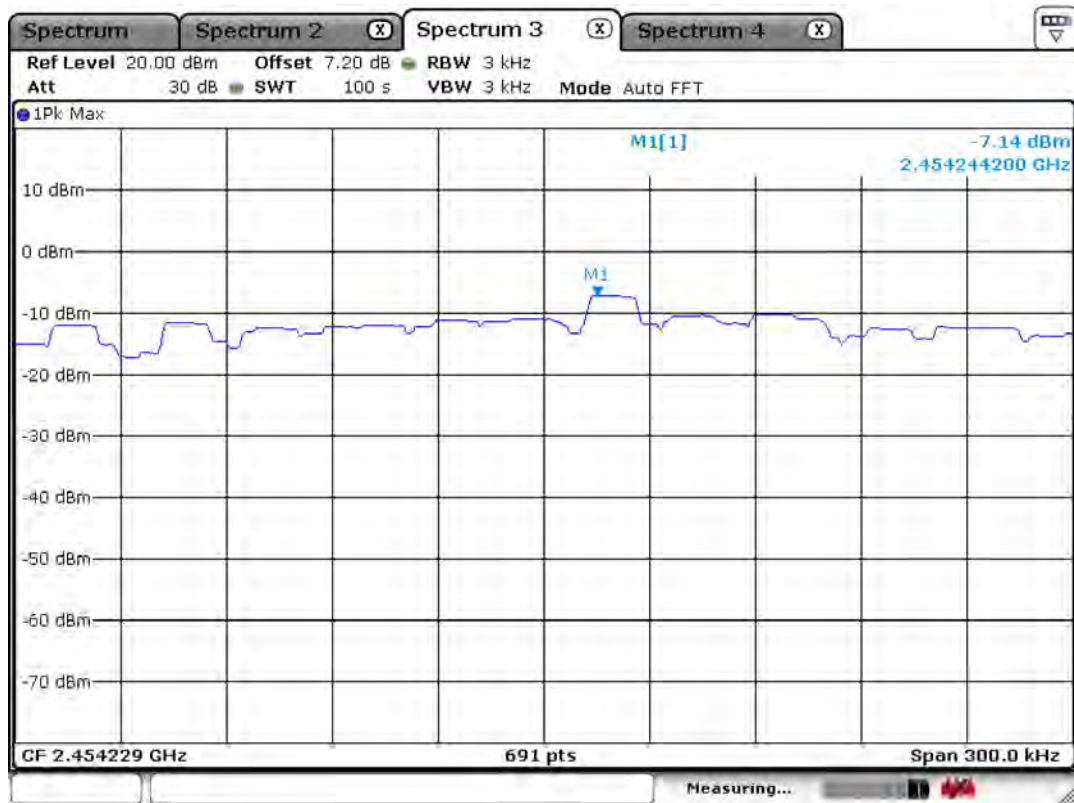
CH 1



CH 6

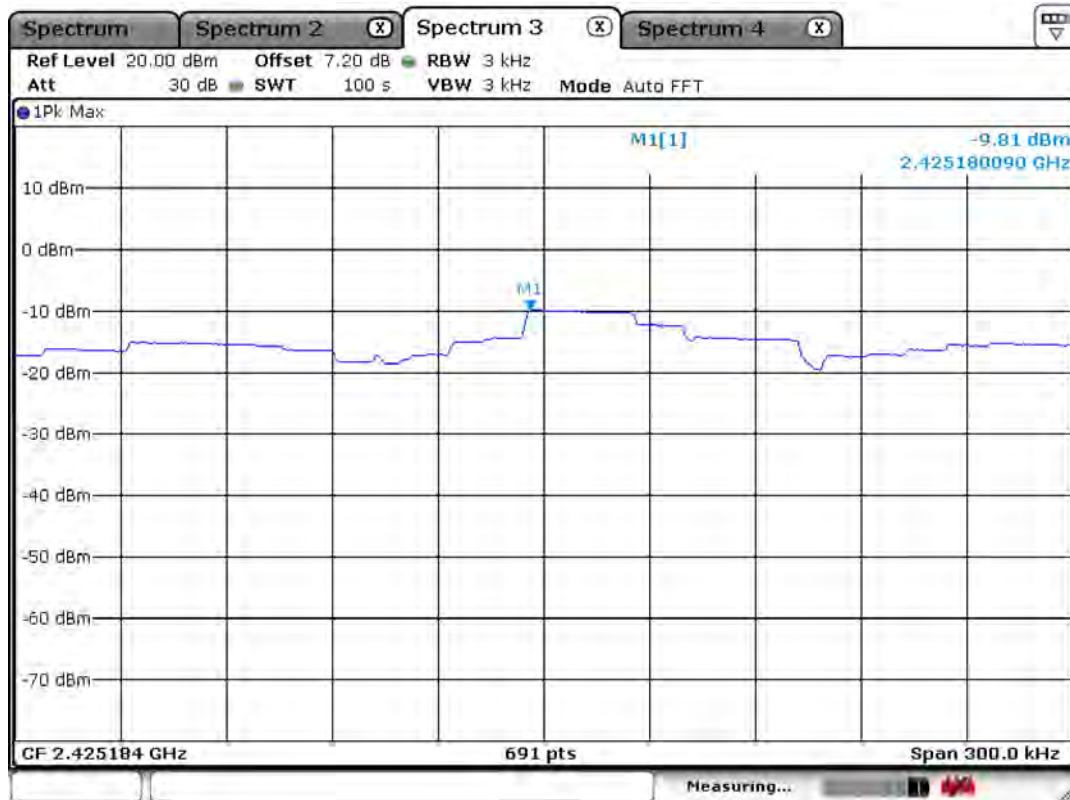


CH 11

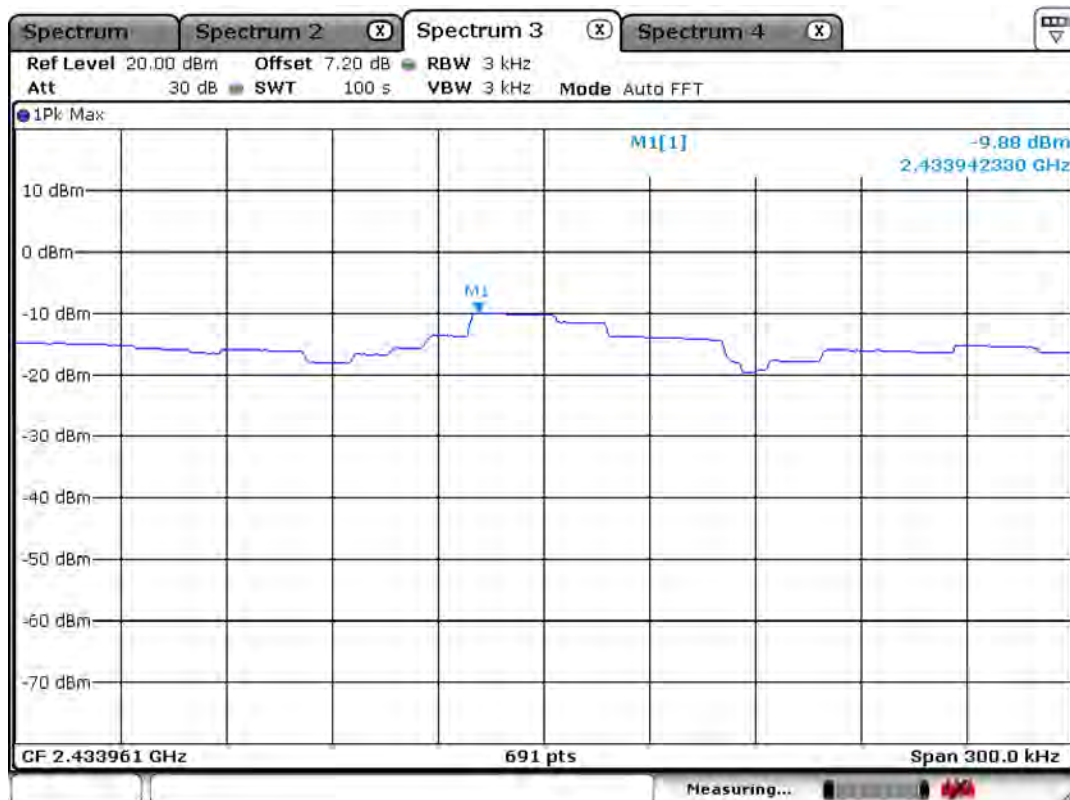


802.11n 40MHz Power Density Measurement

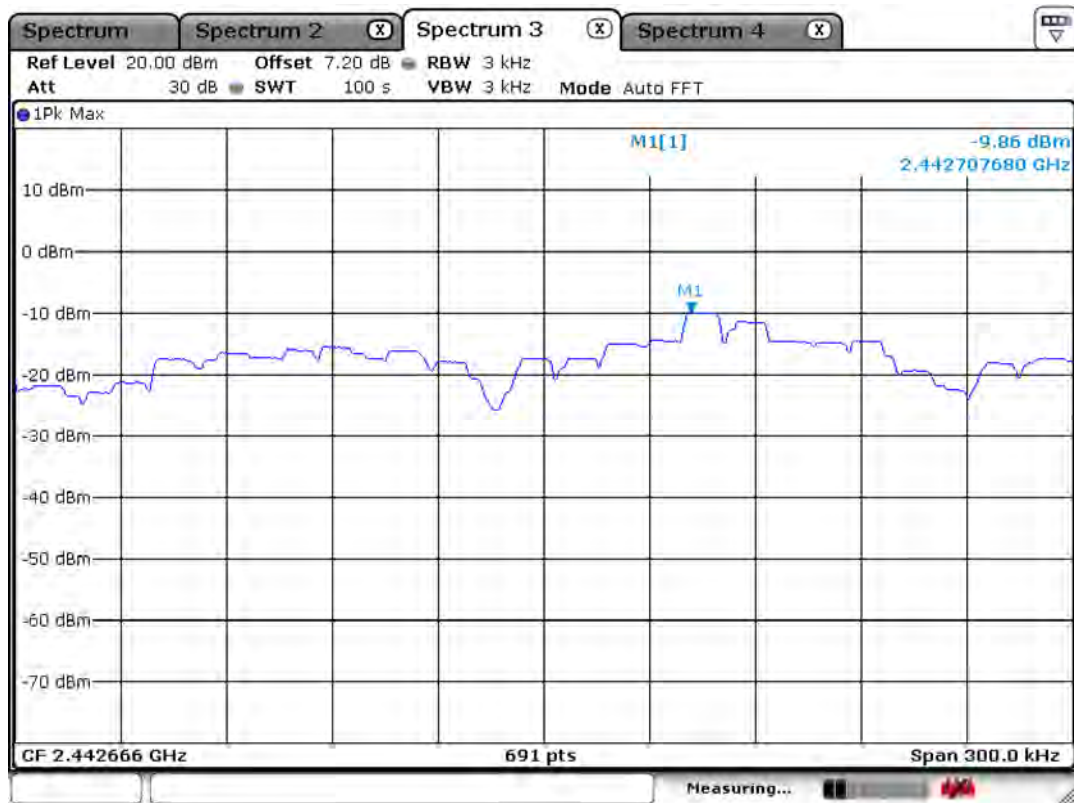
CH 3



CH 6



CH 9



3.2.4 Band Edge

Procedure:

*The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz

VBW = 100 kHz

Span = 80 MHz ~160 MHz

Detector function = peak

Trace = max hold

Sweep = auto

Measurement Data: Complies

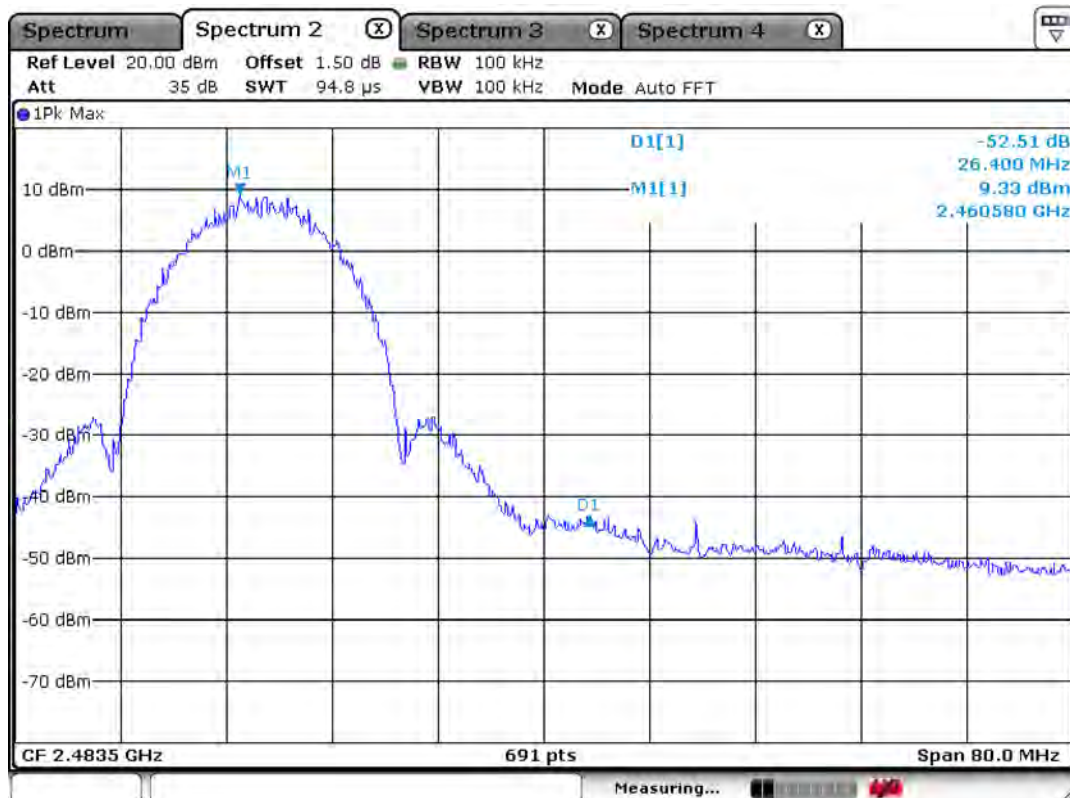
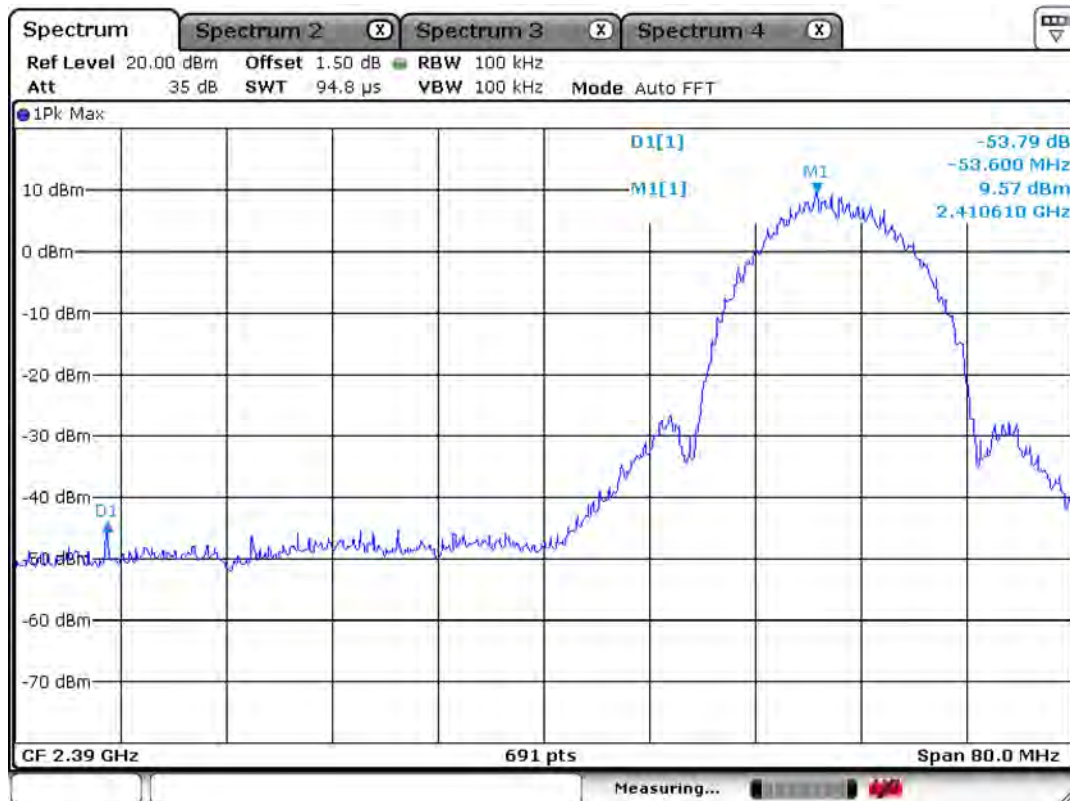
- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc
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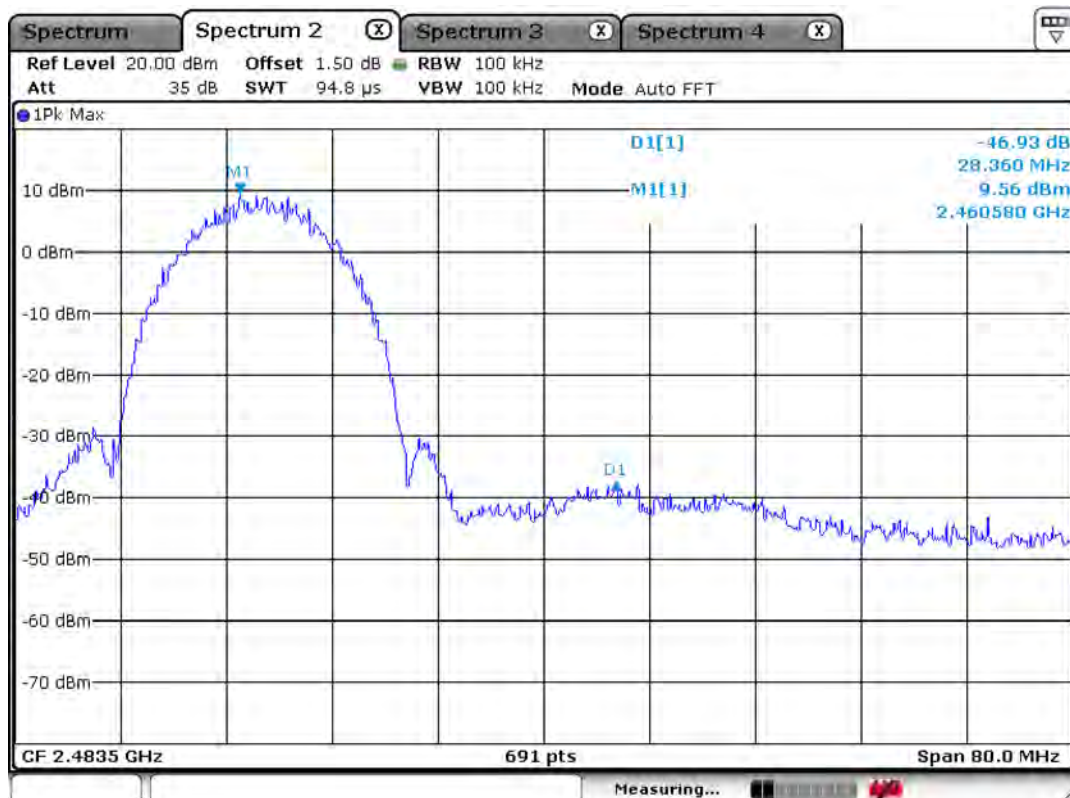
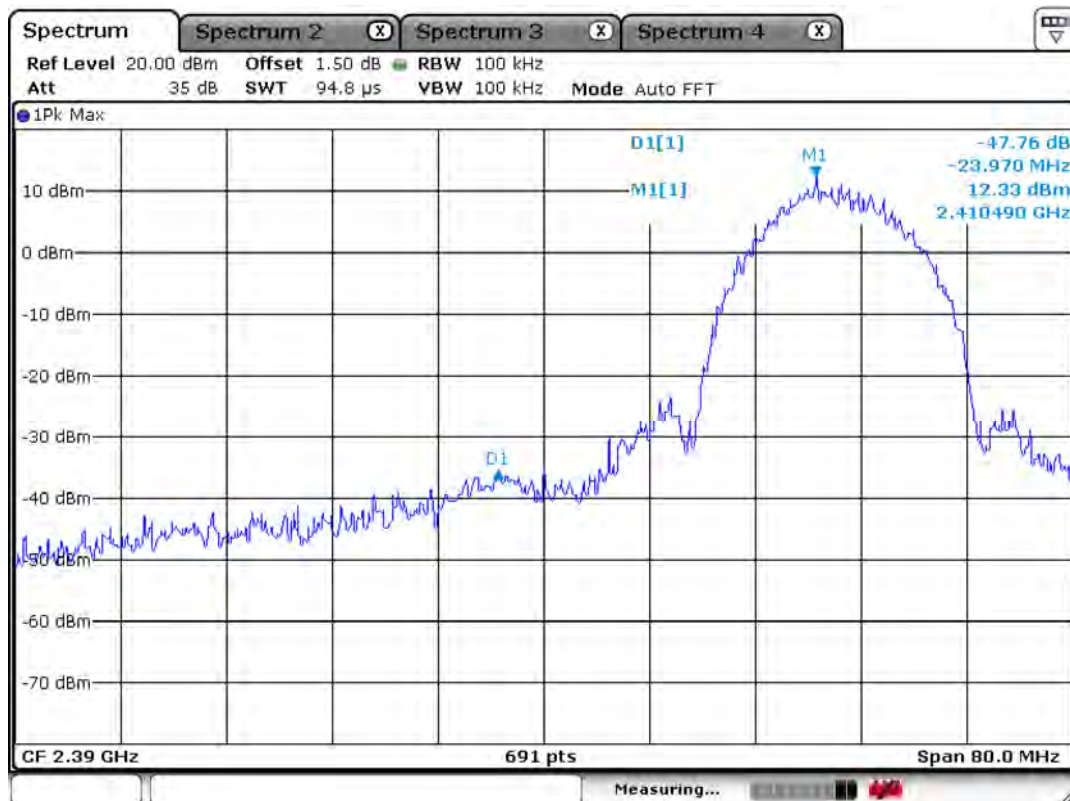
Measurement Setup

Same as the Chapter 3.2.1 (Figure 1)

802.11b Band Edge : Conducted Measurements – Port 1



802.11b Band Edge : Conducted Measurements – Port 2



Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2315.7	35.1	48.1	V	28.3	25.3	54.0	74.0	38.1	51.1	15.9	22.9

Radiated Band-edges in the restricted band 2483.5-2500 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss						
2496.1	34.5	48.8	V	28.3	25.3	54.0	74.0	37.5	51.8	16.5	22.2

Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 2

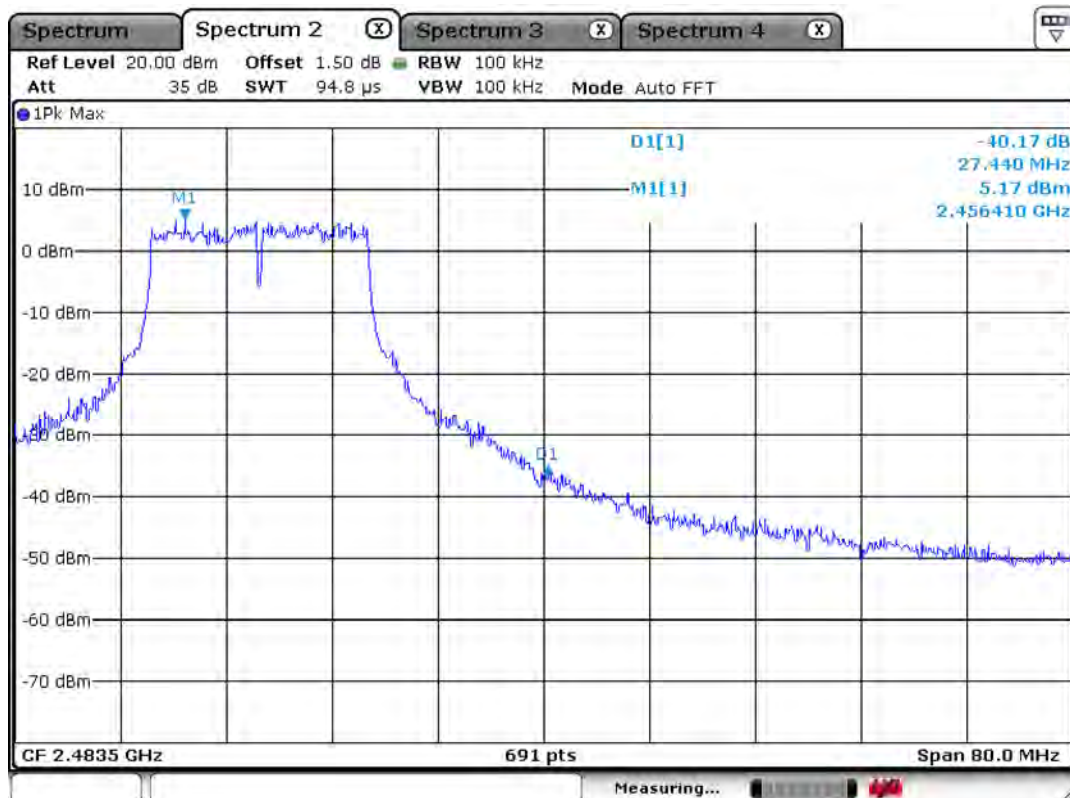
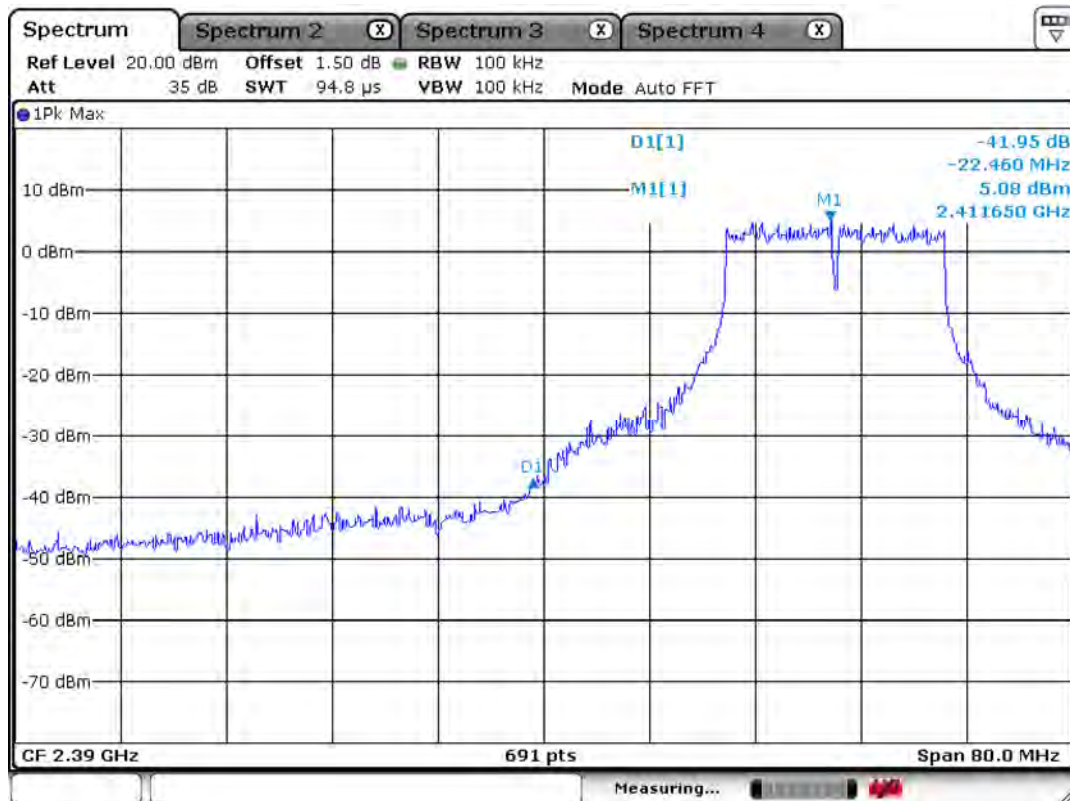
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2365.9	34.6	46.3	V	28.3	25.3	54.0	74.0	37.6	49.3	16.4	24.7

Radiated Band-edges in the restricted band 2483.5-2500 MHz measurement – Port 2

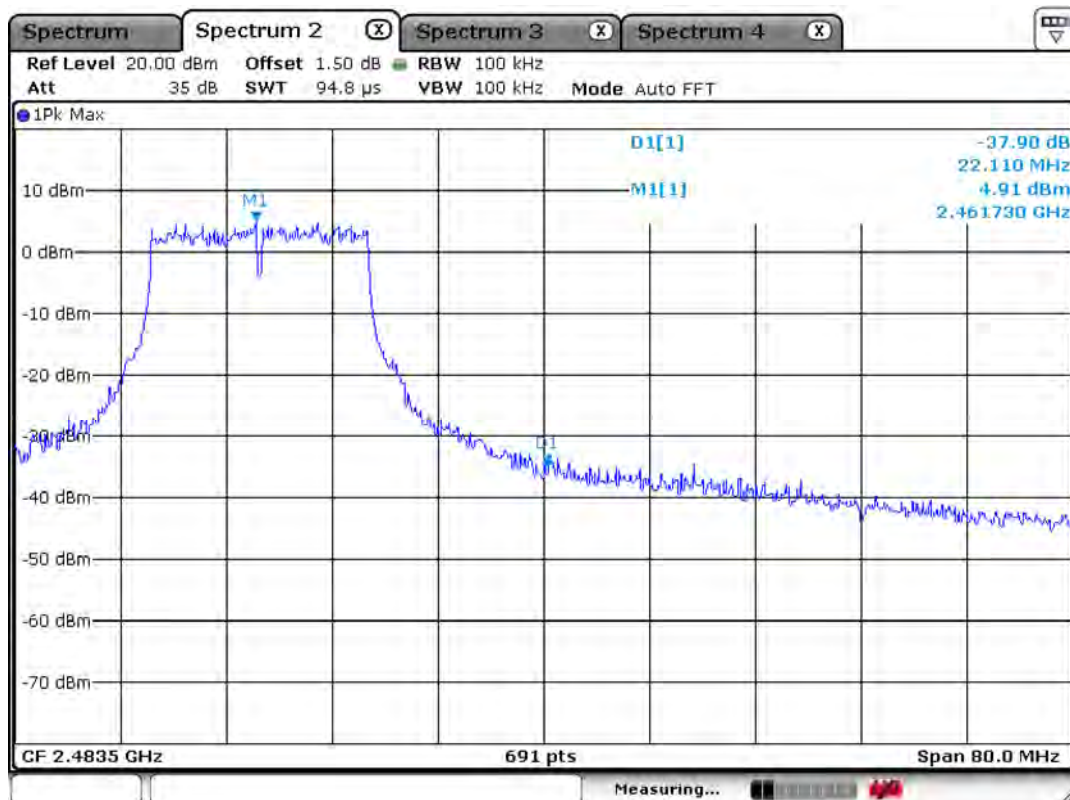
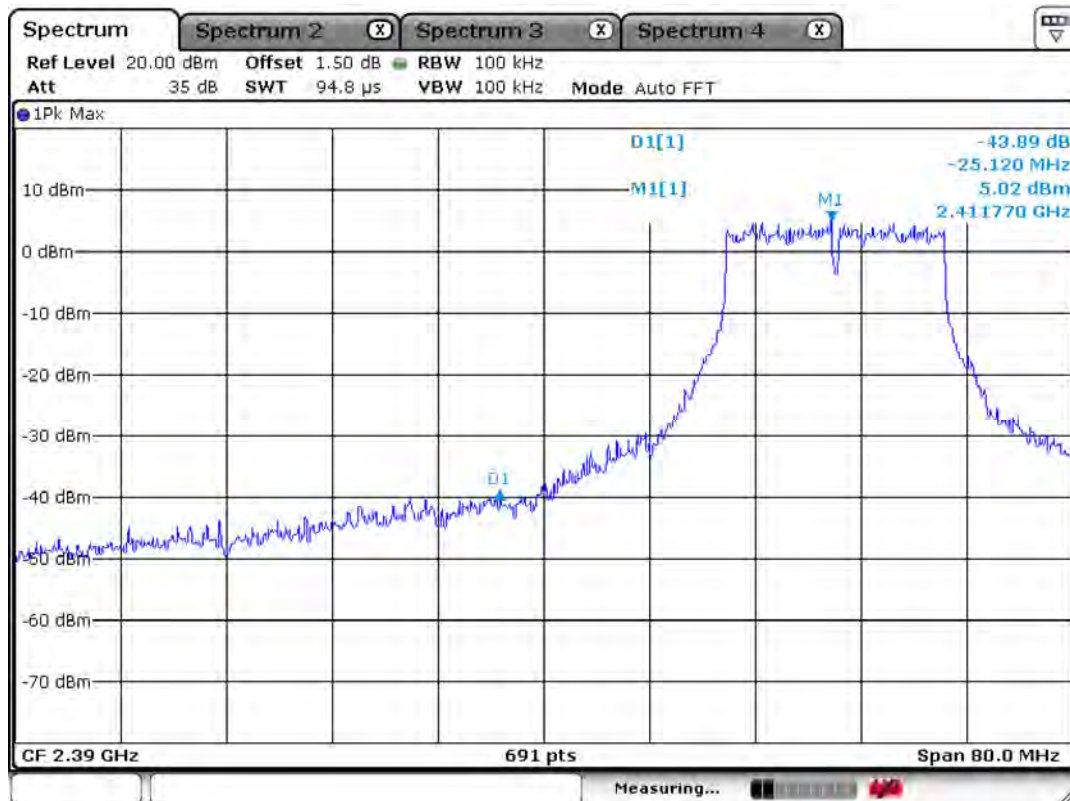
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss						
2489.6	35.6	47.8	V	28.3	25.3	54.0	74.0	38.6	50.8	15.4	23.2

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

802.11g Band Edge : Conducted Measurements – Port 1



802.11g Band Edge : Conducted Measurements – Port 2



Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2336.9	35.1	47.0	V	28.3	25.3	54.0	74.0	38.1	50.0	15.9	24.0

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2493.6	34.7	46.9	V	28.3	25.3	54.0	74.0	37.7	49.9	16.3	24.1

Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 2

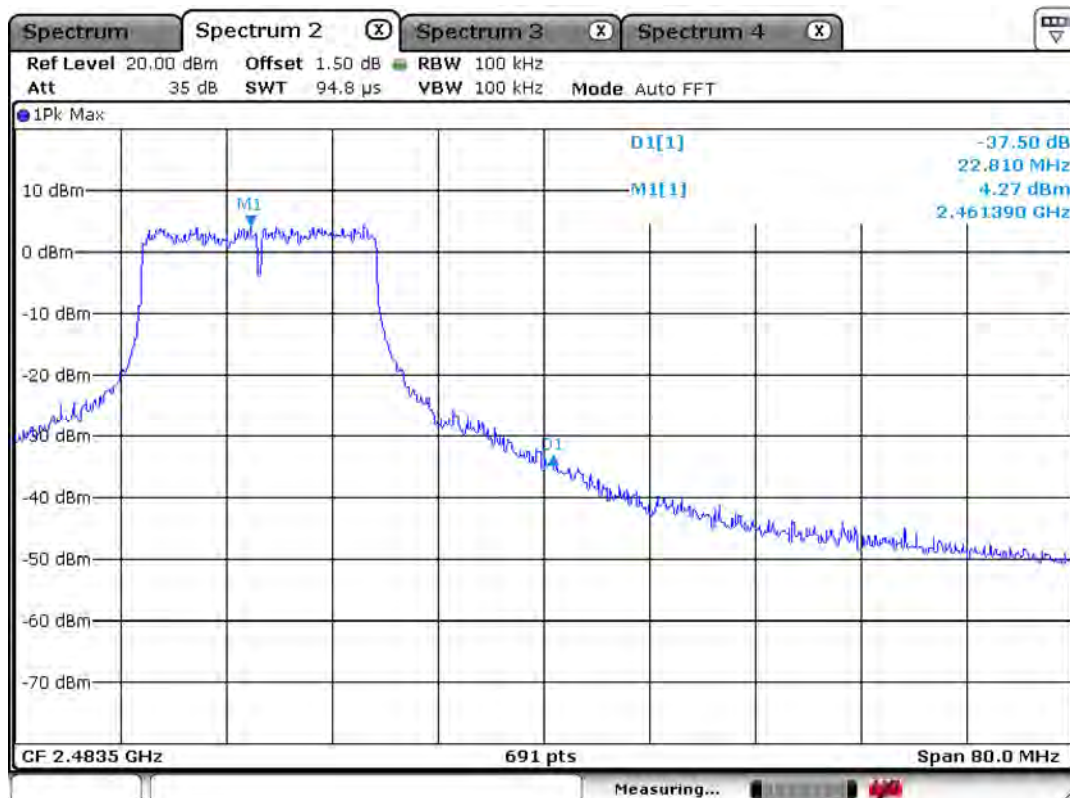
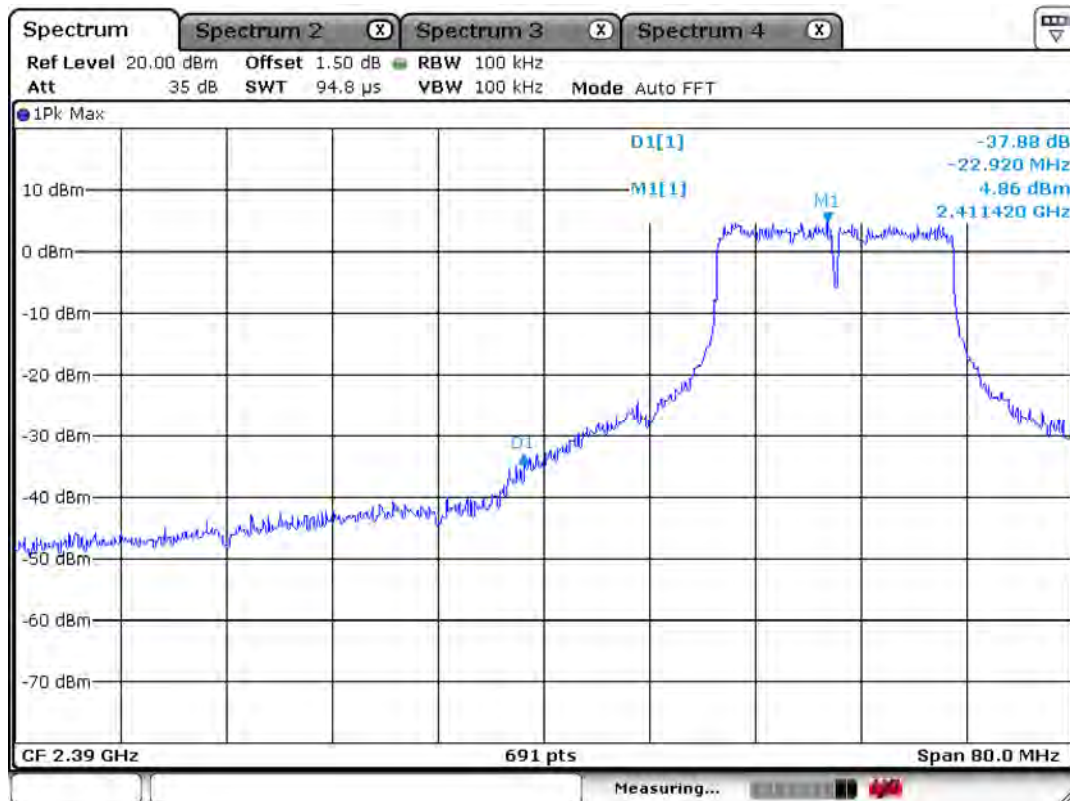
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2358.4	34.8	45.1	V	28.3	25.3	54.0	74.0	37.8	48.1	16.2	25.9

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 2

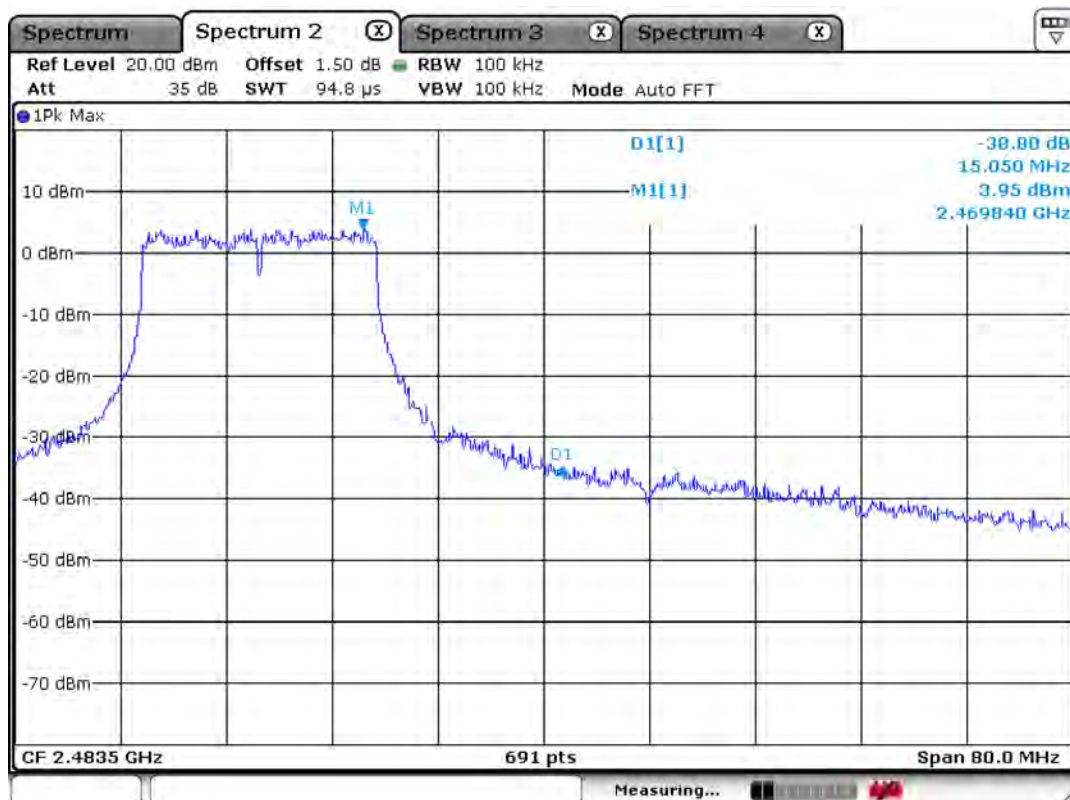
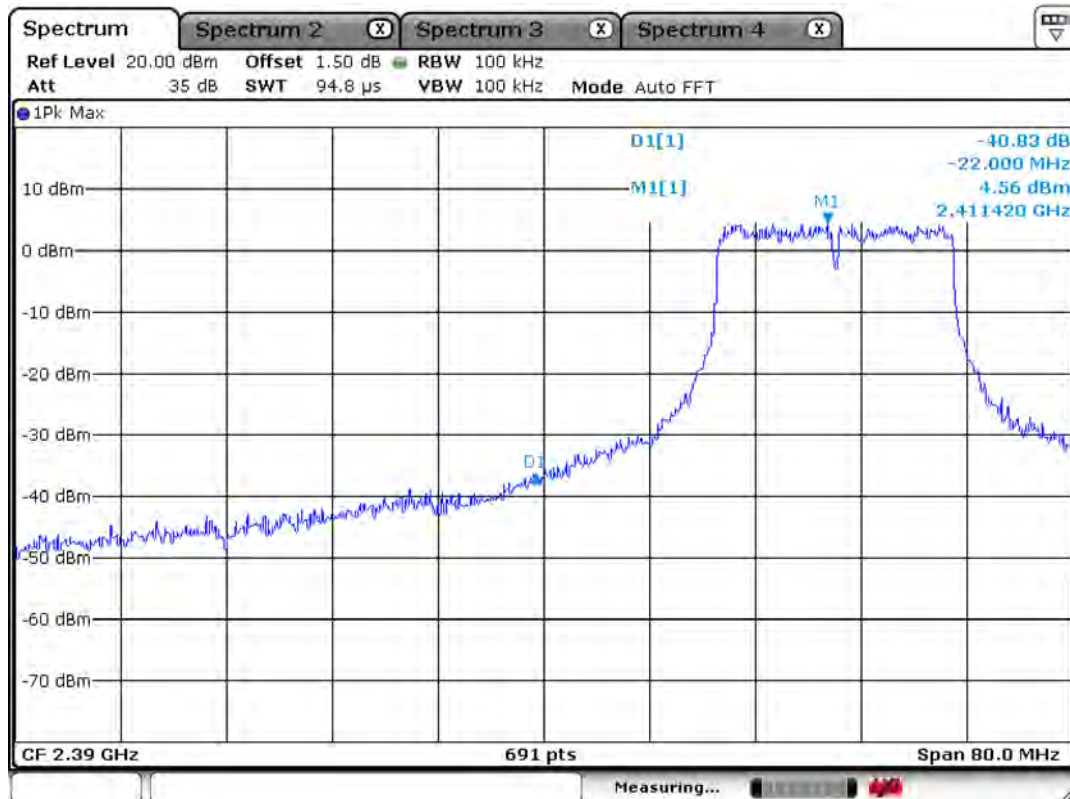
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2497.3	34.2	45.9	V	28.3	25.3	54.0	74.0	37.2	48.9	16.8	25.1

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

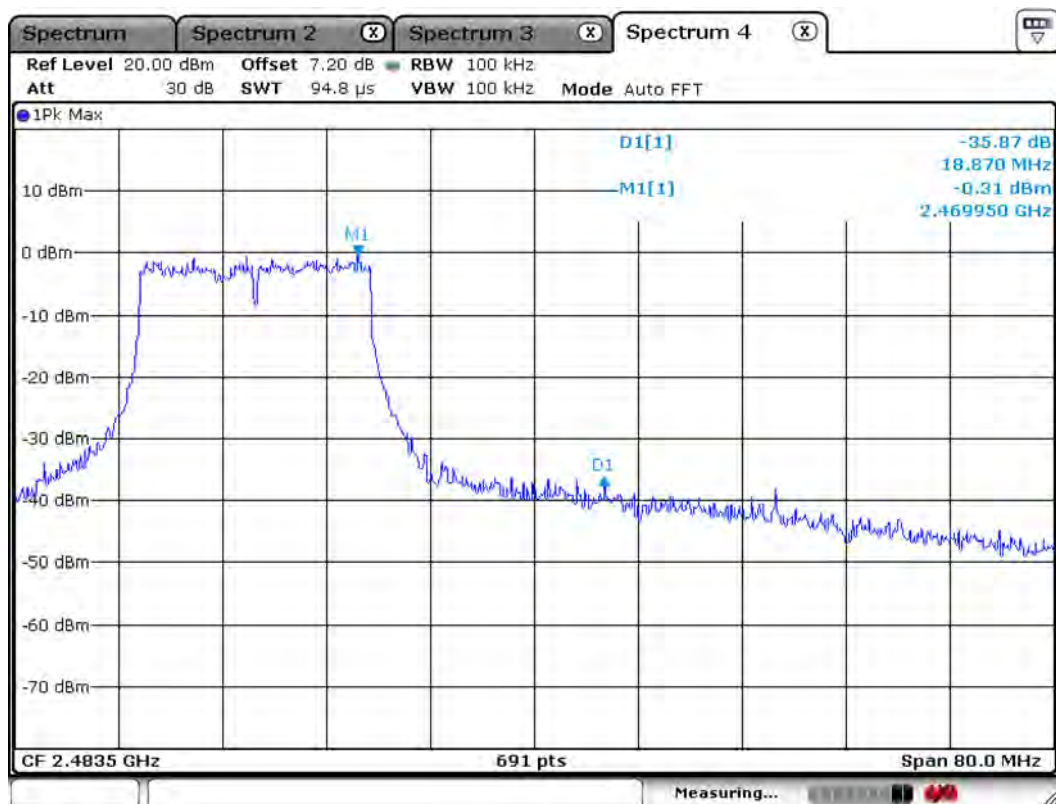
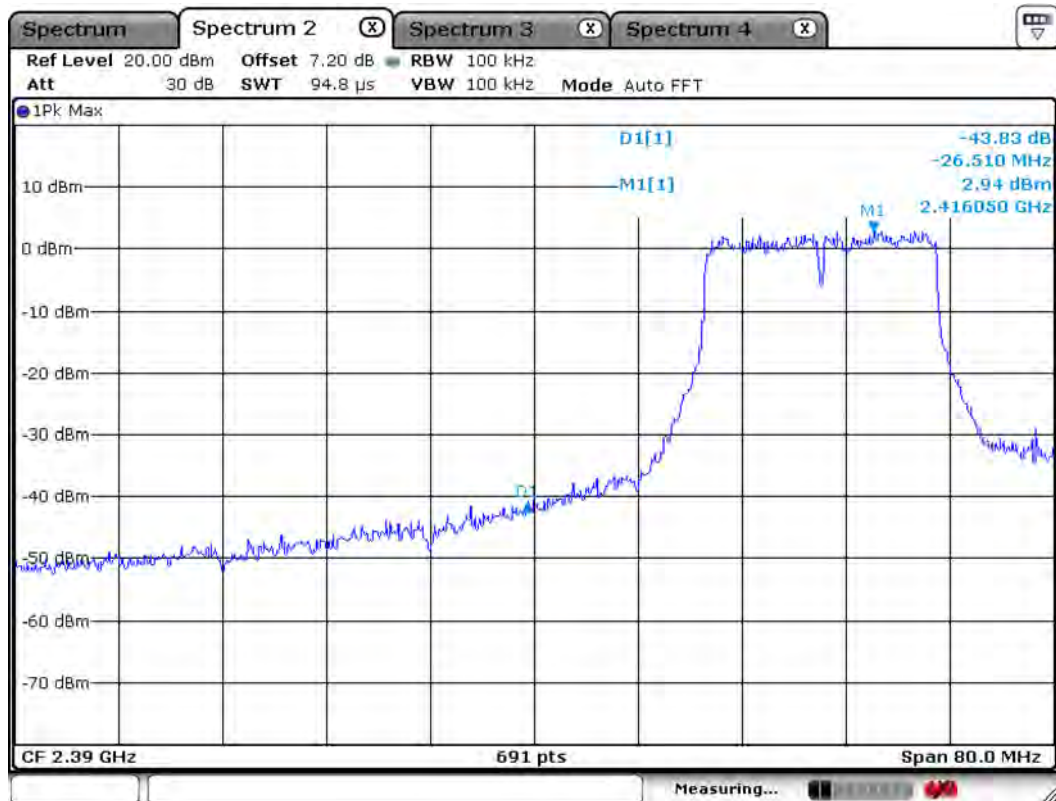
802.11n 20MHz Band Edge : Conducted Measurements – Port 1



802.11n 20MHz Band Edge : Conducted Measurements – Port 2



802.11n 20MHz Band Edge : Conducted Measurements – MIMO



Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2342.3	36.2	46.9	V	28.3	25.3	54.0	74.0	39.2	49.9	14.8	24.1

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss			AV / Peak	AV / Peak	AV / Peak	
2497.9	34.0	48.3	V	28.3	25.3	54.0	74.0	37.0	51.3	17.0	22.7

Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 2

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2378.7	35.9	46.6	V	28.3	25.3	54.0	74.0	38.9	49.6	15.1	24.4

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 2

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss						
2494.1	34.8	45.7	V	28.3	25.3	54.0	74.0	37.8	48.7	16.2	25.3

Radiated Band edges in the restricted band 2310-2390 MHz measurement – MIMO

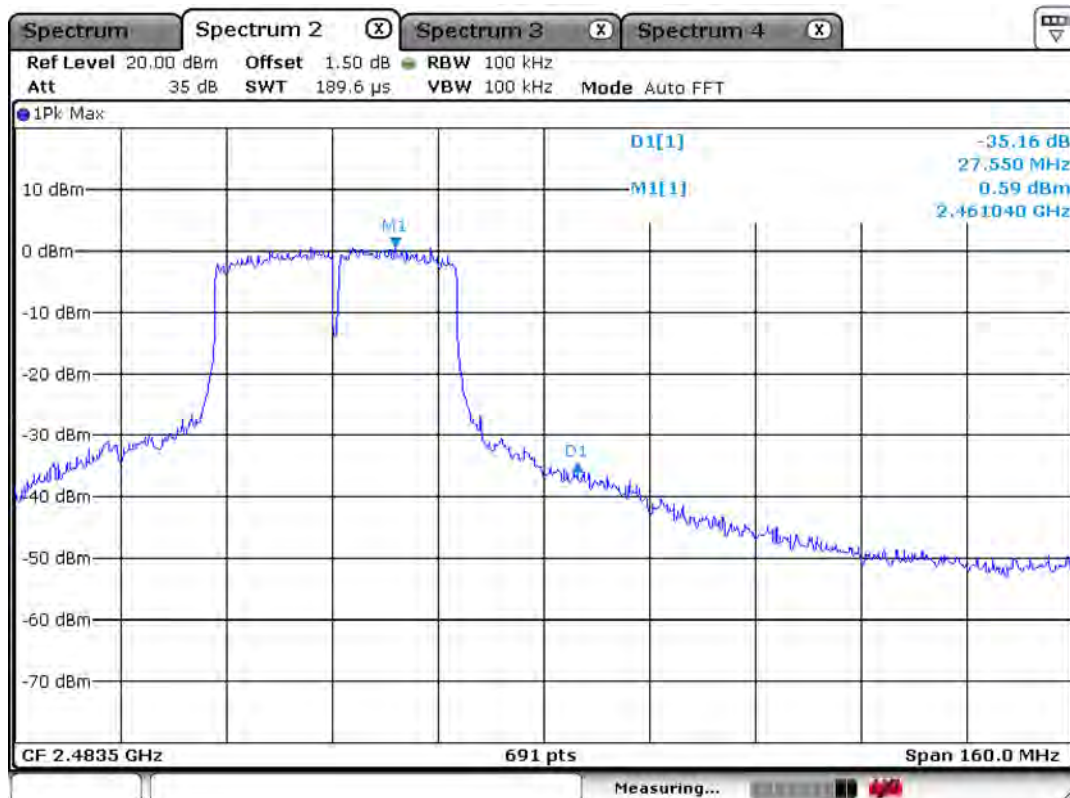
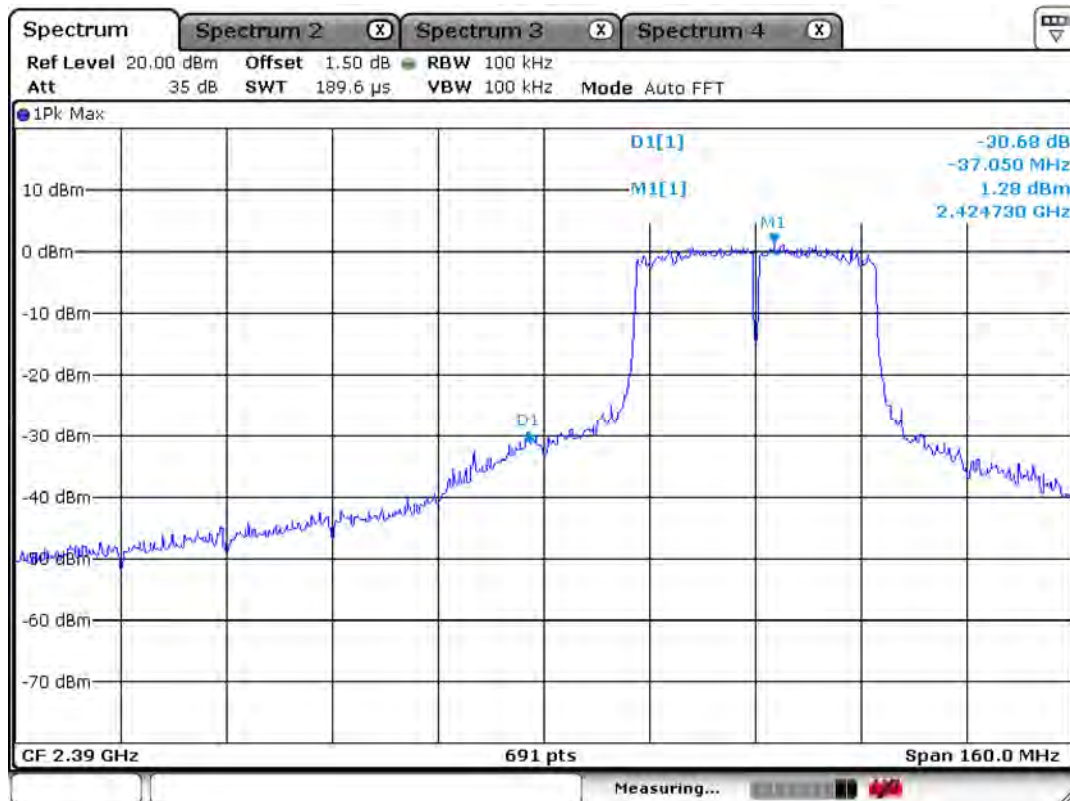
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2382.9	37.8	48.6	V	28.3	25.3	54.0	74.0	40.8	51.6	6.9	14.8

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – MIMO

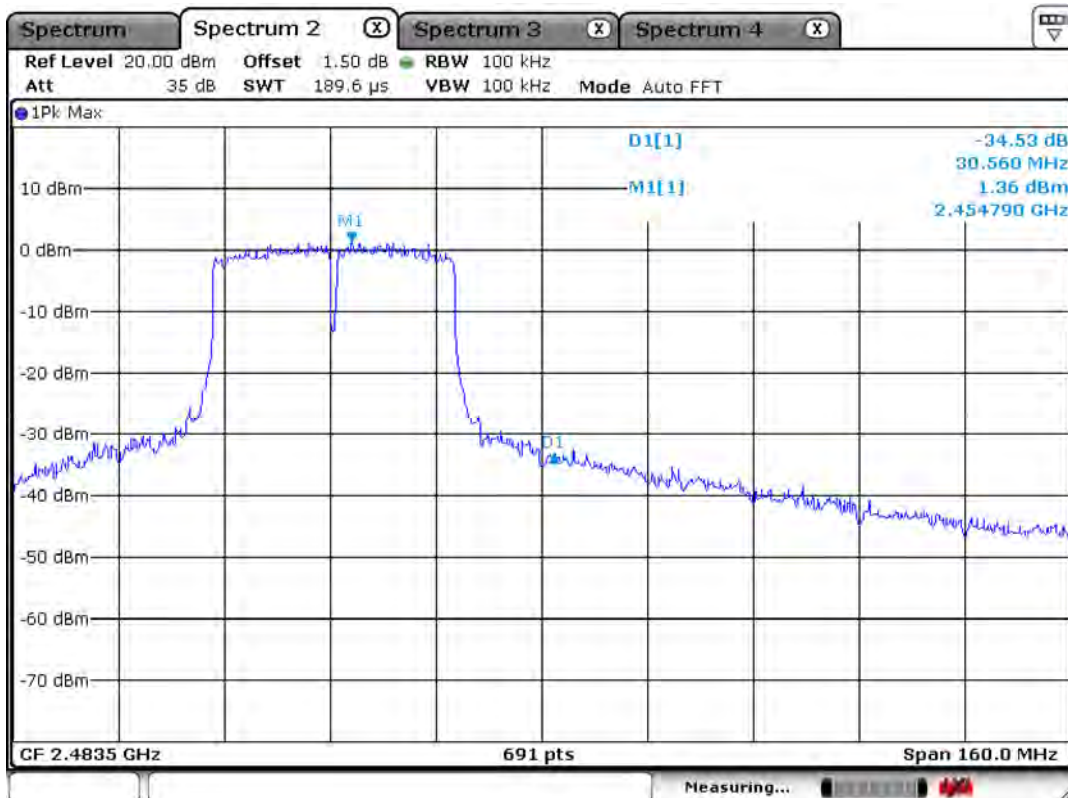
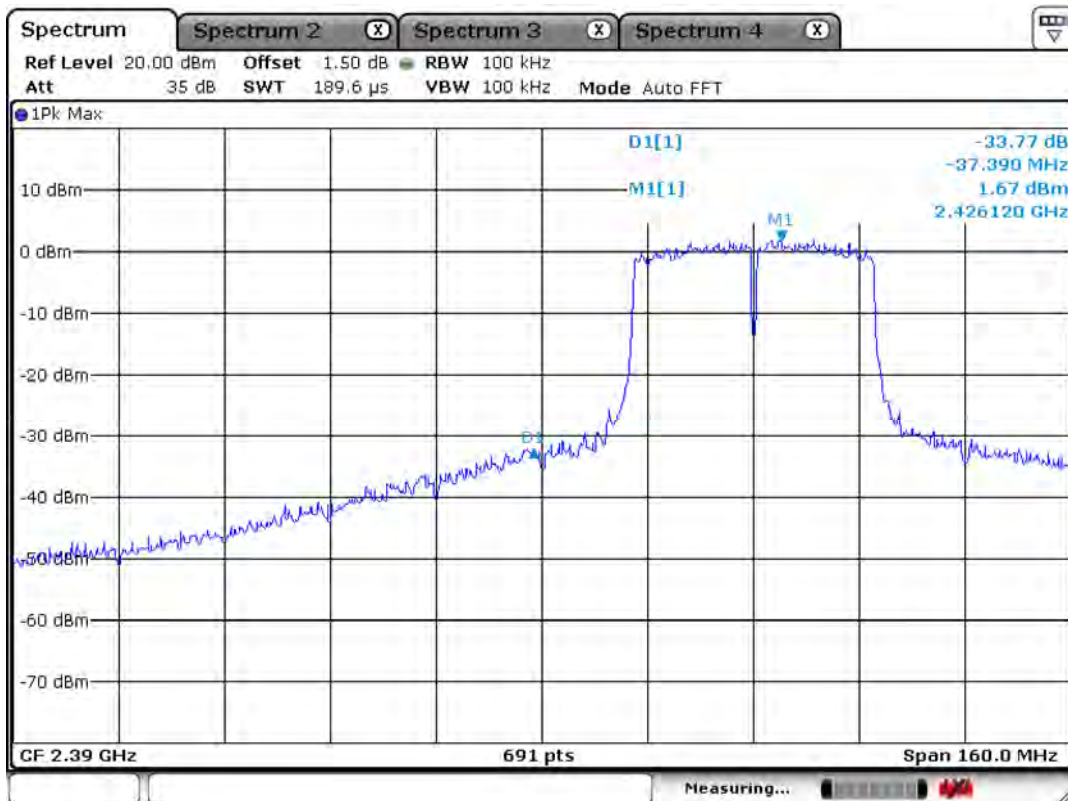
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss			AV / Peak	AV / Peak	AV / Peak	
	2490.7	37.4		49.2	V	28.3	25.3	54.0	74.0	40.4	52.2

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

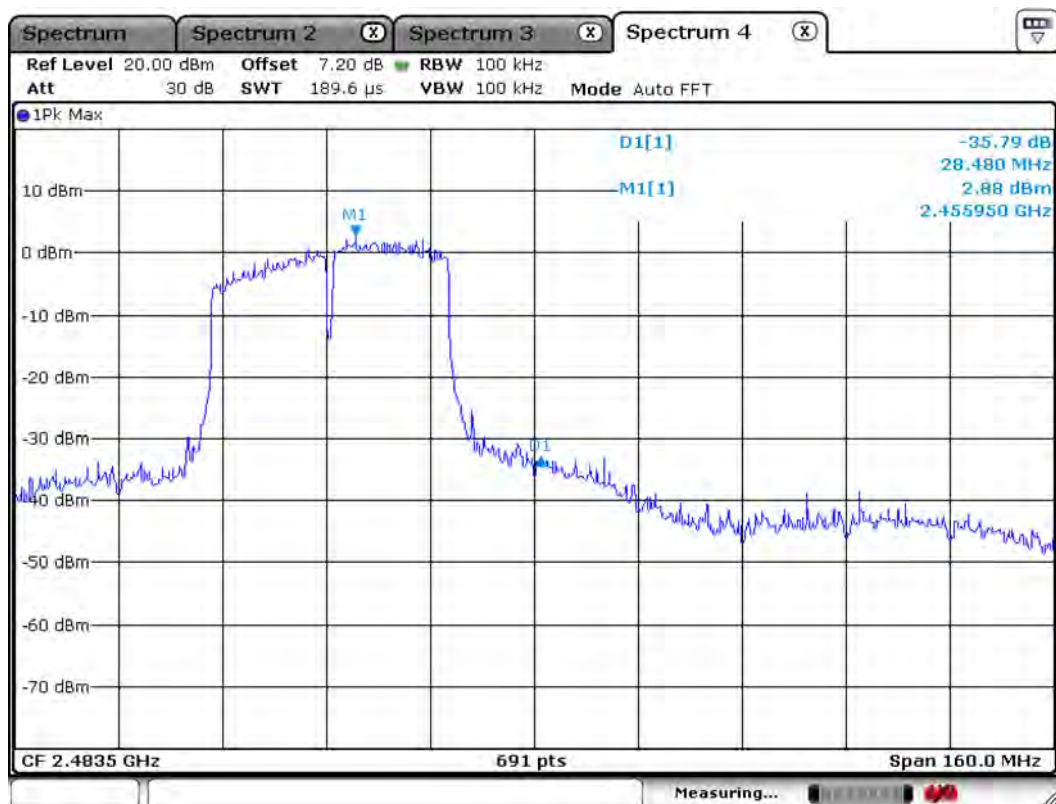
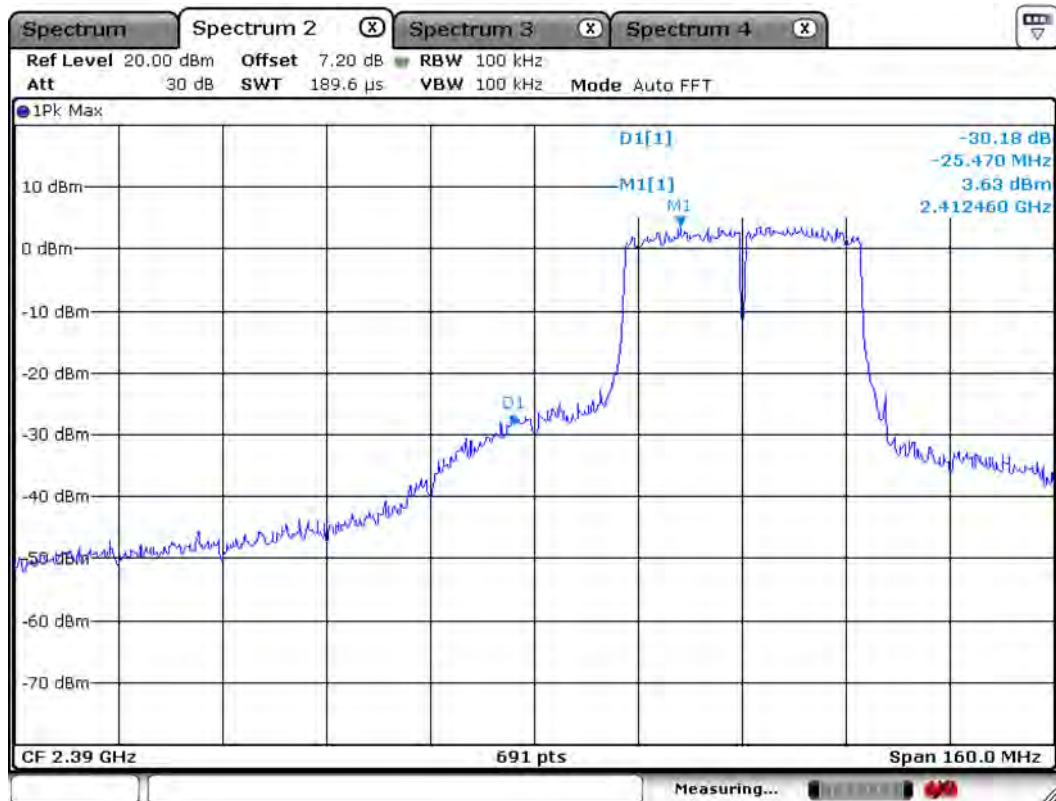
802.11n 40MHz Band Edge : Conducted Measurements – Port 1



802.11n 40MHz Band Edge : Conducted Measurements – Port 2



802.11n 40MHz Band Edge : Conducted Measurements – MIMO



Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2383.7	35.2	46.8	V	28.3	25.3	54.0	74.0	38.2	49.8	15.8	24.2

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2490.7	35.8	47.6	V	28.3	25.3	54.0	74.0	38.8	50.6	15.2	23.4

Radiated Band edges in the restricted band 2310-2390 MHz measurement – Port 2

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2375.3	34.7	45.9	V	28.3	25.3	54.0	74.0	37.7	48.9	16.3	25.1

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – Port 2

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2488.7	34.5	46.2	V	28.3	25.3	54.0	74.0	37.5	49.2	16.5	24.8

Radiated Band edges in the restricted band 2310-2390 MHz measurement – MIMO

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak	AV / Peak		
2374.3	38.8	49.8	V	28.3	25.3	54.0	74.0	41.8	52.8	12.2	21.2

Radiated Band edges in the restricted band 2483.5-2500 MHz measurement – MIMO

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2487.8	38.2	49.7	V	28.3	25.3	54.0	74.0	41.2	52.7	12.8	21.3

Note : This EUT was tested in 3 orthogonal positions and the worst-case data was presented

3.3.5 Conducted Spurious Emissions

Procedure:

The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance. The conducted spurious emissions were measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels..

After the trace being stable, set the marker on the peak of any spurious emission recorded.

The spectrum analyzer is set to:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions

RBW = 100 kHz

Sweep = auto

VBW = 100 kHz

Detector function = peak

Trace = max hold

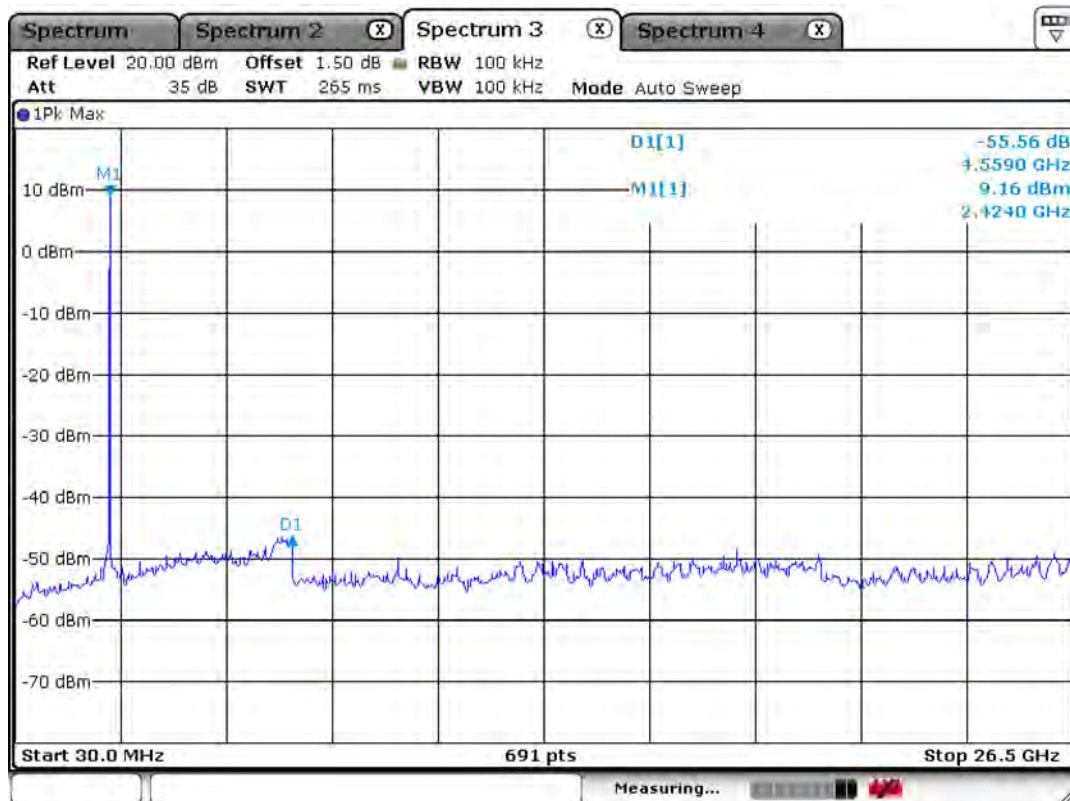
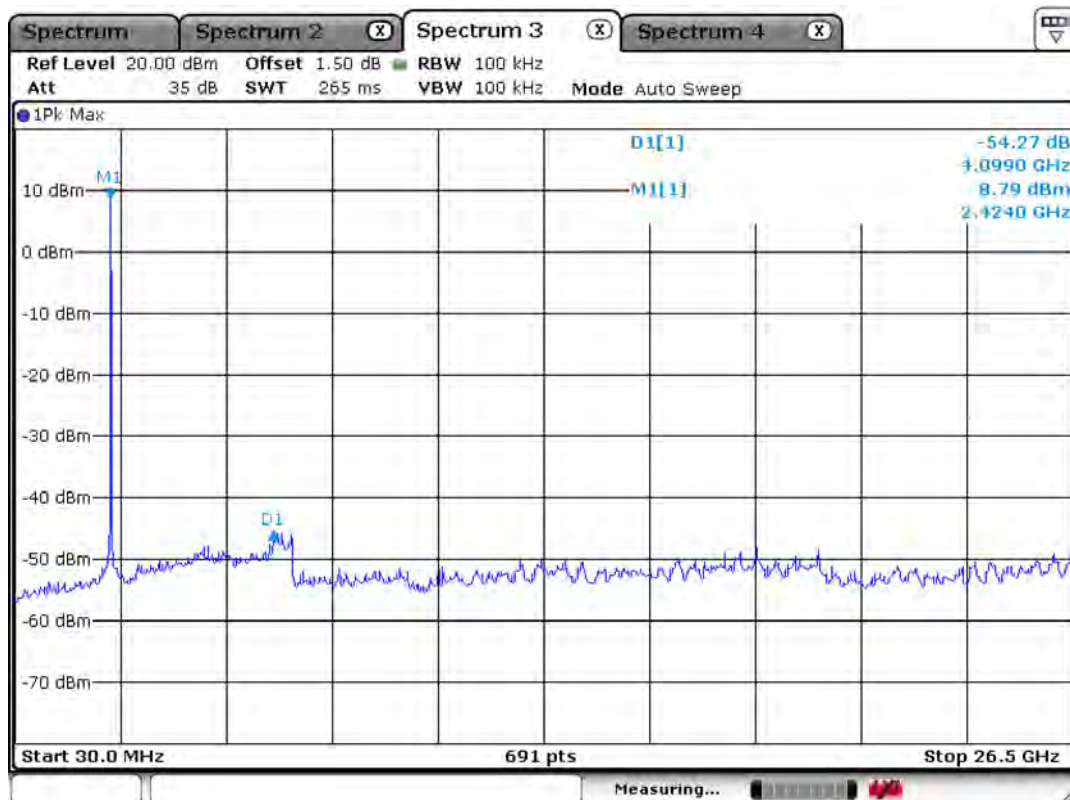
Measurement Data: Complies

- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20 dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.
- See next pages for actual measured spectrum plots.

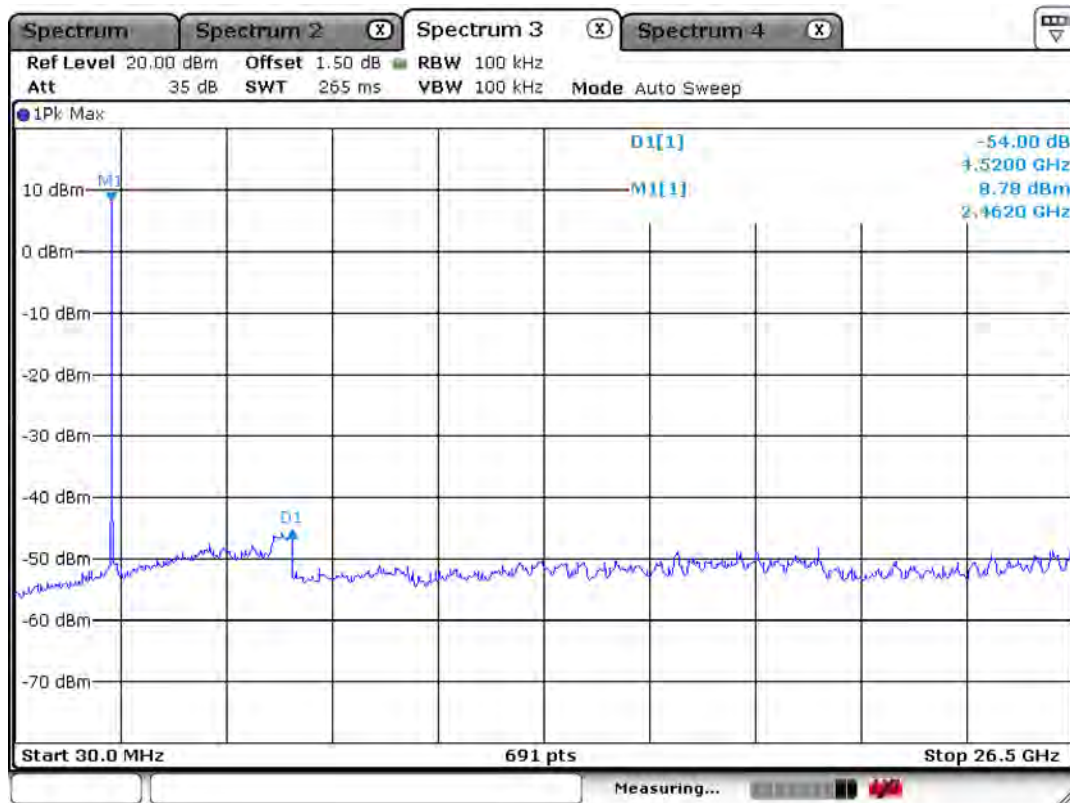
Minimum Standard:	> 20 dBc
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Measurement Setup

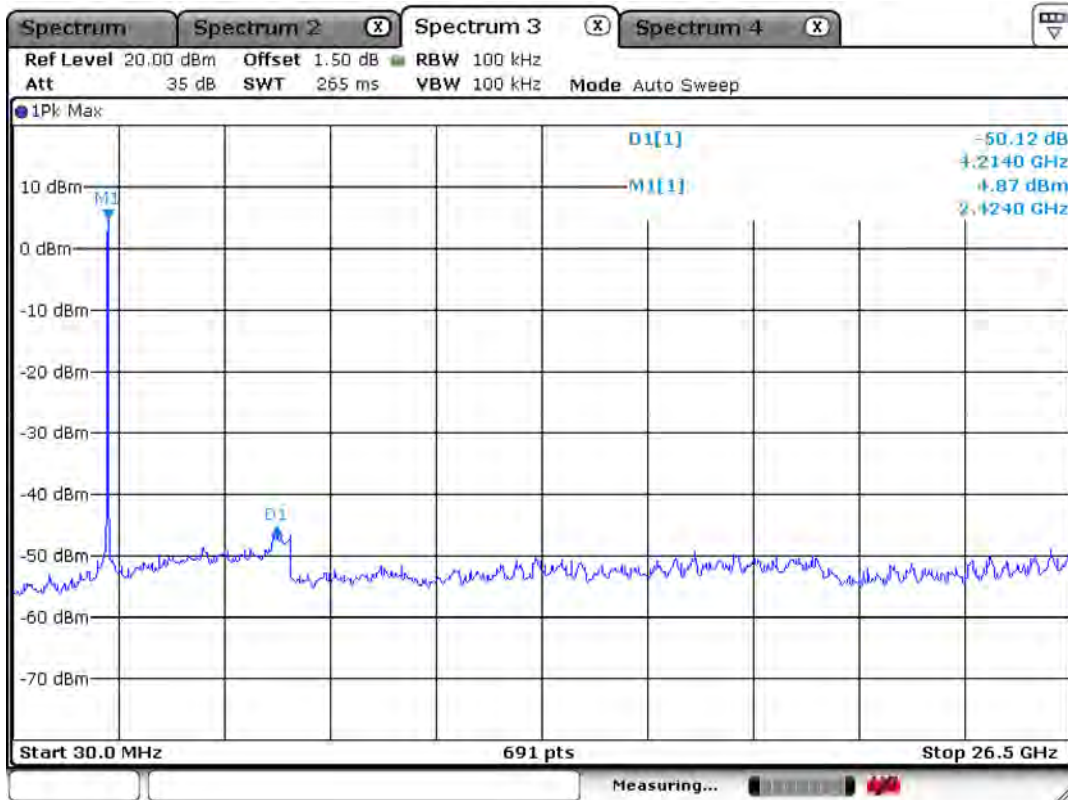
Same as the Chapter 3.2.1 (Figure 1)

802.11b – channel 1 - Port 1**Frequency Range = 30 MHz ~ 10th harmonic.****802.11b – channel 6****Frequency Range = 30 MHz ~ 10th harmonic.**

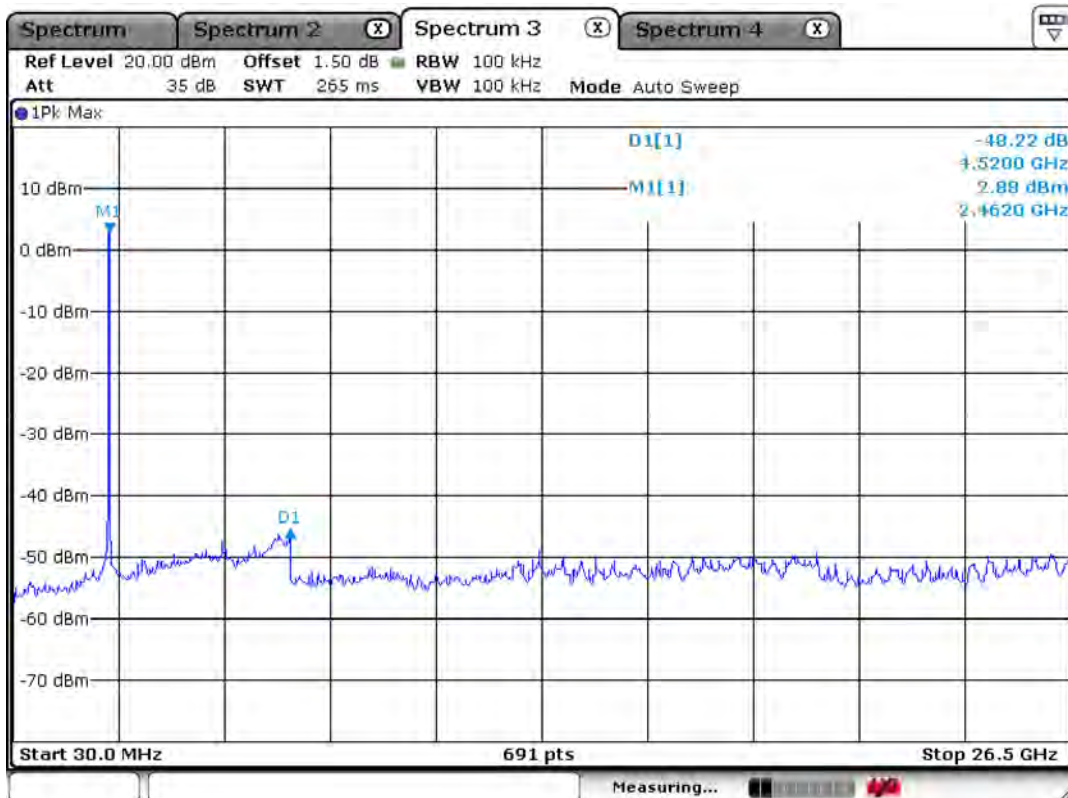
802.11b –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.

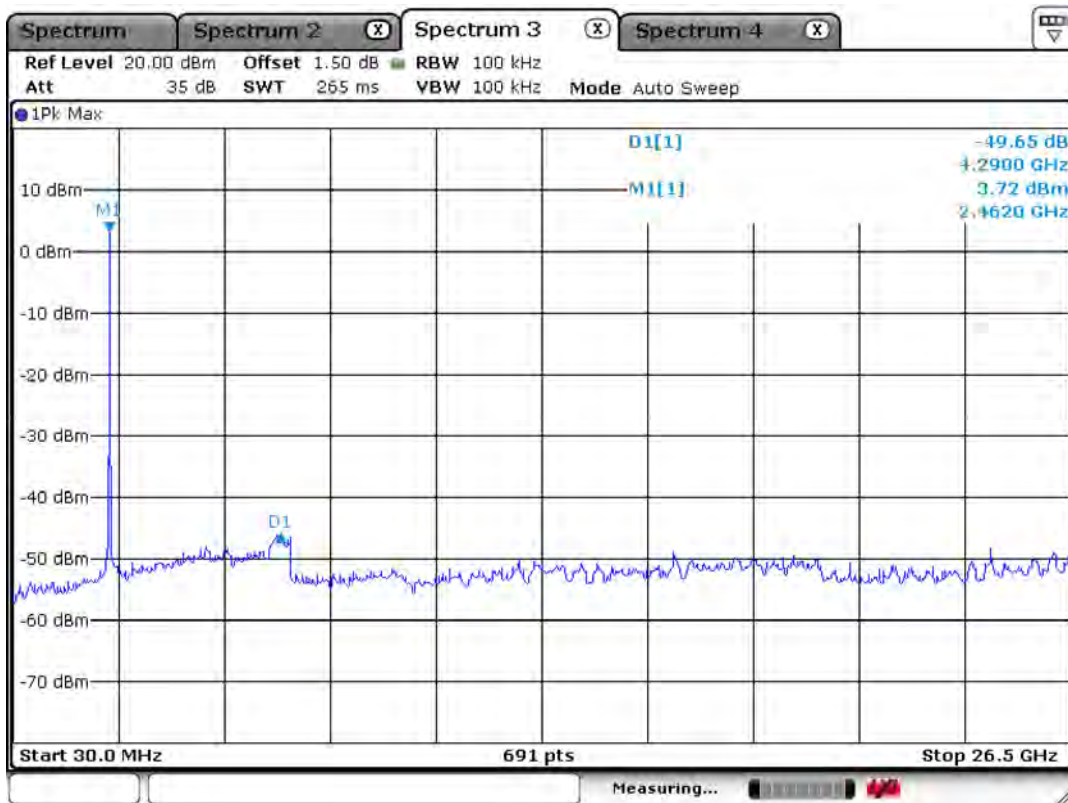
802.11g – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.

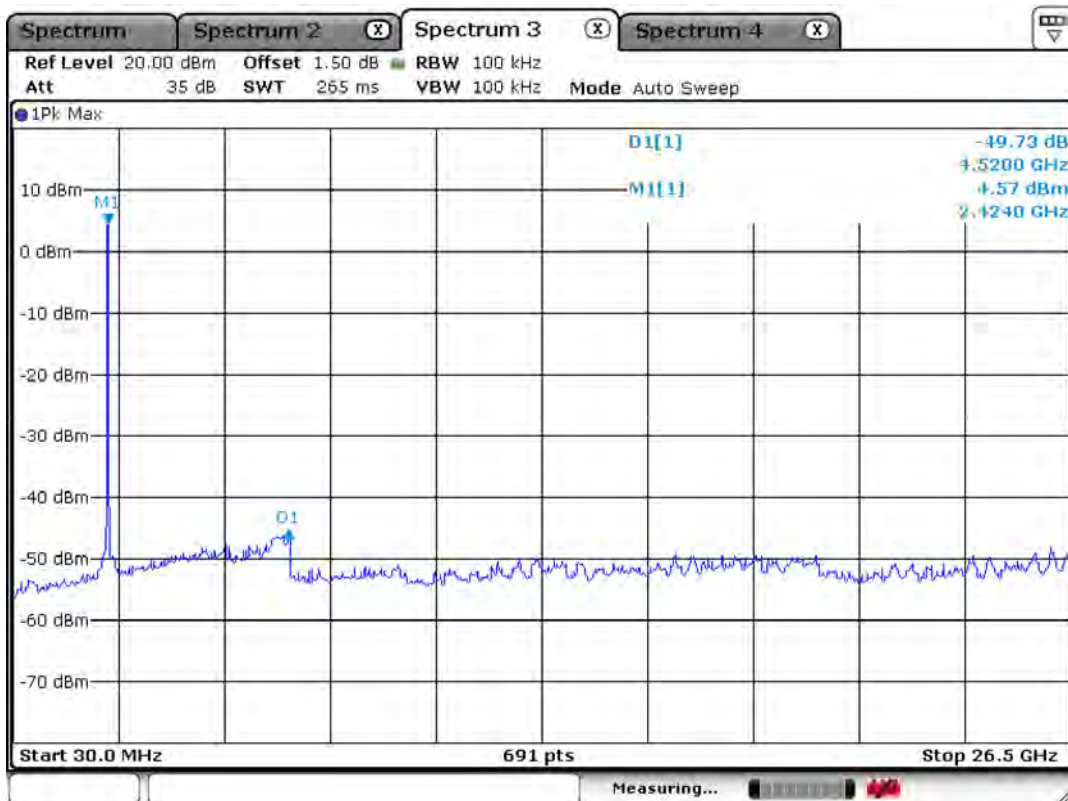
802.11g – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

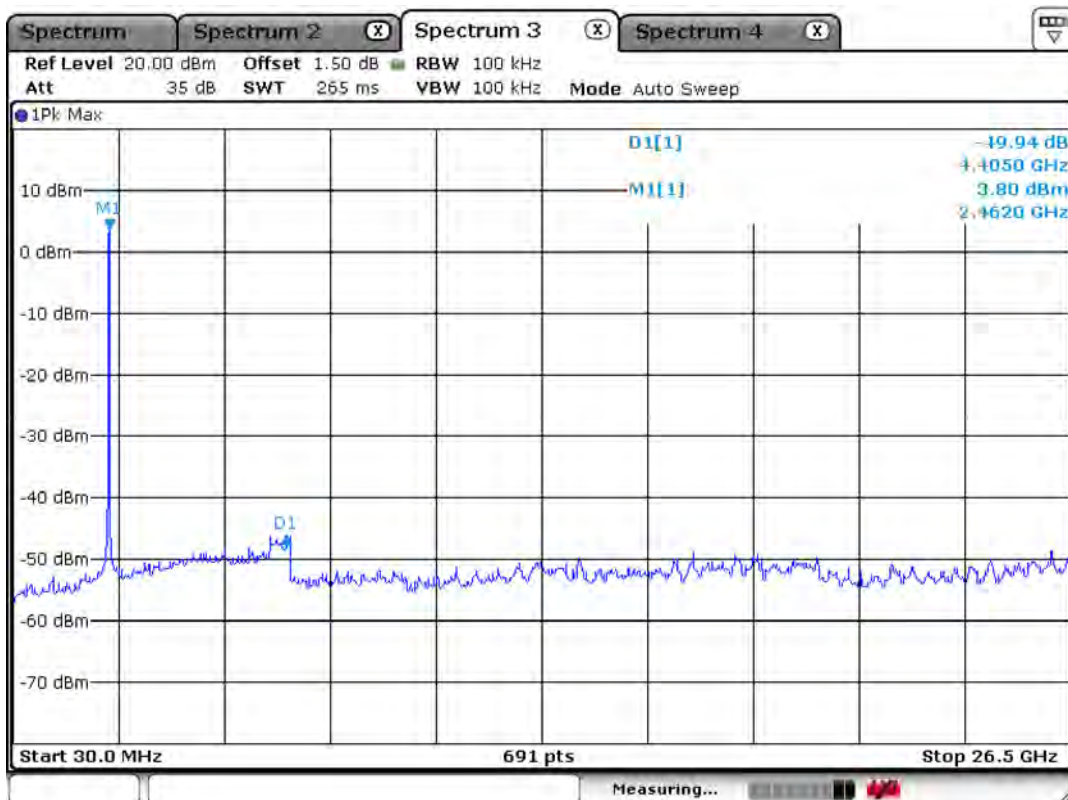
802.11g –channel 11
Frequency Range = 30 MHz ~ 10th harmonic.



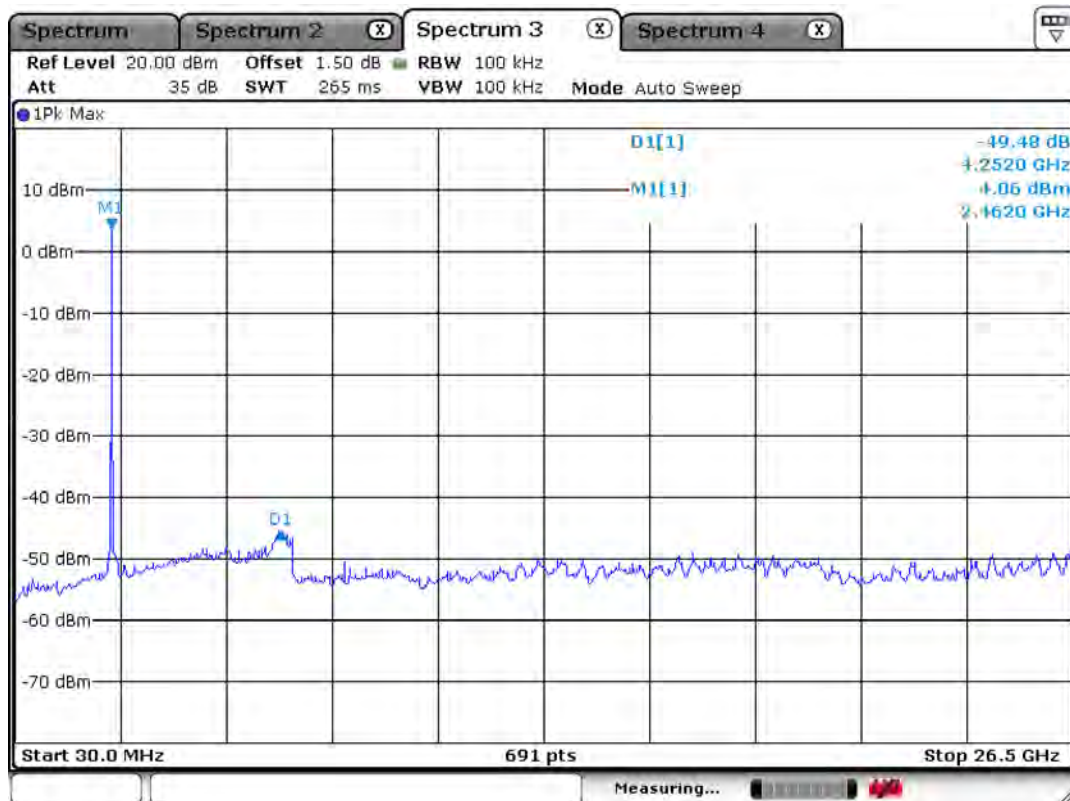
802.11n_20MHz – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.

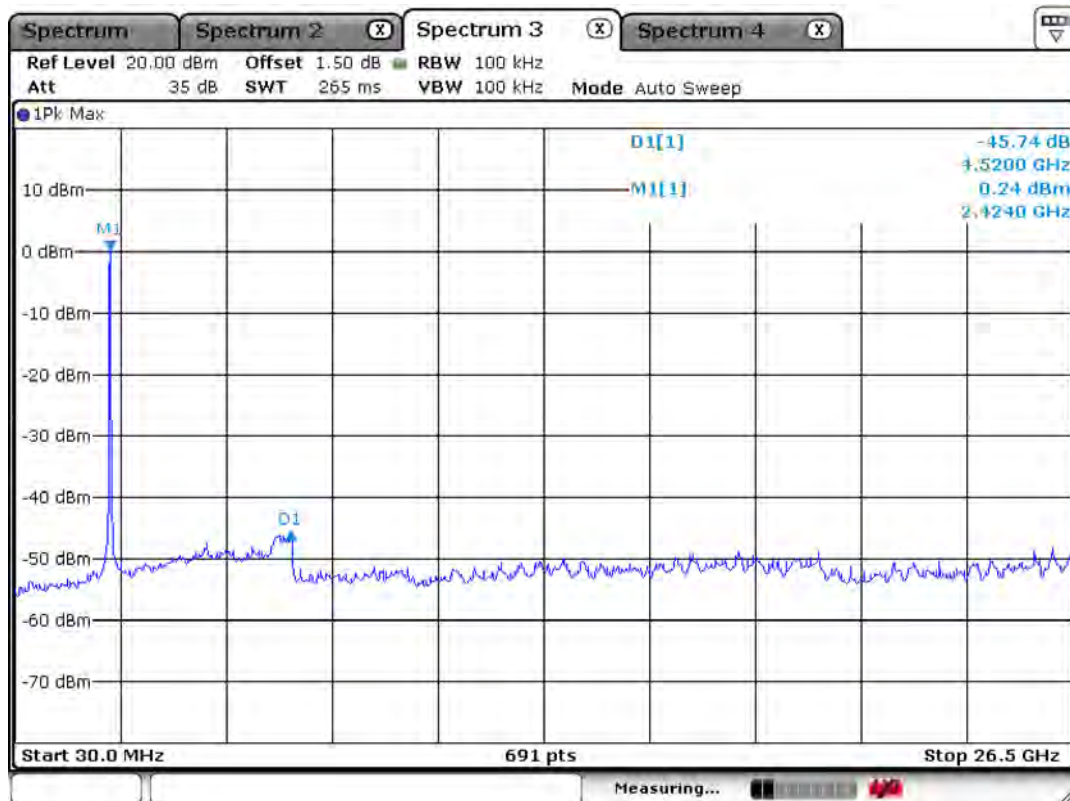
802.11n_20MHz – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

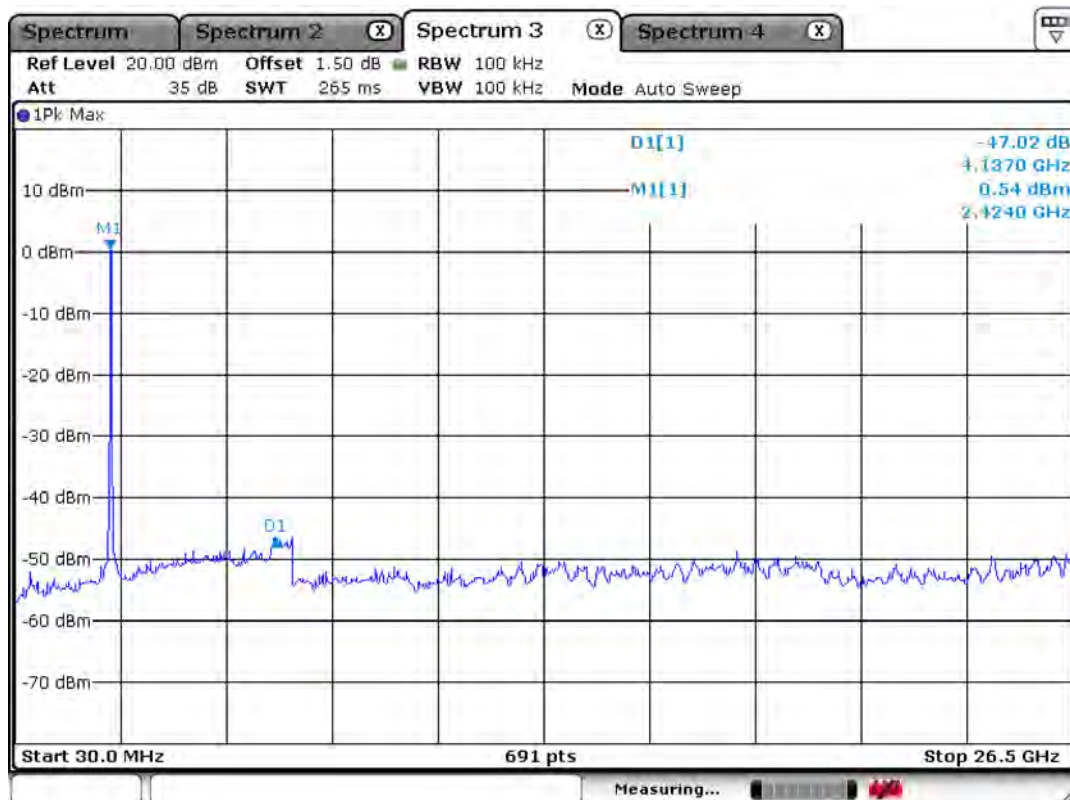
802.11n_20MHz –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.

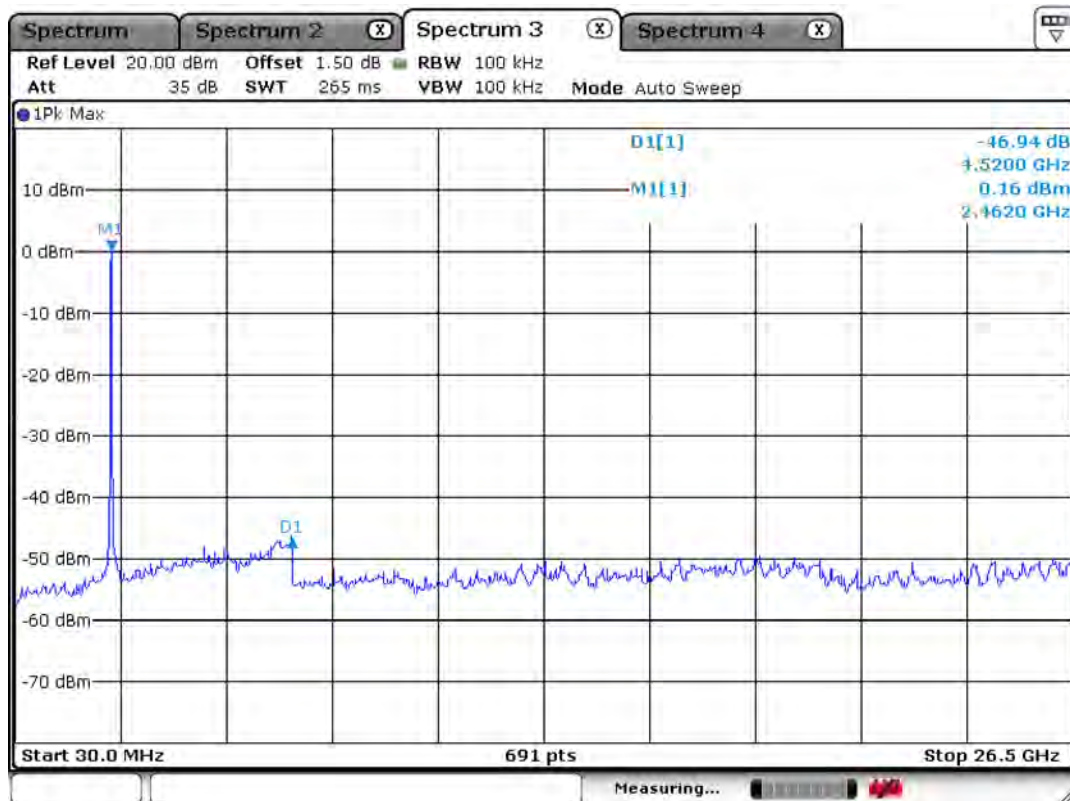
802.11n_40MHz –channel 3

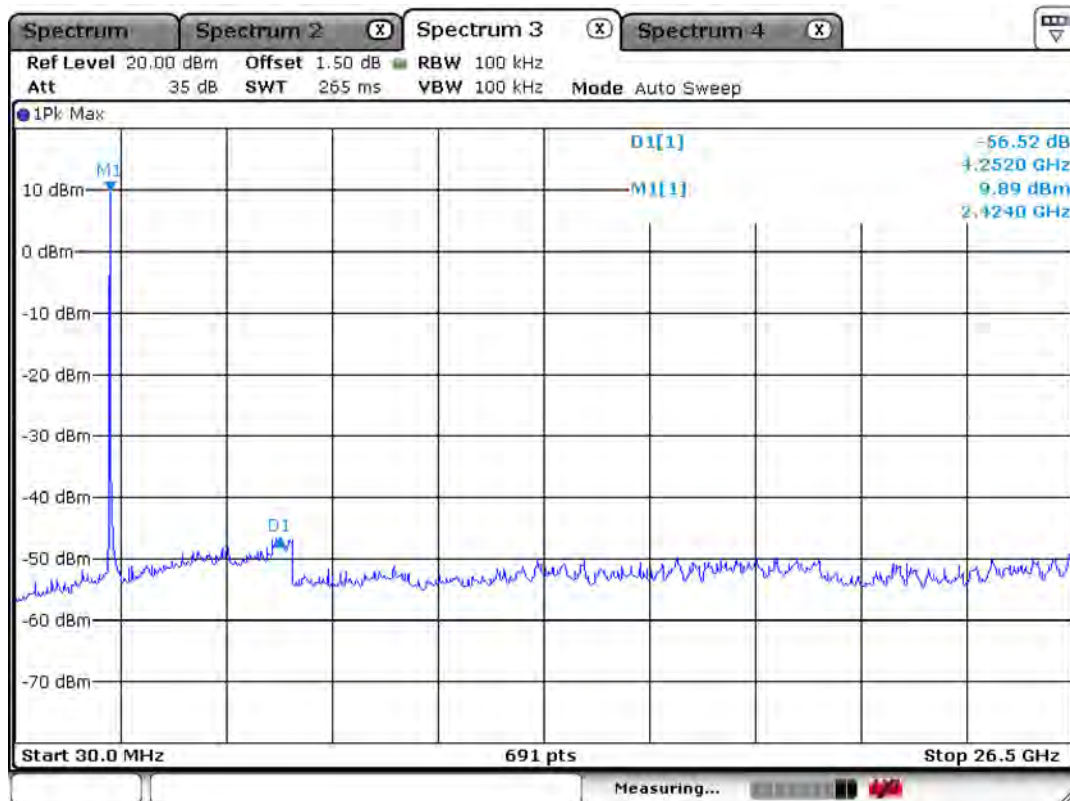
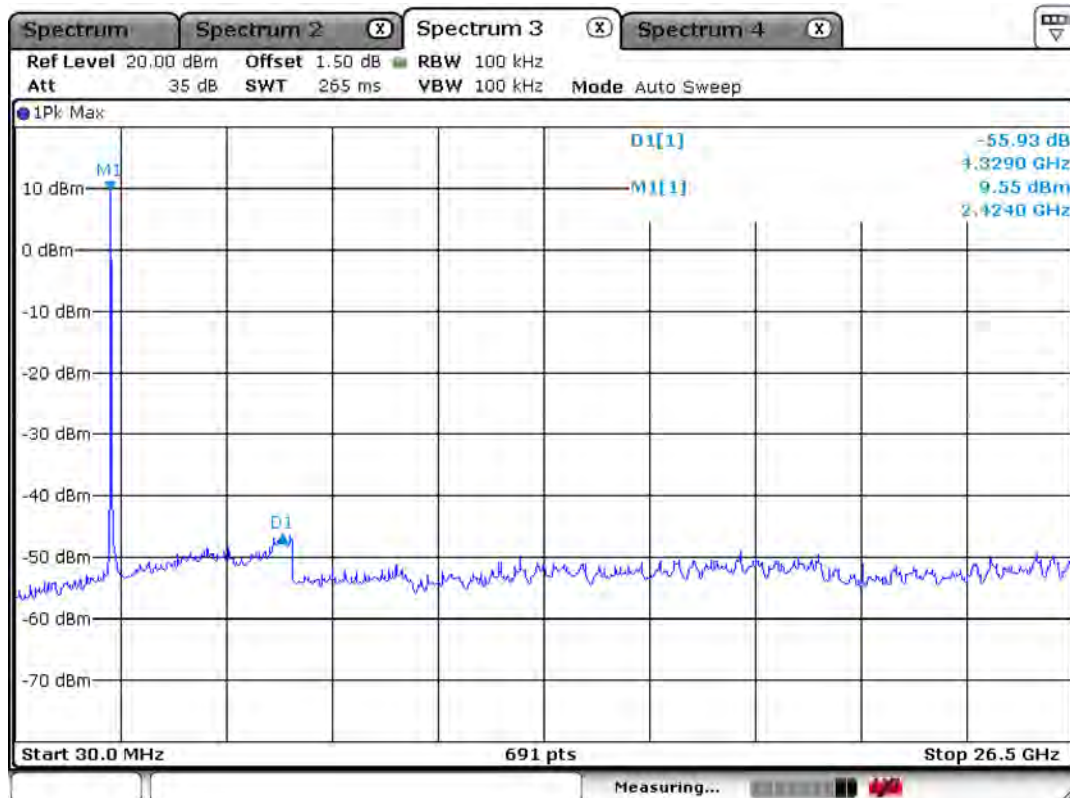
Frequency Range = 30 MHz ~ 10th harmonic.

802.11n_40MHz –channel 6

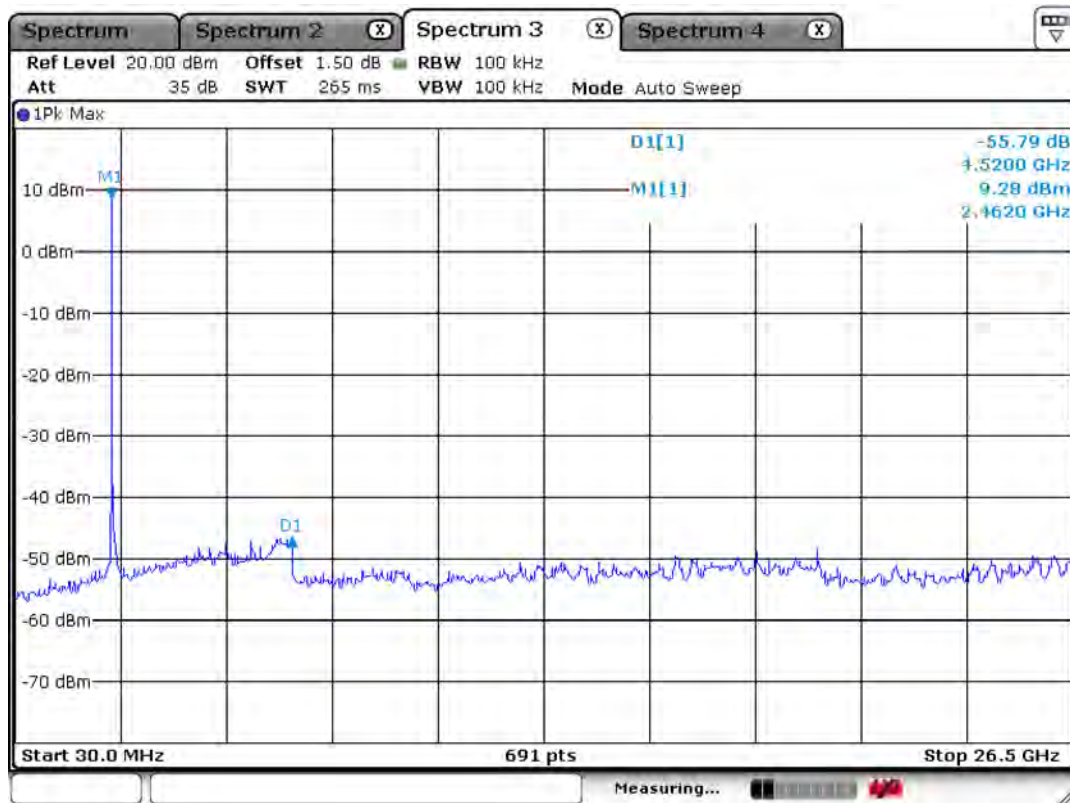
Frequency Range = 30 MHz ~ 10th harmonic.

802.11n_40MHz –channel 9

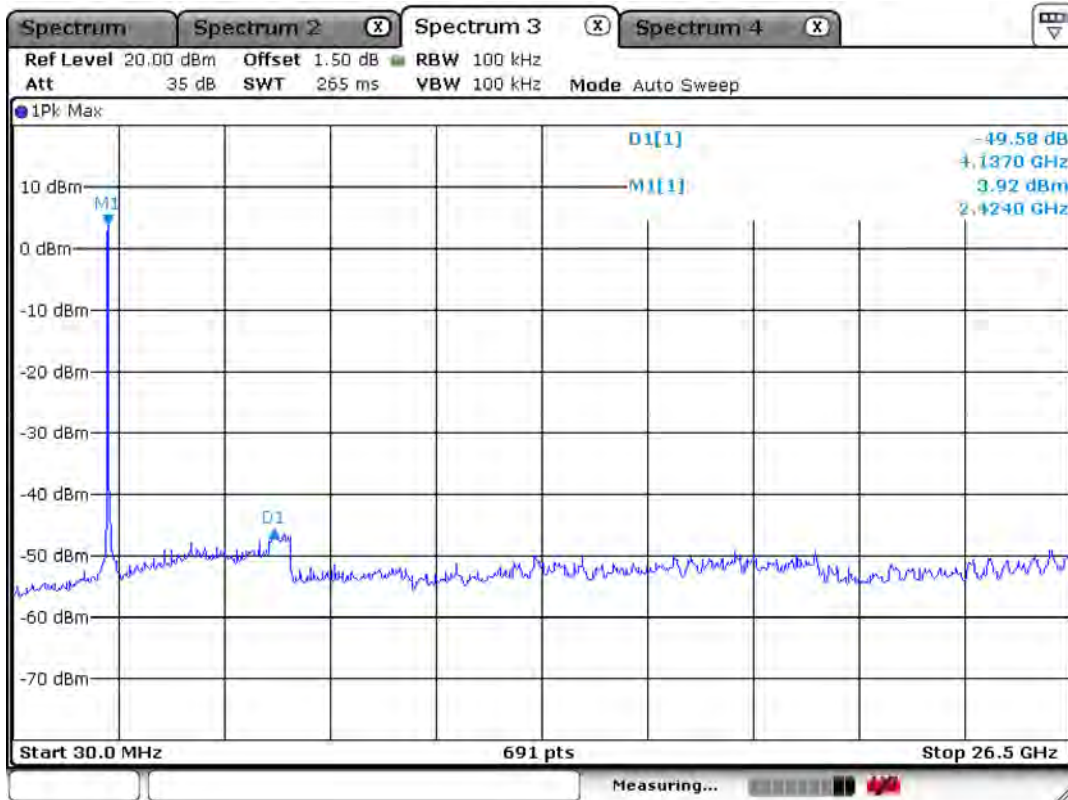
Frequency Range = 30 MHz ~ 10th harmonic.

802.11b – channel 1 – Port 2**Frequency Range = 30 MHz ~ 10th harmonic.****802.11b – channel 6****Frequency Range = 30 MHz ~ 10th harmonic.**

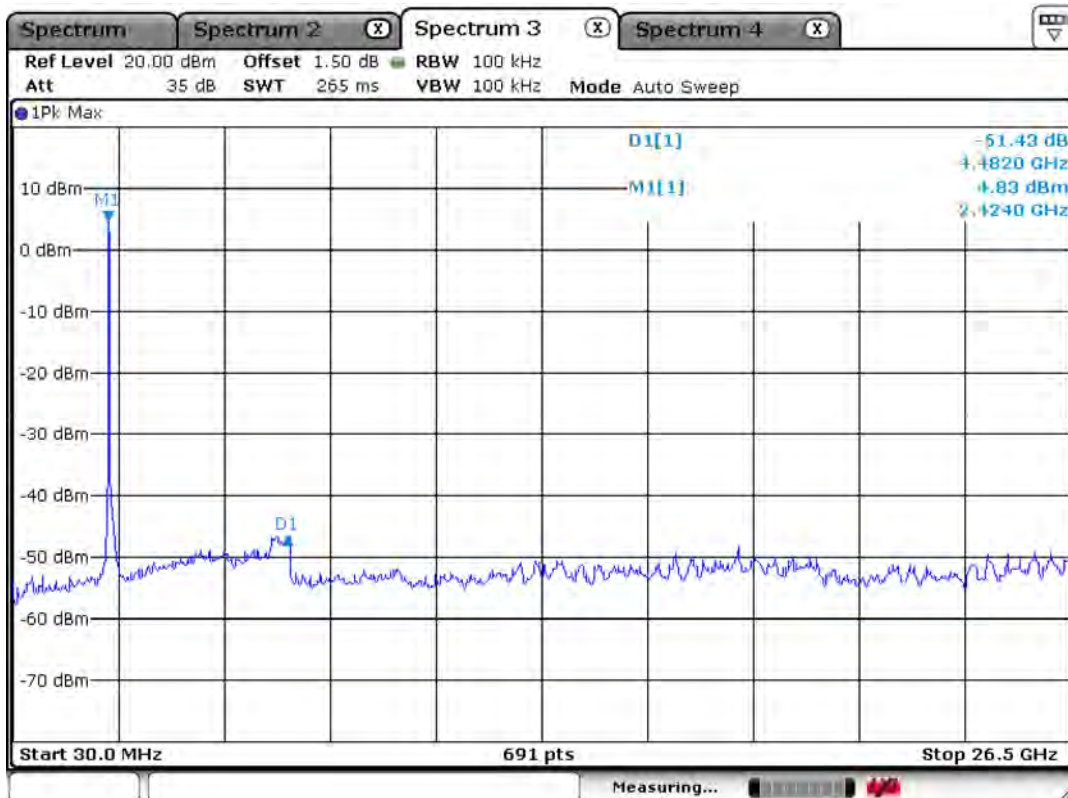
802.11b –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.

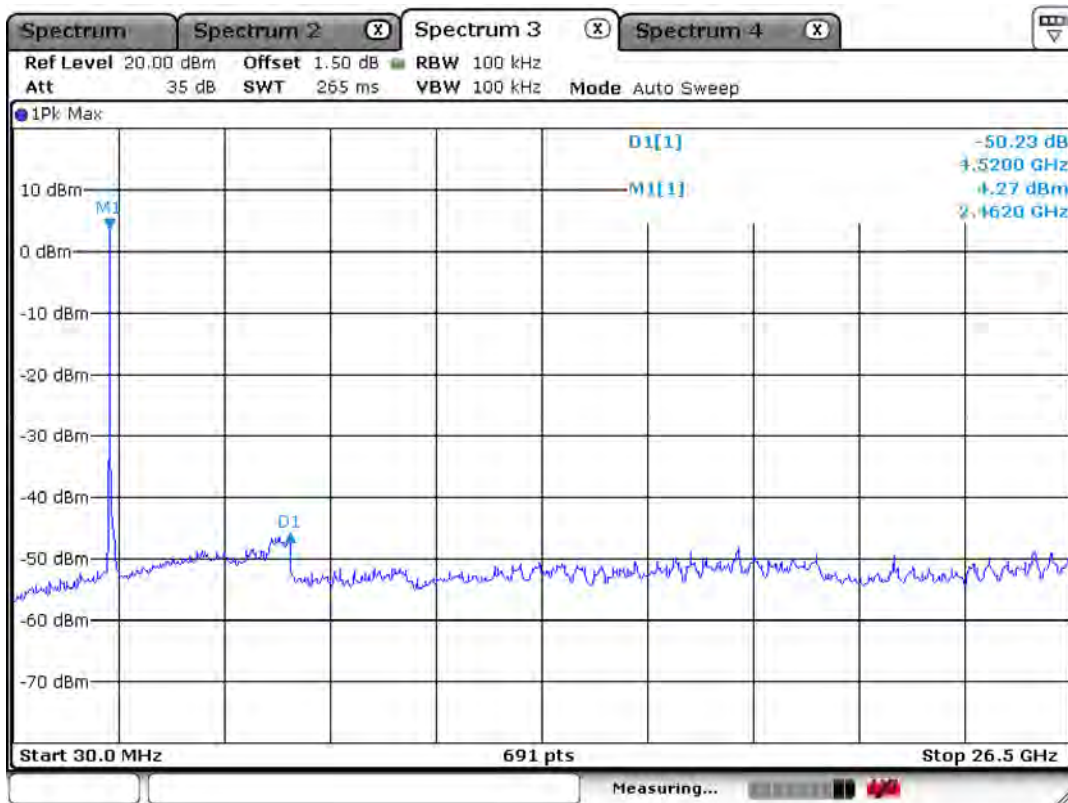
802.11g – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.

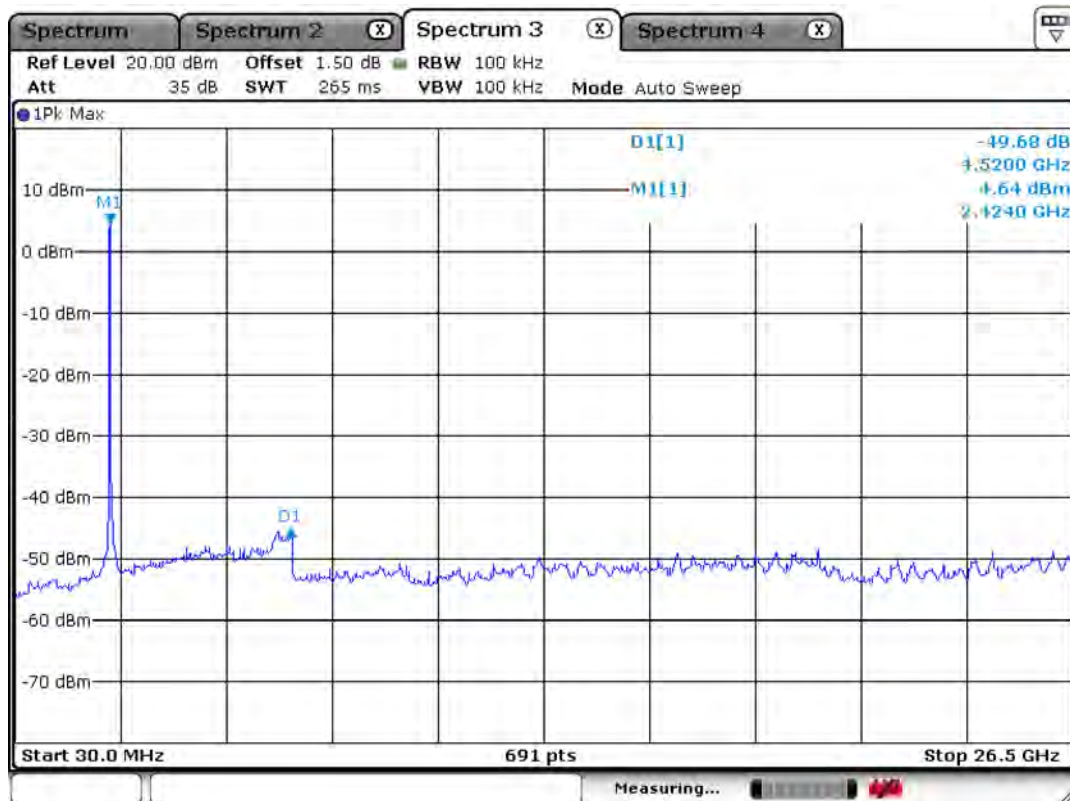
802.11g – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

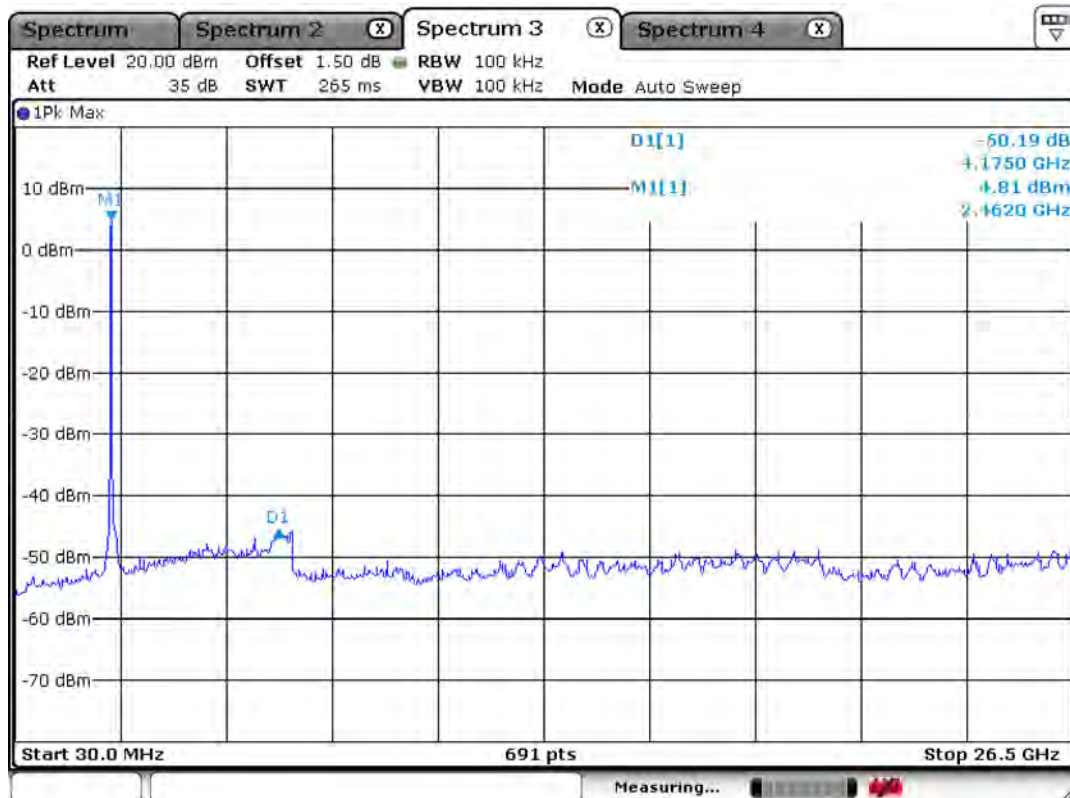
802.11g –channel 11
Frequency Range = 30 MHz ~ 10th harmonic.



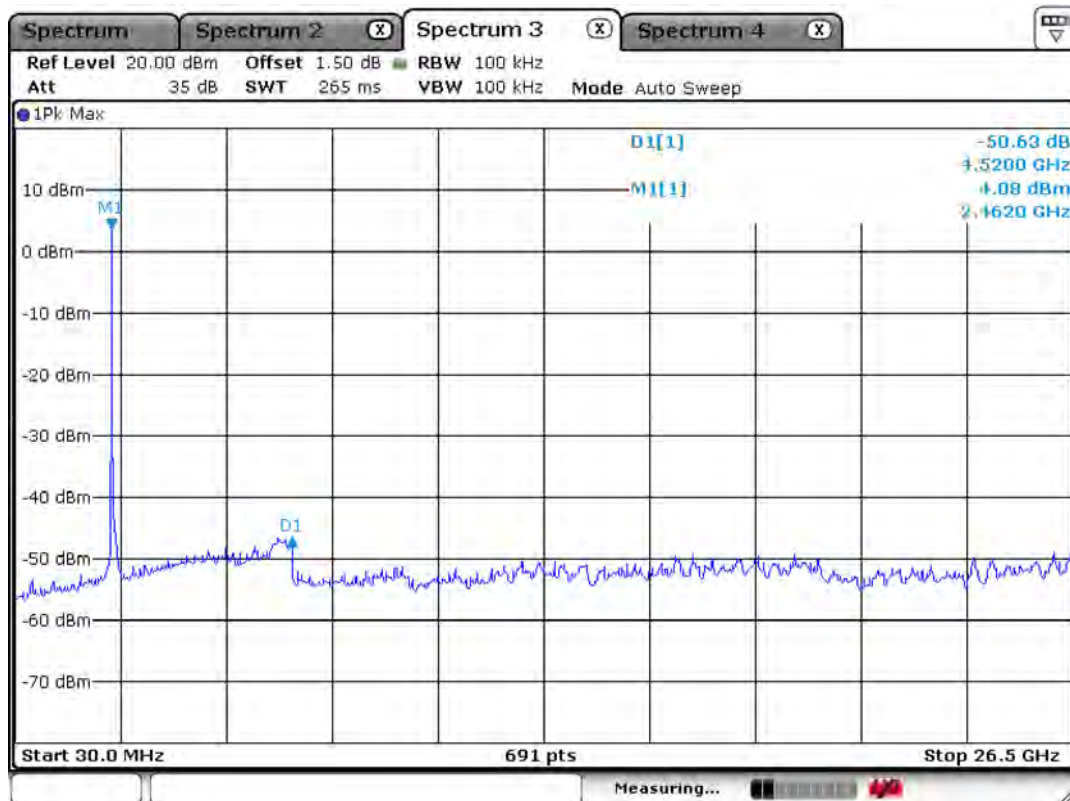
802.11n_20MHz – channel 1

Frequency Range = 30 MHz ~ 10th harmonic.

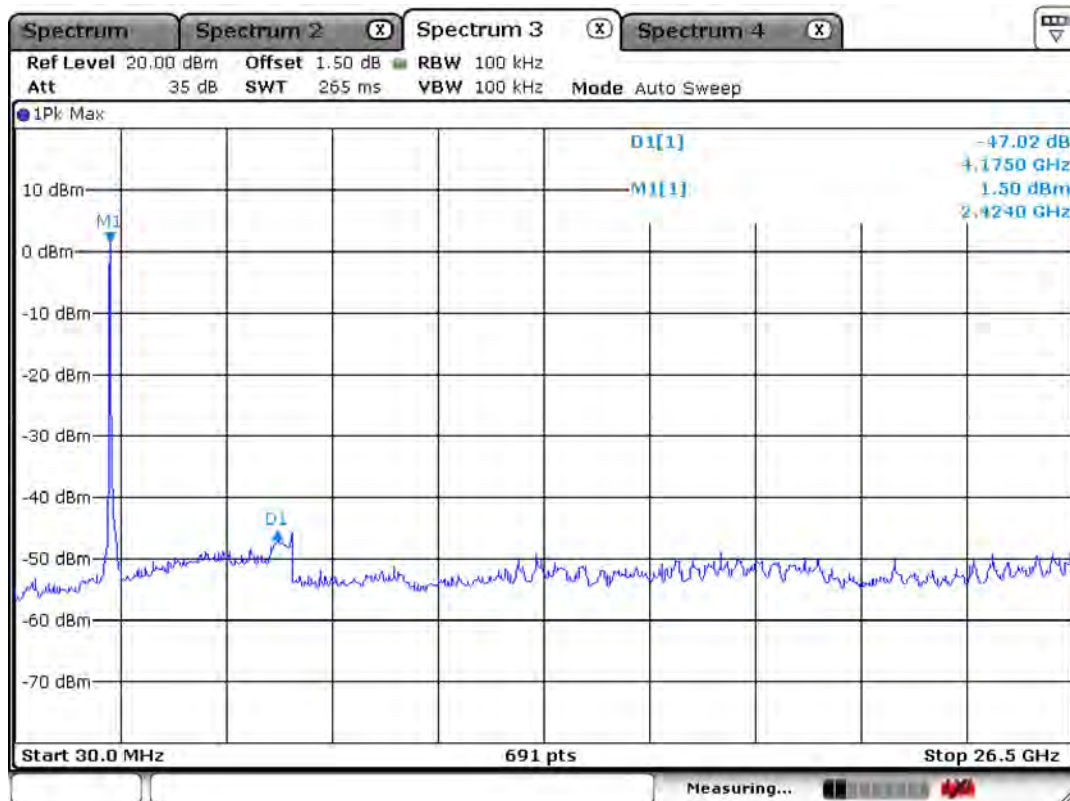
802.11n_20MHz – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

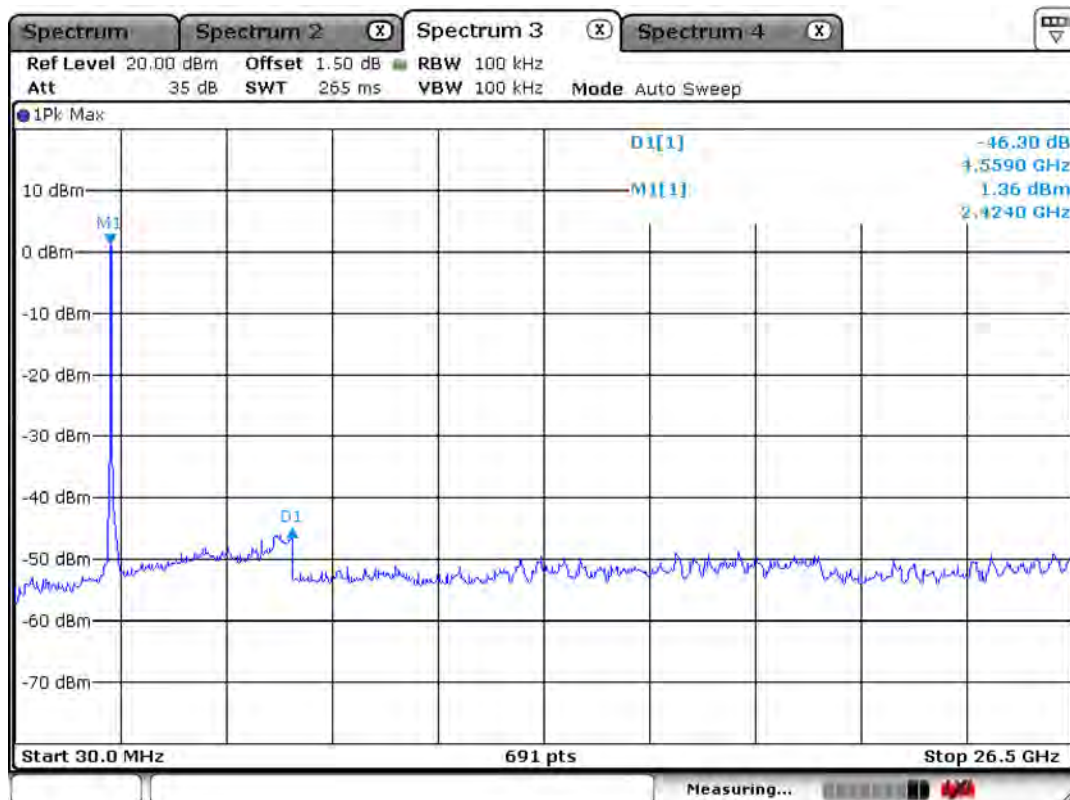
802.11n_20MHz –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.

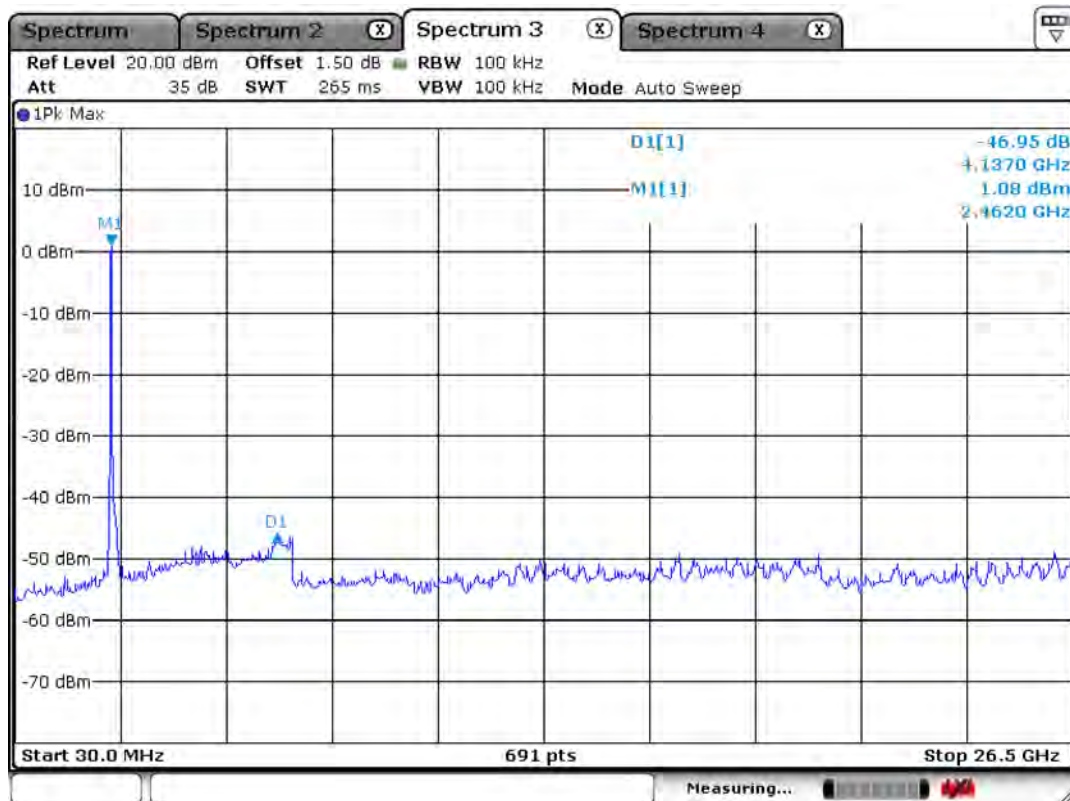
802.11n_40MHz –channel 3

Frequency Range = 30 MHz ~ 10th harmonic.

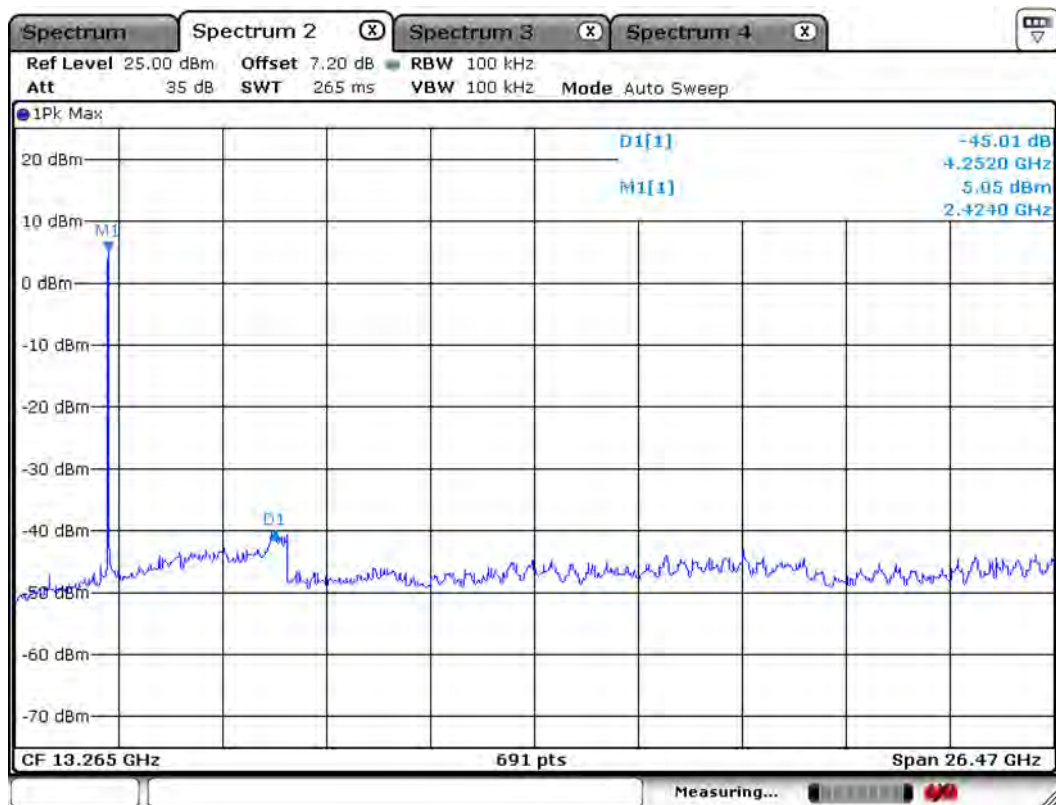
802.11n_40MHz –channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

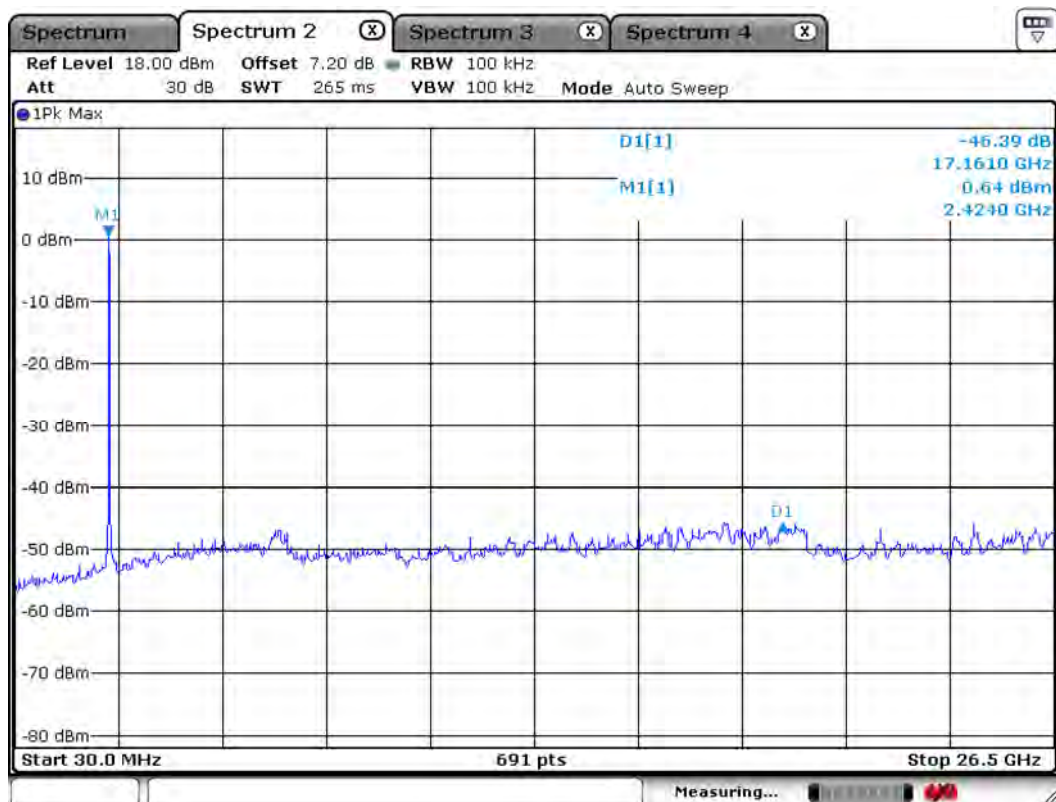
802.11n_40MHz –channel 9

Frequency Range = 30 MHz ~ 10th harmonic.

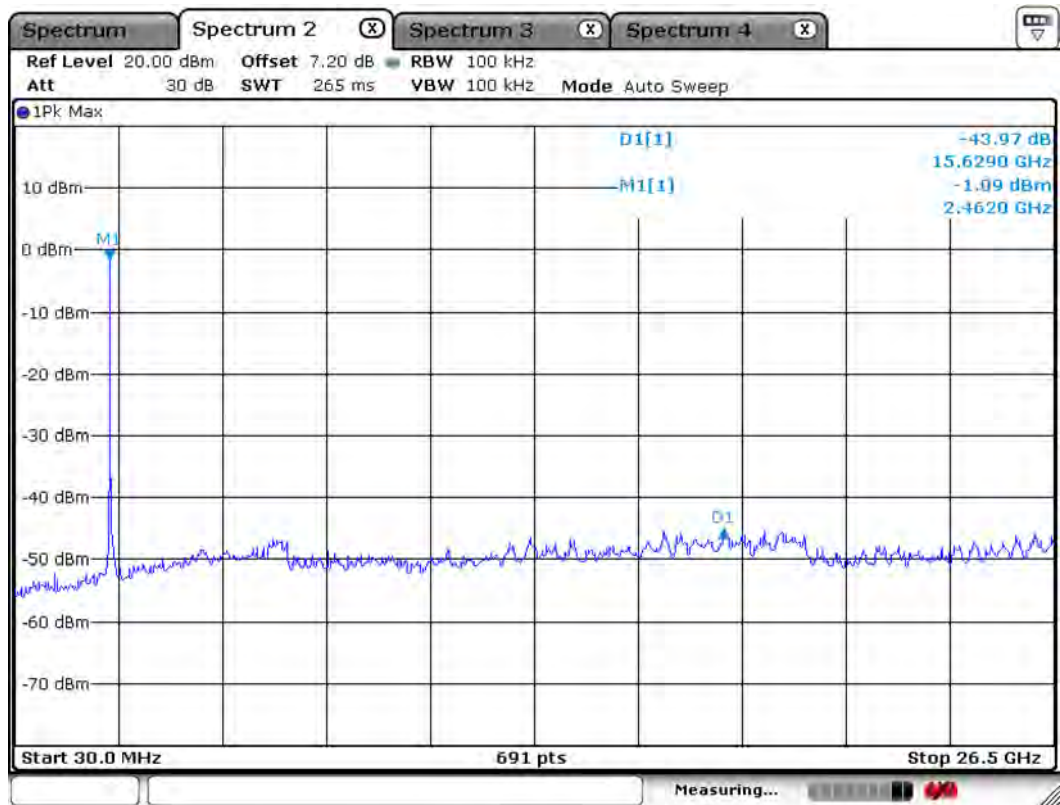
802.11n_20MHz – channel 1 - MIMO

Frequency Range = 30 MHz ~ 10th harmonic.

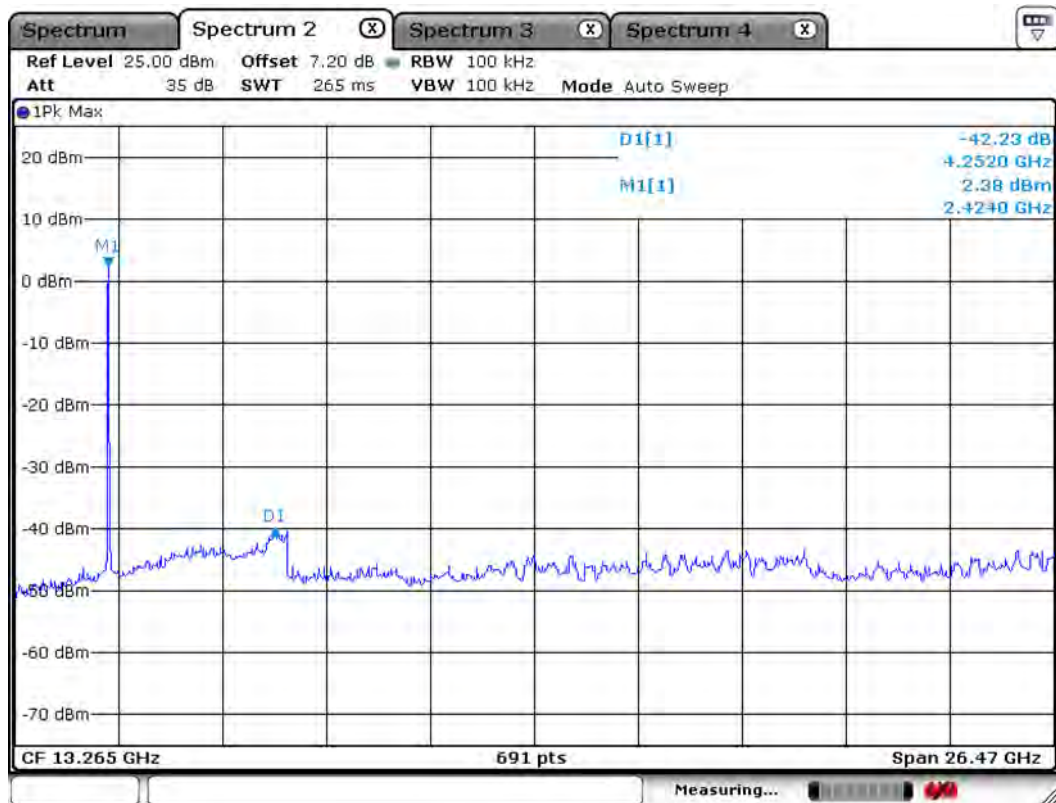
802.11n_20MHz – channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

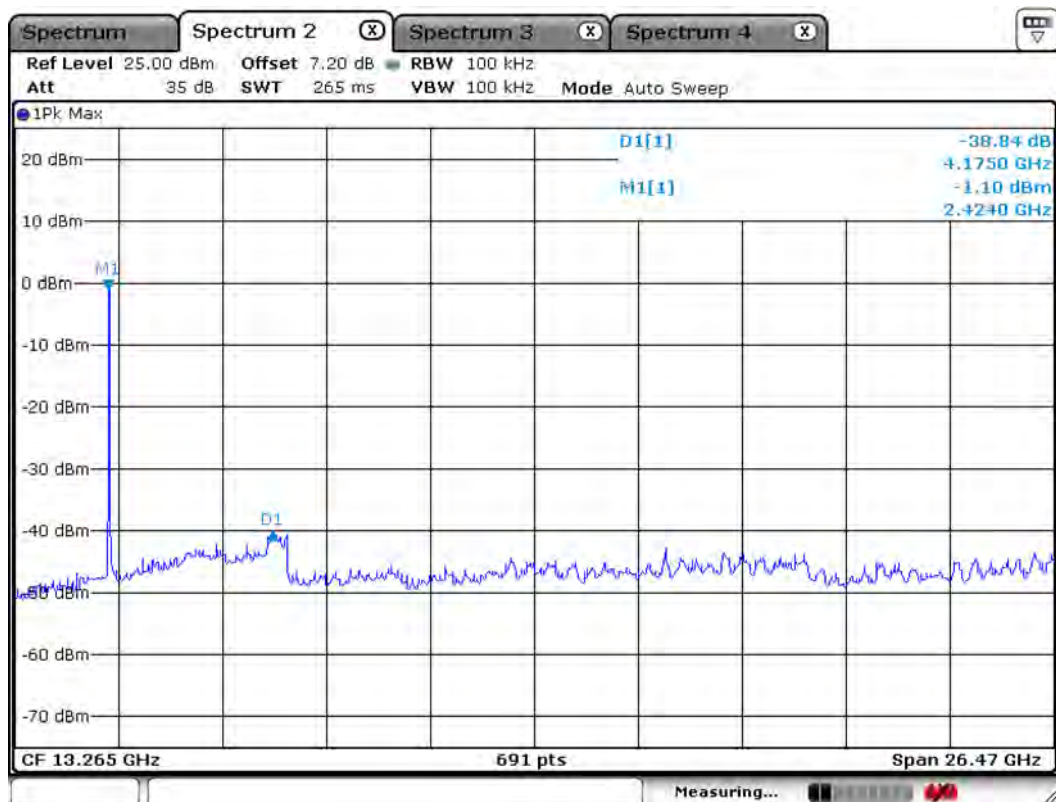
802.11n_20MHz –channel 11

Frequency Range = 30 MHz ~ 10th harmonic.

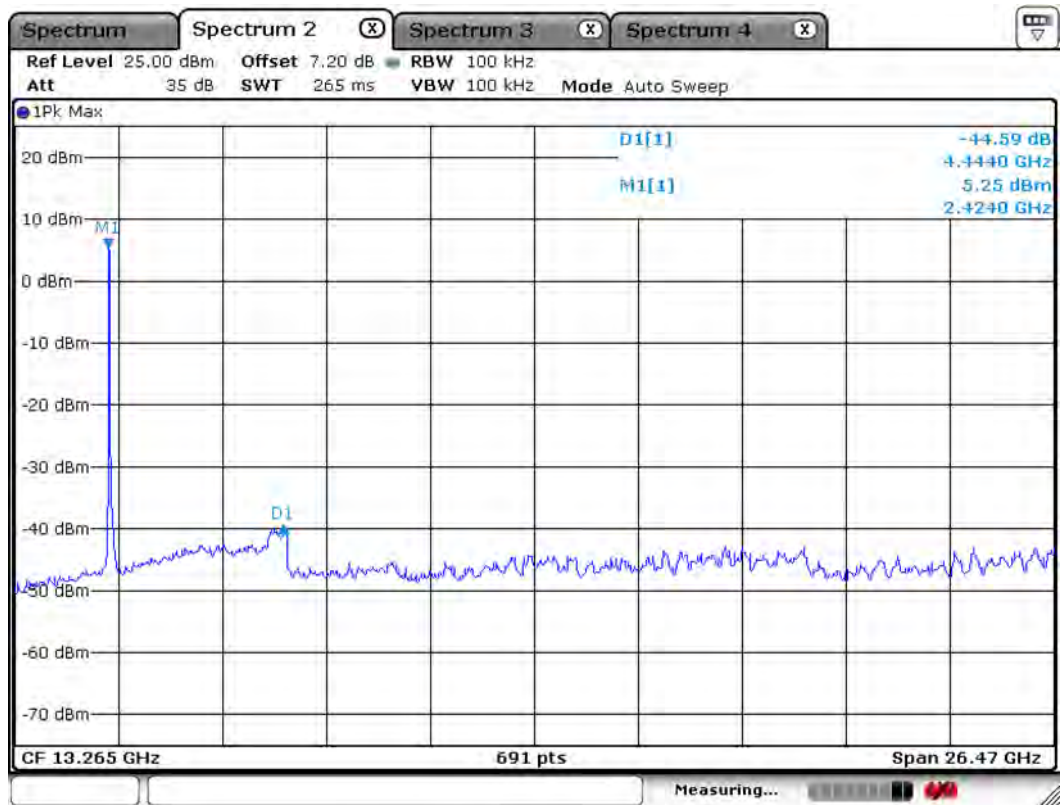
802.11n_40MHz –channel 3

Frequency Range = 30 MHz ~ 10th harmonic.

802.11n_40MHz –channel 6

Frequency Range = 30 MHz ~ 10th harmonic.

802.11n_40MHz –channel 9

Frequency Range = 30 MHz ~ 10th harmonic.

3.2.6 Radiated Spurious Emissions

Procedure:

* The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 and the guidelines in ANSI

C63.10-2009 test requirement. The EUT was placed on a 0.8 m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

- (a) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 3 m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- (b) In the frequency range above 30 MHz, Bi-Log Test Antenna (30 MHz to 1 GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3 m away from the EUT. Test Antenna height is carried from 1m to 4 m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 9 kHz ~ 10th harmonic.

RBW = 120 kHz (9 kHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

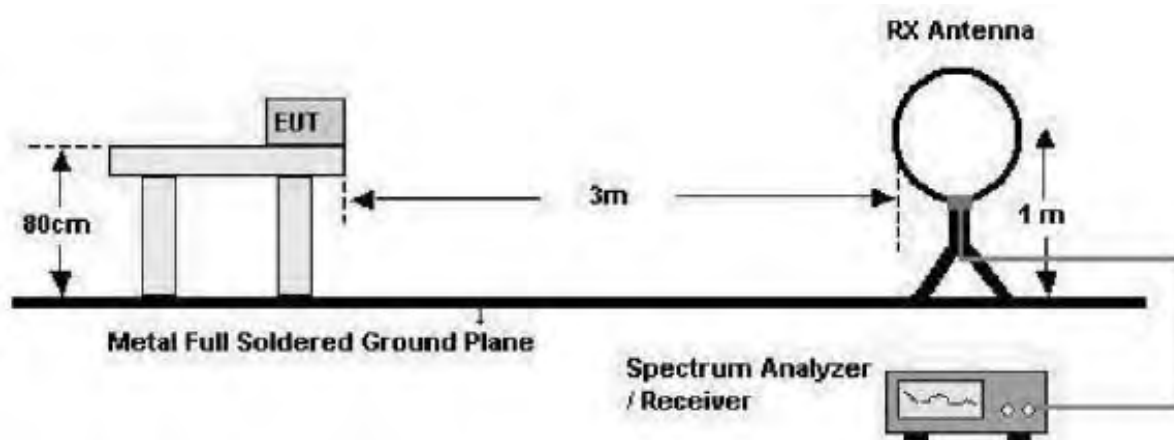
Trace = max hold

VBW $\geq$ RBW

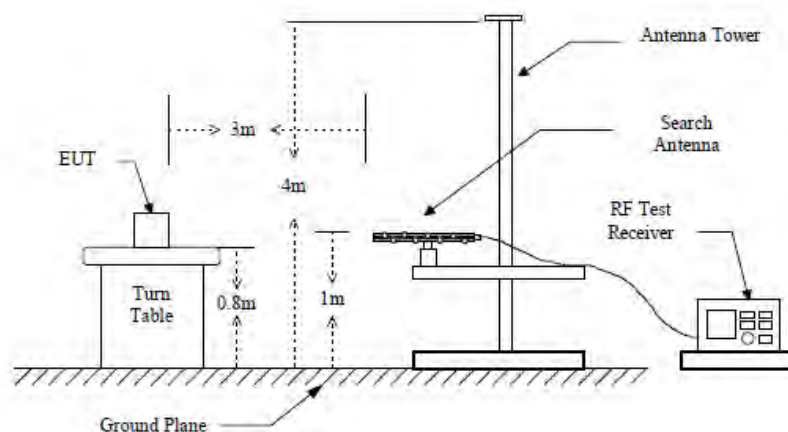
Detector function = peak

Sweep = auto

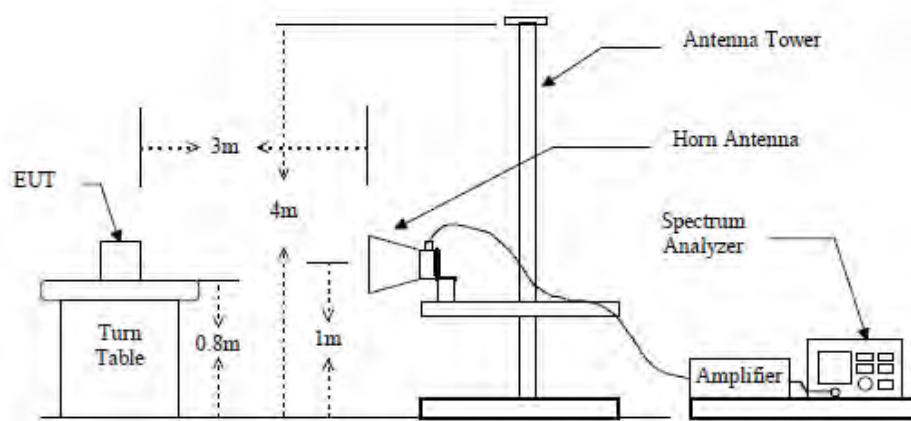
below 30MHz



below 1GHz (30MHz to 1GHz)



above 1GHz



Measurement Data: Complies

- See next pages for actual measured data.
- No other emissions were detected at a level greater than 20 dB below limit include from 9kHz to 30 MHz.

Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3 m
0.009 ~ 0.490	2400/F(kHz) (@ 300 m)
0.490 ~ 1.705	24000/F(kHz) (@ 30 m)
1.705 ~ 30	30(@ 30m)
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

802.11b Measurement Data – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6984.5	42.9	54.5	V	37.6	35.2	54.0	74.0	45.3	56.9	8.7	17.1
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6722.3	41.0	53.9	V	37.6	35.2	54.0	74.0	43.4	56.3	10.6	17.7
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
4928.6	40.2	55.8	V	35.9	33.1	54.0	74.0	43.0	58.6	11.0	15.4
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11g Measurement Data – Port 1

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
4726.3	39.2	52.8	V	35.9	33.1	54.0	74.0	42.0	55.6	12.0	18.4
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
4603.7	38.6	51.5	V	35.9	33.1	54.0	74.0	41.4	54.3	12.6	19.7
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6855.4	40.6	53.8	V	37.6	35.2	54.0	74.0	43.0	56.2	11.0	17.8
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 20MHz Measurement Data – Port 1

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6855.4	42.5	55.3	V	37.6	35.2	54.0	74.0	44.9	57.7	9.1	16.3
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6775.0	39.6	51.7	V	37.6	35.2	54.0	74.0	42.0	54.1	12.0	19.9
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6993.4	41.8	53.7	V	37.6	35.2	54.0	74.0	44.2	56.1	9.8	17.9
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 40MHz Measurement Data – Port 1

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6692.4	38.5	48.6	V	37.6	35.2	54.0	74.0	40.9	51.0	13.1	23.0
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6745.1	39.2	49.3	V	37.6	35.2	54.0	74.0	41.6	51.7	12.4	22.3
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6647.2	39.3	50.7	V	37.6	35.2	54.0	74.0	41.7	53.1	12.3	20.9
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11b Measurement Data – Port 2

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6853.8	41.2	53.4	V	37.6	35.2	54.0	74.0	43.6	55.8	10.4	18.2
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6745.1	40.0	54.7	V	37.6	35.2	54.0	74.0	42.4	57.1	11.6	16.9
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6811.6	41.1	55.8	V	37.6	35.2	54.0	74.0	43.5	58.2	10.5	15.8
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11g Measurement Data – Port 2

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6745.1	40.7	54.9	V	37.6	35.2	54.0	74.0	43.1	57.3	10.9	16.7
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6340.4	38.9	52.8	V	37.6	35.2	54.0	74.0	41.3	56.2	12.7	18.8
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6552.2	39.7	51.8	V	37.6	35.2	54.0	74.0	42.1	54.2	11.9	19.8
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 20MHz Measurement Data – Port 2

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6925.7	41.1	52.9	V	37.6	35.2	54.0	74.0	43.5	55.3	10.5	18.7
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6874.6	42.3	51.4	V	37.6	35.2	54.0	74.0	44.7	53.8	9.3	20.2
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
				Antenna	Amp.Gain+Cable						
6524.2	40.7	50.4	V	37.6	35.2	54.0	74.0	43.1	52.8	10.9	21.2
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 40MHz Measurement Data – Port 2

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6520.0	41.6	51.9	V	37.6	35.2	54.0	74.0	44.0	54.3	10.0	19.7
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6621.8	39.6	50.7	V	37.6	35.2	54.0	74.0	42.0	53.1	12.0	20.9
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6717.2	40.5	51.1	V	37.6	35.2	54.0	74.0	42.9	53.5	11.1	20.5
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 20MHz Measurement Data - MIMO

Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6812.2	41.3	53.4	V	37.6	35.2	54.0	74.0	43.7	55.8	10.3	18.2
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6715.3	43.7	54.8	V	37.6	35.2	54.0	74.0	46.1	57.2	7.9	16.8
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
Frequency [MHz]	Reading [dBuV / m]		Pol.	Correction Factor		Limits [dBuV / m]		Result [dBuV / m]		Margin [dB]	
	AV / Peak			Antenna	Amp.Gain+Cable	AV / Peak		AV / Peak		AV / Peak	
6862.4	42.7	53.4	V	37.6	35.2	54.0	74.0	45.1	55.8	8.9	18.2
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

802.11n 40MHz Measurement Data- MIMO

Frequency [MHz]	Reading [dBuV / m] AV / Peak		Pol.	Correction Factor Antenna Amp.Gain+Cable		Limits [dBuV / m] AV / Peak		Result [dBuV / m] AV / Peak		Margin [dB] AV / Peak	
6577.5	41.8	52.6	V	37.6	35.2	54.0	74.0	44.2	55.0	9.8	19.0
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
6641.7	42.7	53.6	V	37.6	35.2	54.0	74.0	45.1	56.0	8.9	18.0
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
6616.5	41.8	52.6	V	37.6	35.2	54.0	74.0	44.2	55.0	9.8	19.0
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

- No other emissions were detected at a level greater than 20 dB below limit.

Radiated Emissions – Wi-Fi mode

4, Songjuro236Beon-gil, Yangji-myeon,
Cheoin-gu, Youngin-si, Gyeonggi-do,
449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT/Model No.: MT-WN836NM

TEST MODE: Wi-Fi mode

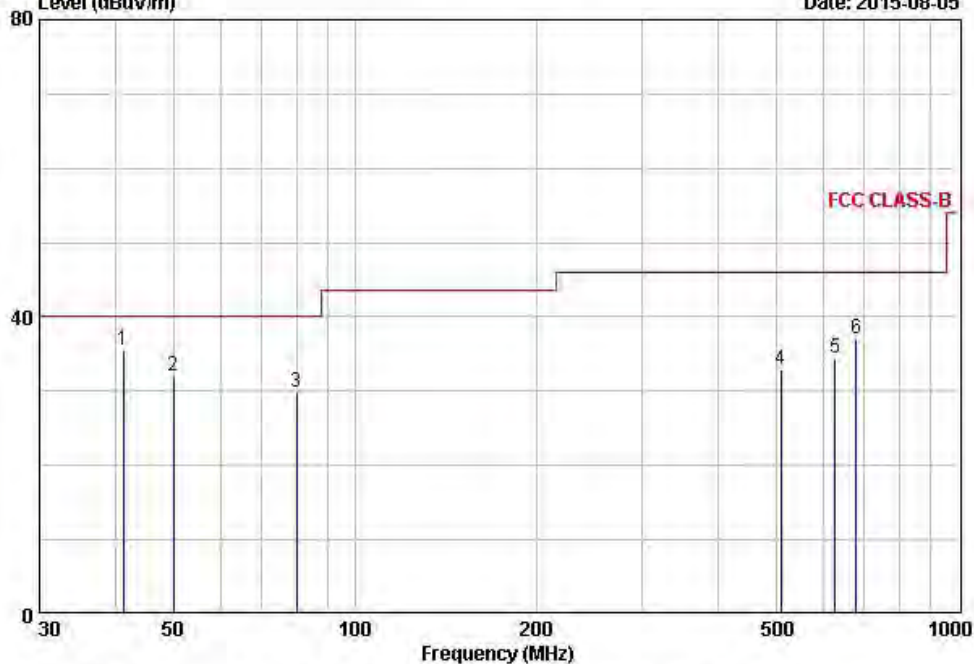
Temp Humi : 28 / 56

Tested by: SIN J H

Data: 225

Level (dBuV/m)

Date: 2015-08-05



	Freq	Reading	C.F	Result	Limit	Margin	Height	Angle	Polarity
	MHz	dBuV/m	dB/m	dBuV/m	QP	dB	cm	deg	
1	41.30	52.30	-16.78	35.52	40.00	4.48	100	244	VERTICAL
2	50.10	48.30	-16.30	32.00	40.00	8.00	100	128	VERTICAL
3	80.10	50.30	-20.37	29.93	40.00	10.07	100	83	VERTICAL
4	508.30	40.20	-7.37	32.83	46.00	13.17	131	119	HORIZONTAL
5	625.10	38.60	-4.11	34.49	46.00	11.51	100	306	VERTICAL
6	677.60	39.90	-2.91	36.99	46.00	9.01	153	239	HORIZONTAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

3.2.7 AC Conducted Emissions

Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Measurement Data: Complies

- Refer to the next page.
- No other emissions were detected at a level greater than 20dB below limit
- It gave the worse case emissions

Minimum Standard: FCC Part 15.207(a)/EN 55022

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

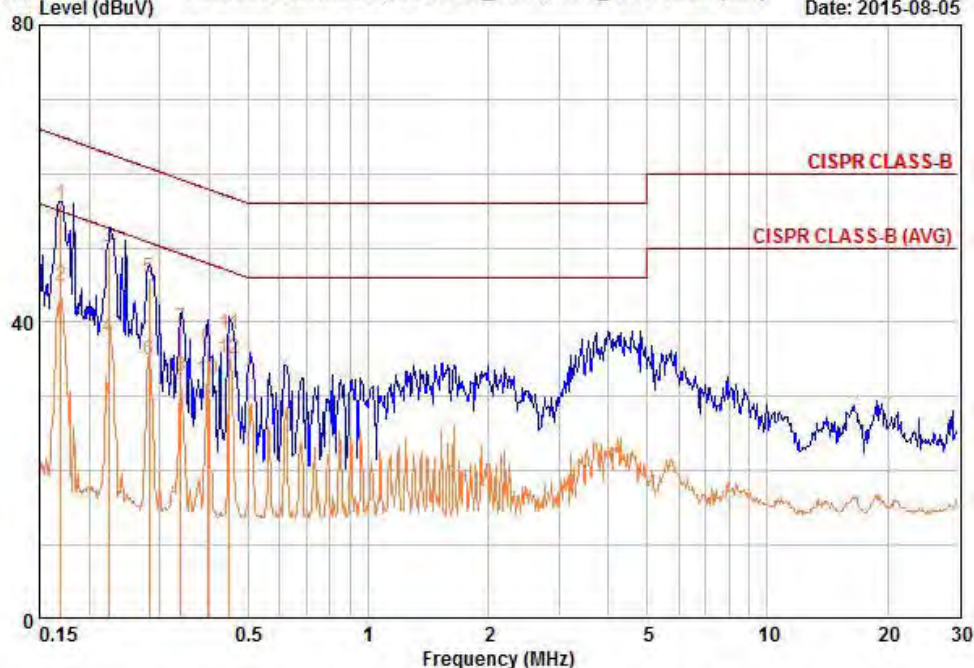
* Decreases with the logarithm of the frequency

Conducted Emissions – Wi-Fi mode - LINE

4, Songjuro236Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT / Model No. : MT-WN836NM	Phase : LINE
Test Mode : Wi-Fi mode	Test Power : 120 / 60
Temp./Humi. : 24 / 53	Test Engineer : SIN J H

Data: 800 Level (dBuV) File: C:\Conducted Data\2015\LTA_Conduction_1507-1.EMI (801) Date: 2015-08-05



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.170	45.85	35.15	9.85	55.70	45.00	64.96	54.96	9.26	9.96
0.224	40.26	28.26	9.77	50.03	38.03	62.67	52.67	12.64	14.64
0.283	36.26	25.16	9.74	46.00	34.90	60.73	50.73	14.73	15.83
0.339	29.46	23.06	9.71	39.17	32.77	59.23	49.23	20.05	16.45
0.395	26.76	22.66	9.70	36.46	32.36	57.96	47.96	21.50	15.60
0.449	28.66	25.46	9.68	38.34	35.14	56.89	46.89	18.55	11.75

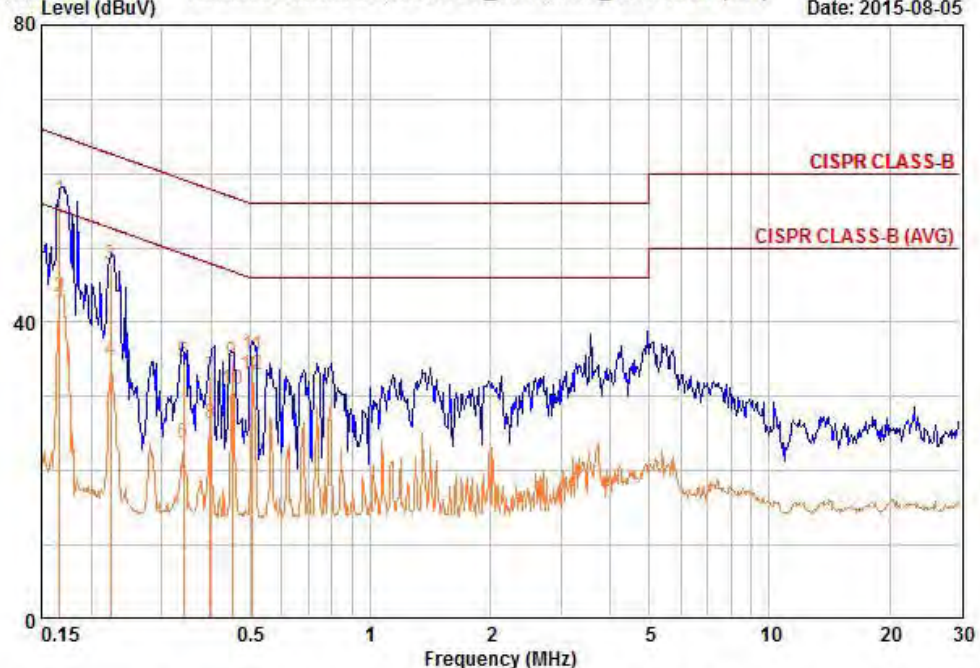
Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

Conducted Emissions – Wi-Fi mode - NEUTRAL

4, Songjuro236Beon-gil, Yangji-myeon
Cheoin-gu, Youngin-si, Gyeonggi-do
449-822 Korea
Tel :+82-31-3236008,9
Fax:+82-31-3236010

EUT / Model No. : MT-WN836NM	Phase : NEUTRAL
Test Mode : Wi-Fi mode	Test Power : 120 / 60
Temp./Humi. : 24 / 53	Test Engineer : SIN J H

Data: 801 File: C:\Conducted Data\2015\LTA_Conduction_1507-1.EMI (801) Date: 2015-08-05



Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	dBuV	dBuV		dBuV	dBuV	dBuV	dBuV	dB	dB
0.167	46.65	33.45	9.85	56.51	43.31	65.11	55.11	8.60	11.80
0.224	37.96	25.16	9.77	47.73	34.93	62.67	52.67	14.94	17.74
0.340	24.86	14.06	9.72	34.58	23.78	59.20	49.20	24.62	25.42
0.397	23.06	16.66	9.71	32.77	26.37	57.92	47.92	25.15	21.55
0.451	24.86	21.16	9.69	34.55	30.85	56.86	46.86	22.31	16.01
0.507	25.76	23.26	9.69	35.45	32.95	56.00	46.00	20.55	13.05

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss

APPENDIX

TEST EQUIPMENT USED FOR TESTS

	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	Signal Analyzer (9 kHz~30 GHz)	FSV-30	100757	R&S	1 year	2015-03-24
2	Signal Generator (~3.2 GHz)	8648C	3623A02597	HP	1 year	2015-03-23
3	SYNTHESIZED CW GENERATOR	83711B	US34490456	HP	1 year	2015-03-23
4	Attenuator (3 dB)	8491A	37822	HP	1 year	2014-09-16
5	Attenuator (10 dB)	8491A	63196	HP	1 year	2014-09-16
6	Test Receiver (~30 MHz)	ESHS10	828404/009	R&S	1 year	2015-03-23
7	EMI Test Receiver (~7 GHz)	ESCI7	100722	R&S	1 year	2014-09-15
8	RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	HP	1 year	2014-09-16
9	RF Amplifier (1~26.5 GHz)	8449B	3008A02126	HP	1 year	2015-03-23
10	Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2015-04-21
11	DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2014-02-26
12	DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2014-02-26
13	TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2015-04-21
14	Temp.Humidity Data Logger	SK-L200TH II A	00801	SATO	1 year	2015-04-03
15	Splitter	1580	SL769	Weinschel	1 year	2015-03-31
16	Power Divider	11636A	06243	HP	1 year	2014-09-16
17	DC Power Supply	6674A	3637A01657	Agilent	-	-
18	Frequency Counter	5342A	2826A12411	HP	1 year	2015-03-23
19	Power Meter	EPM-441A	GB32481702	HP	1 year	2015-03-23
20	Power Sensor	8481A	3318A99464	HP	1 year	2015-01-13
21	Audio Analyzer	8903B	3729A18901	HP	1 year	2014-09-15
22	Modulation Analyzer	8901B	3749A05878	HP	1 year	2014-09-15
23	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2014-09-16
24	Stop Watch	HS-3	812Q08R	CASIO	2 year	2014-04-03
25	LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2014-09-15
26	Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2015-03-23
27	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	1 year	2015-03-23
28	Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	1 year	2015-03-30
29	Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2015-03-30
30	Active Loop Antenna	FMZB1519	1519-031	SCHWARZBECK	1 year	2015-01-06
31	OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2015-03-23
32	Signal Generator(100 kHz~40 GHz)	SMB100A03	177621	R&S	1 year	2015-03-24
33	Signal Analyzer (10Hz~40 GHz)	FSV40	101367	R&S	1 year	2015-03-24