

**FCC 47 CFR PART 15 SUBPART E &
INDUSTRY CANADA RSS-247**

TEST REPORT

For

Wi-Fi (11a/b/g/n/ac 2Tx2R) + BT (V4.1 LE) SDIO Combo Module

Model: WCBN4503M

Trade Name: LITE-ON

Issued to

Lite-On Technology Corp.

Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C

Issued by

Compliance Certification Services Inc.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 14, 2016	Initial Issue	ALL	Doris Chu
01	February 22, 2016	1. Modify Test methodology 2. Modify 26 dB Emission Bandwidth limit. 3. Modify DFS Test procedure	P.7, P.49, P.296	Doris Chu

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1. TEST RESULT CERTIFICATION

Applicant: Lite-On Technology Corp.
Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585,
Taiwan, R.O.C

Manufacturer: Lite-On Technology (Changzhou) CO., LTD.
A9 Building, No.88, Yanghu Road, Wujin Hi-Tech Industrial
Development Zone, Changzhou City, Jiangsu Province, P. R.
China

Equipment Under Test: Wi-Fi (11a/b/g/n/ac 2Tx2R) + BT (V4.1 LE) SDIO Combo
Module

Model Number: WCBN4503M

Trade Name: LITE-ON

Date of Test: November 20, 2015 ~ January 11, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart E Industry Canada RSS-247 Issue 1	No non-compliance noted

We hereby certify that:

Compliance Certification Services Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407 and Industry Canada RSS-247 Issue 1.

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

Approved by:



Miller Lee
Manager
Compliance Certification Services Inc.

Reviewed by:



Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Wi-Fi (11a/b/g/n/ac 2Tx2R) + BT (V4.1 LE) SDIO Combo Module				
Model Number	WCBN4503M				
Trade Name	LITE-ON				
Model Discrepancy	N/A				
Received Date	November 2, 2015				
Power Supply	Power form host device				
Operating Frequency Range & Number of Channels		Mode	Frequency Range (MHz)	Number of Channels	
	UNII Band I	IEEE 802.11a	5180 – 5240	4 Channels	
		IEEE 802.11n HT 20 MHz	5180 – 5240	4 Channels	
		IEEE 802.11n HT 40 MHz	5190 ~ 5230	2 Channels	
		IEEE 802.11ac VHT 80 MHz	5210	1 Channels	
	UNII Band II	IEEE 802.11a	5260 - 5320	4 Channels	
		IEEE 802.11n HT 20 MHz	5260 - 5320	4 Channels	
		IEEE 802.11n HT 40 MHz	5270 ~ 5310	2 Channels	
		IEEE 802.11ac VHT 80 MHz	5290	1 Channels	
	UNII Band III	IEEE 802.11a	5500 ~ 5700	11 Channels	
		IEEE 802.11n HT 20 MHz	5500 ~ 5700	11 Channels	
		IEEE 802.11n HT 40 MHz	5510 ~ 5670	5 Channels	
		IEEE 802.11ac VHT 80 MHz	5530	1 Channels	
Transmit Power		Mode	Frequency Range (MHz)	Output Power (dBm)	Output Power (w)
	UNII Band I	IEEE 802.11a	5180 – 5240	16.57	0.0454
		IEEE 802.11n HT 20 MHz	5180 – 5240	17.68	0.0586
		IEEE 802.11n HT 40 MHz	5190 ~ 5230	17.62	0.0578
		IEEE 802.11ac VHT 80 MHz	5210	14.29	0.0269
	UNII Band II	IEEE 802.11a	5260 - 5320	16.47	0.0444
		IEEE 802.11n HT 20 MHz	5260 - 5320	17.73	0.0593
		IEEE 802.11n HT 40 MHz	5270 ~ 5310	16.82	0.0481
		IEEE 802.11ac VHT 80 MHz	5290	14.57	0.0286
	UNII Band III	IEEE 802.11a	5500 ~ 5700	16.61	0.0458
		IEEE 802.11n HT 20 MHz	5500 ~ 5700	18.00	0.0631
		IEEE 802.11n HT 40 MHz	5510 ~ 5670	17.39	0.0548
		IEEE 802.11ac VHT 80 MHz	5530	14.06	0.0255
Modulation Technique	OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)				

Transmit Data Rate	IEEE 802.11a mode: OFDM (54, 48, 36, 24, 18, 12, 9, 6 Mbps) IEEE 802.11n HT 20 mode: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.9, 39, 43.3, 52, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT 40 mode: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps) IEEE 802.11ac VHT 80 Mode: OFDM (2x2 80MHz, up to 866.6Mbps)
Antenna Specification	1. Walsin / RFMTA401029IMLB703 PIFA Antenna / 3.77 dBi 2. Walsin / RFMTA340770IMLB701 PIFA Antenna / 3.68 dBi 3. Walsin / RFMTA340740IMLB701 PIFA Antenna / 3.24 dBi 4. Walsin / RFMTA340770IMLB701 PIFA Antenna / 3.68 dBi 5. Walsin / RFMTA340745IMLB701 PIFA Antenna / 2.76 dBi 6. Walsin / RFMTA34071AIMLB701 PIFA Antenna / 2.75 dBi 7. Walsin / RFMTA340745IMLB701 PIFA Antenna / 2.40 dBi

Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 Part 15.207, 15.209, 15.407, KDB 644545 D03 v01 and KDB 789033 D02 v01r01 General UNII Test Procedures New Rules v01.

The tests documented in this report were performed in accordance with IC RSS-247, IC RSS-Gen and ANSI C63.10:2013.

This submittal(s) (test report) is intended for IC Certification with Industry Canada RSS-247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

According to the requirements in ANSI C63.10: 2013, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 1.5 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.10: 2013.

3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

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

MHz	MHz	MHz	GHz
0.090 - 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 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

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

² Above 38.6

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

3.5 DESCRIPTION OF TEST MODES

The EUT (model: WCBN4503M) had been tested under operating condition.

The EUT is a 2x2 configuration spatial MIMO (2Tx & 2Rx) without beam forming function that operate in double TX chains and double RX chains. The 2x2 configuration is implemented with two outside TX & RX chains (Chain 0 and 1).

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

UNII Band I:

IEEE 802.11a for 5180 ~ 5240MHz:

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz for 5180 ~ 5240MHz:

Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz Channel for 5190 ~ 5230MHz:

Channel Low (5190MHz) and Channel High (5230MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac VHT 80 MHz Channel for 5210MHz:

Channel Mid (5210MHz) with 29.3Mbps data rate were chosen for full testing.

UNII Band II:

IEEE 802.11a for 5260 ~ 5320MHz:

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz for 5260 ~ 5320MHz:

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz for 5270 ~ 5310MHz:

Channel Low (5270MHz) and Channel High (5310MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac VHT 80 MHz for 5290MHz:

Channel Mid (5290MHz) with 29.3Mbps data rate were chosen for full testing.

UNII Band III:**IEEE 802.11a for 5500 ~ 5700MHz:**

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz for 5500 ~ 5700MHz:

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz for 5510 ~ 5670MHz:

Channel Low (5510MHz), Channel Mid (5550MHz) and Channel High (5670MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac VHT 80 MHz for 5530MHz:

Channel Mid (5530MHz) with 29.3Mbps data rate were chosen for full testing.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	12/07/2016
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	10/07/2016
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	07/07/2016
Power Sensor	Anritsu	MA2411A	0917072	07/07/2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	01/25/2016
EMI Test Receiver	R&S	ESCI	100064	06/03/2016
Bilog Antenna	Sunol Sciences	JB3	A030105	08/05/2016
Horn Antenna	EMCO	3117	00055165	01/26/2016
Horn Antenna	EMCO	3116	26370	12/24/2016
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Pre-Amplifier	MITEQ	1652-3000	1490939	08/09/2016
Pre-Amplifier	EMC	EMC 012635	980151	06/04/2016
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	12/24/2016
Coaxial Cable	Huber+Suhner	102	29212/2	12/24/2016
Coaxial Cable	Huber+Suhner	102	29406/2	12/24/2016
Test S/W	EZ-EMC (CCS-3A1RE)			

Conducted Emission room # B				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	101073	09/08/2016
LISN	R&S	ENV216	101054	06/06/2016
LISN	SCHWARZBECK	NSLK 8127	8127-541	11/22/2016
Capacitive Voltage Probe	FCC	F-CVP-1	100185	03/12/2016
Test S/W	CCS-3A1-CE			

Dynamic Frequency Selection				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4445A	MY48250198	12/07/2016
Vector Signal Generator	ROHDE&SCHWARZ	SMU200A	102239	06/11/2016

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	+/- 1.2575
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

Remark: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

- ☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029
- ☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045
- ☐ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

5.2 EQUIPMENT

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

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

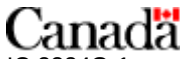
Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

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

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1	Notebook PC	IBM	7663 (T61)	L3E9812	N/A	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark:

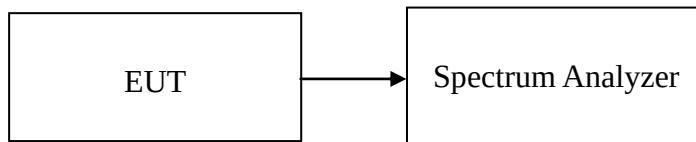
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7. FCC PART 15 REQUIREMENTS & RSS-247 REQUIREMENTS

7.1 99% BANDWIDTH

Test Configuration

TEST PROCEDURE



The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold.

TEST RESULTS

Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.7872
Mid	5220	16.7872
High	5240	16.8596

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.7279
Mid	5220	17.6555
High	5240	17.8002

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.6555
Mid	5220	17.6555
High	5240	17.6555

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.5846
High	5230	36.5846

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.3531
High	5230	36.4688

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5210	76.4109

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5210	76.1794

Test mode: IEEE 802.11a mode / 5260 ~ 5320MHz

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.7872
Mid	5280	16.8596
High	5320	16.7872

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.6555
Mid	5280	17.7279
High	5320	17.6555

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.7279
Mid	5280	17.7279
High	5320	17.7279

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.5846
High	5310	36.5846

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.3531
High	5310	36.3531

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5290	76.1794

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5290	76.1794

Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.7872
Mid	5580	16.7872
High	5700	16.8596

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.7279
Mid	5580	17.7279
High	5700	17.7279

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.7279
Mid	5580	17.7279
High	5700	17.6555

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.5846
Mid	5590	36.4688
High	5670	36.4688

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.4688
Mid	5590	36.4688
High	5670	36.8162

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530 MHz / Chain 0

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5530	76.6425

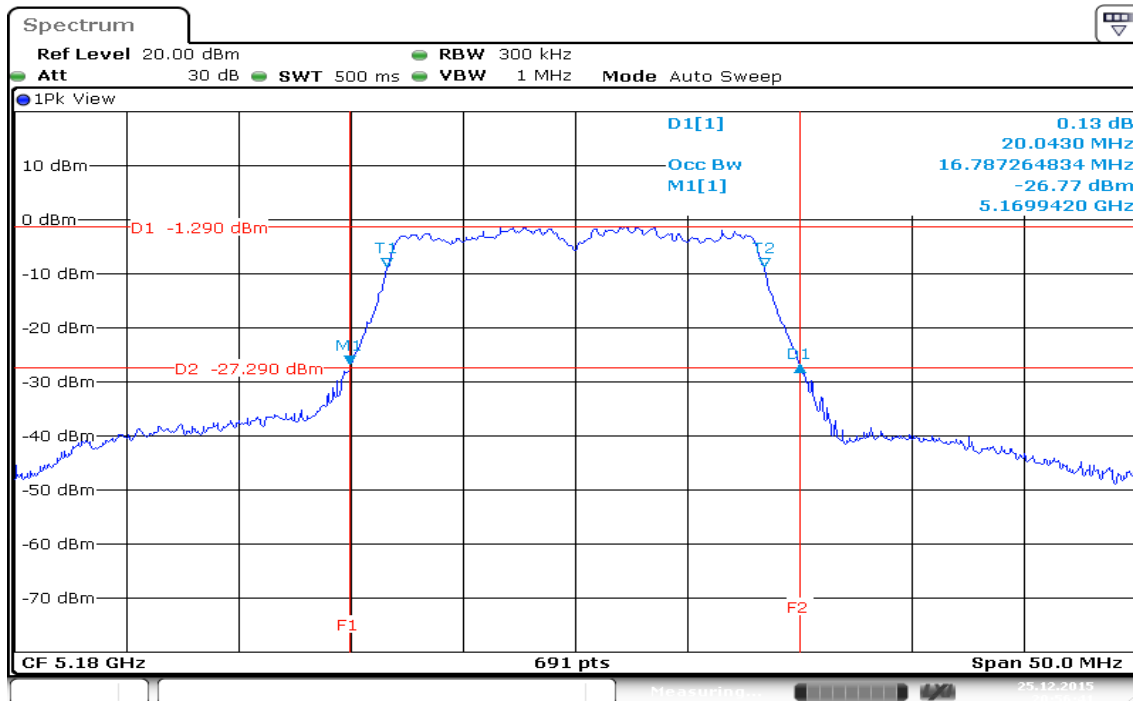
Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530 MHz / Chain 1

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5530	76.4109

Test Plot

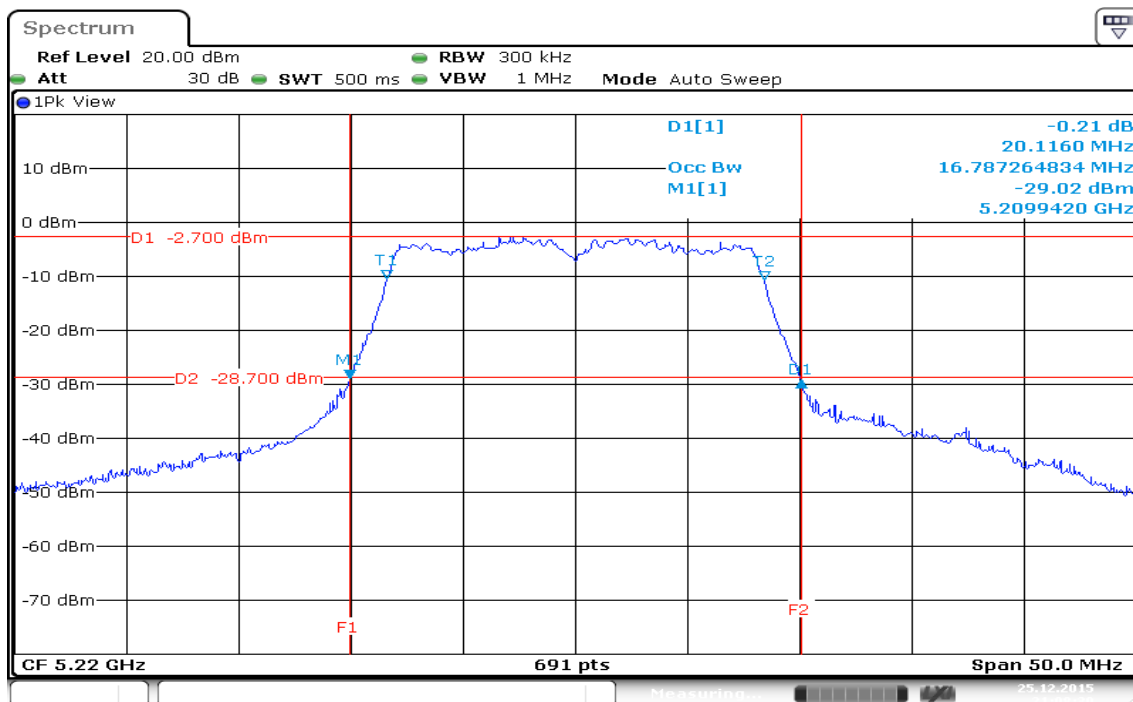
IEEE 802.11a mode / 5180 ~ 5240MHz

99% Bandwidth (CH Low)



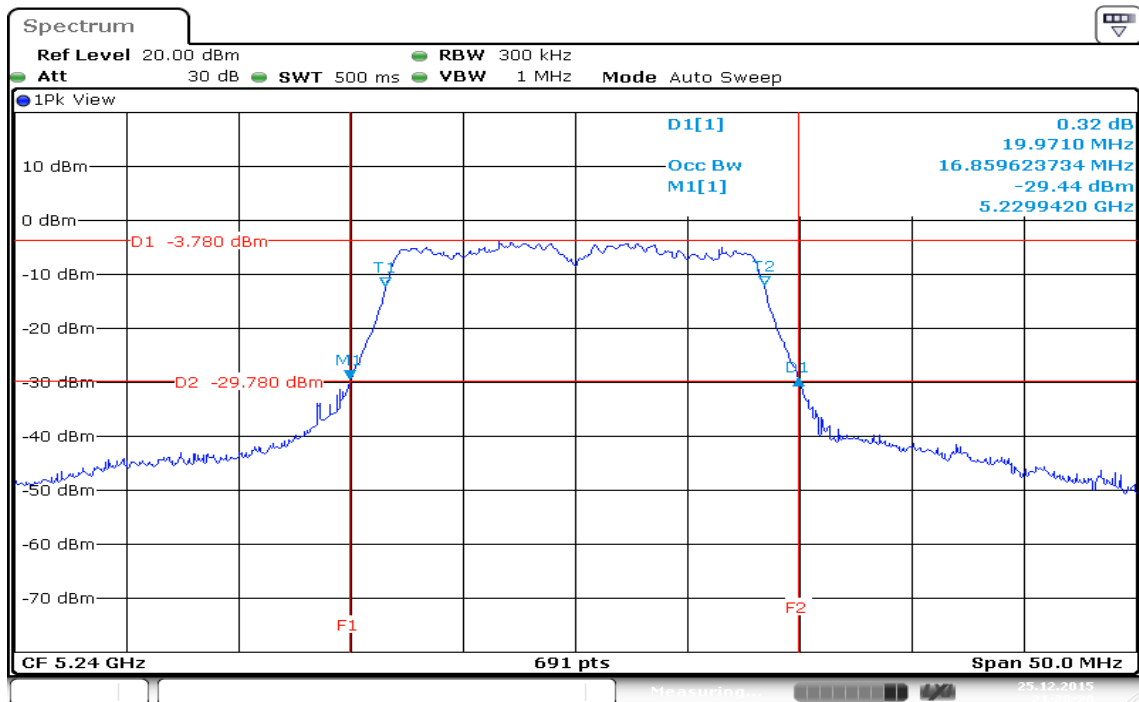
Date: 25.DEC.2015 20:56:41

99% Bandwidth (CH Mid)



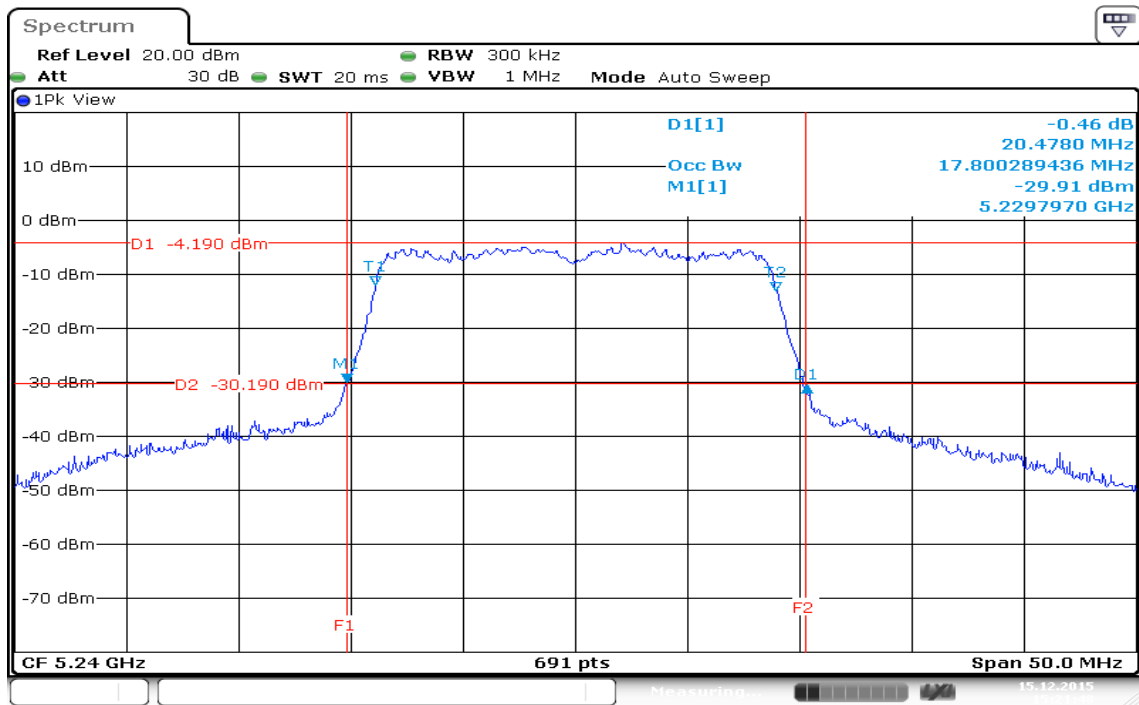
Date: 25.DEC.2015 21:08:30

99% Bandwidth (CH High)

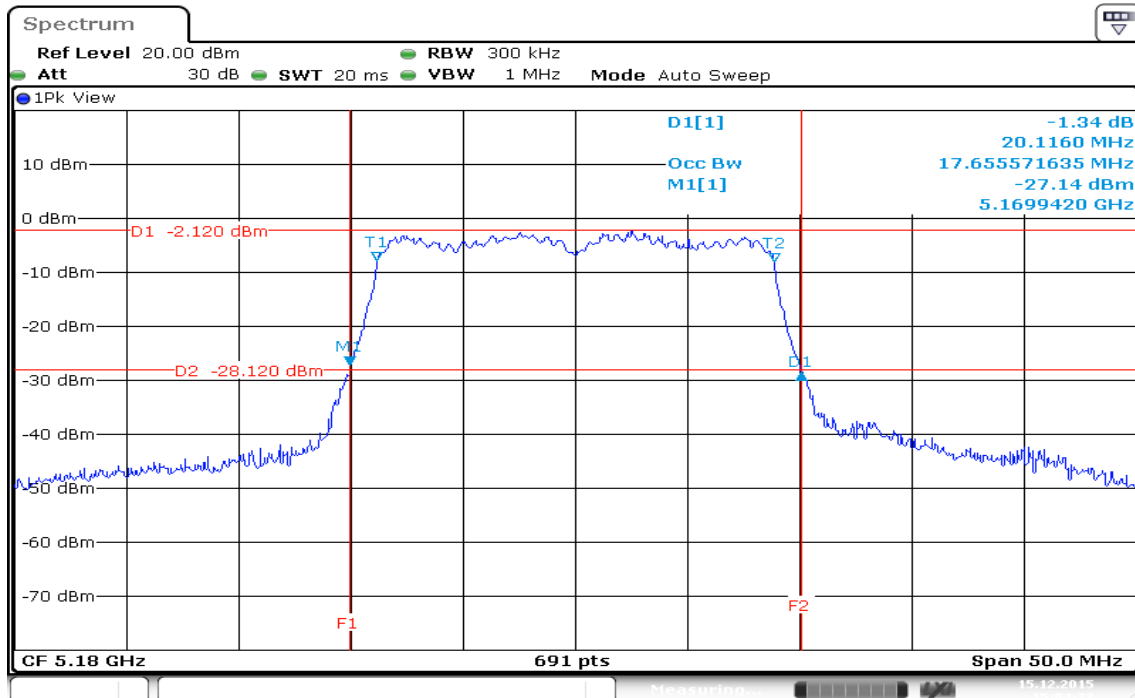


Date: 25.DEC.2015 21:20:20

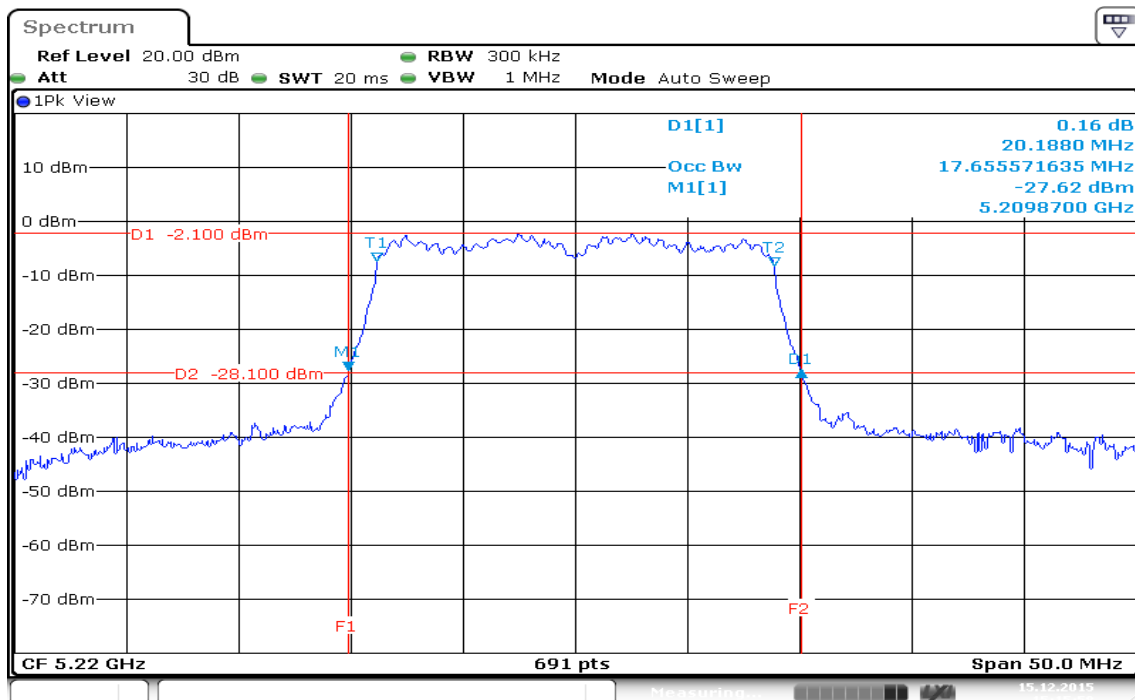
99% Bandwidth (CH High)



Date: 15.DEC.2015 15:21:48

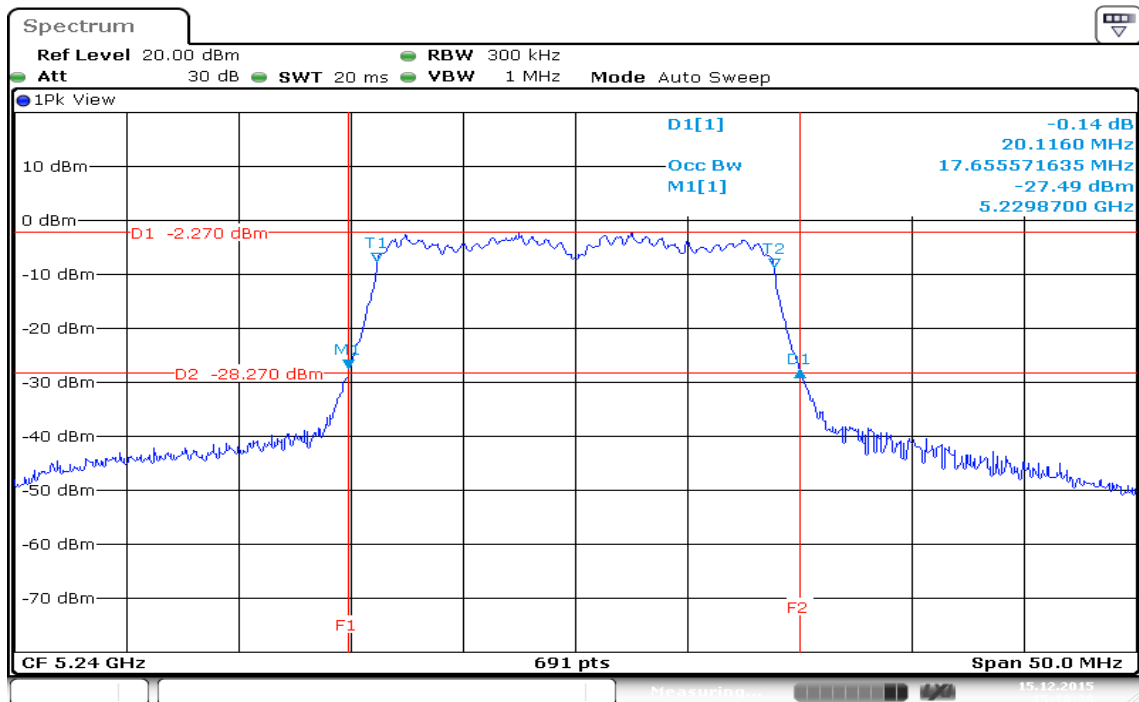
IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1**99% Bandwidth (CH Low)**

Date: 15.DEC.2015 15:04:23

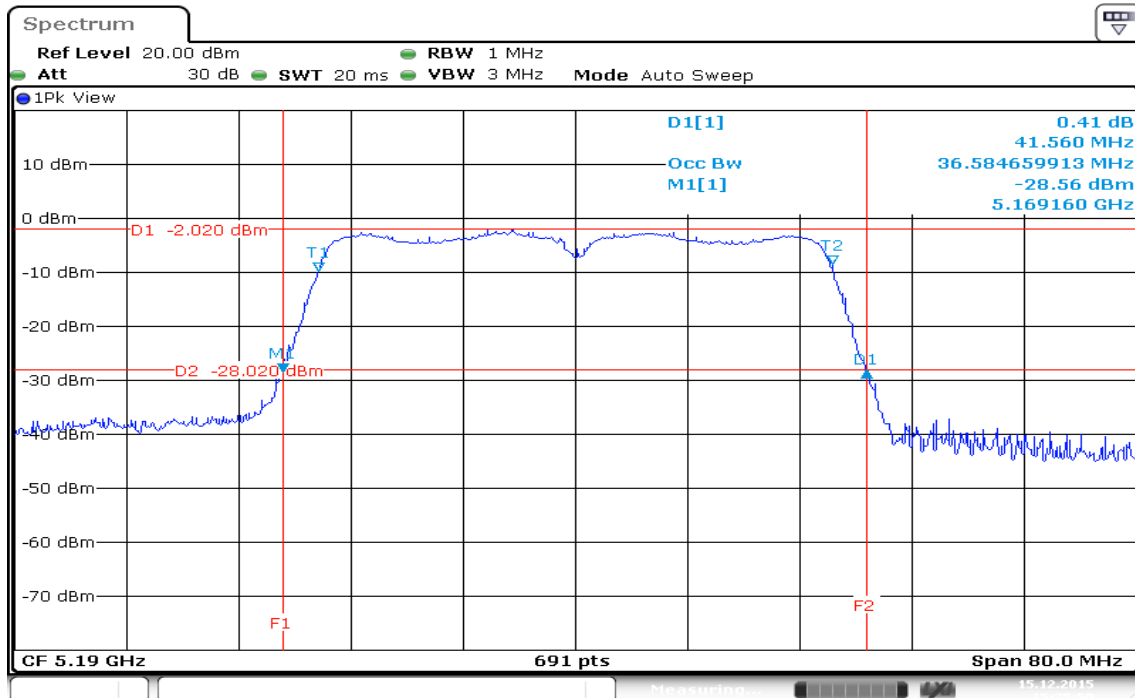
99% Bandwidth (CH Mid)

Date: 15.DEC.2015 15:15:58

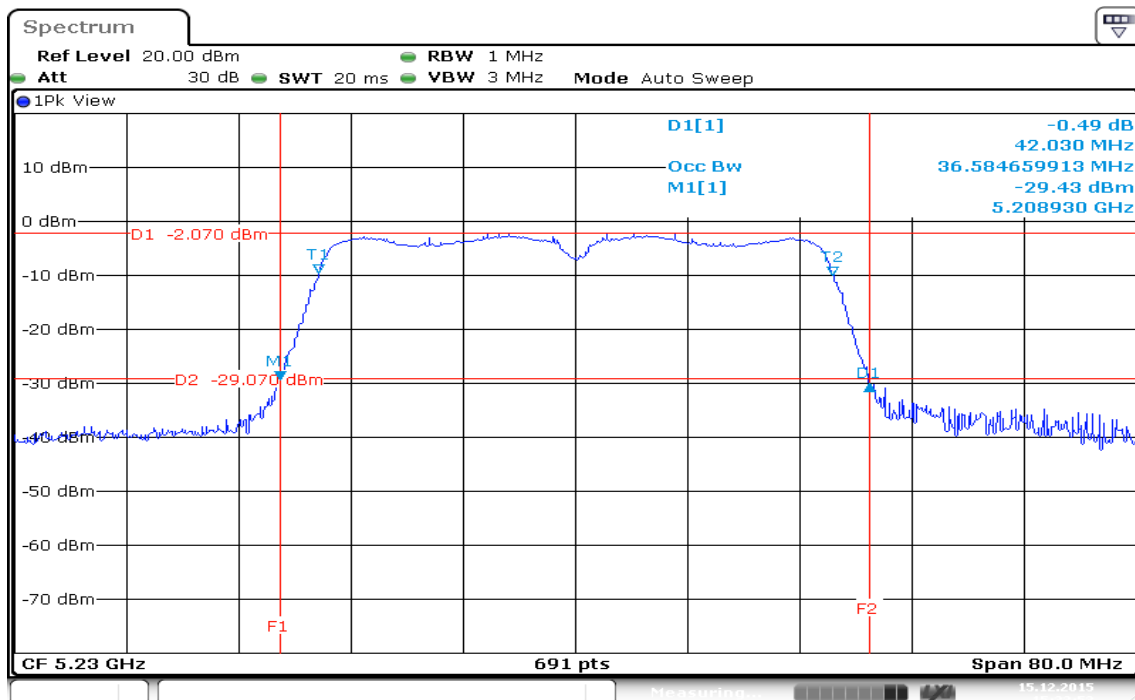
99% Bandwidth (CH High)



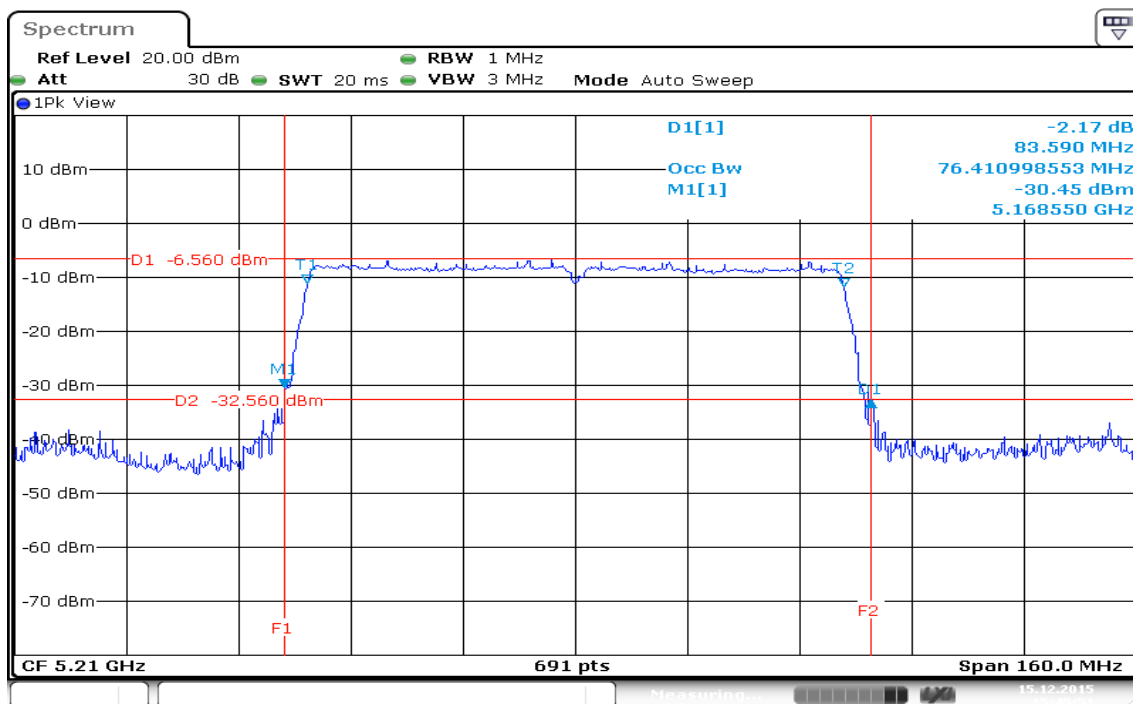
Date: 15.DEC.2015 15:18:39

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 0**99% Bandwidth (CH Low)**

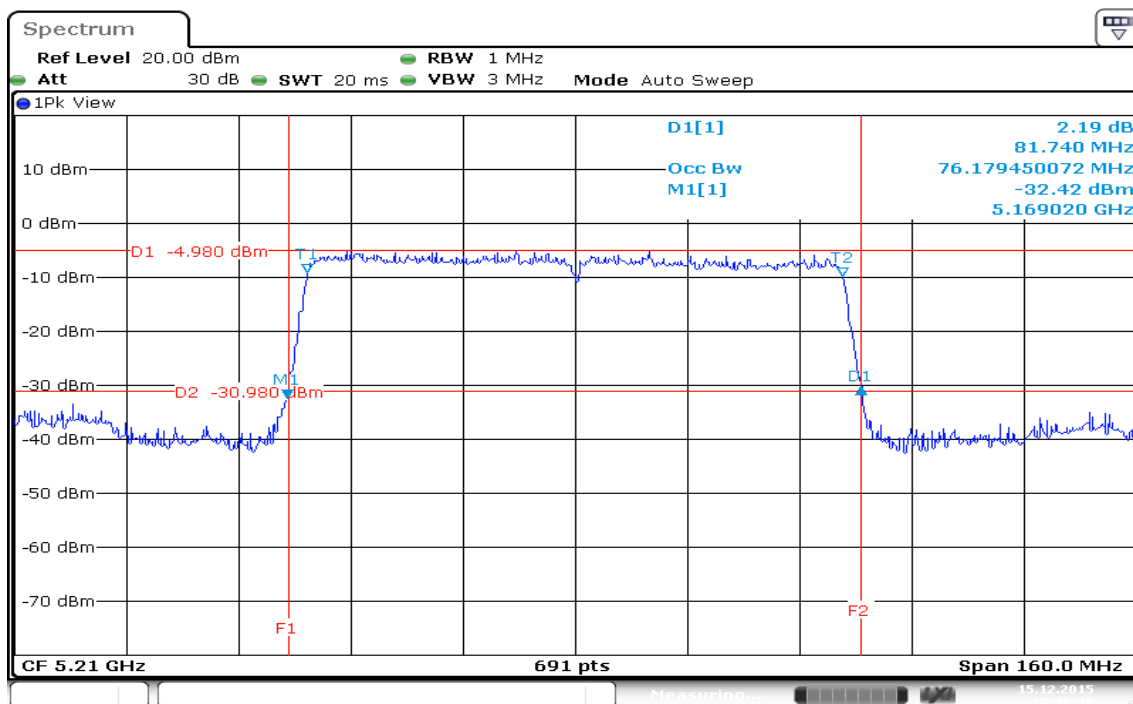
Date: 15.DEC.2015 15:25:59

99% Bandwidth (CH High)

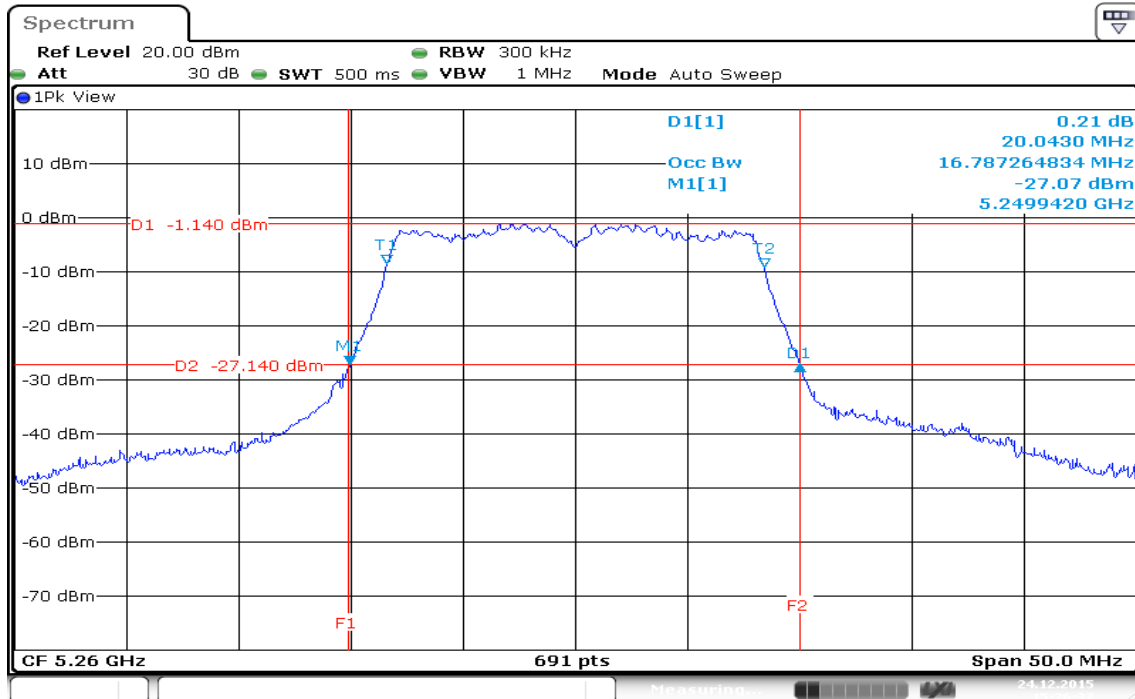
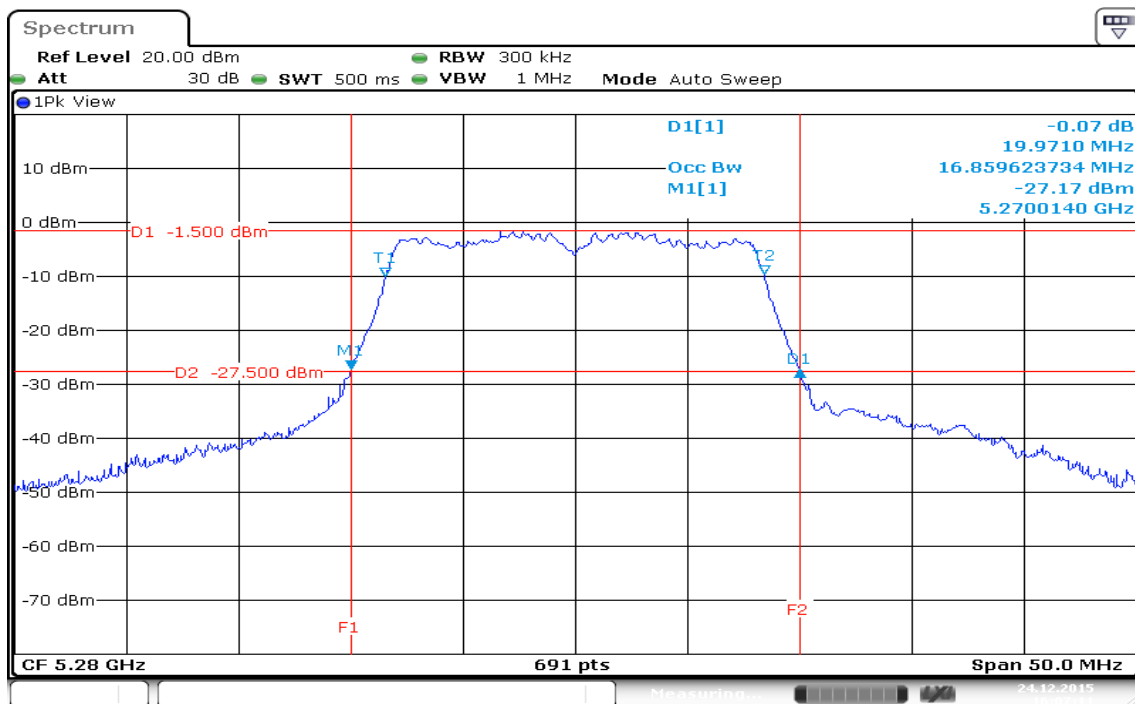
Date: 15.DEC.2015 15:33:53

IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 0**99% Bandwidth (CH Mid)**

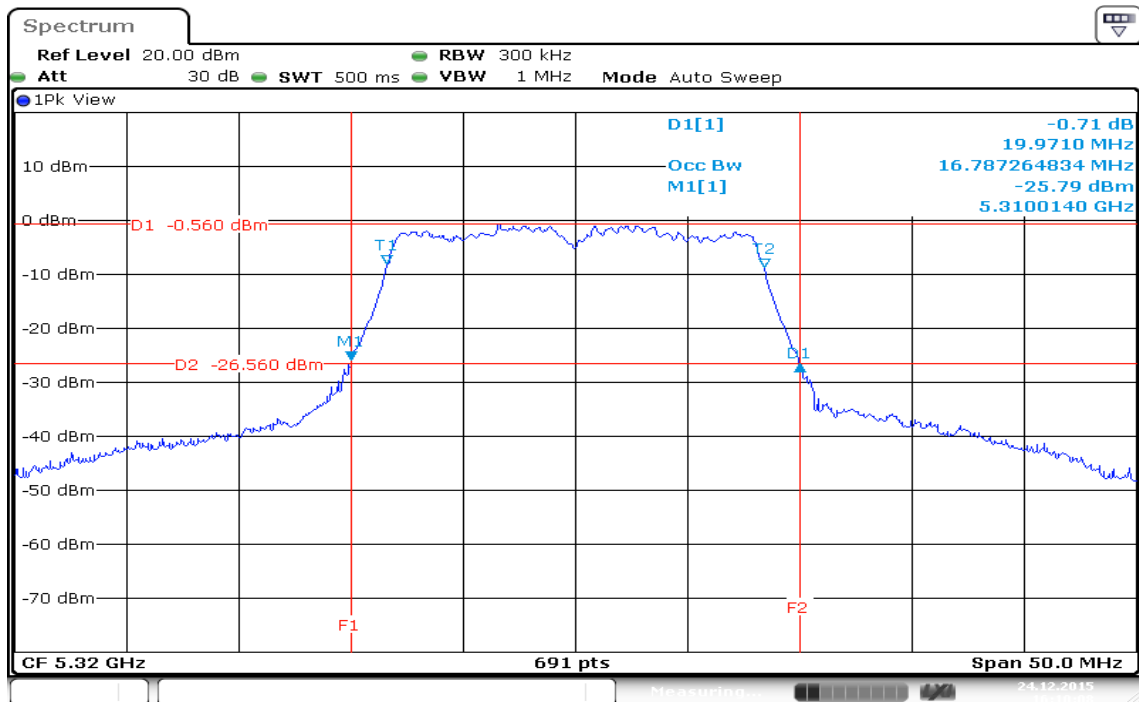
Date: 15.DEC.2015 15:45:51

IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 1**99% Bandwidth (CH Mid)**

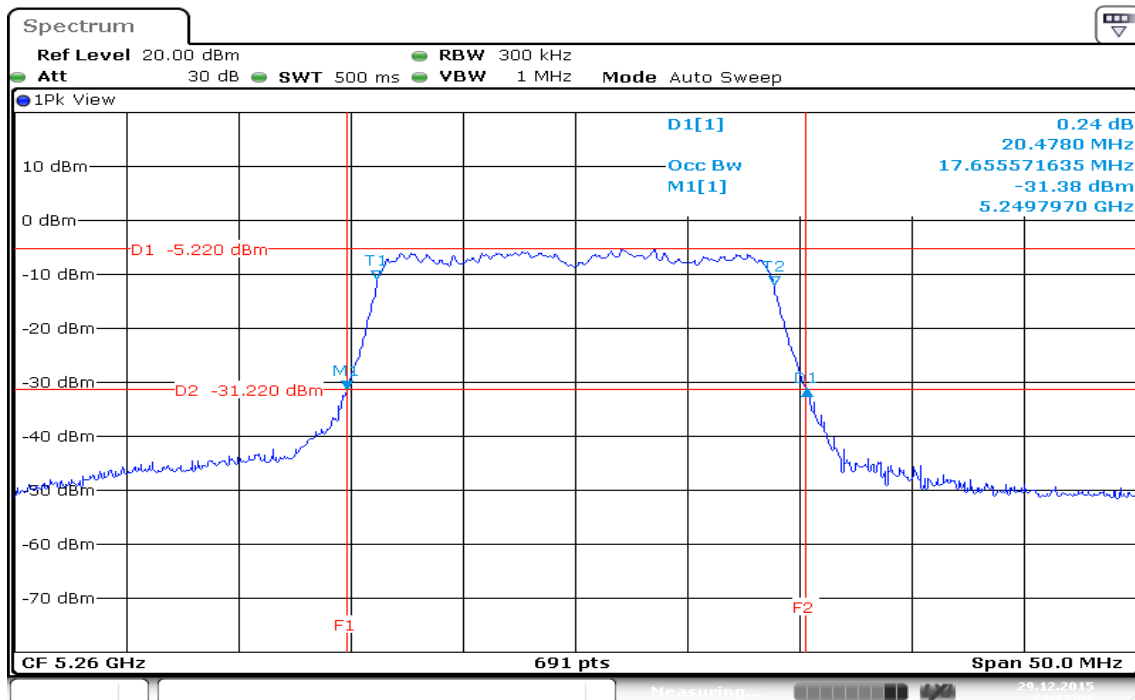
Date: 15.DEC.2015 15:48:36

IEEE 802.11a mode / 5260 ~ 5320MHz**99% Bandwidth (CH Low)****99% Bandwidth (CH Mid)**

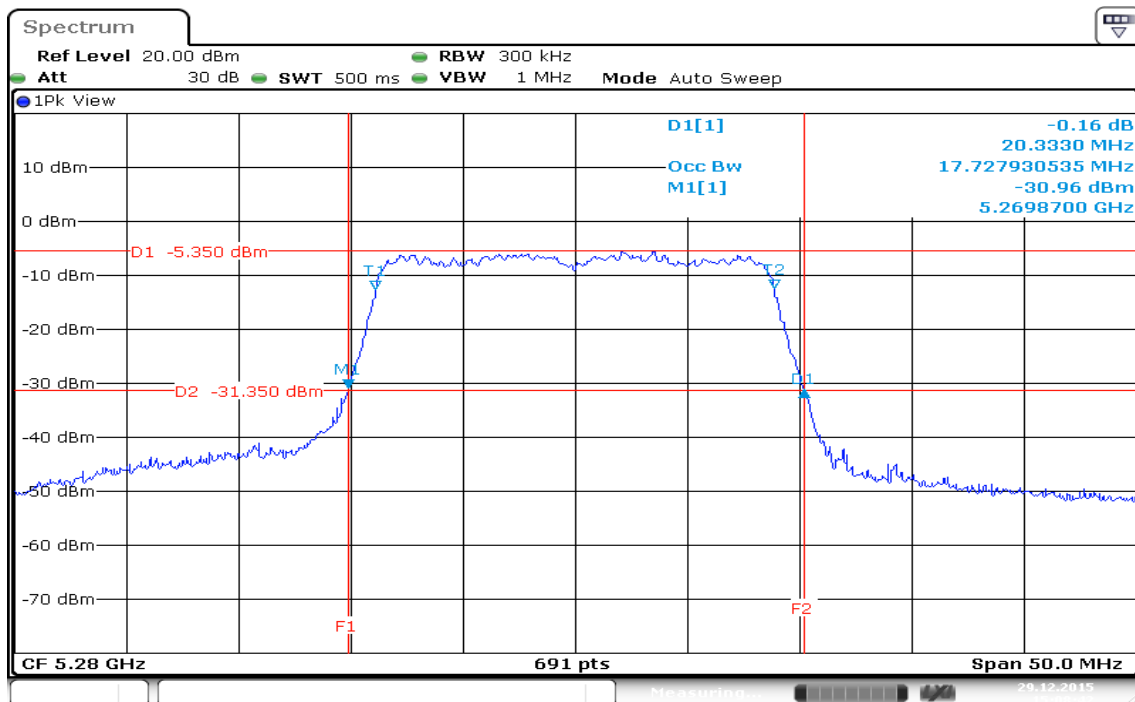
99% Bandwidth (CH High)



Date: 24.DEC.2015 16:10:08

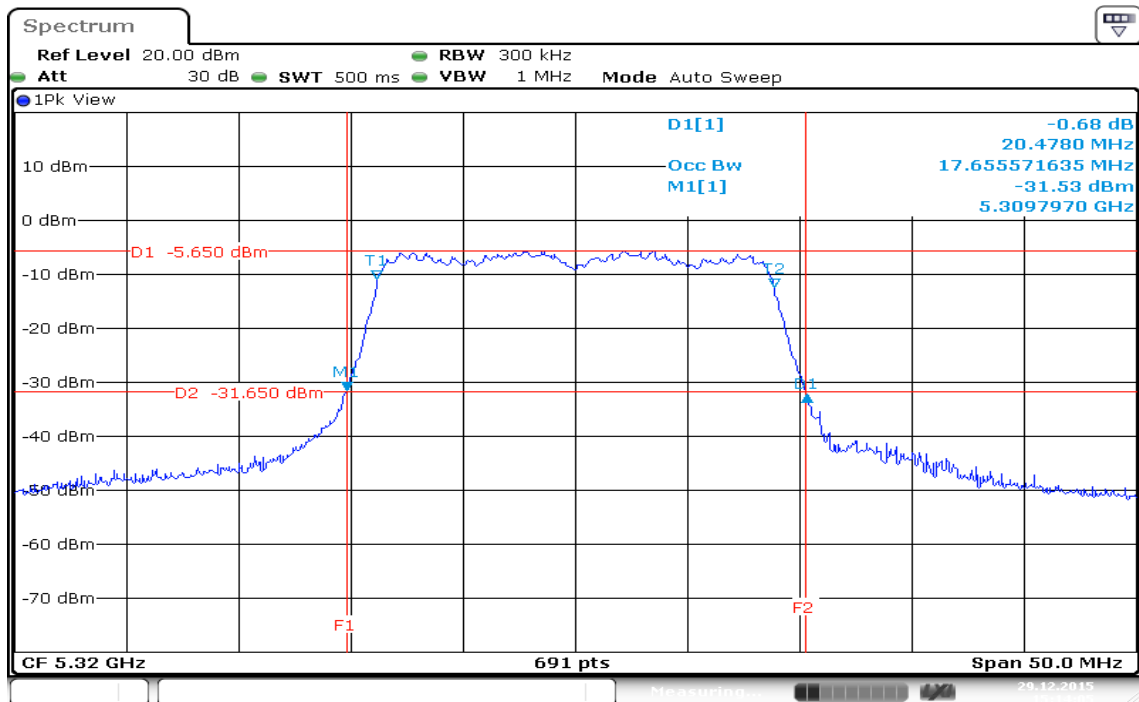
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**99% Bandwidth (CH Low)**

Date: 29.DEC.2015 14:12:04

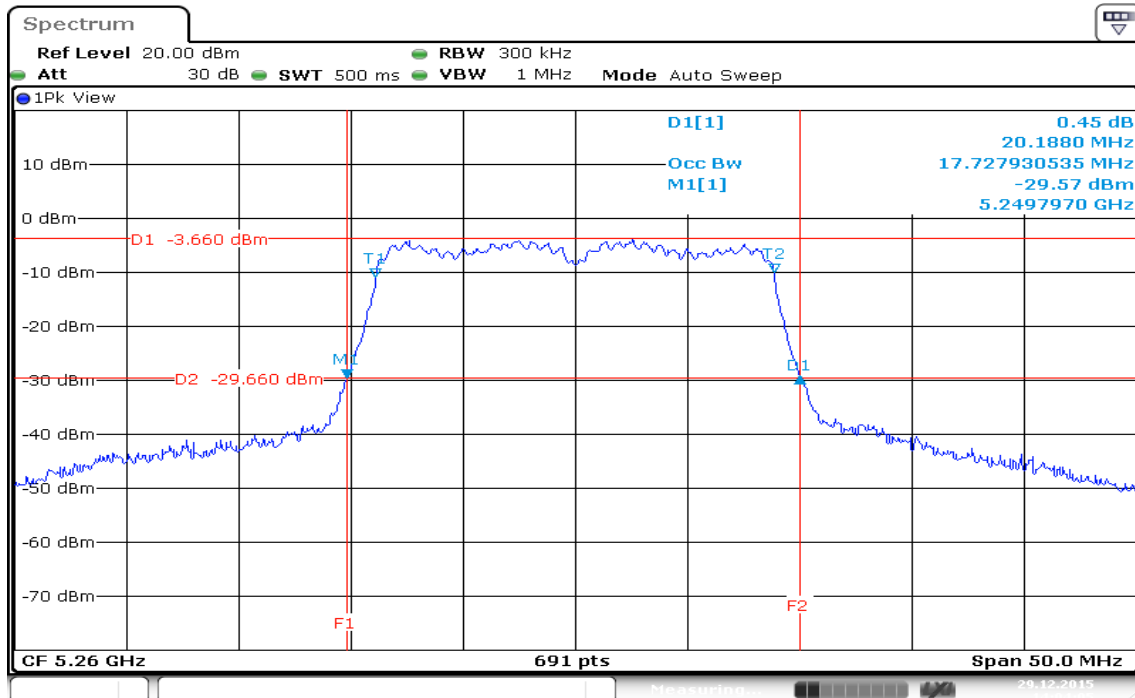
99% Bandwidth (CH Mid)

Date: 29.DEC.2015 15:08:43

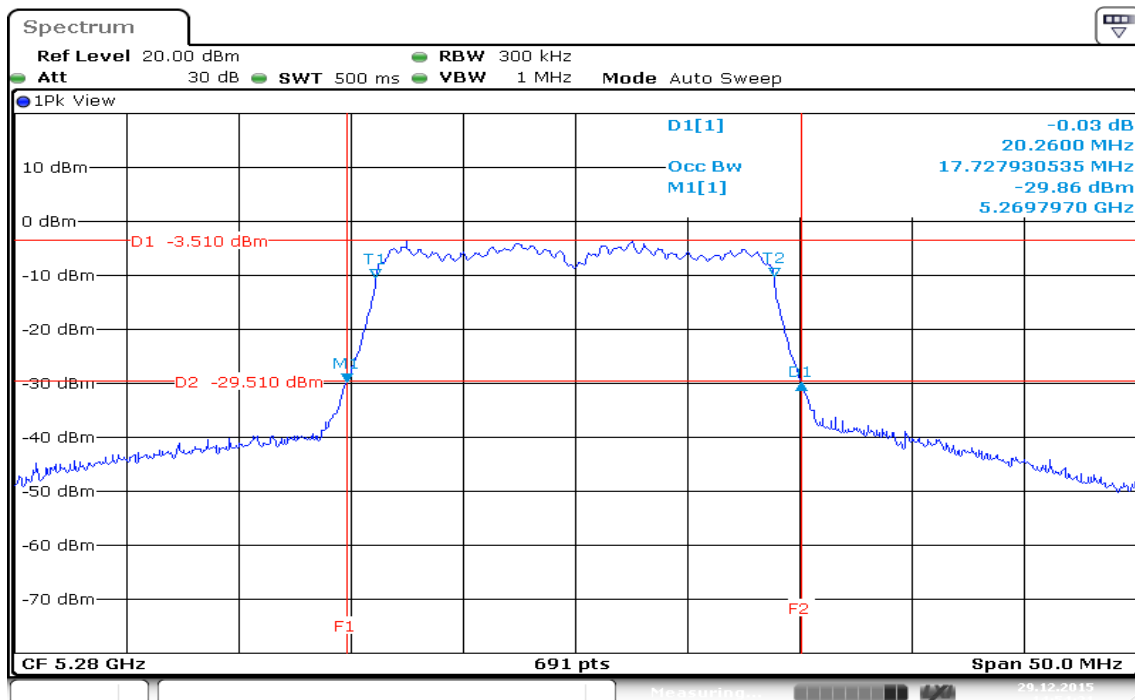
99% Bandwidth (CH High)



Date: 29.DEC.2015 15:14:05

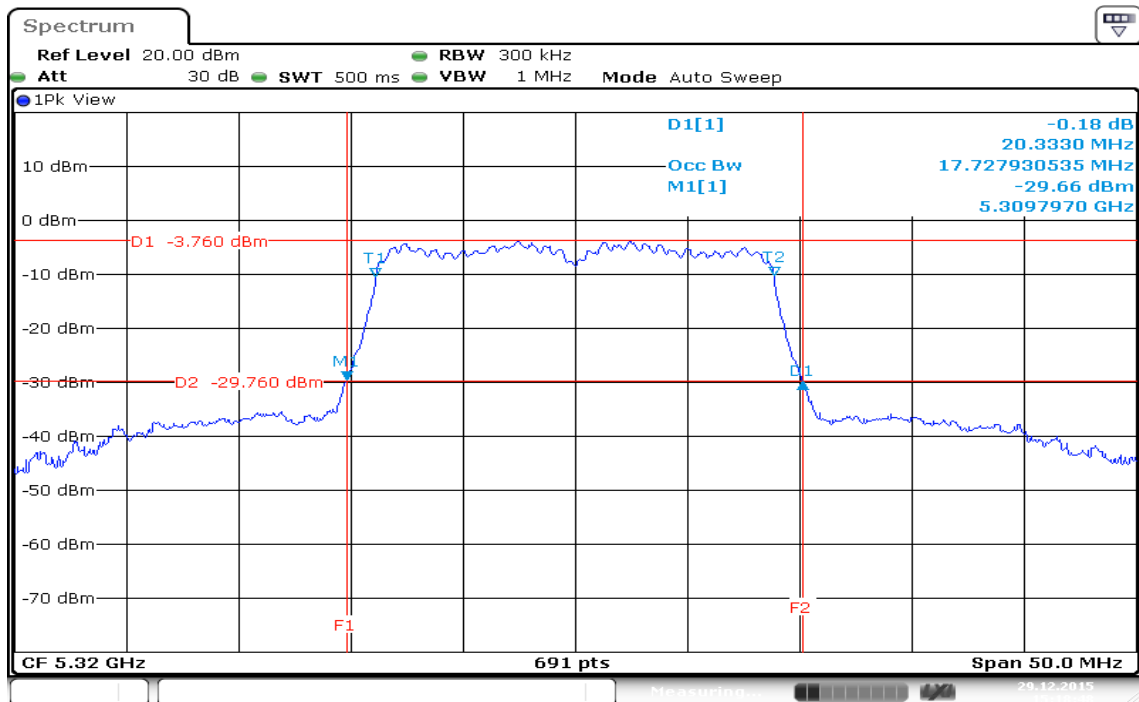
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1**99% Bandwidth (CH Low)**

Date: 29.DEC.2015 14:04:05

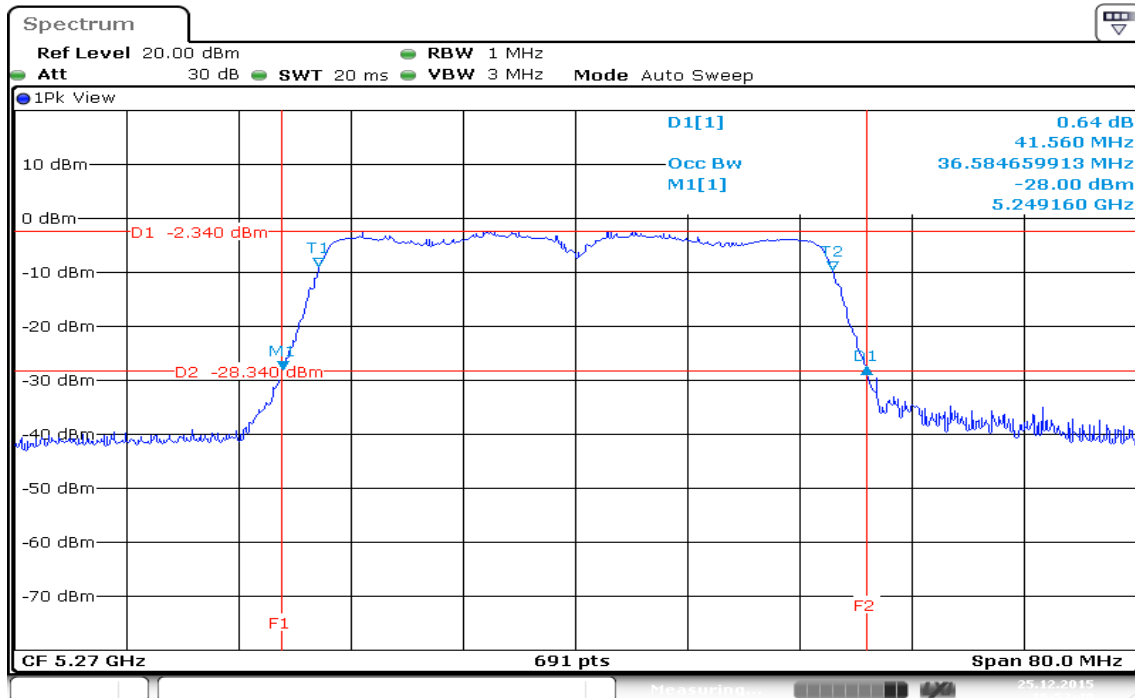
99% Bandwidth (CH Mid)

Date: 29.DEC.2015 14:54:21

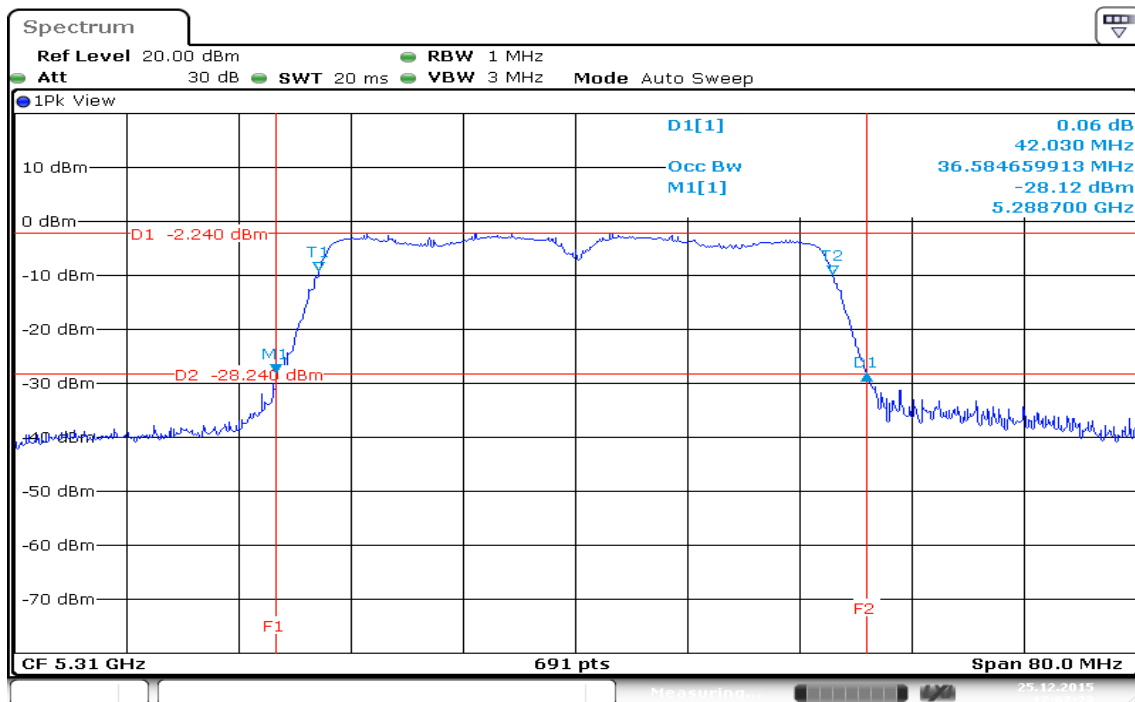
99% Bandwidth (CH High)



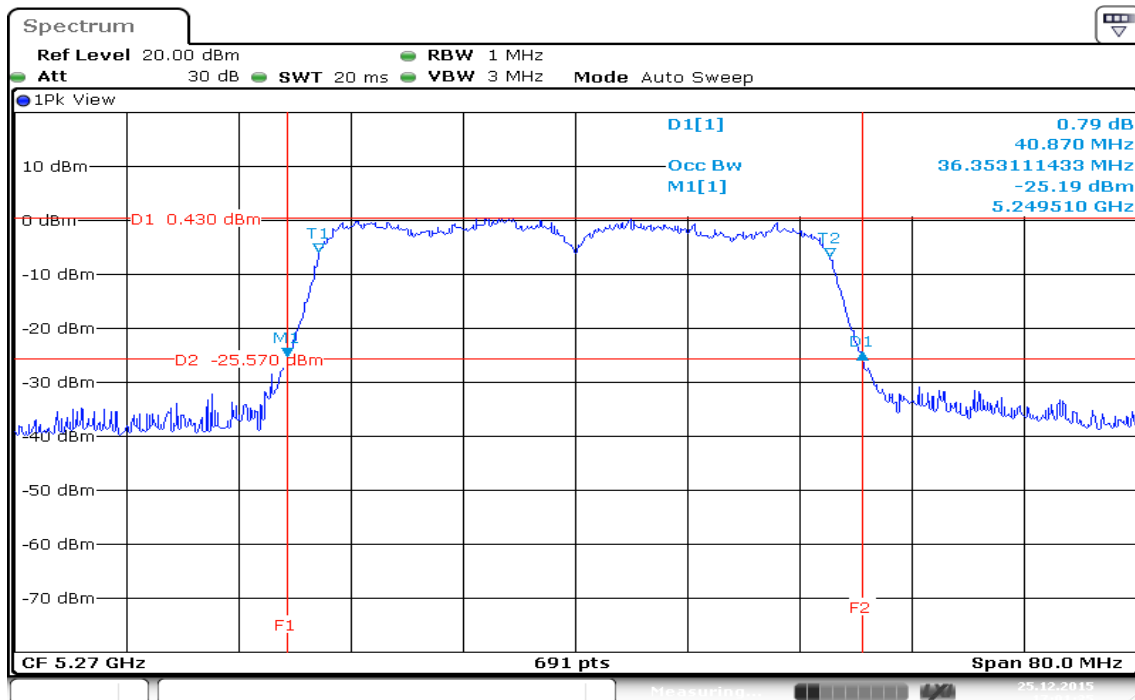
Date: 29.DEC.2015 15:18:49

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 0**99% Bandwidth (CH Low)**

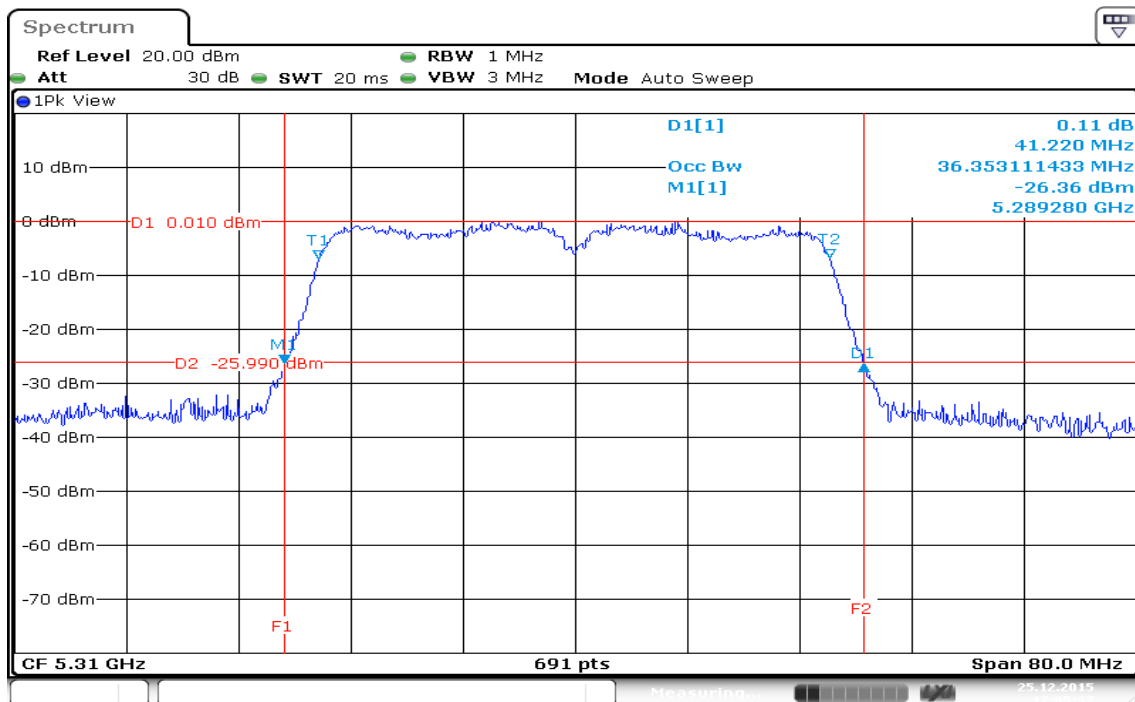
Date: 25.DEC.2015 16:52:50

99% Bandwidth (CH High)

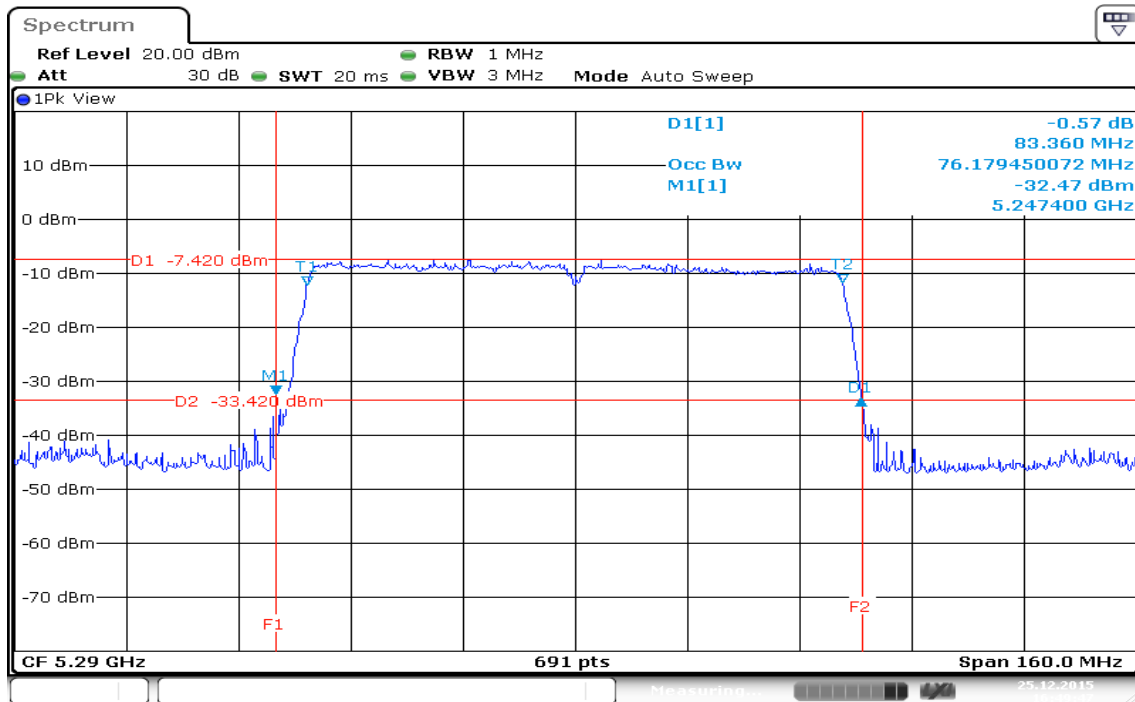
Date: 25.DEC.2015 17:07:23

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 1**99% Bandwidth (CH Low)**

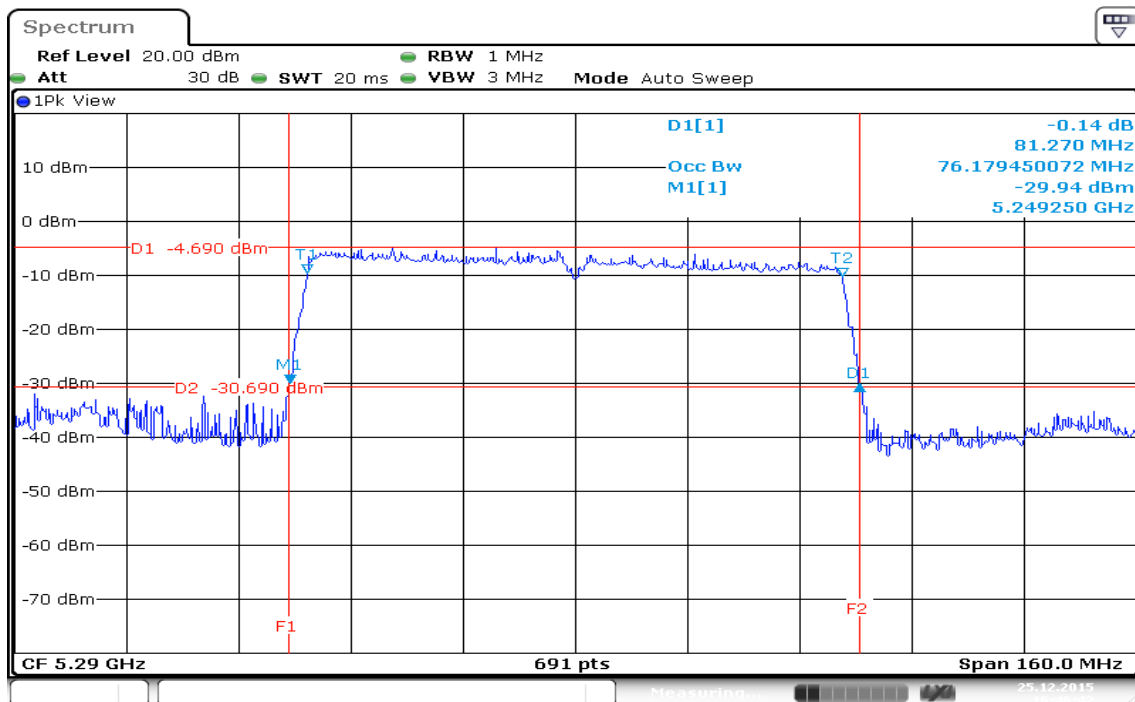
Date: 25.DEC.2015 17:01:36

99% Bandwidth (CH High)

Date: 25.DEC.2015 17:05:38

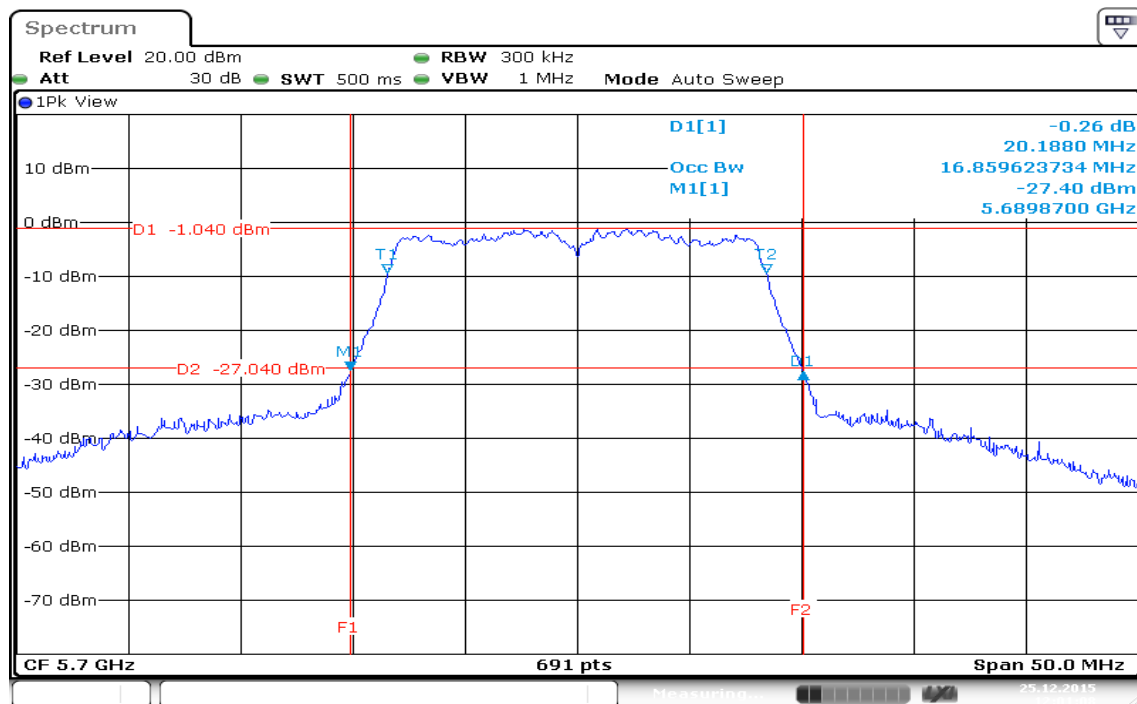
IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 0**99% Bandwidth (CH Mid)**

Date: 25.DEC.2015 16:49:47

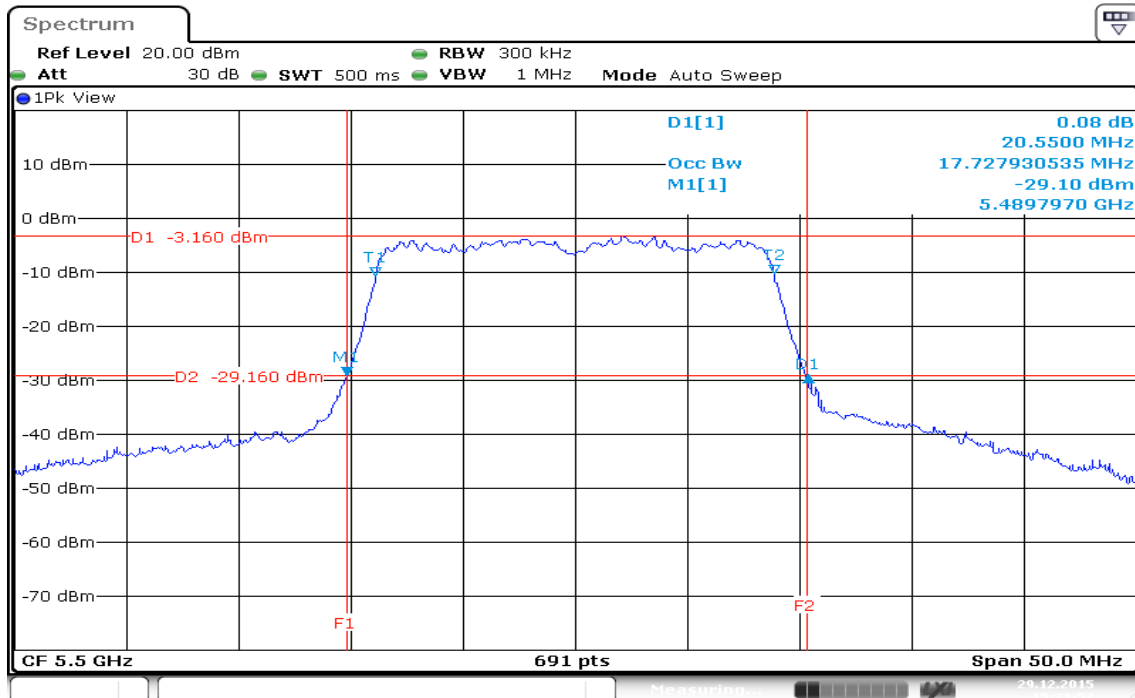
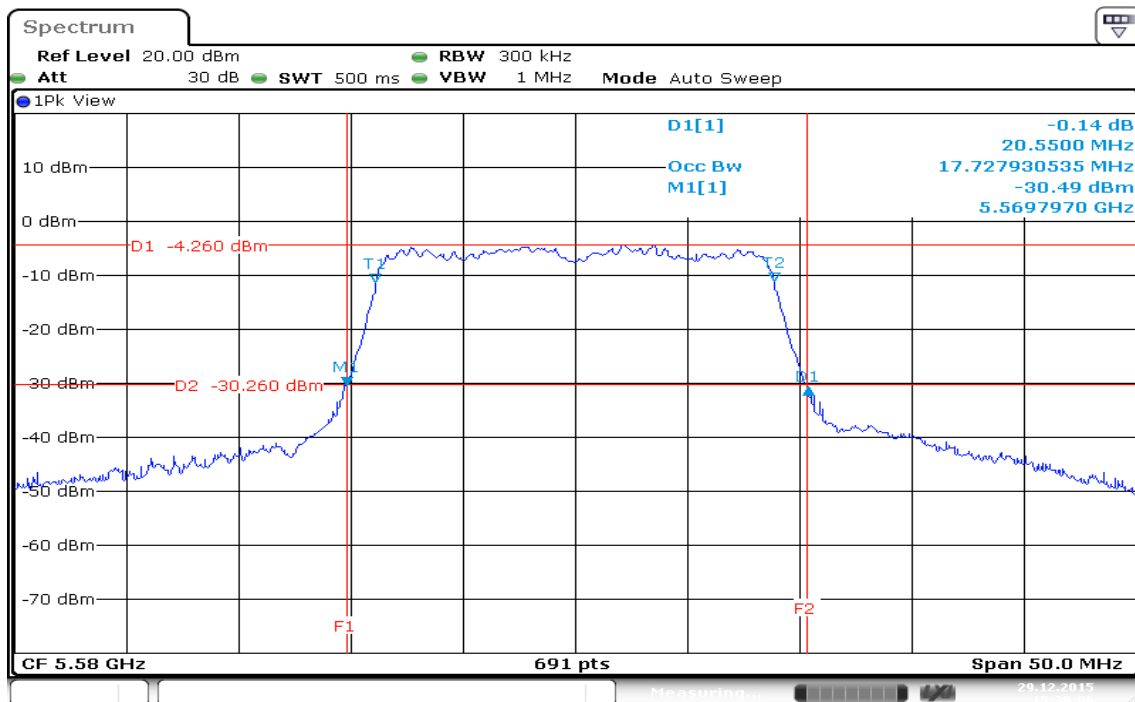
IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 1**99% Bandwidth (CH Mid)**

Date: 25.DEC.2015 16:46:43

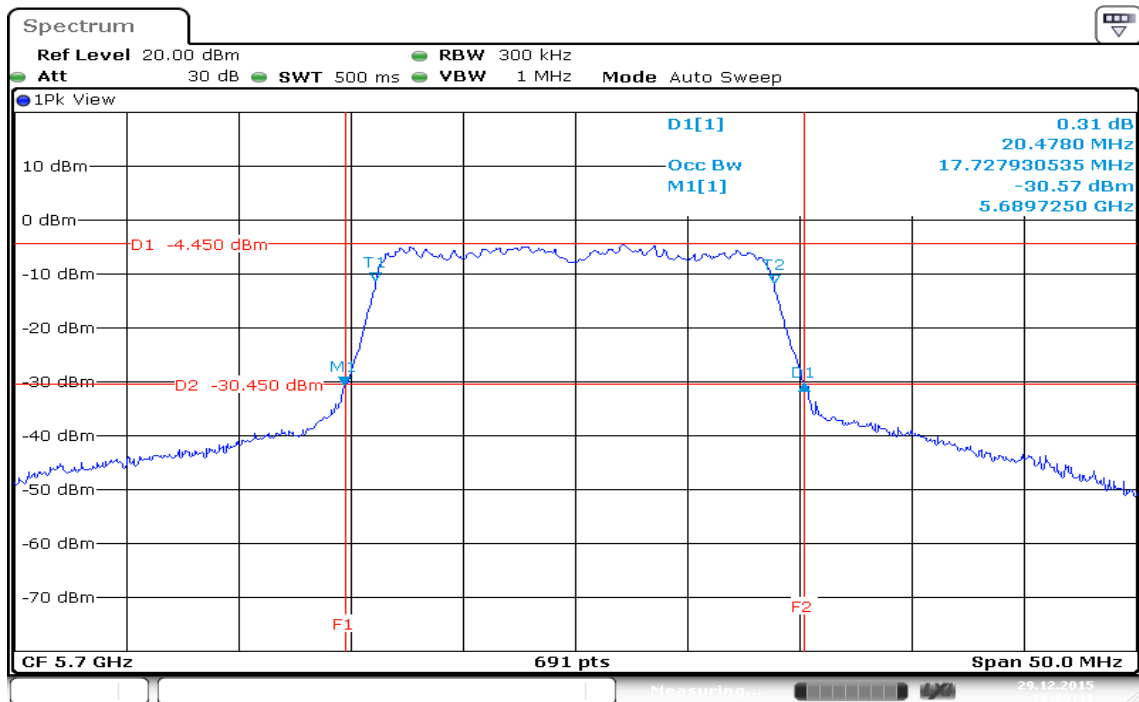
99% Bandwidth (CH High)



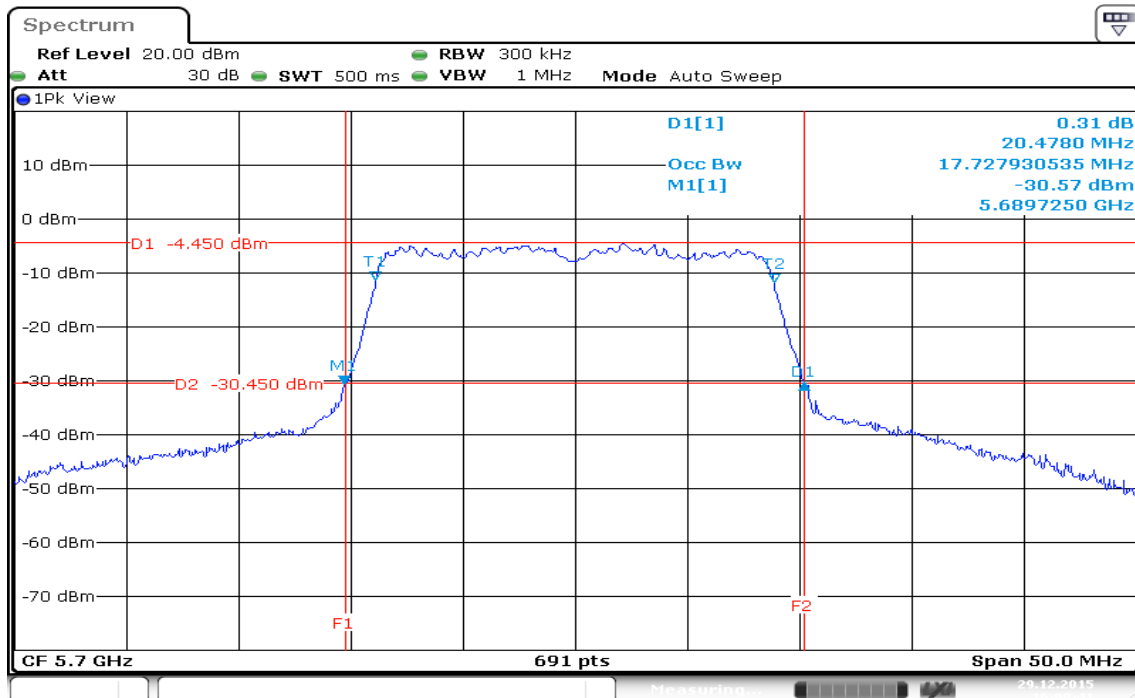
Date: 25.DEC.2015 12:01:09

IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0**99% Bandwidth (CH Low)****99% Bandwidth (CH Mid)**

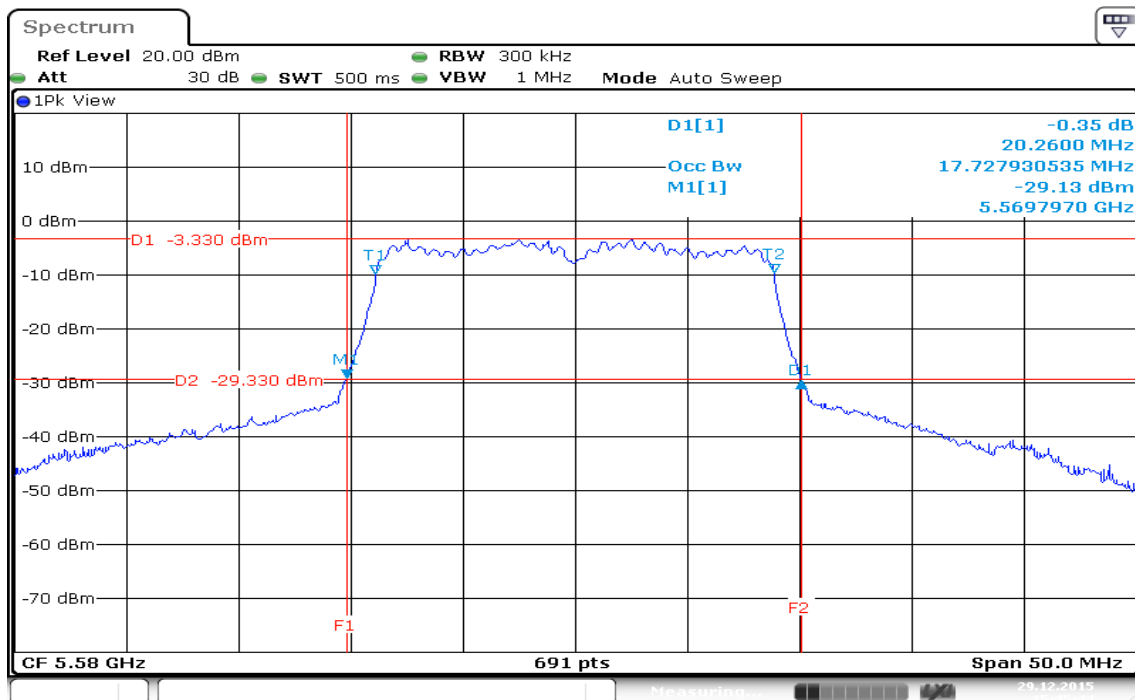
99% Bandwidth (CH High)



Date: 29.DEC.2015 16:00:42

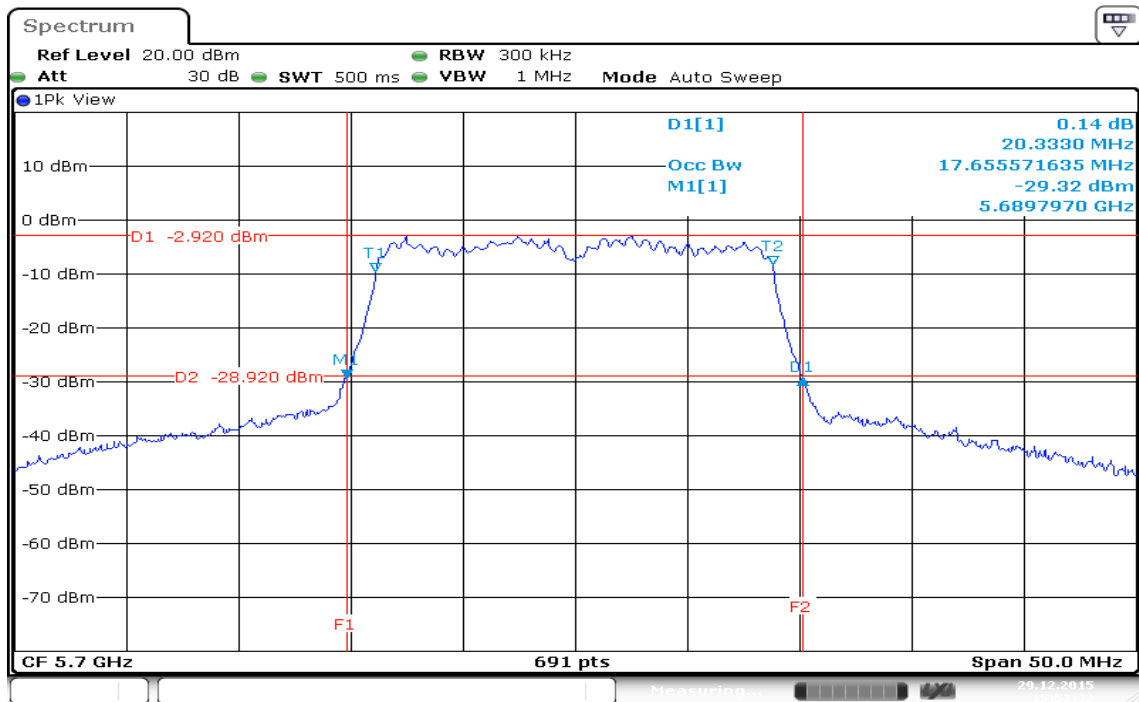
IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1**99% Bandwidth (CH Low)**

Date: 29.DEC.2015 16:00:42

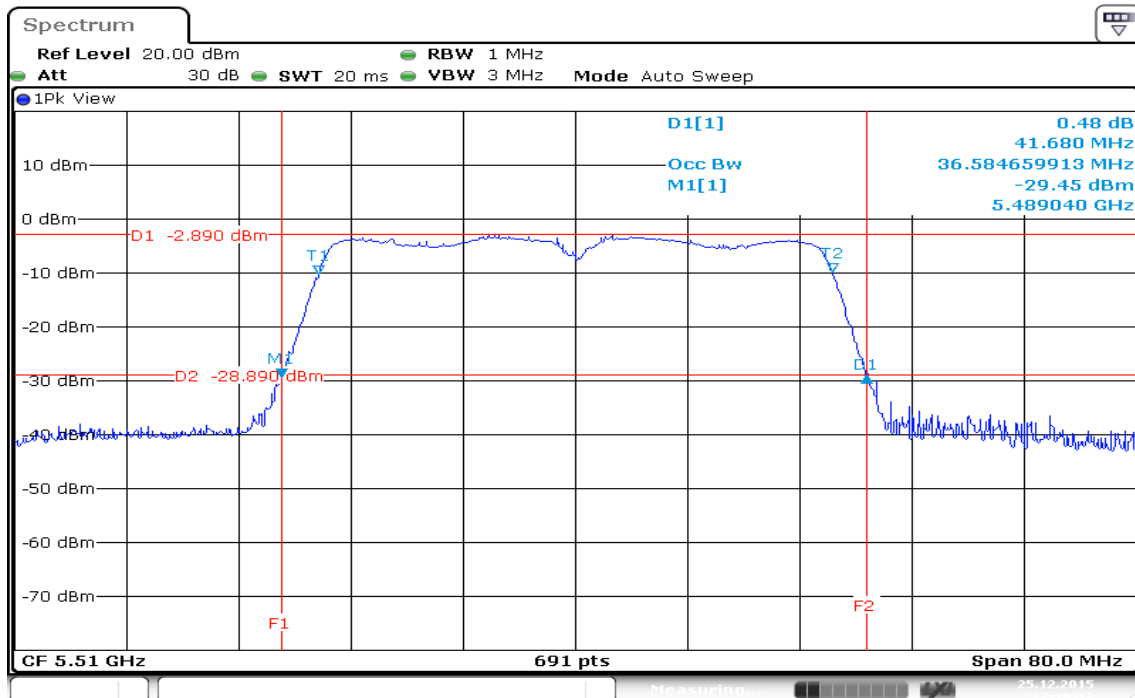
99% Bandwidth (CH Mid)

Date: 29.DEC.2015 15:45:44

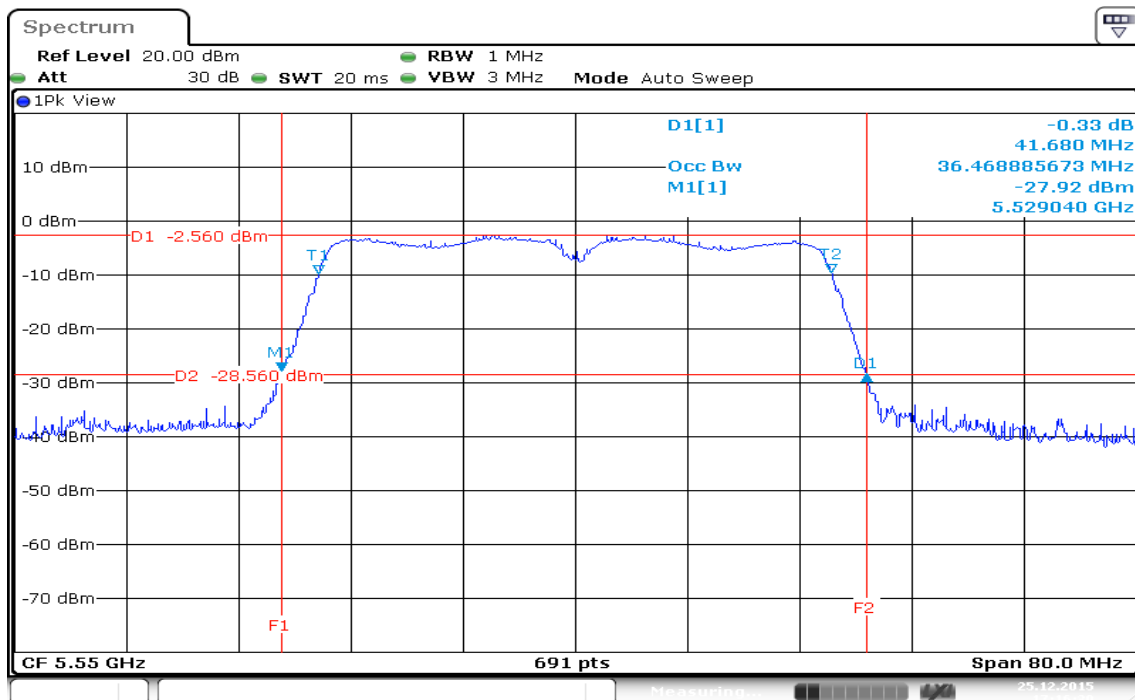
99% Bandwidth (CH High)



Date: 29.DEC.2015 15:52:23

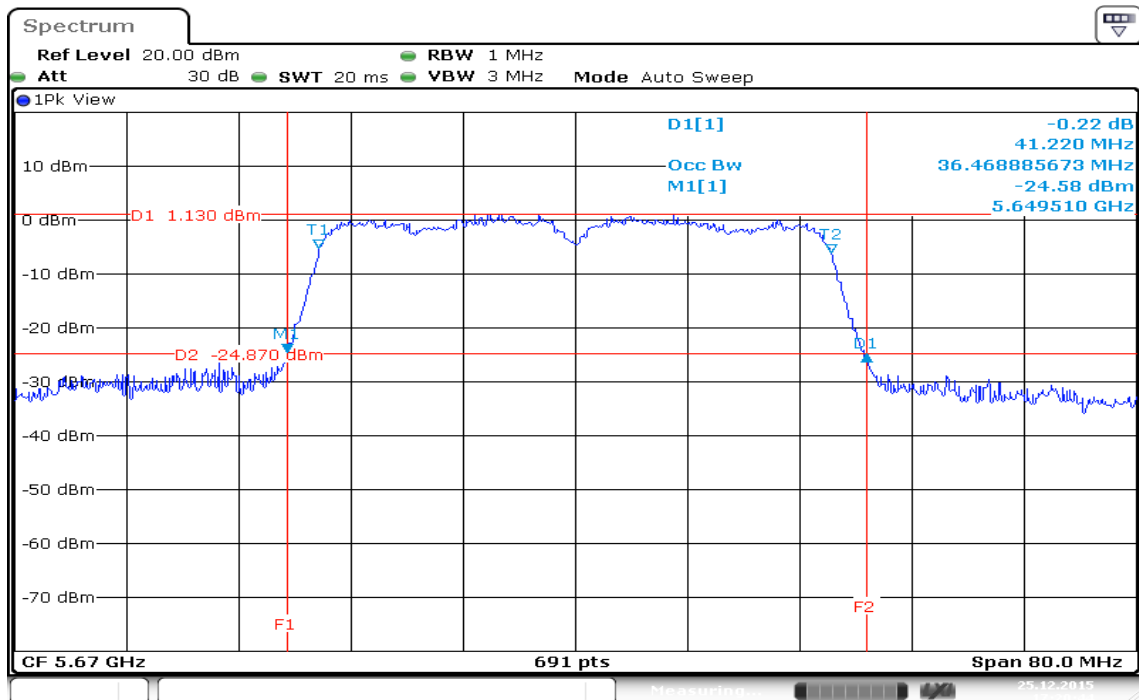
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 0**99% Bandwidth (CH Low)**

Date: 25.DEC.2015 17:10:13

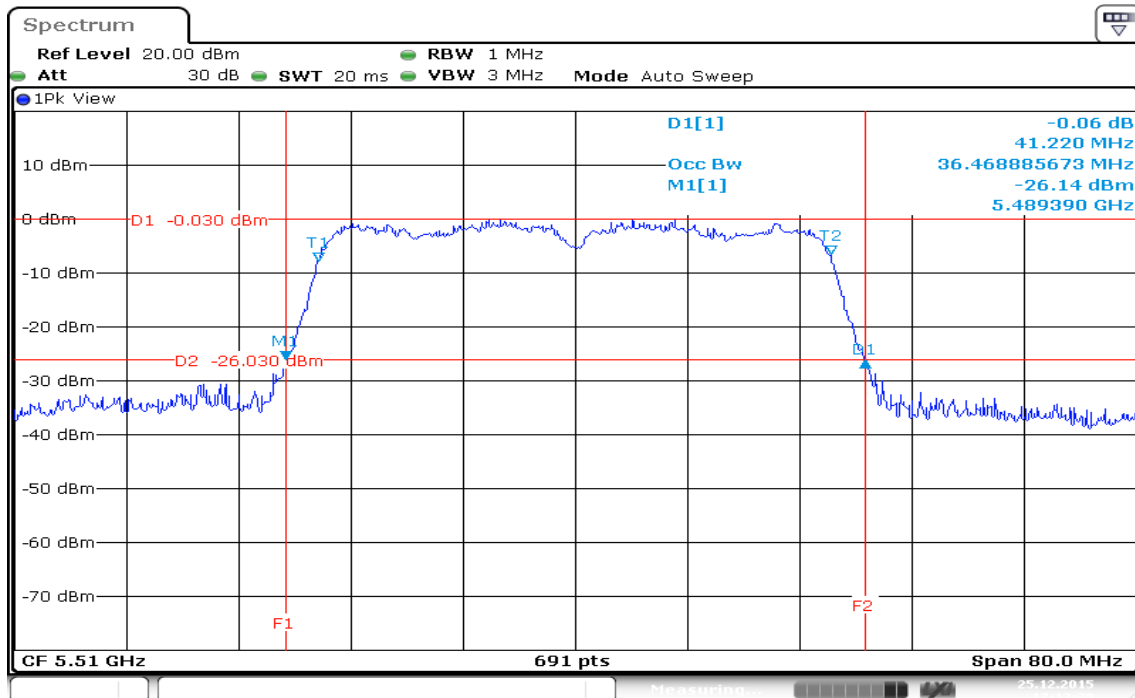
99% Bandwidth (CH Mid)

Date: 25.DEC.2015 17:16:30

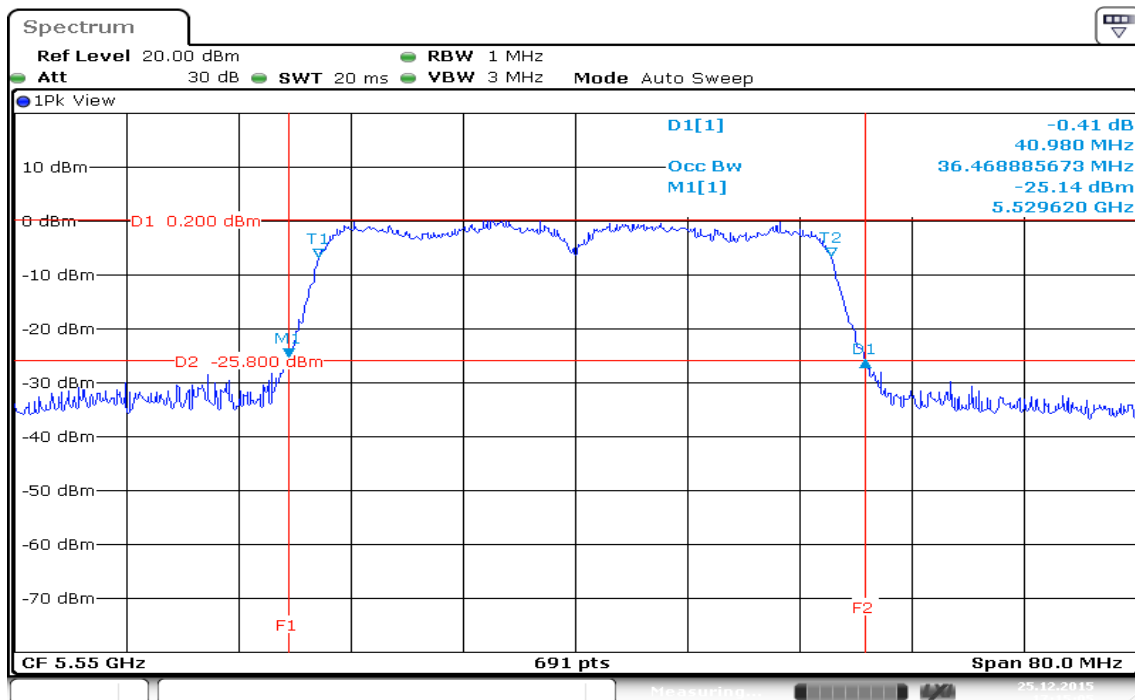
99% Bandwidth (CH High)



Date: 25.DEC.2015 17:20:45

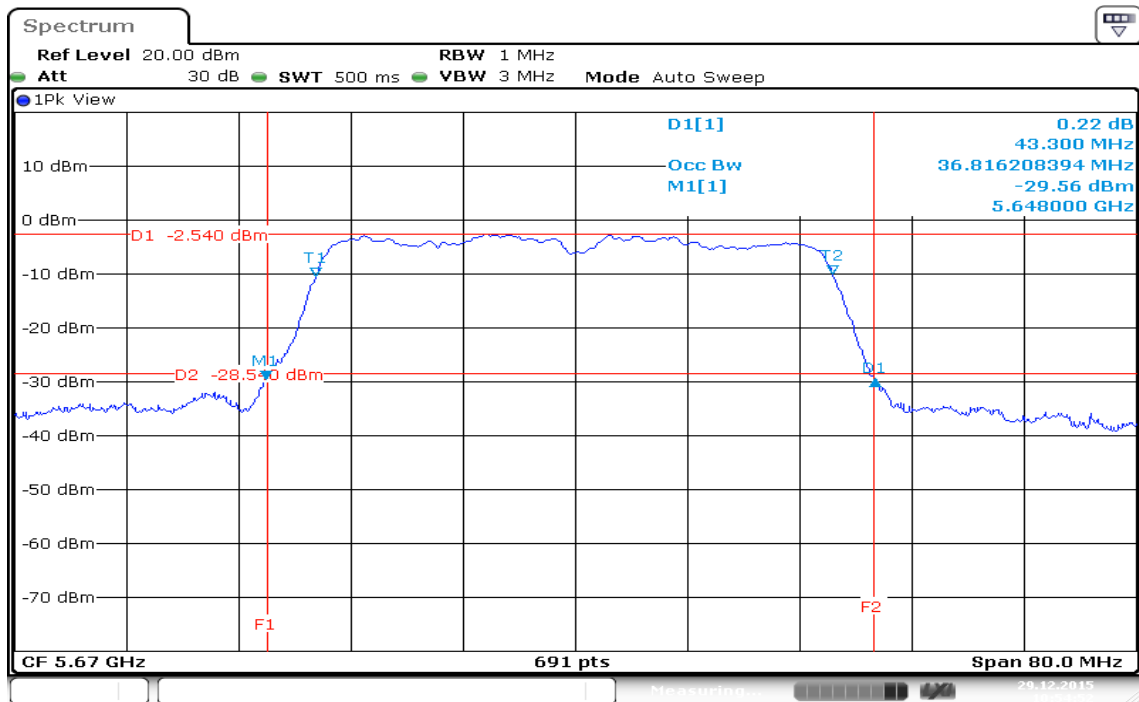
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 1**99% Bandwidth (CH Low)**

Date: 25.DEC.2015 17:12:40

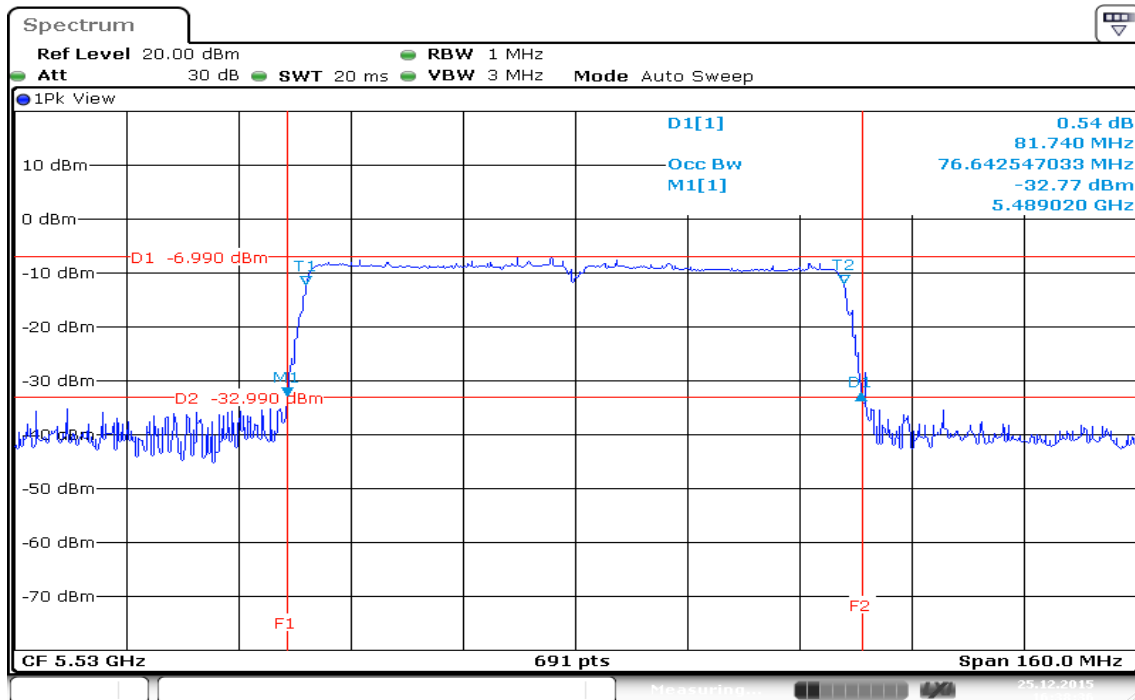
99% Bandwidth (CH Mid)

Date: 25.DEC.2015 17:15:06

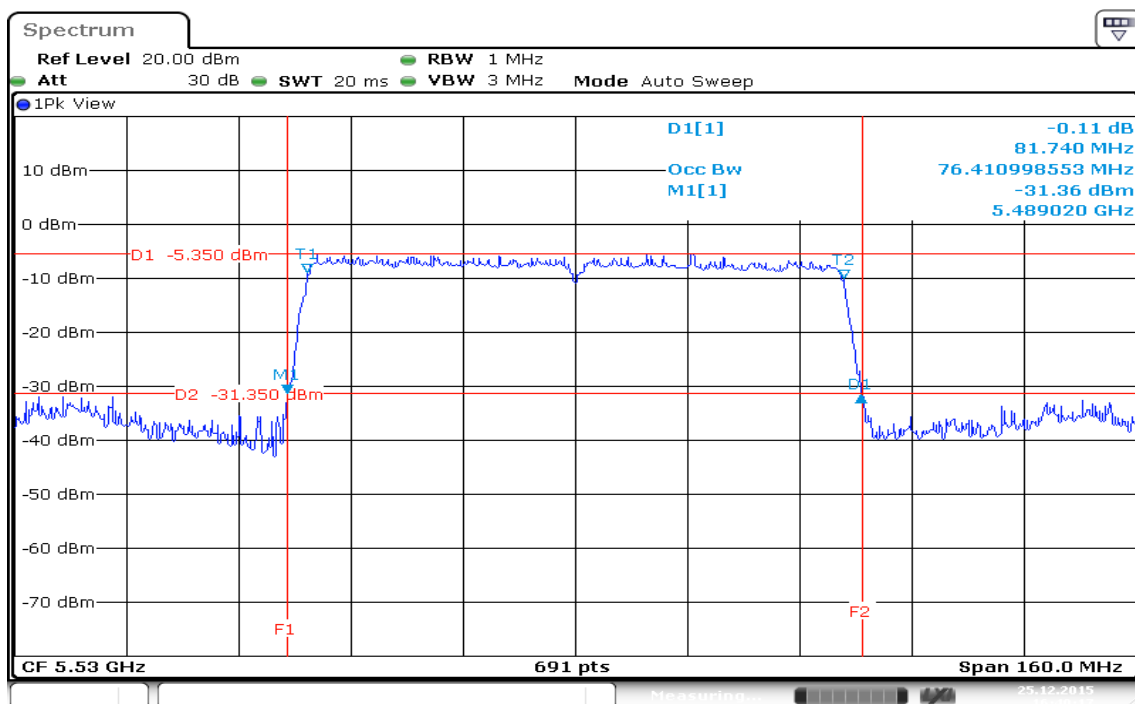
99% Bandwidth (CH High)



Date: 29.DEC.2015 10:54:52

IEEE 802.11ac VHT 80 MHz mode / 5530 MHz/ Chain 0**99% Bandwidth (CH Mid)**

Date: 25.DEC.2015 16:38:36

IEEE 802.11ac VHT 80 MHz mode / 5530 MHz/ Chain 1**99% Bandwidth (CH Mid)**

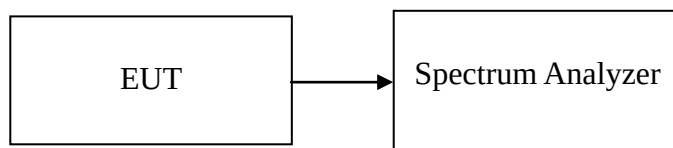
Date: 25.DEC.2015 16:40:17

7.2 26 dB EMISSION BANDWIDTH

LIMIT

Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as $RBW > 1\%EBW$, $VBW > RBW$, $Span > 26dB$ bandwidth, and Sweep = auto.
4. Mark the peak frequency and $-26dB$ (upper and lower) frequency.
5. Repeat until all the rest channels were investigated.

TEST RESULTS

No non-compliance noted

Test Data**Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz**

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.0430
Mid	5220	20.1160
High	5240	19.9710

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.4050
Mid	5220	20.4050
High	5240	20.4780

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.1160
Mid	5220	20.1880
High	5240	20.1160

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5190	41.560
High	5230	42.030

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5190	41.100
High	5230	40.870

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5210	83.590

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5210	81.740

Test mode: IEEE 802.11a mode / 5260 ~ 5320MHz

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5260	20.0430
Mid	5280	19.9710
High	5320	19.9710

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.4780
Mid	5260	20.3330
High	5320	20.4780

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.1880
Mid	5260	20.2600
High	5320	20.3330

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5270	41.560
High	5310	42.030

Test mode: IEEE 802.11n HT 40 MHz mode/ 5270 ~ 5310MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5270	40.870
High	5310	41.220

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5290	83.360

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5290	81.270

Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5500	20.0430
Mid	5580	20.1160
High	5700	20.1880

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5500	20.5500
Mid	5580	20.5500
High	5700	20.4780

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5720MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5500	20.2600
Mid	5580	20.2600
High	5700	20.3330

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5510	41.680
Mid	5590	41.680
High	5670	41.220

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5510	41.220
Mid	5590	40.980
High	5670	43.300

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530MHz / Chain 0

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5530	81.740

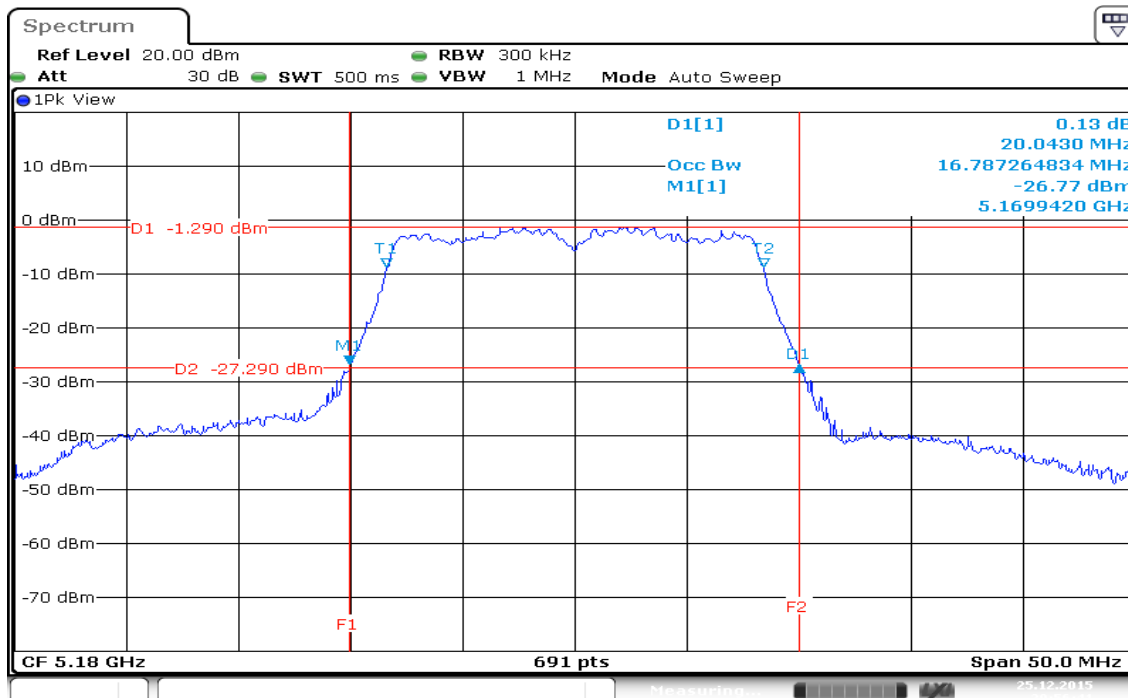
Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530MHz / Chain 1

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Mid	5530	81.740

Test Plot

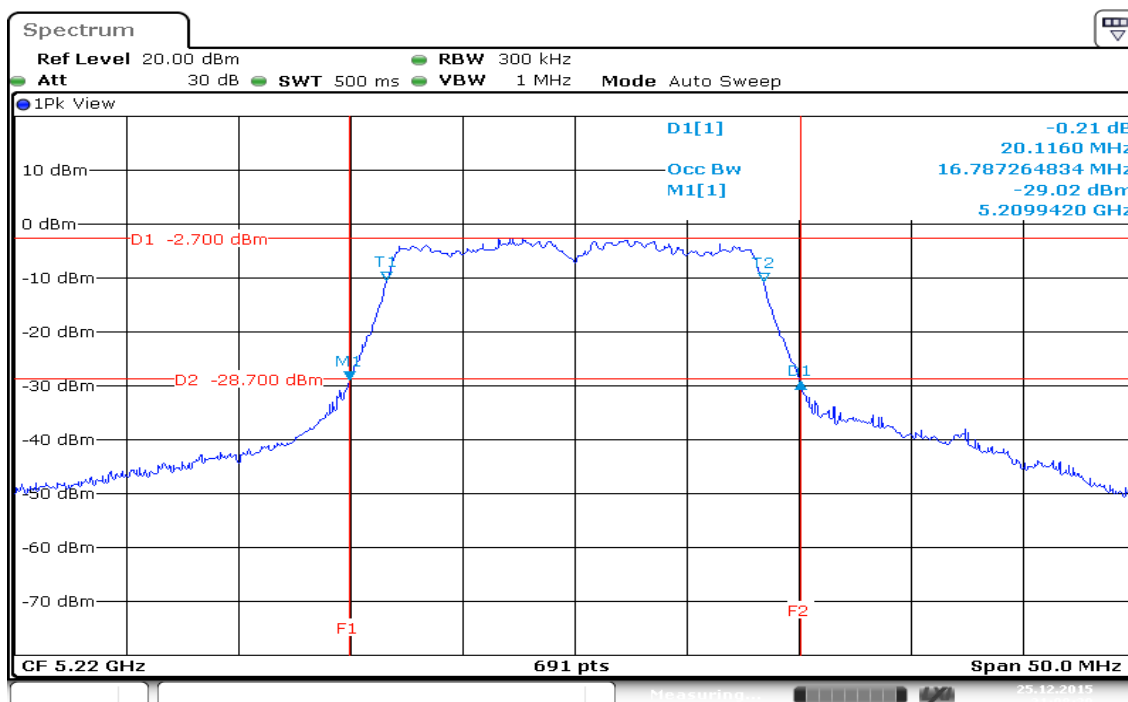
IEEE 802.11a for 5180 ~ 5240MHz

CH Low



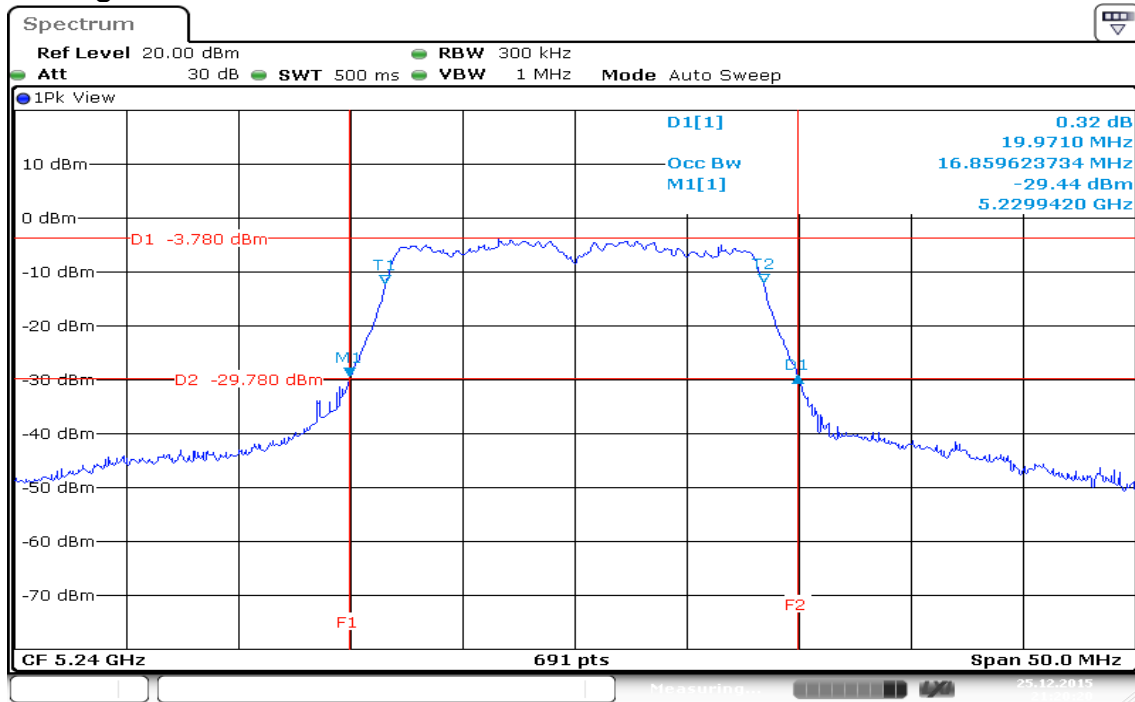
Date: 25.DEC.2015 20:56:41

CH Mid

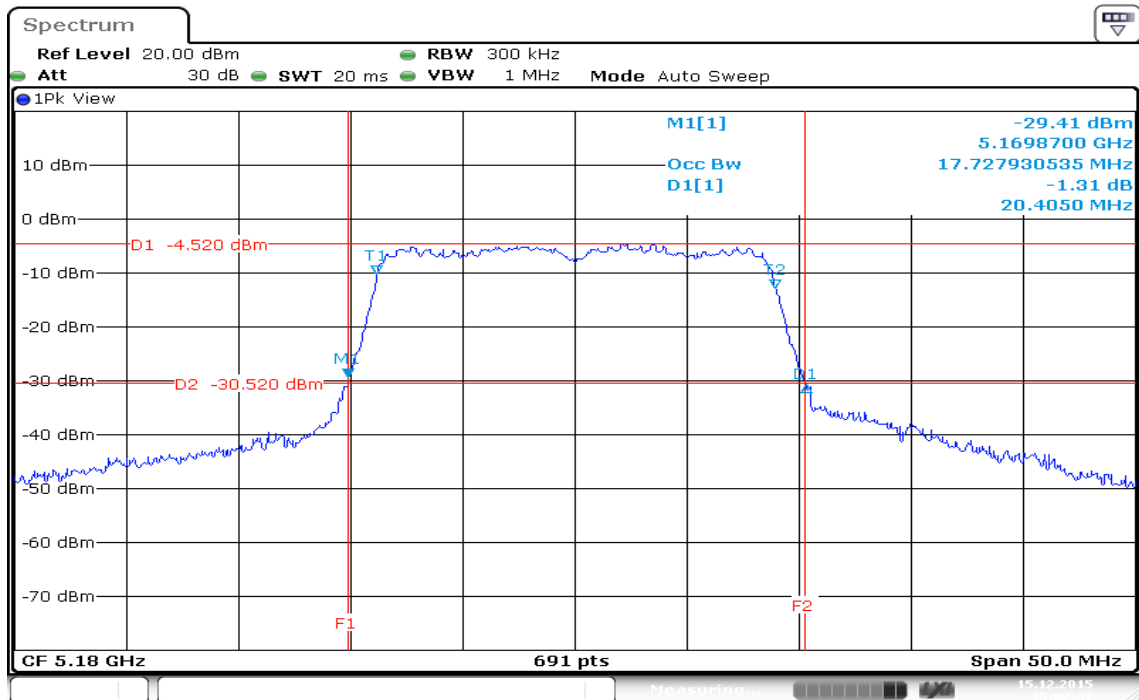
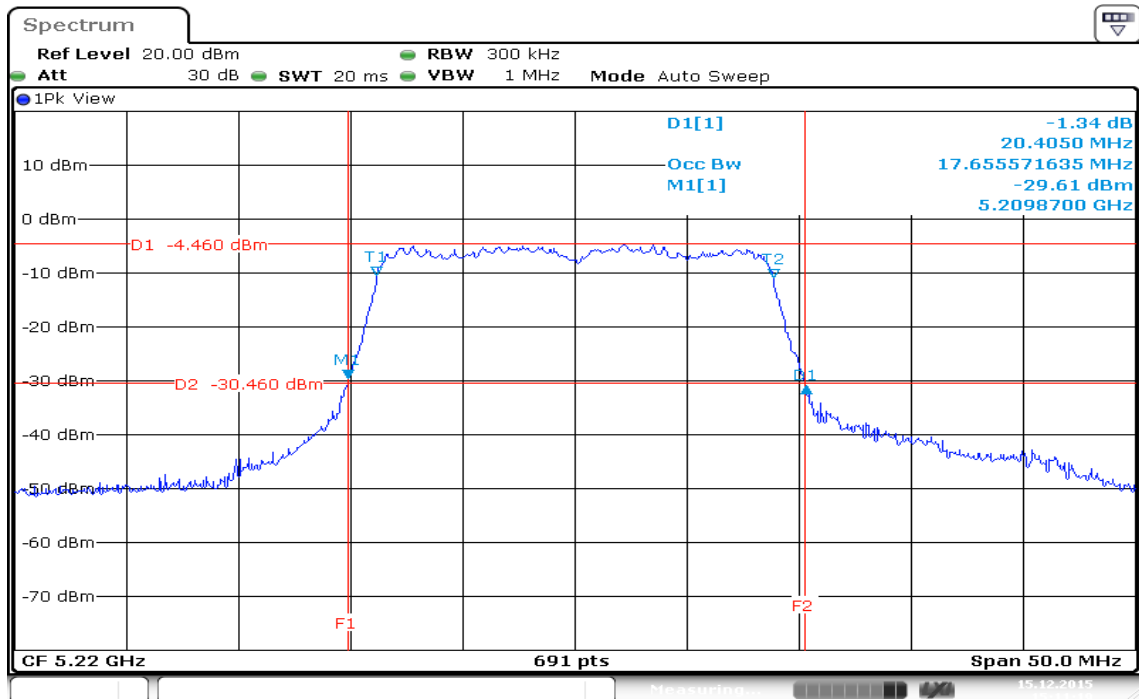


Date: 25.DEC.2015 21:08:30

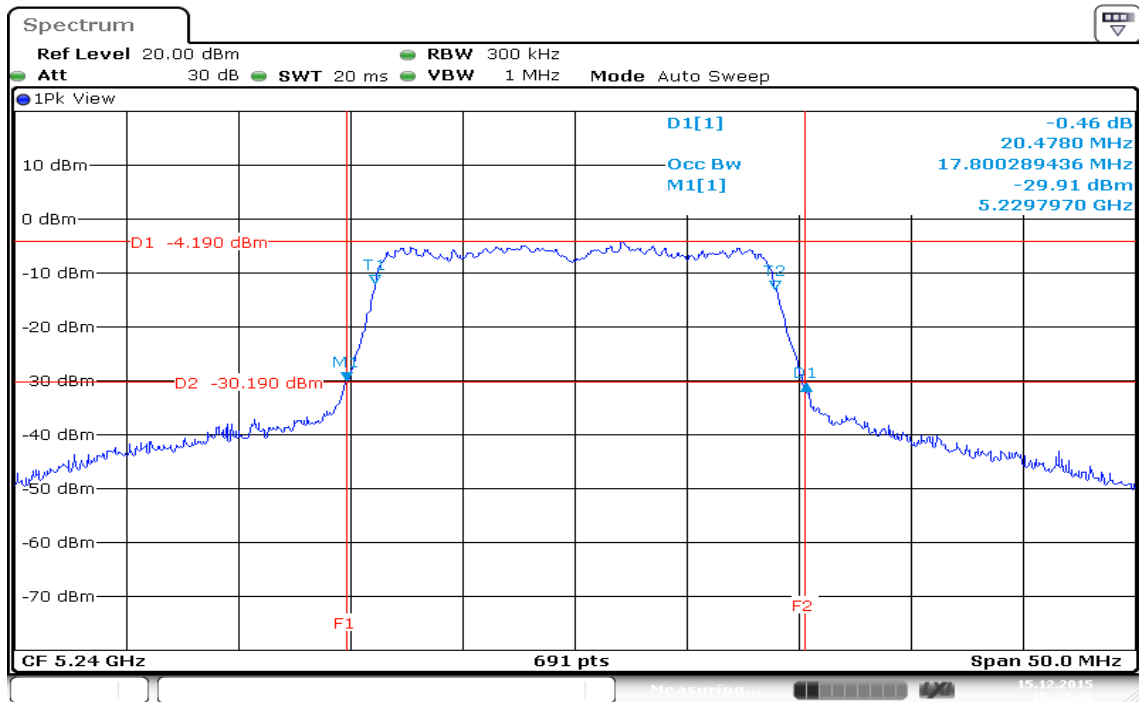
CH High



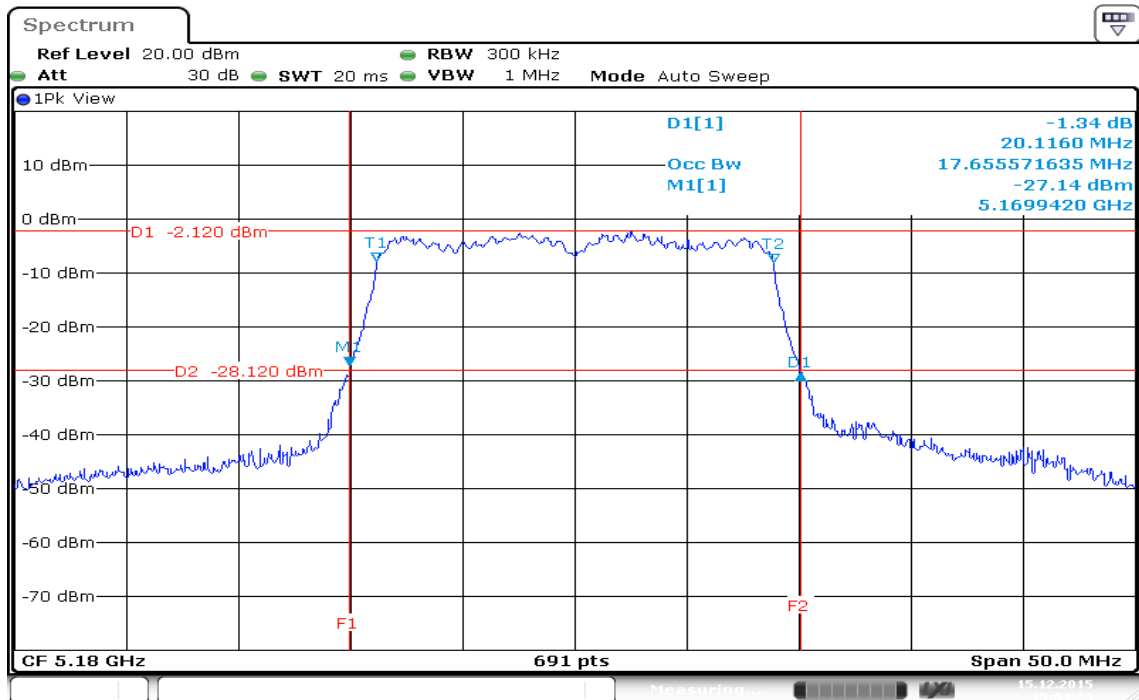
Date: 25.DEC.2015 21:20:20

IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0**CH Low****CH Mid**

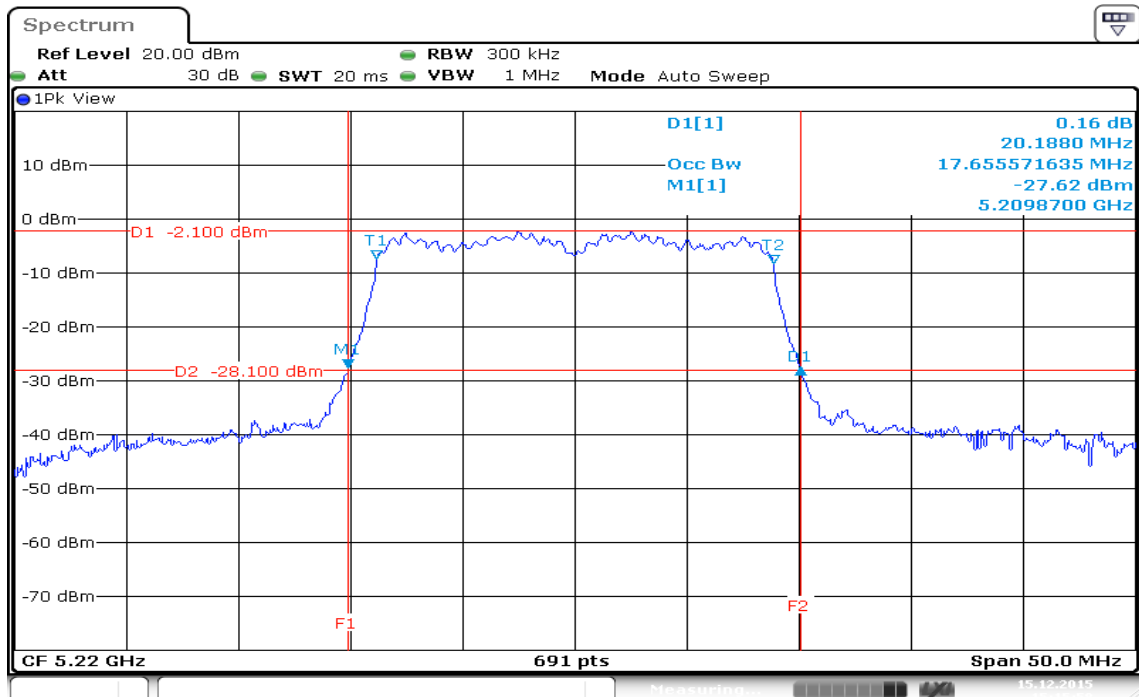
CH High



Date: 15.DEC.2015 15:21:48

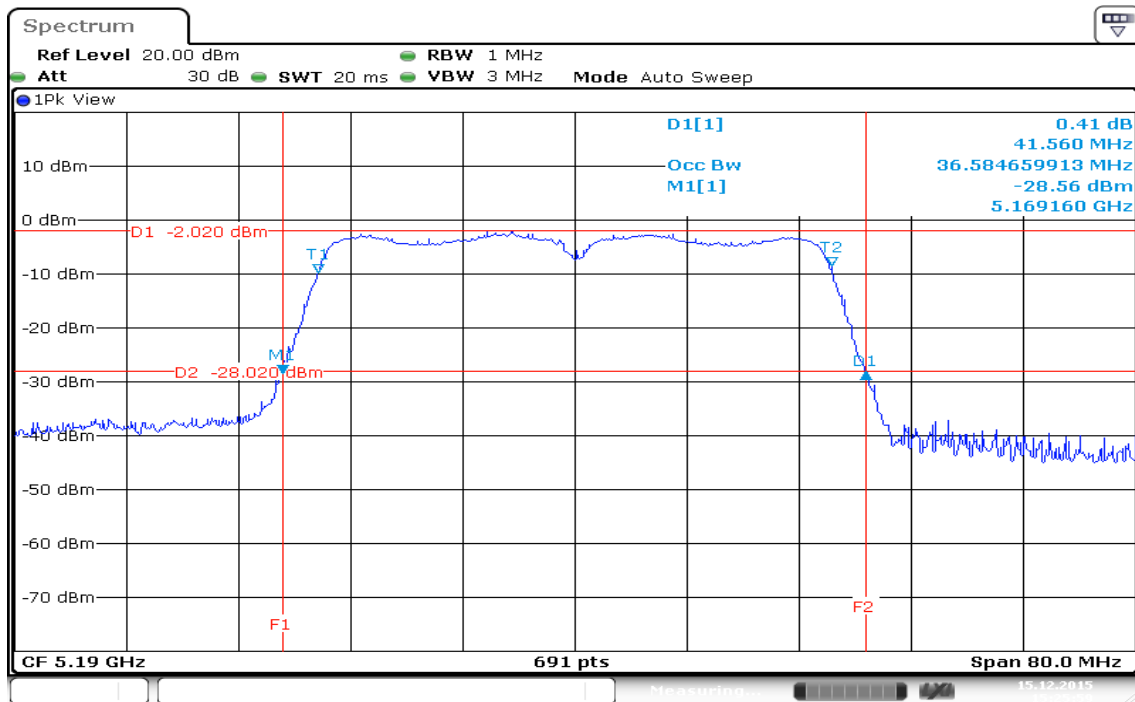
IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1**CH Low**

Date: 15.DEC.2015 15:04:23

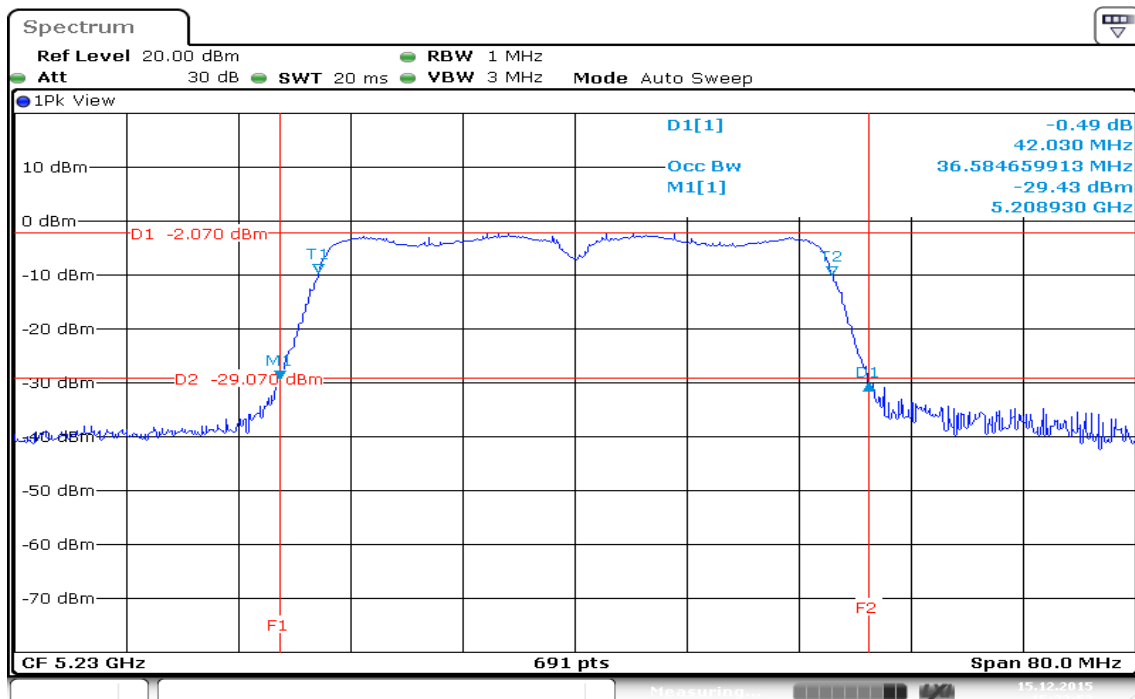
CH Mid

Date: 15.DEC.2015 15:15:58

Date: 15.DEC.2015 15:18:39

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 0**CH Low**

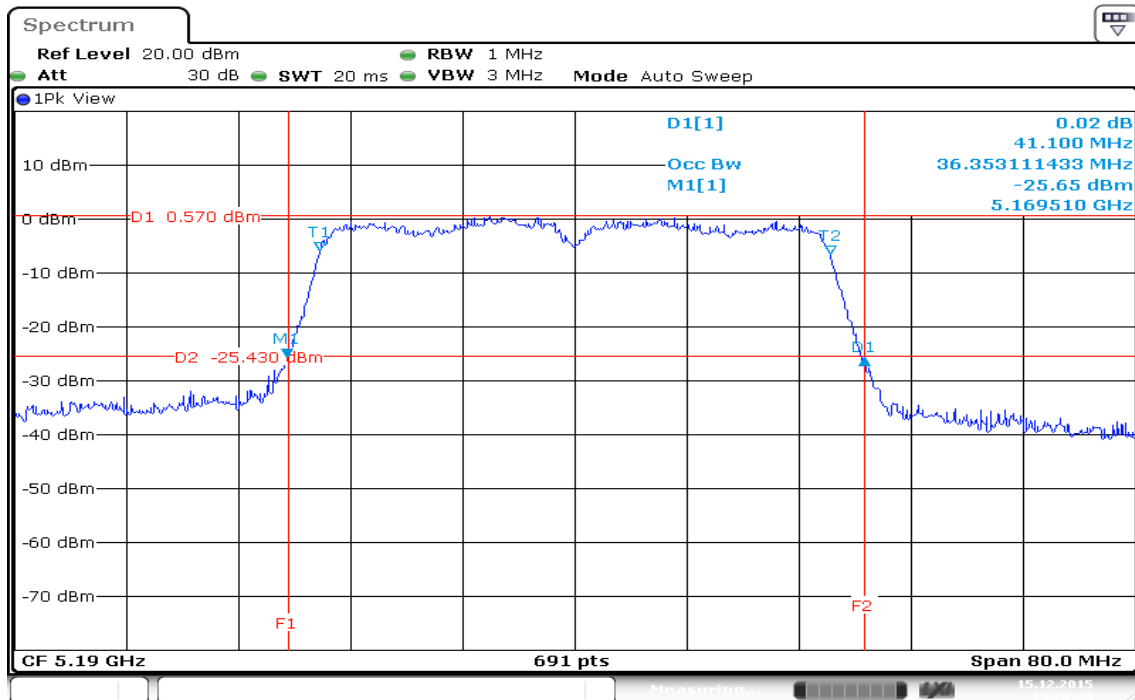
Date: 15.DEC.2015 15:25:59

CH High

Date: 15.DEC.2015 15:33:53

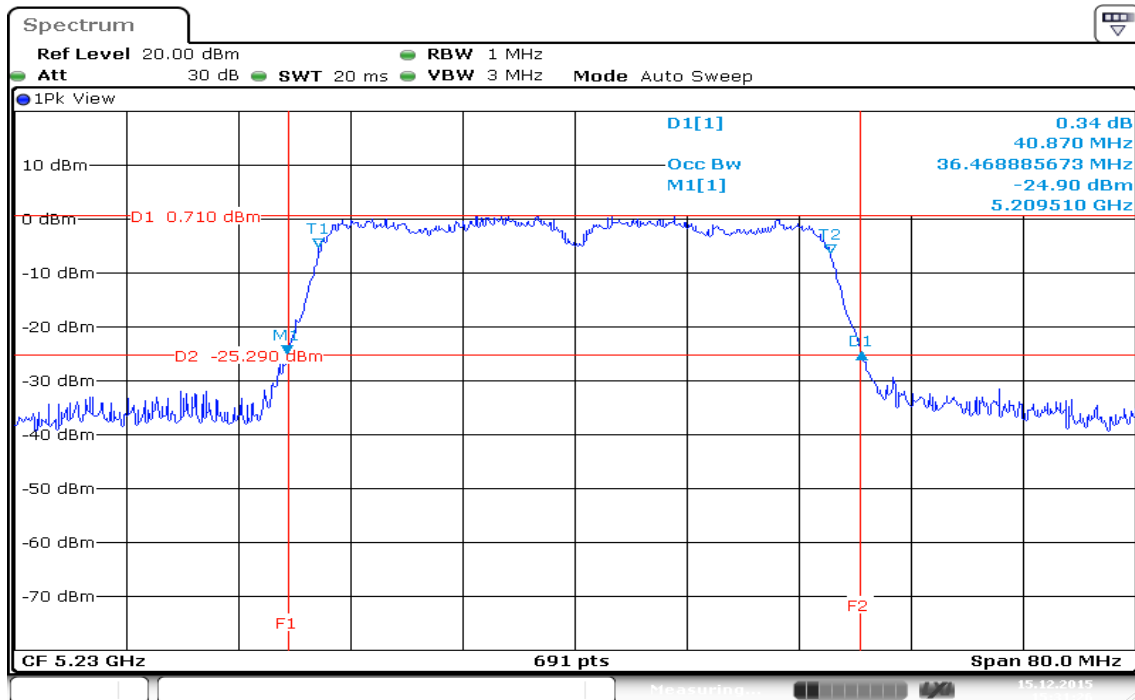
IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 1

CH Low

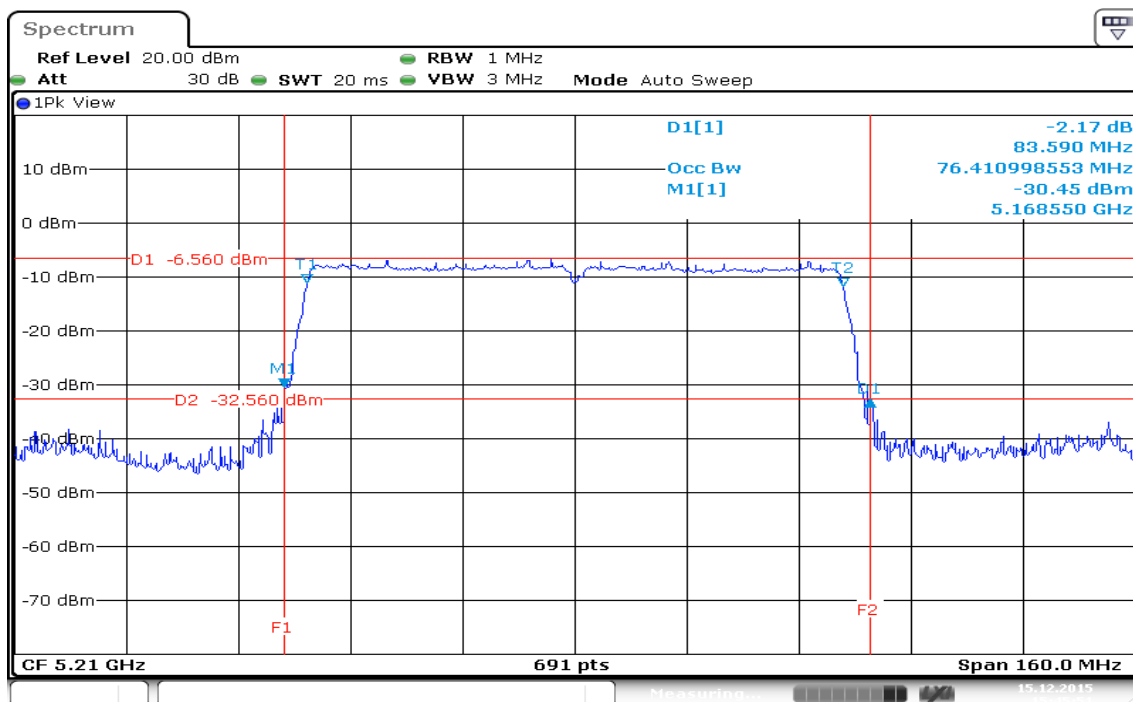


Date: 15.DEC.2015 15:28:49

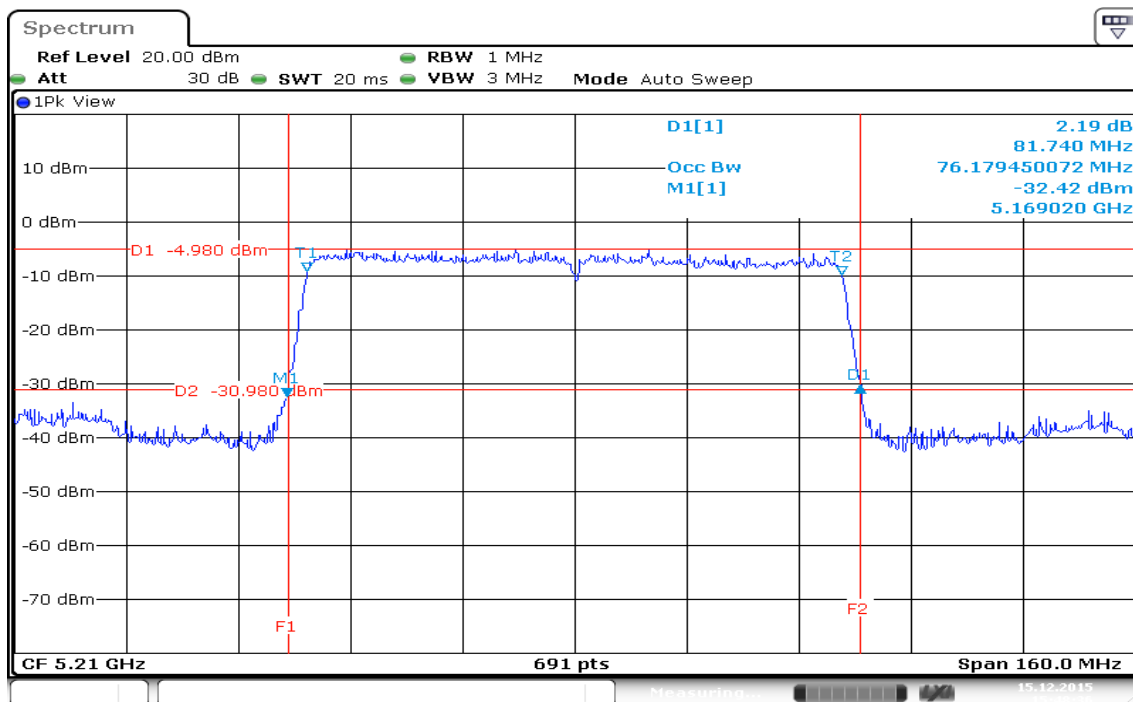
Ch High



Date: 15.DEC.2015 15:31:26

IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 0**Ch Mid**

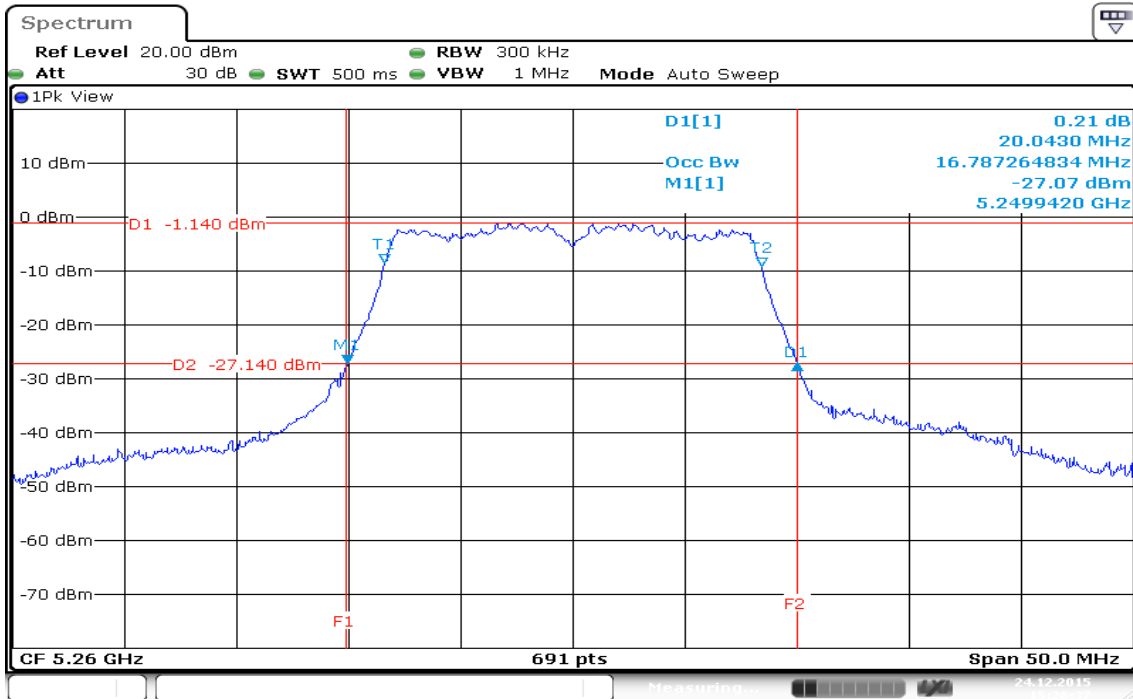
Date: 15.DEC.2015 15:45:51

IEEE 802.11ac VHT 80 MHz mode / 5210MHz / Chain 1**CH Mid**

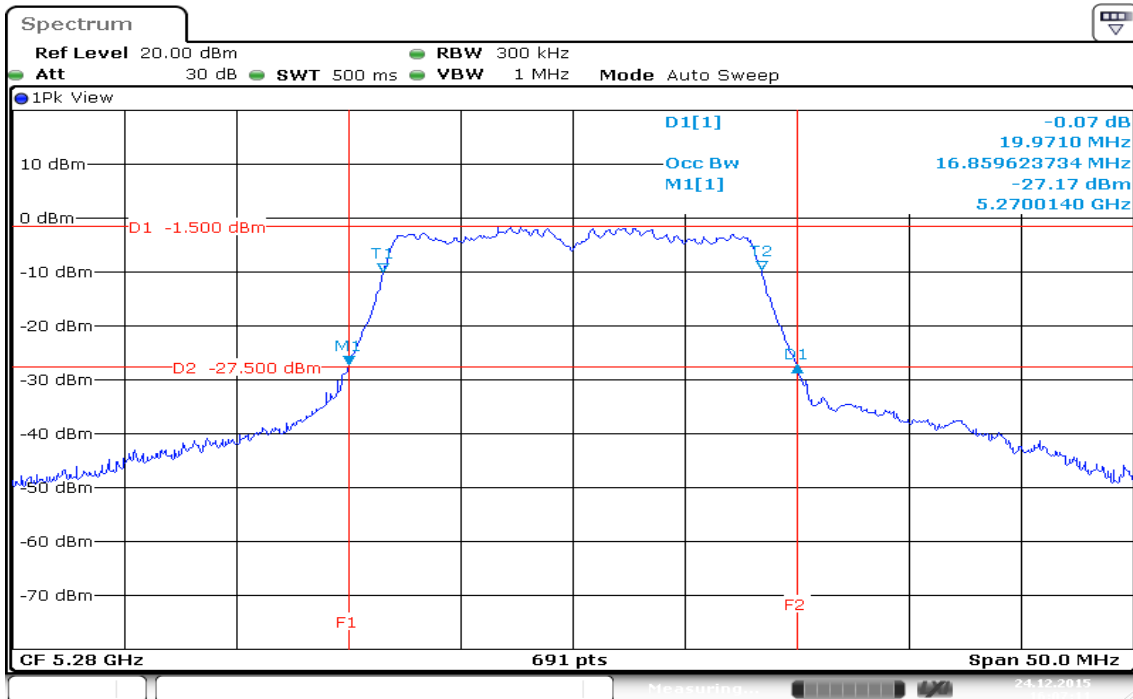
Date: 15.DEC.2015 15:48:36

IEEE 802.11a mode / 5260 ~ 5320MHz

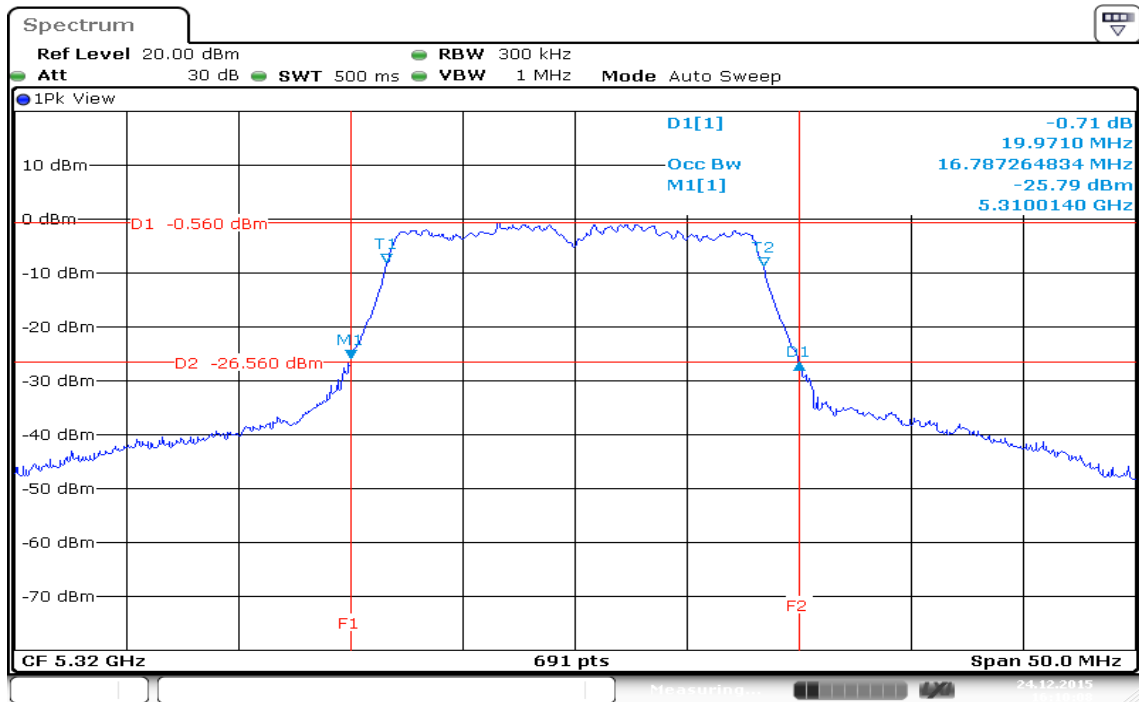
CH Low



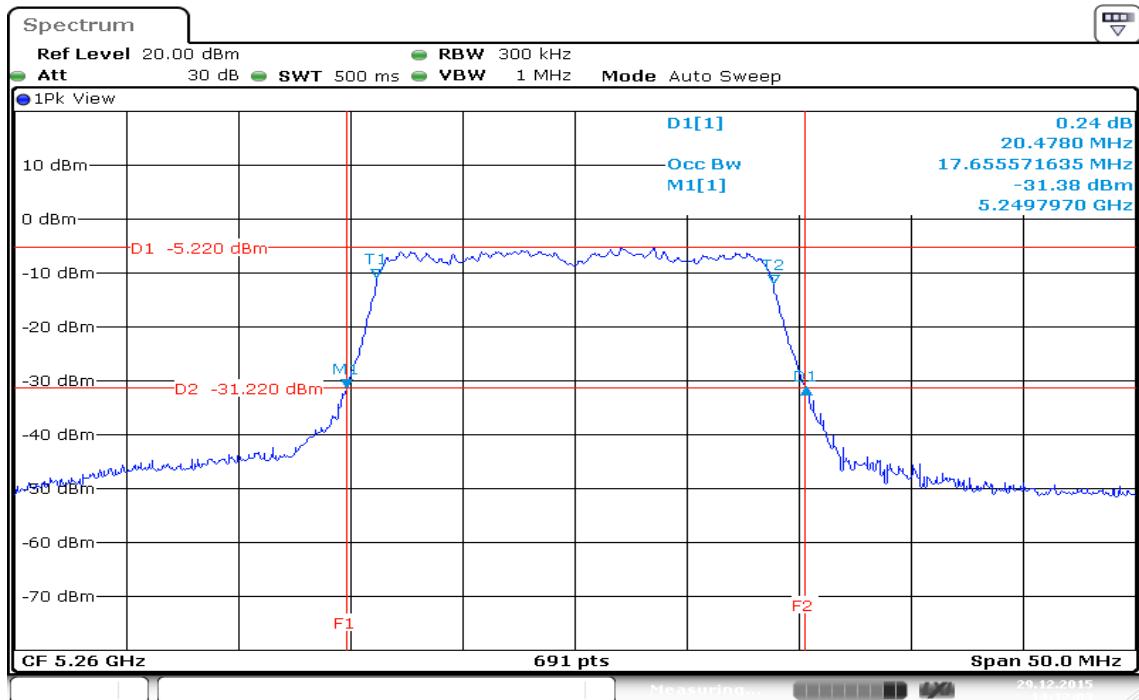
CH Mid



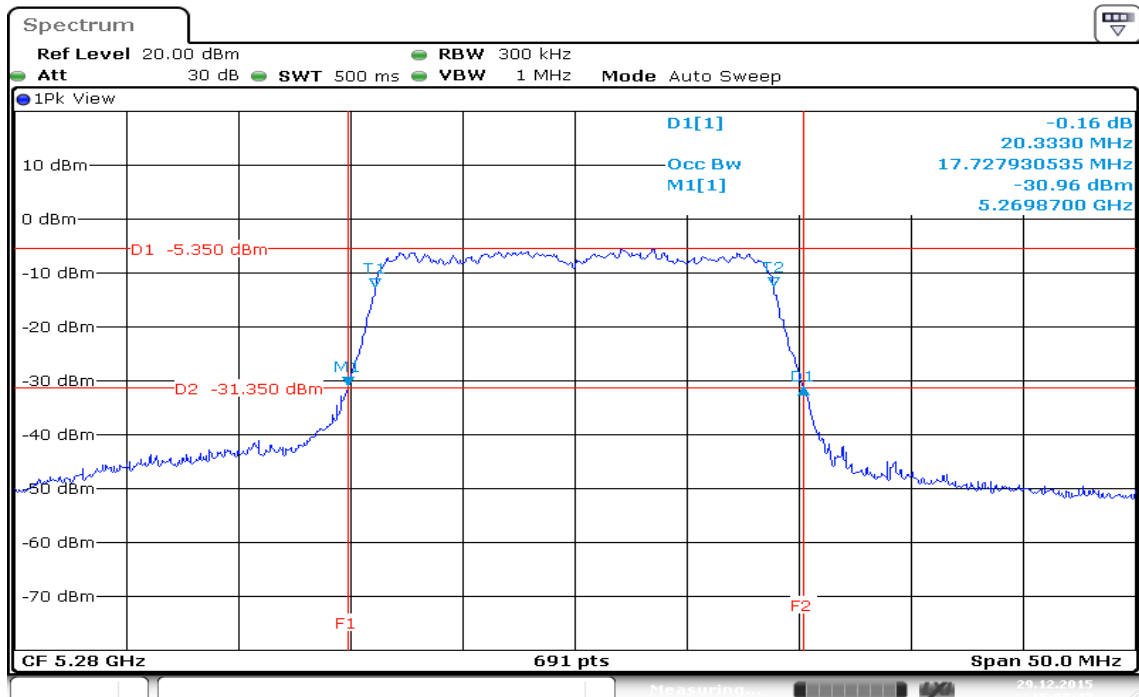
CH High



Date: 24.DEC.2015 16:10:08

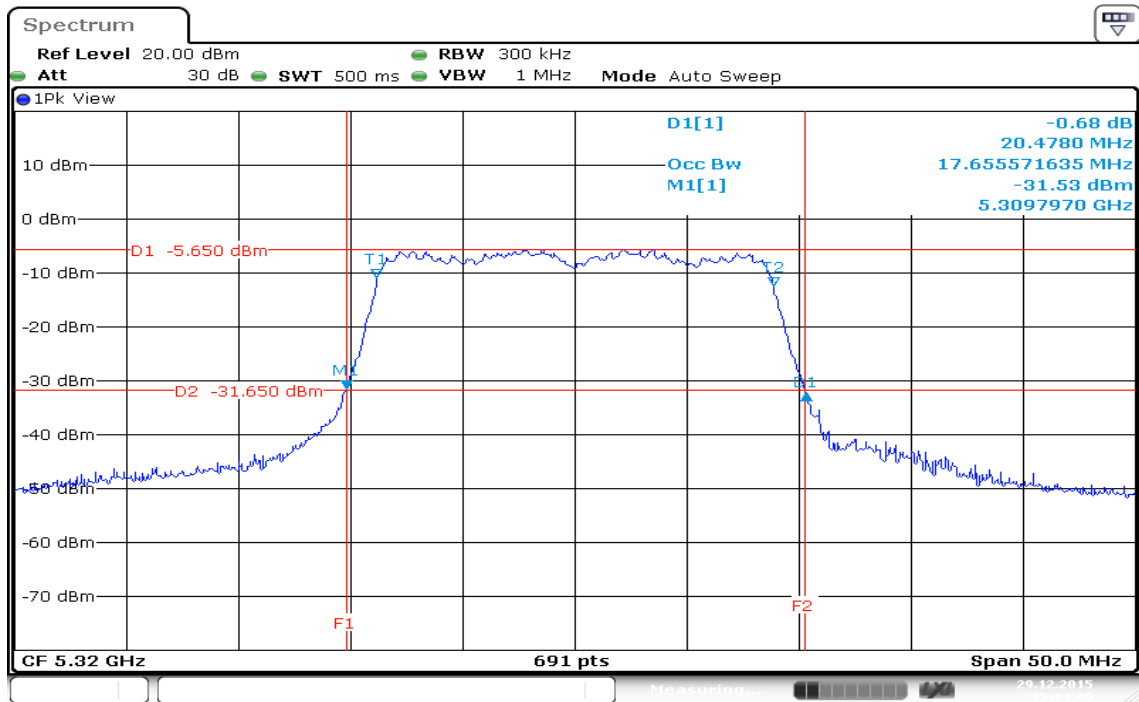
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**CH Low**

Date: 29.DEC.2015 14:12:04

CH Mid

Date: 29.DEC.2015 15:08:43

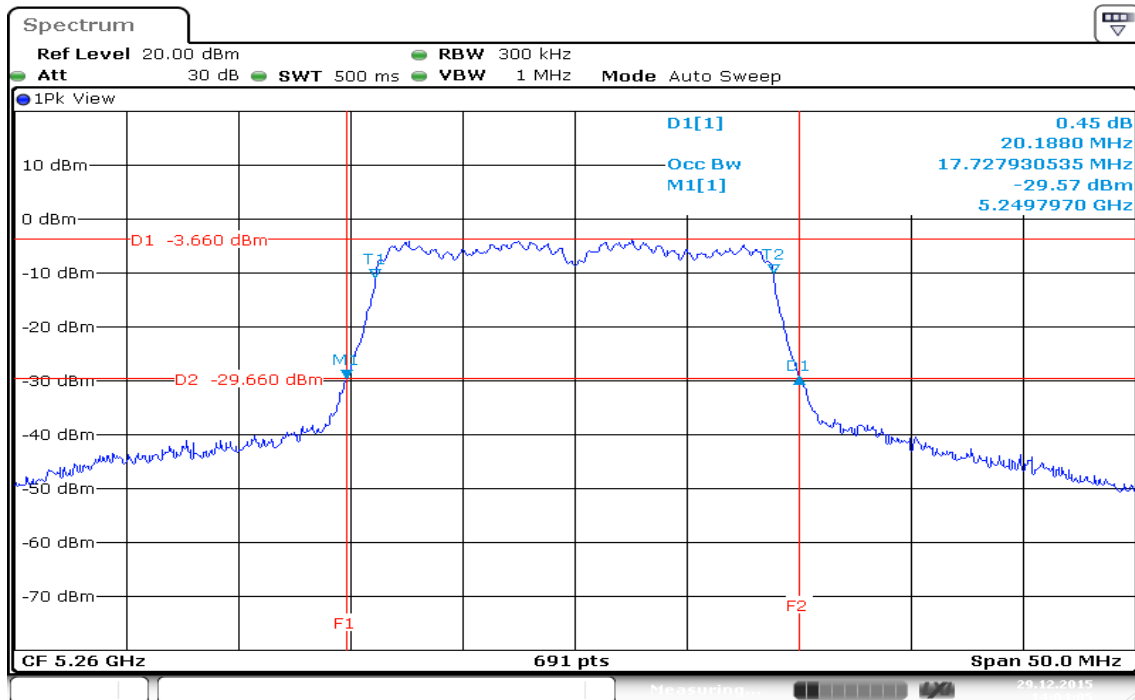
CH High



Date: 29.DEC.2015 15:14:05

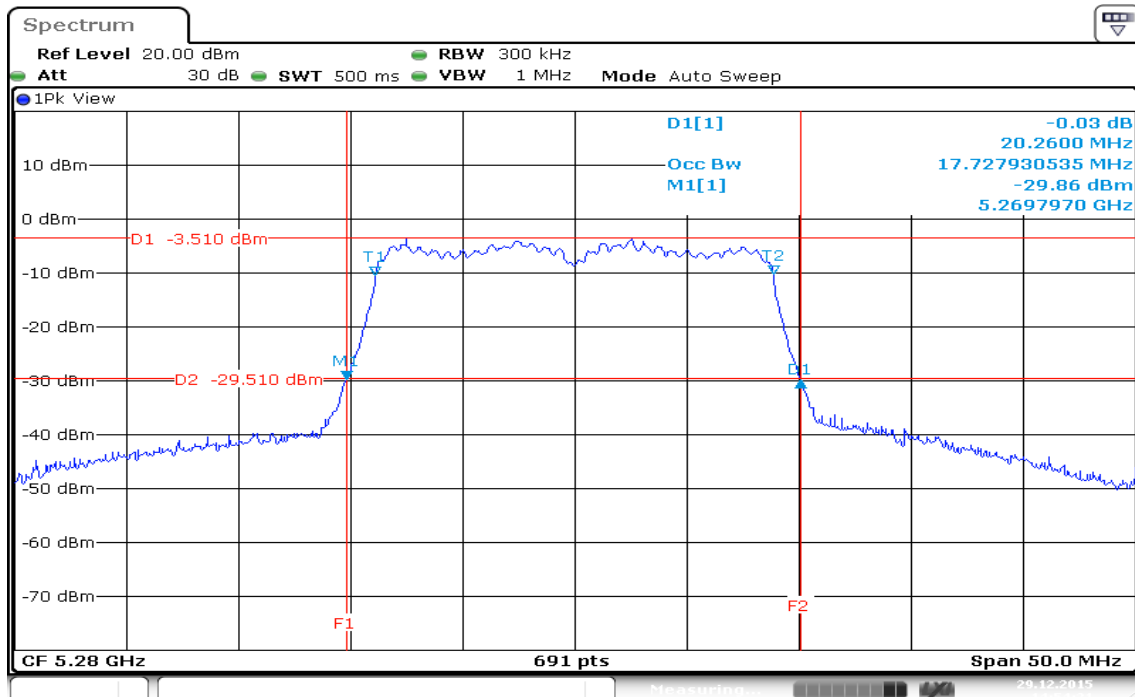
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1

CH Low



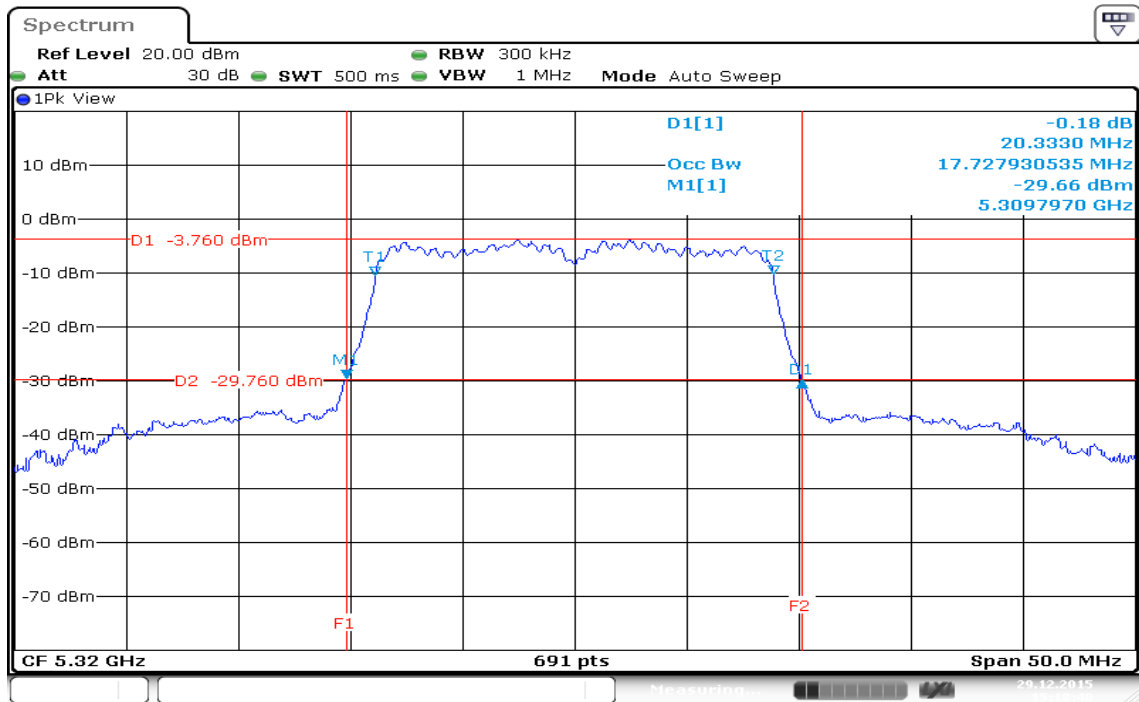
Date: 29.DEC.2015 14:04:05

CH Mid

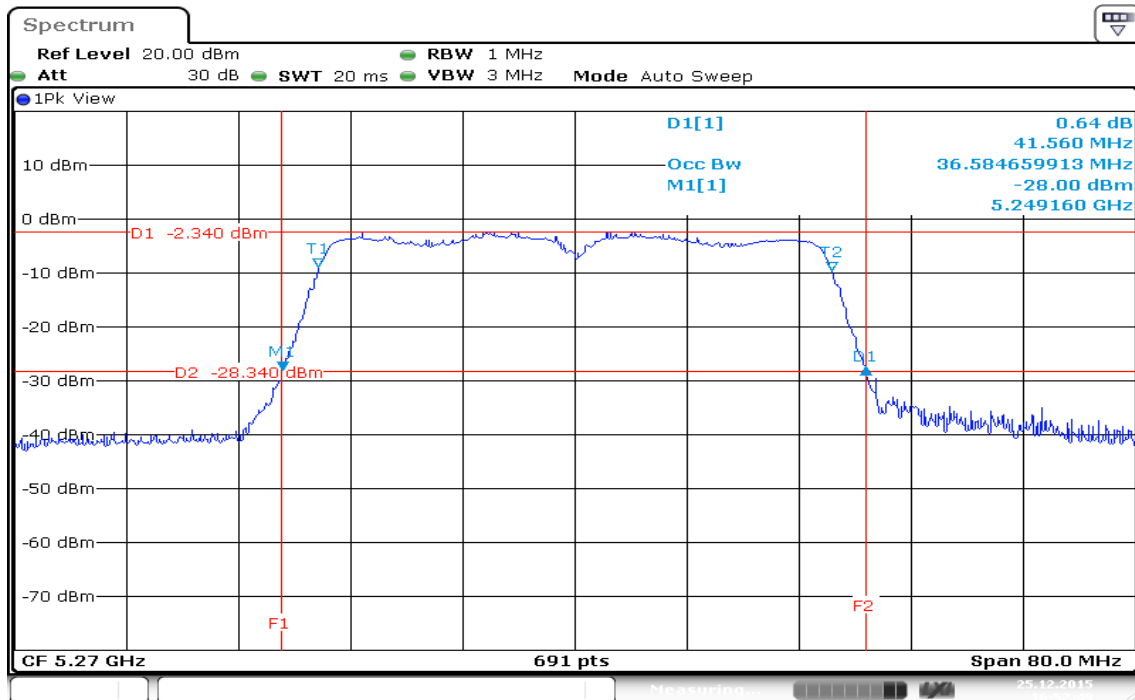


Date: 29.DEC.2015 14:54:21

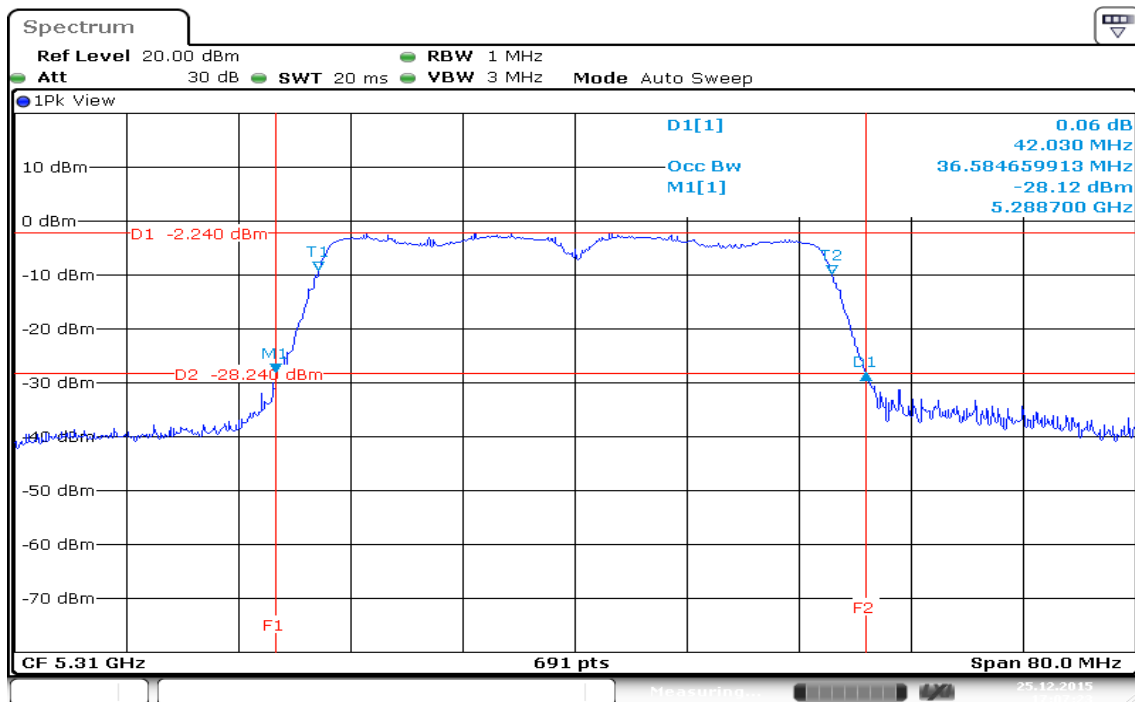
CH High



Date: 29.DEC.2015 15:18:49

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 0**CH Low**

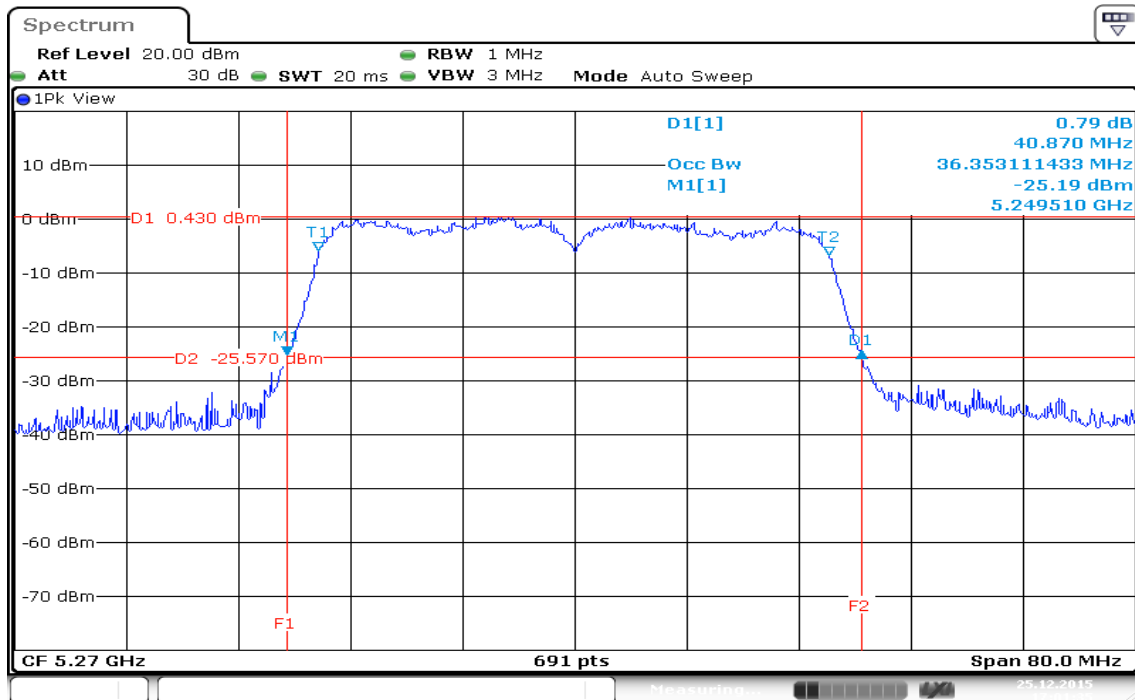
Date: 25.DEC.2015 16:52:50

CH High

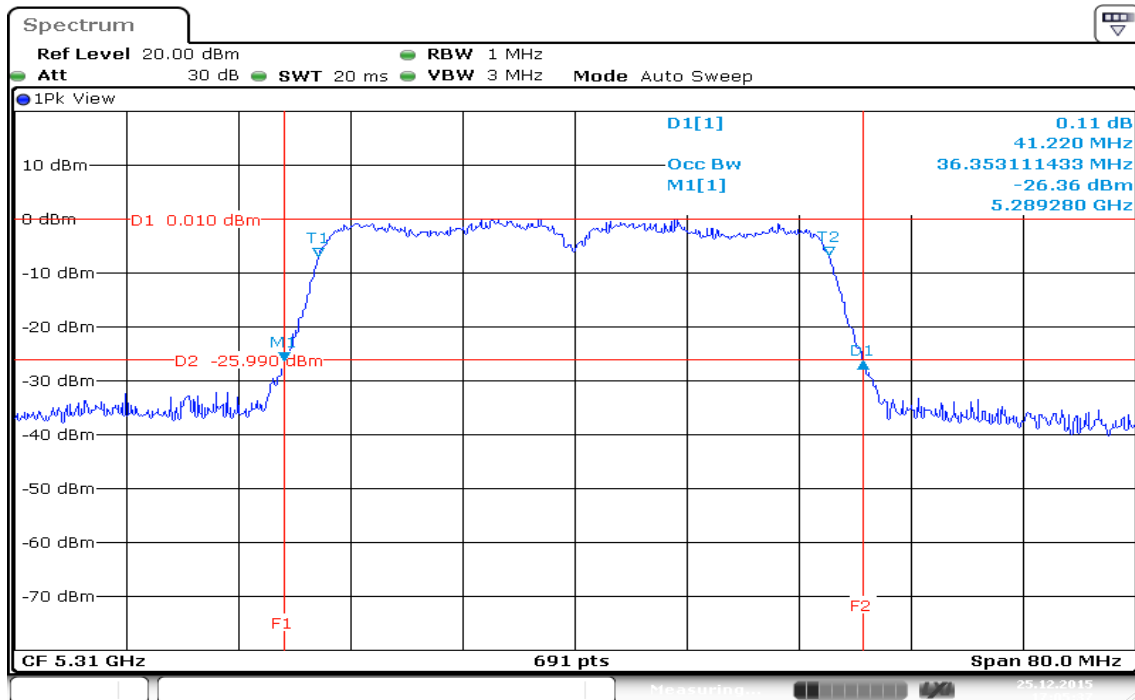
Date: 25.DEC.2015 17:07:23

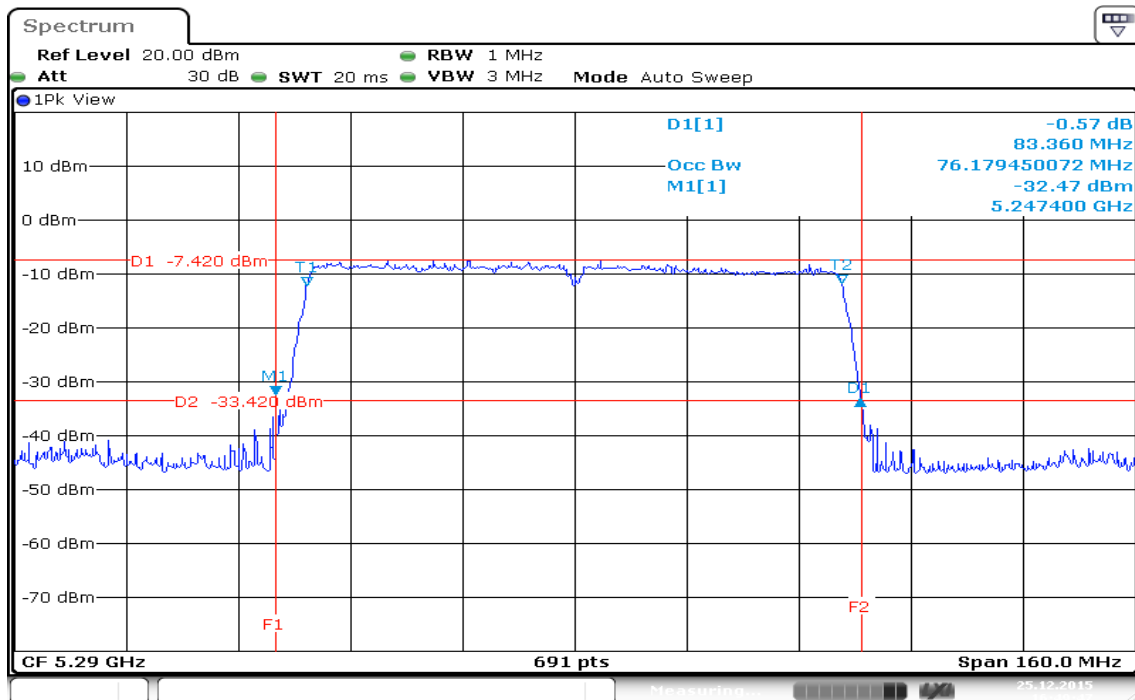
IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 1

CH Low

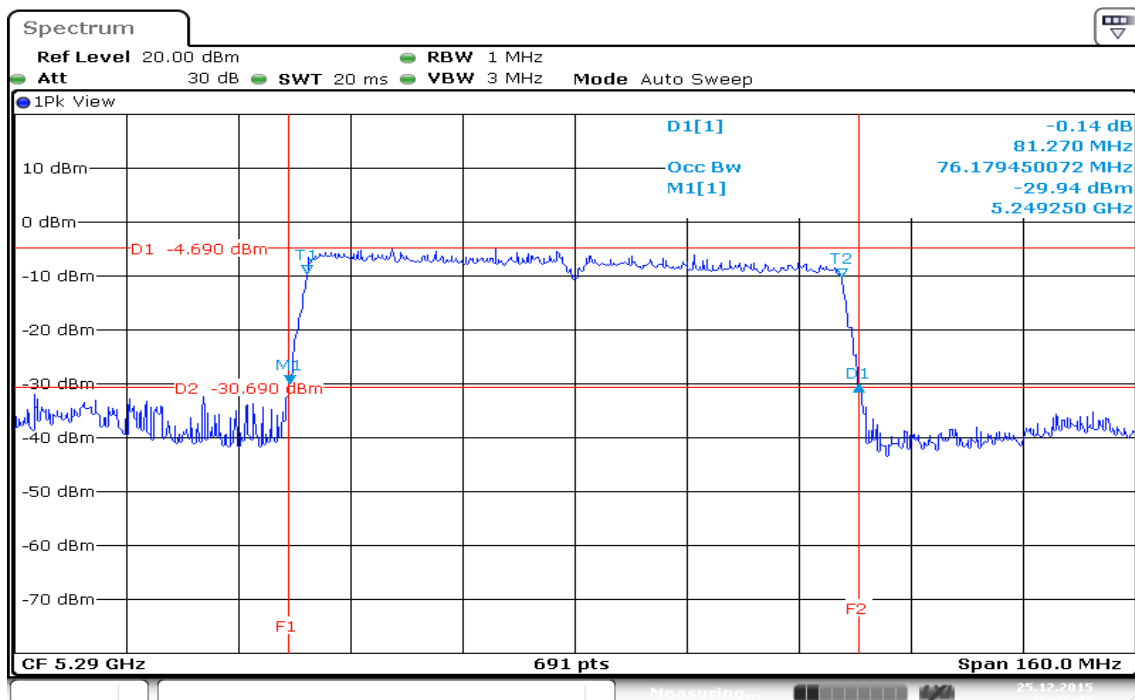


CH High

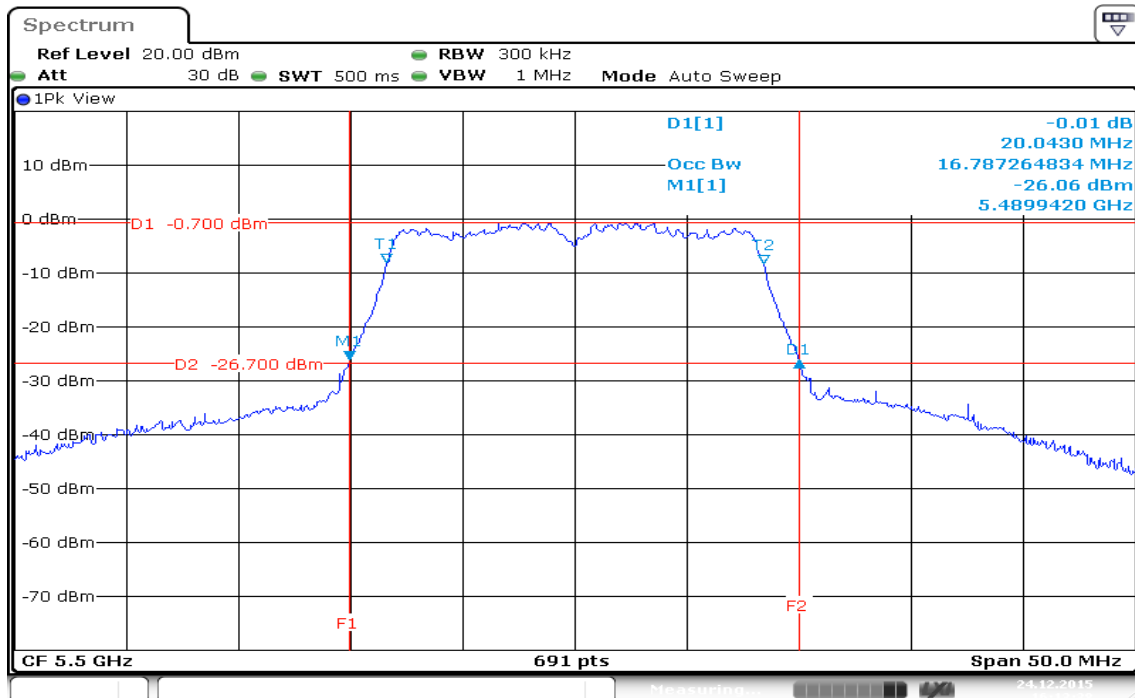


IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 0**CH Mid**

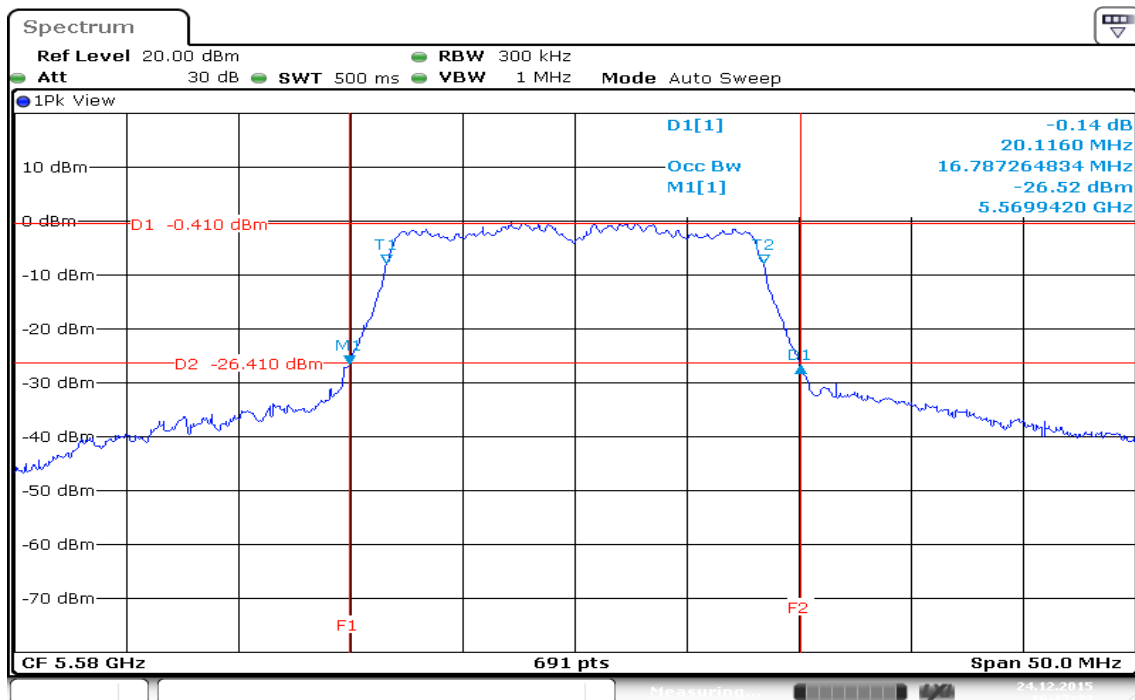
Date: 25.DEC.2015 16:49:47

IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 1**CH Mid**

Date: 25.DEC.2015 16:46:43

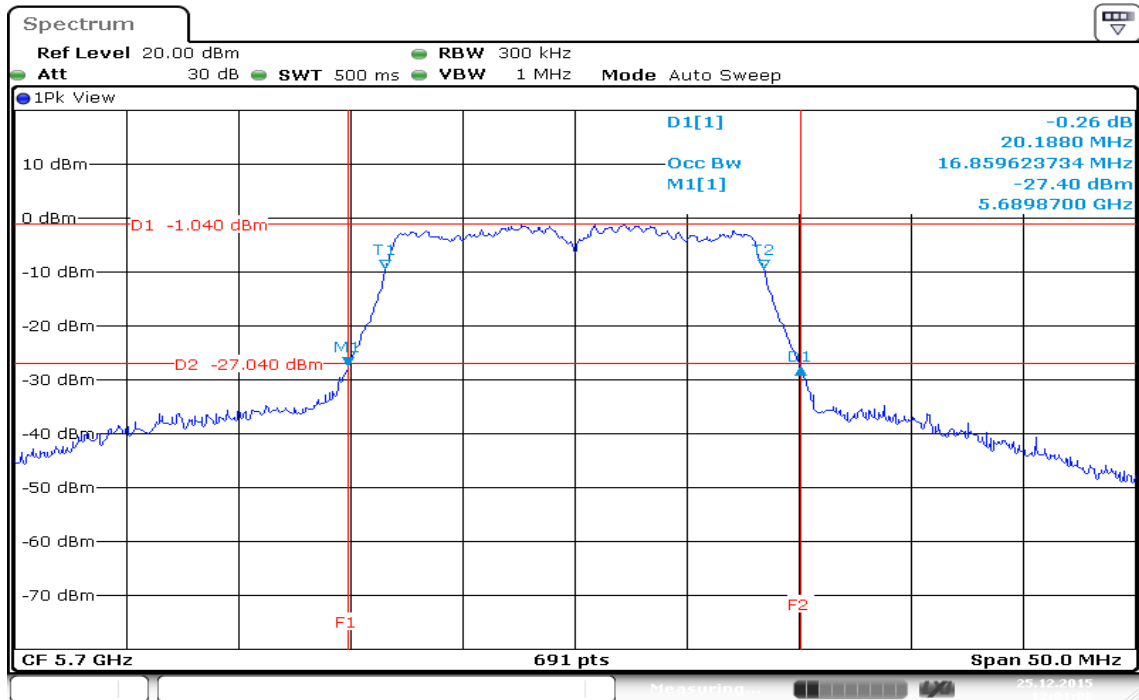
Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz**CH Low**

Date: 24.DEC.2015 16:13:39

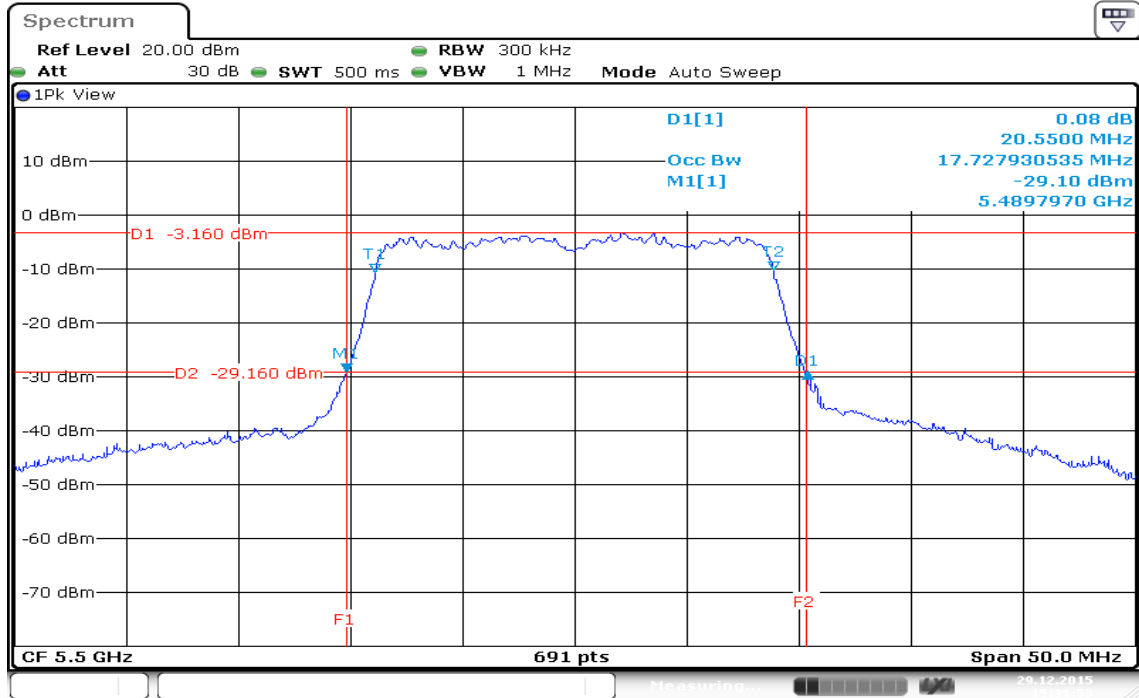
CH Mid

Date: 24.DEC.2015 16:17:23

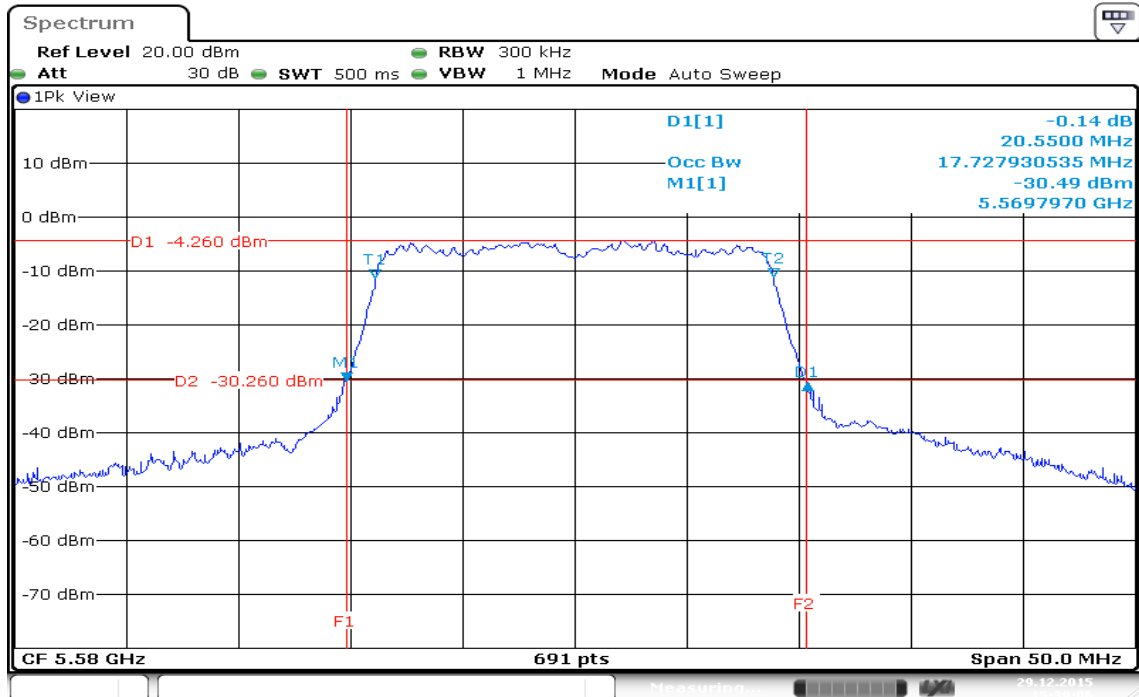
CH High



Date: 25.DEC.2015 12:01:09

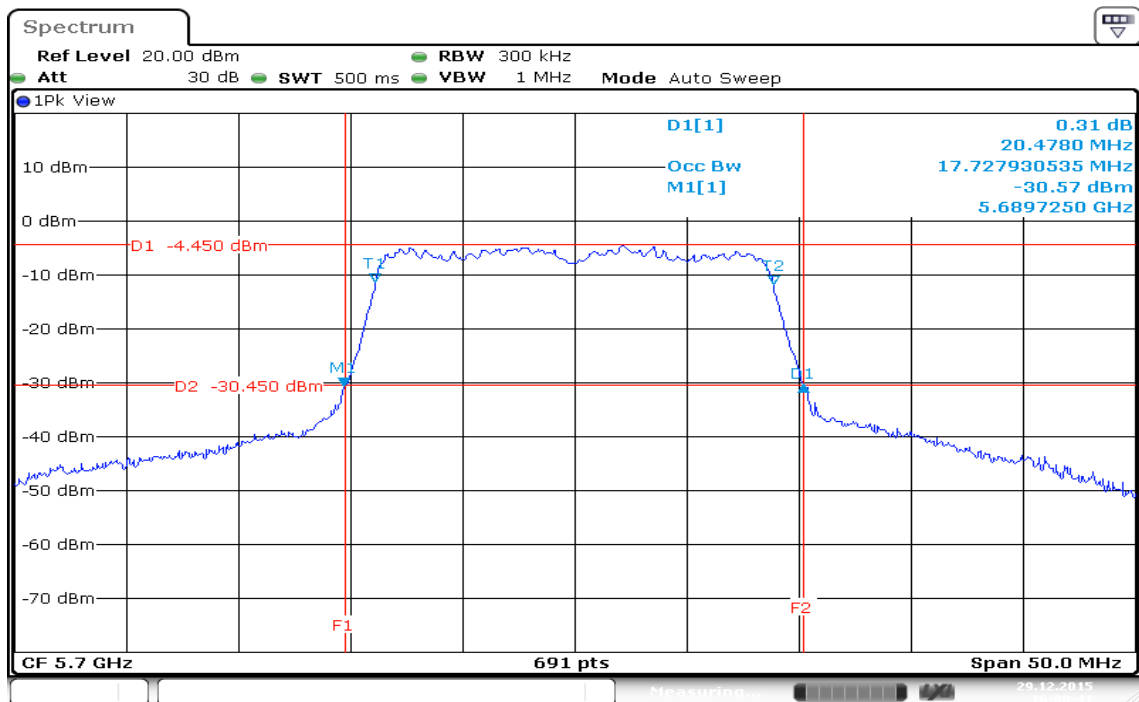
IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0**CH Low**

Date: 29.DEC.2015 15:31:54

CH Mid

Date: 29.DEC.2015 15:39:07

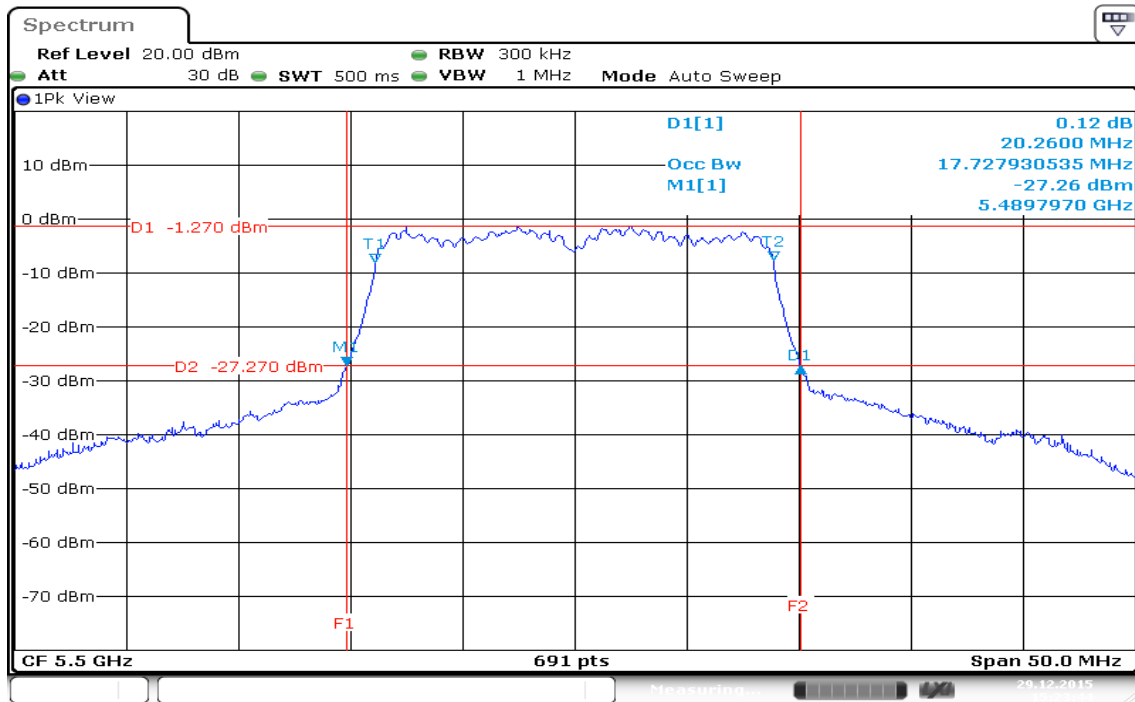
CH High



Date: 29.DEC.2015 16:00:42

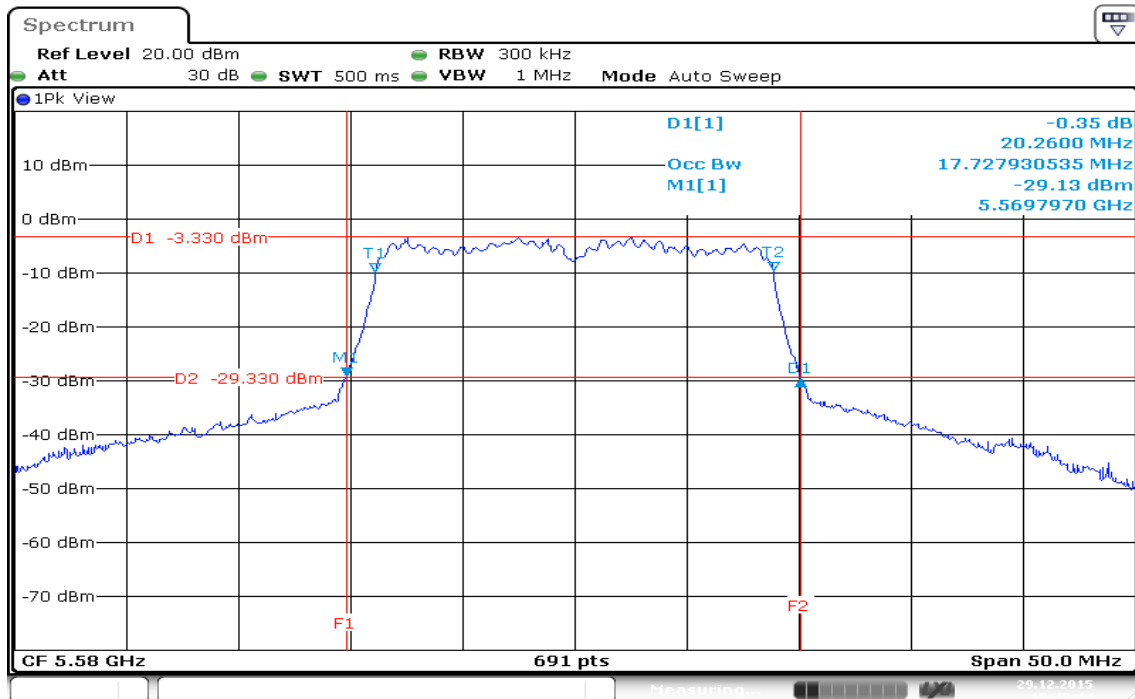
IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1

CH Low



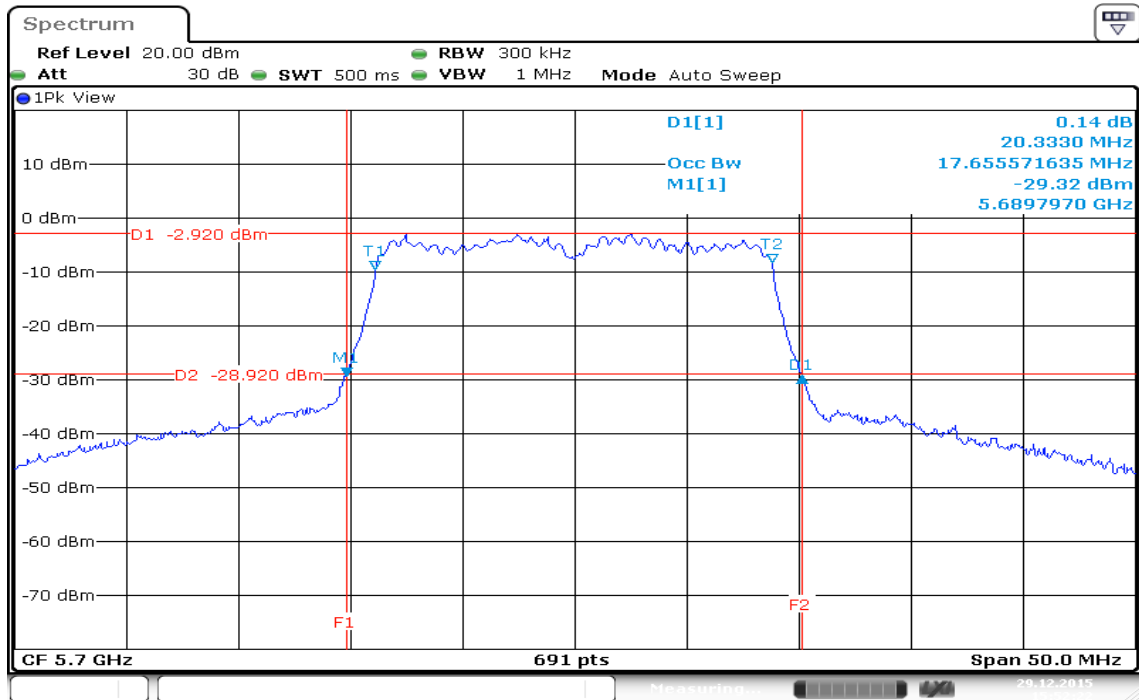
Date: 29.DEC.2015 15:23:45

CH Mid

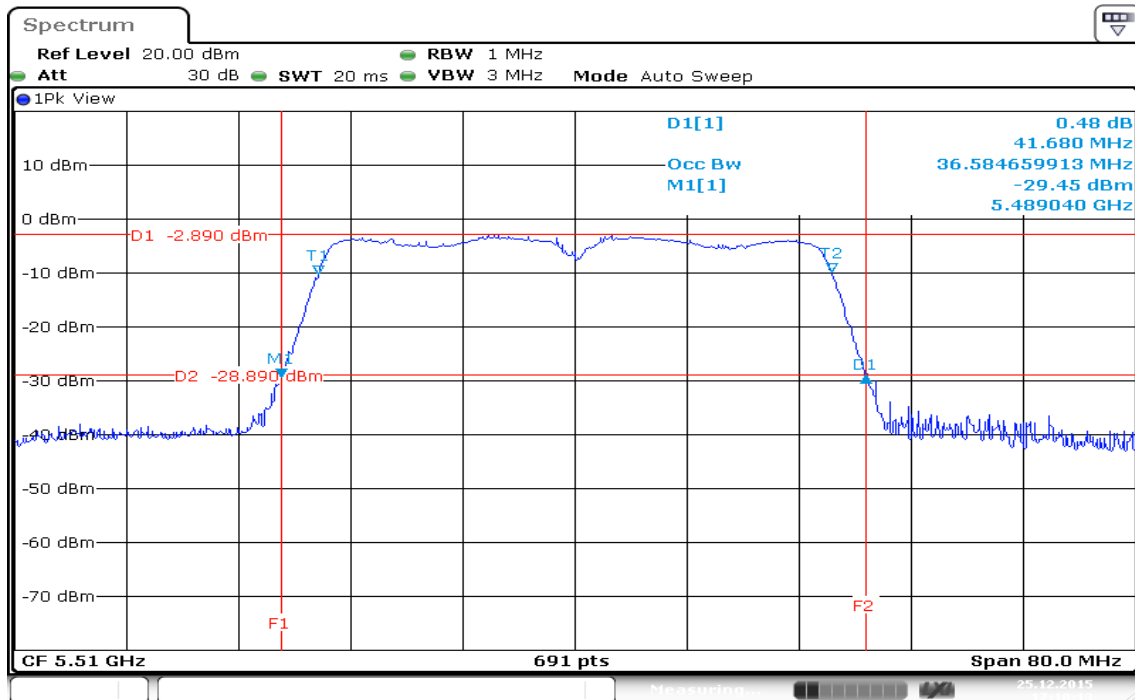


Date: 29.DEC.2015 15:45:44

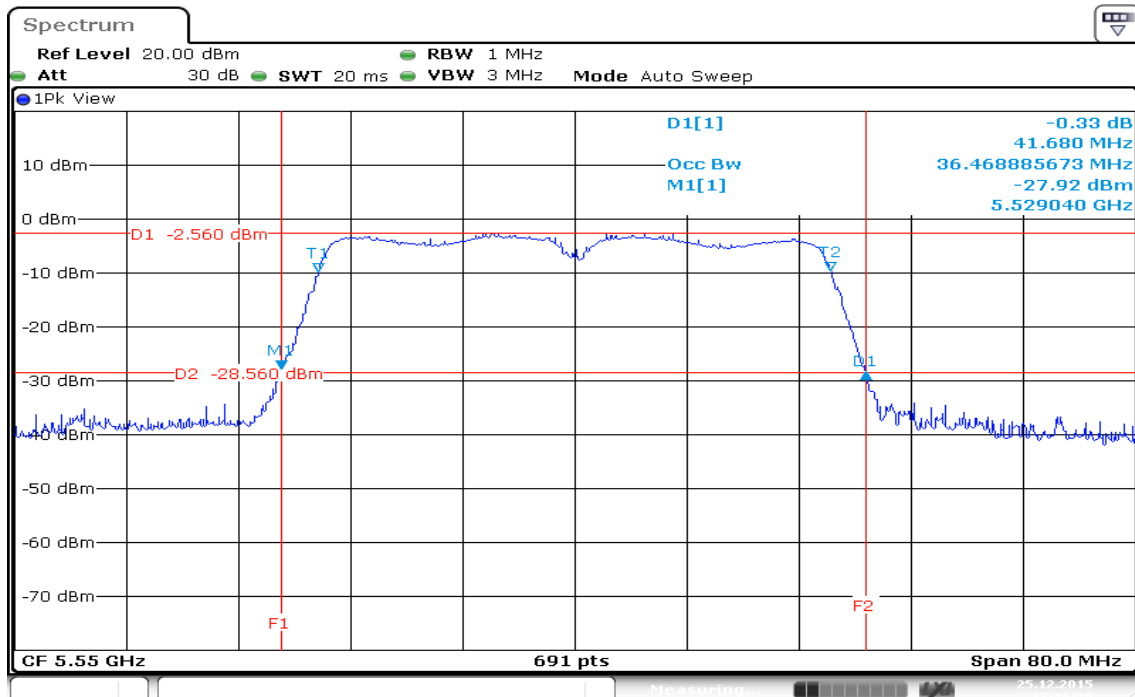
CH High



Date: 29.DEC.2015 15:52:23

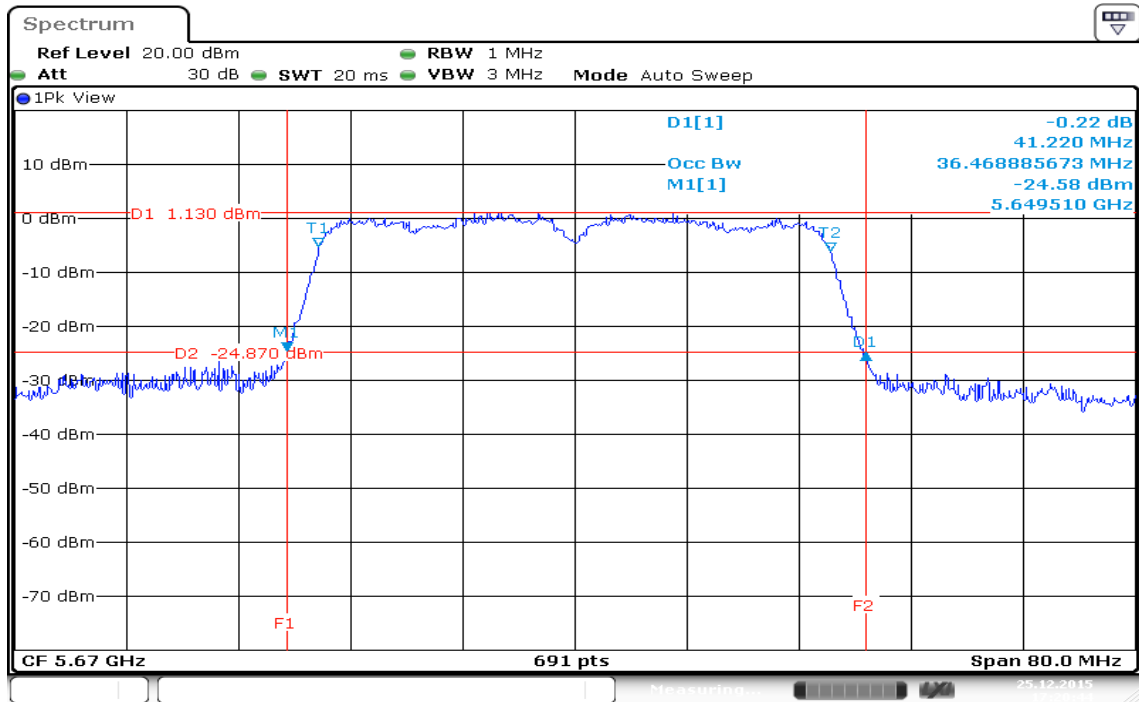
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 0**CH Low**

Date: 25.DEC.2015 17:10:13

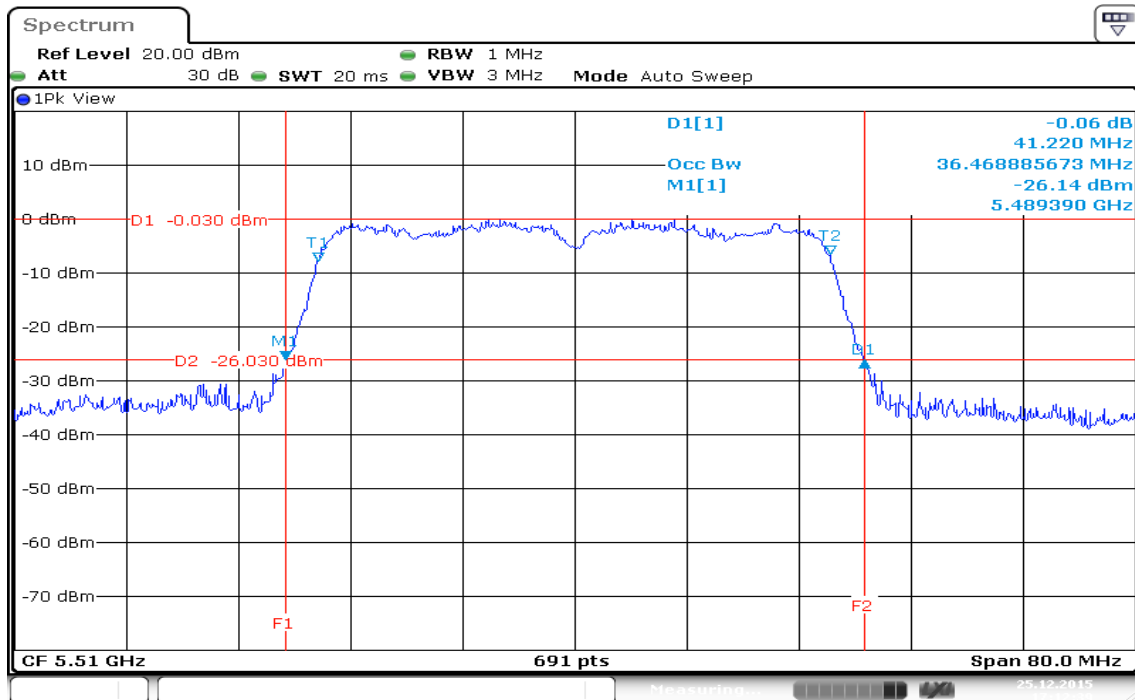
CH Mid

Date: 25.DEC.2015 17:16:30

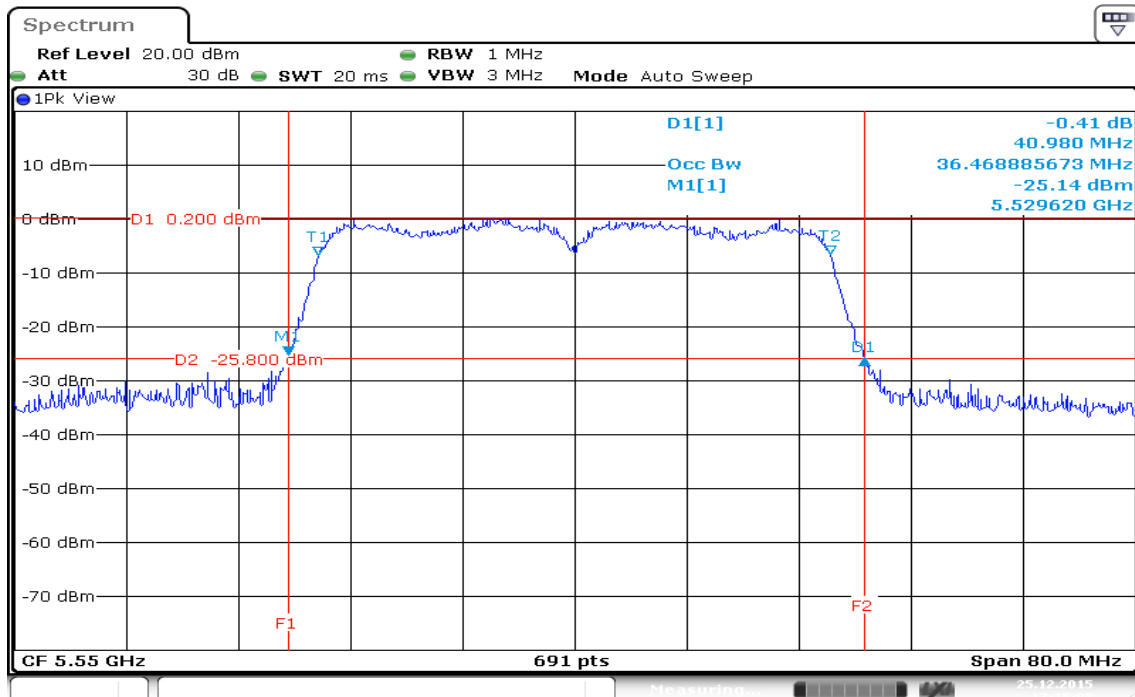
CH High



Date: 25.DEC.2015 17:20:45

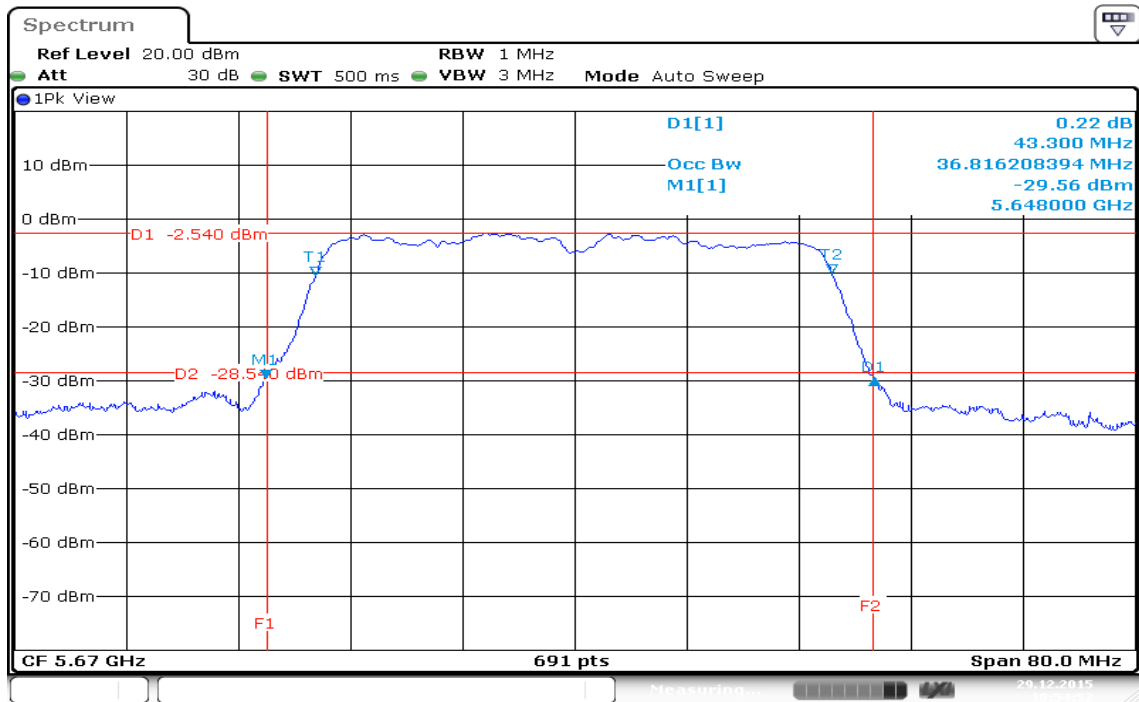
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 1**CH Low**

Date: 25.DEC.2015 17:12:40

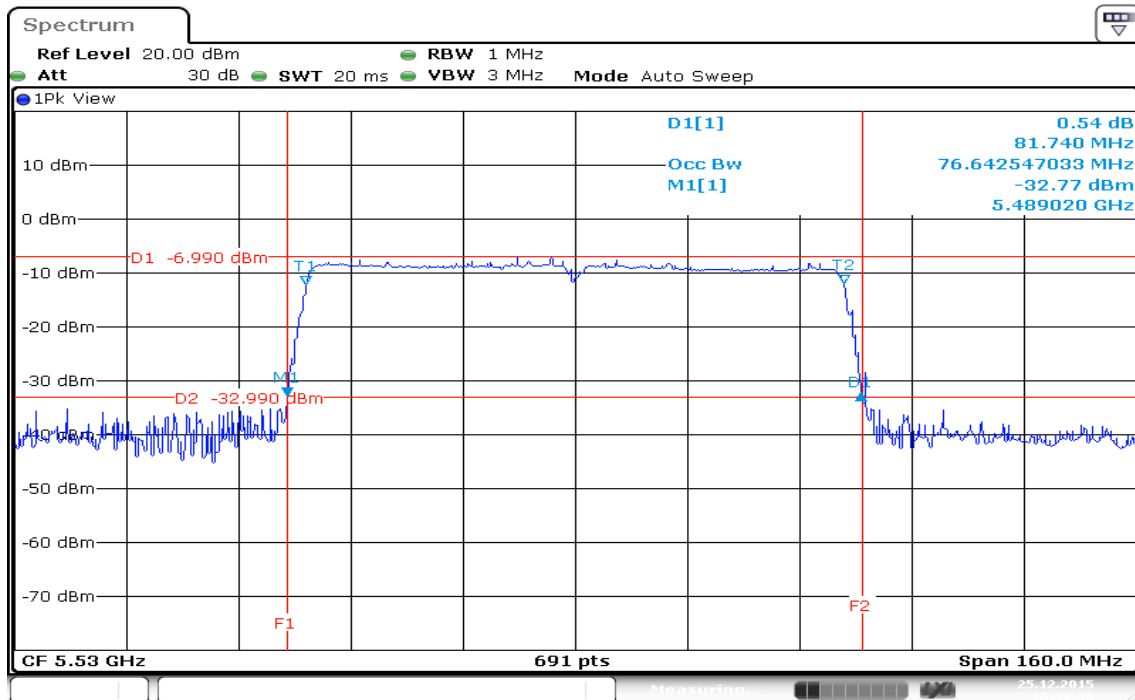
CH Mid

Date: 25.DEC.2015 17:15:06

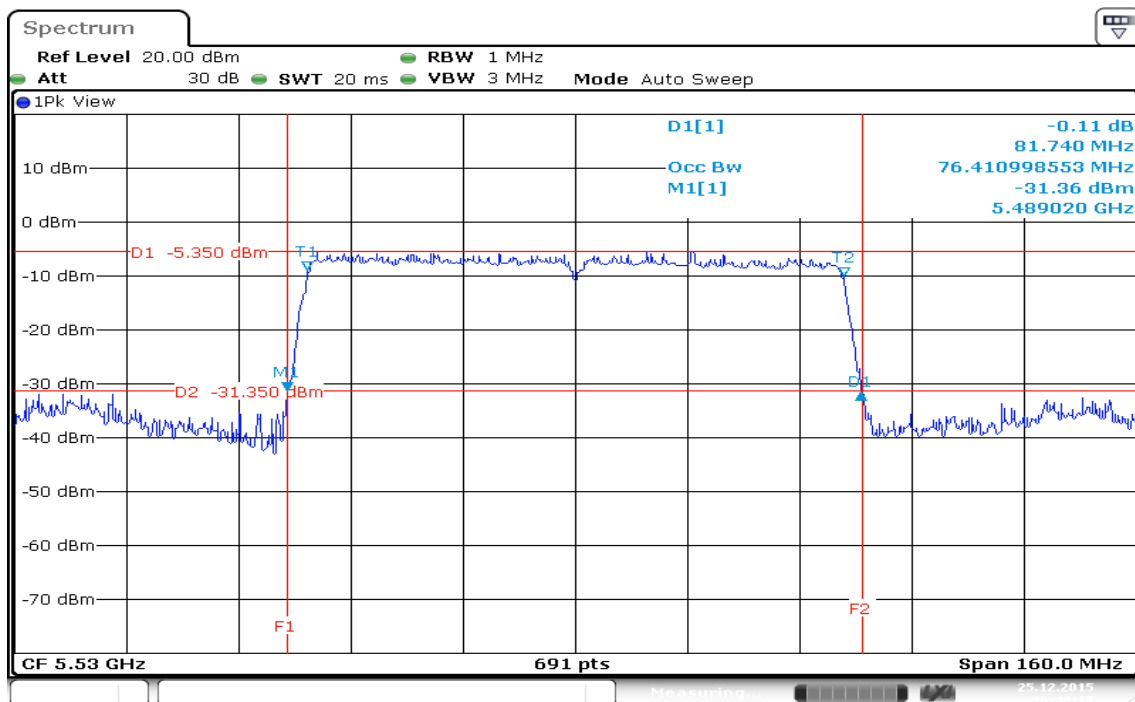
CH High



Date: 29.DEC.2015 10:54:52

IEEE 802.11ac VHT 80 MHz mode / 5530 MHz/ Chain 0**CH Low**

Date: 25.DEC.2015 16:38:36

IEEE 802.11ac VHT 80 MHz mode / 5530 MHz/ Chain 1**CH Low**

Date: 25.DEC.2015 16:40:17

7.3 MAXIMUM CONDUCTED OUTPUT POWER

LIMIT

According to §15.407(a)

For the band 5.15-5.25 GHz, 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.

If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi

According to RSS-247,

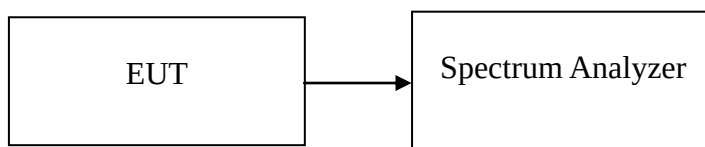
- (1) For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
- (2) For the band 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or $11 + 10 \log_{10} B$, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

In addition, devices with maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

The peak power shall not exceed the limit as follow:

Test Configuration

The EUT was connected to a spectrum analyzer through a 50Ω RF cable.



TEST PROCEDURE

Set span to encompass the entire emission bandwidth (EBW) of the signal.

Set RBW = 1 MHz / Set VBW = 3 MHz.

Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to "free run". Trace average 100 traces in power averaging mode. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

TEST RESULTS*No non-compliance noted***Test Data****Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz**

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	FCC Limit (dBm)
Low	5180	16.52	24.00
Mid	5220	16.43	24.00
High	5240	*16.57	24.00

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	FCC Limit (dBm)
Low	5180	13.26	15.73	*17.68	24.00
Mid	5220	13.11	15.51	17.48	24.00
High	5240	13.09	15.42	17.42	24.00

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	FCC Limit (dBm)
Low	5190	12.89	15.24	17.23	24.00
High	5230	12.78	15.89	*17.62	24.00

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	FCC Limit (dBm)
Mid	5210	10.29	12.09	*14.29	24.00

Remark:

1. Total Output Power (w) = Chain 0 ($10^{(\text{Output Power} / 10) / 1000}$) + Chain 1 ($10^{(\text{Output Power} / 10) / 1000}$)

Test mode: IEEE 802.11a mode / 5260 ~ 5320MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5260	*16.47	24.00
Mid	5280	16.25	24.00
High	5320	16.39	24.00

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5260	13.08	15.49	17.46	24.00
Mid	5280	13.31	15.78	*17.73	24.00
High	5320	13.35	14.89	17.20	24.00

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5270	12.79	14.32	16.63	24.00
High	5310	12.86	14.59	*16.82	24.00

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Mid	5290	10.62	12.34	*14.57	24.00

Remark:

1. Total Output Power (w) = Chain 0 ($10^{(\text{Output Power} / 10) / 1000}$) + Chain 1 ($10^{(\text{Output Power} / 10) / 1000}$)

Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5500	16.36	24.00
Mid	5580	*16.61	24.00
High	5700	16.35	24.00

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5500	13.89	15.51	17.79	24.00
Mid	5580	13.09	15.96	17.77	24.00
High	5700	13.52	16.09	*18.00	24.00

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5510	12.23	14.05	16.24	24.00
Mid	5590	12.34	15.42	17.16	24.00
High	5670	12.49	15.69	*17.39	24.00

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530MHz

Channel	Frequency (MHz)	Chain 0 Output Power (dBm)	Chain 1 Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Mid	5530	10.29	11.69	*14.06	24.00

Remark:

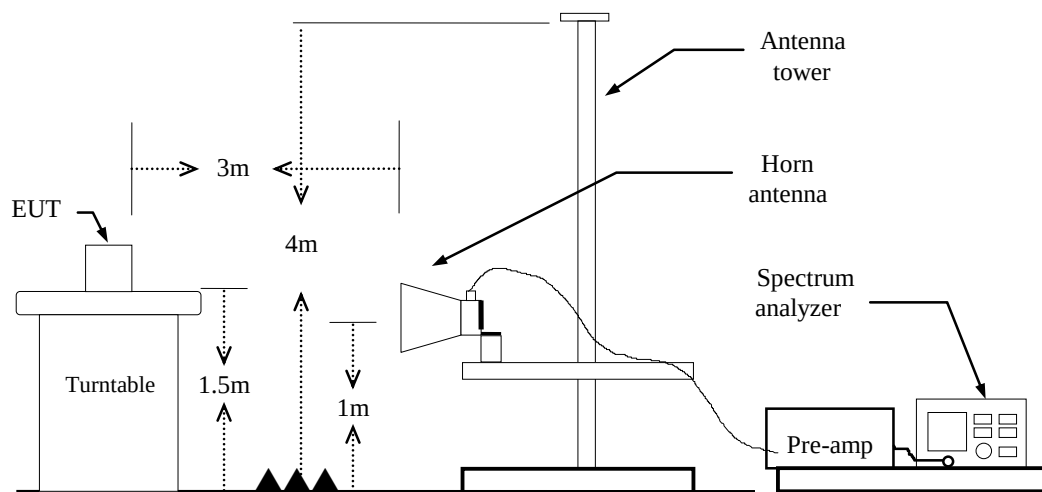
1. Total Output Power (w) = Chain 0 ($10^{(\text{Output Power} / 10) / 1000}$) + Chain 1 ($10^{(\text{Output Power} / 10) / 1000}$)

7.4 BAND EDGES MEASUREMENT

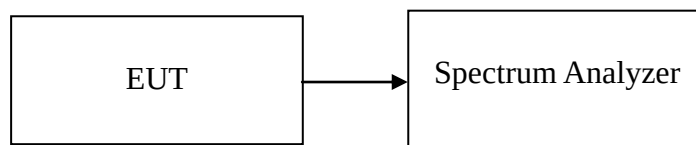
LIMIT

According to §15.407 & RSS-247 §, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Test Configuration



For Conducted



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz,
if duty cycle $\geq 98\%$, VBW=10Hz.
if duty cycle $< 98\%$ VBW=1/T.
IEEE 802.11a mode: $\geq 98\%$, VBW=10Hz
IEEE 802.11n HT 20 MHz mode: $\geq 98\%$, VBW=10Hz
IEEE 802.11n HT 40 MHz mode: $\geq 98\%$, VBW=10Hz
IEEE 802.11ac VHT 80 MHz mode: $\geq 98\%$, VBW=10Hz
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.
6. Result = Spectrum Reading + cable loss(spectrum to Amp) - Amp Gain + Cable loss(Amp to receive Ant)+ Receive Ant

For Conducted

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

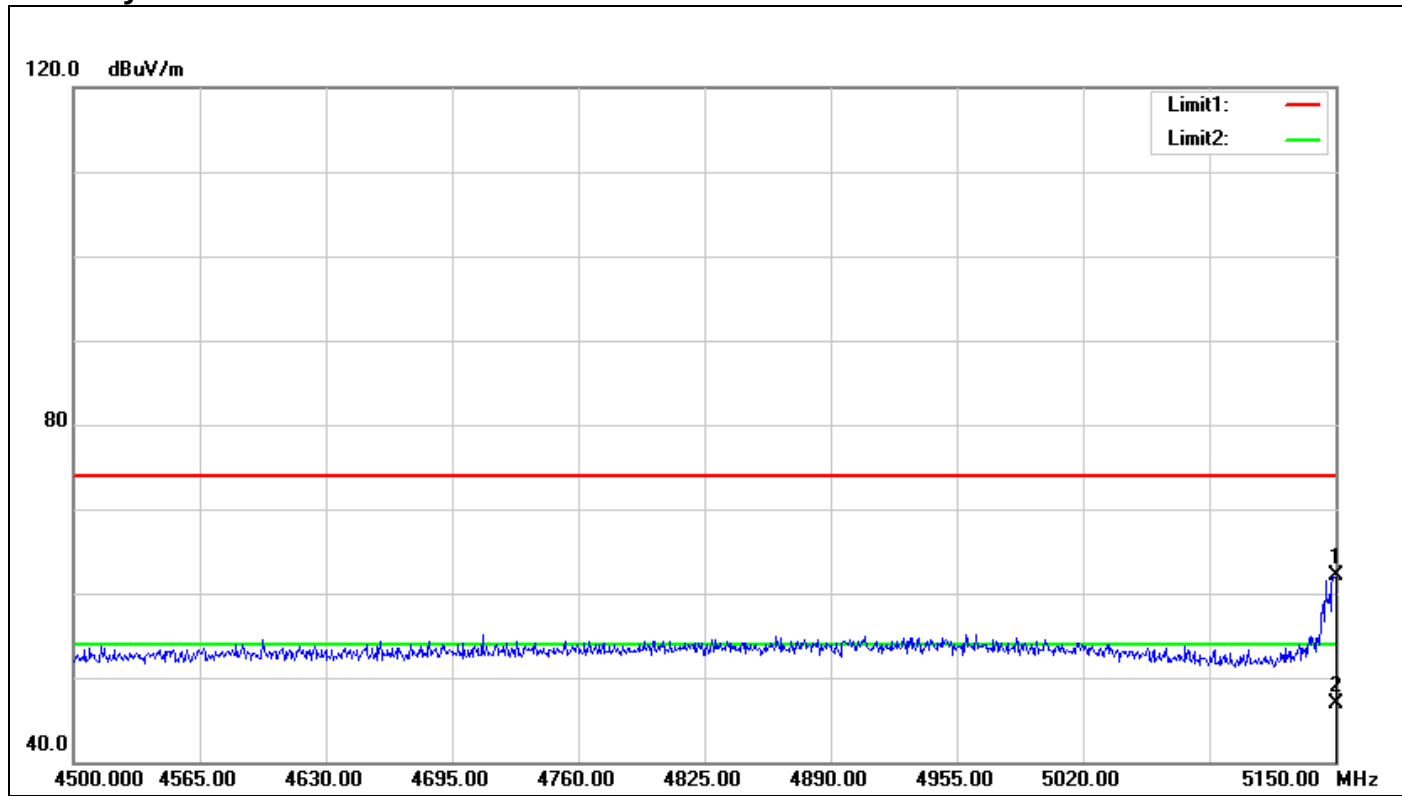
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

TEST RESULTS

Refer to attach spectrum analyzer data chart.

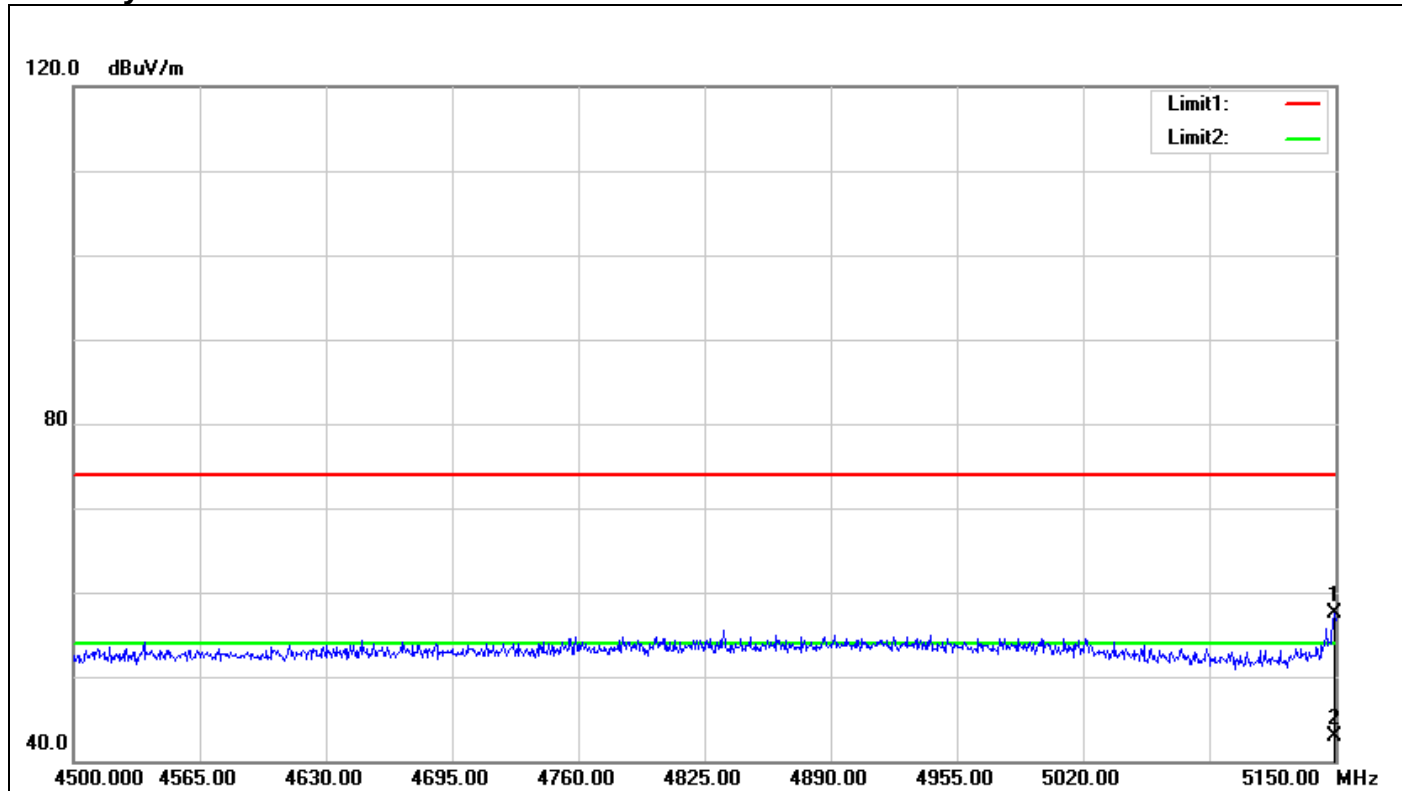
Band Edges (IEEE 802.11a mode / CH 5180 MHz)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5150.000	59.05	3.04	62.09	74.00	-11.91	150	256	peak
2	5150.000	43.87	3.04	46.91	54.00	-7.09	150	256	AVG

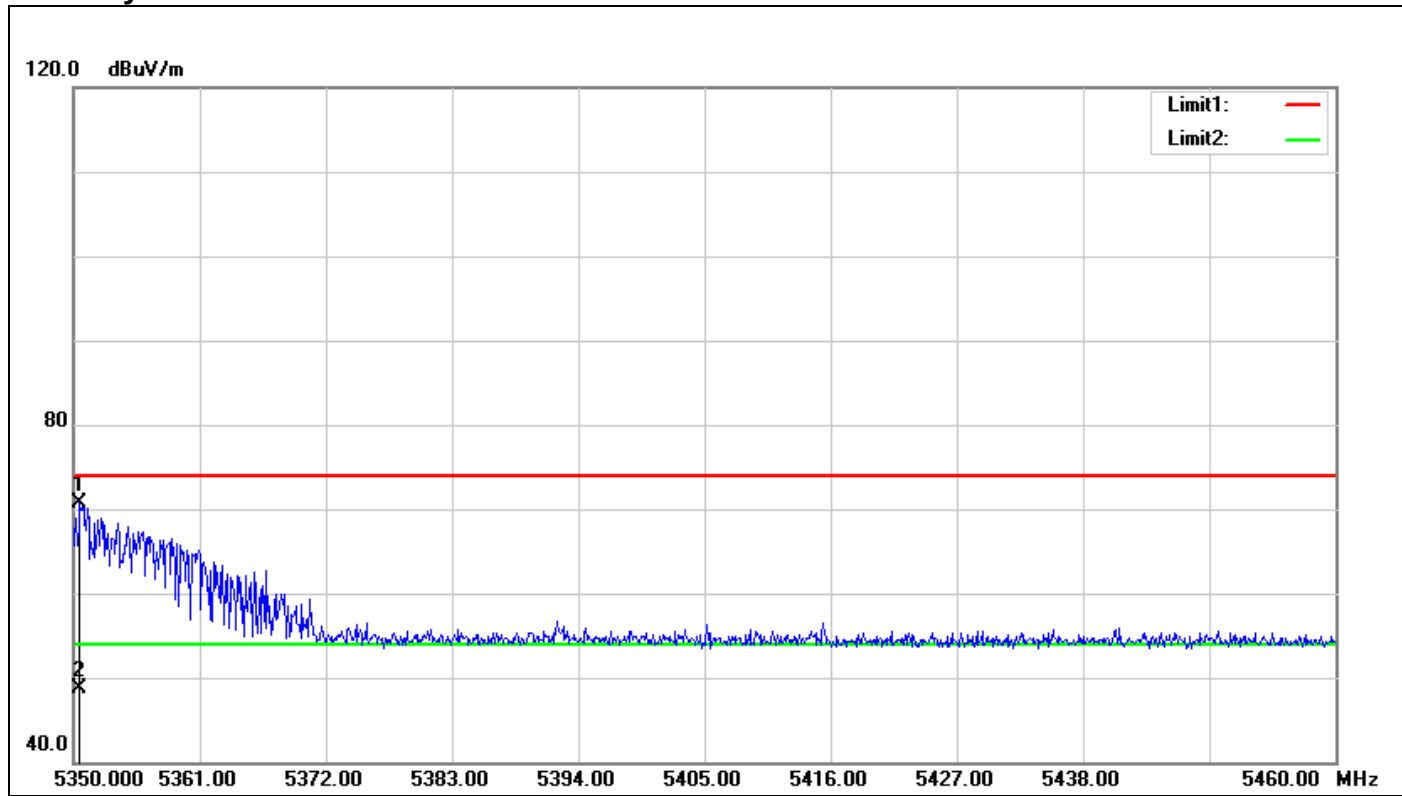
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5149.350	54.53	3.04	57.57	74.00	-16.43	150	303	peak
2	5149.350	39.95	3.04	42.99	54.00	-11.01	150	303	AVG

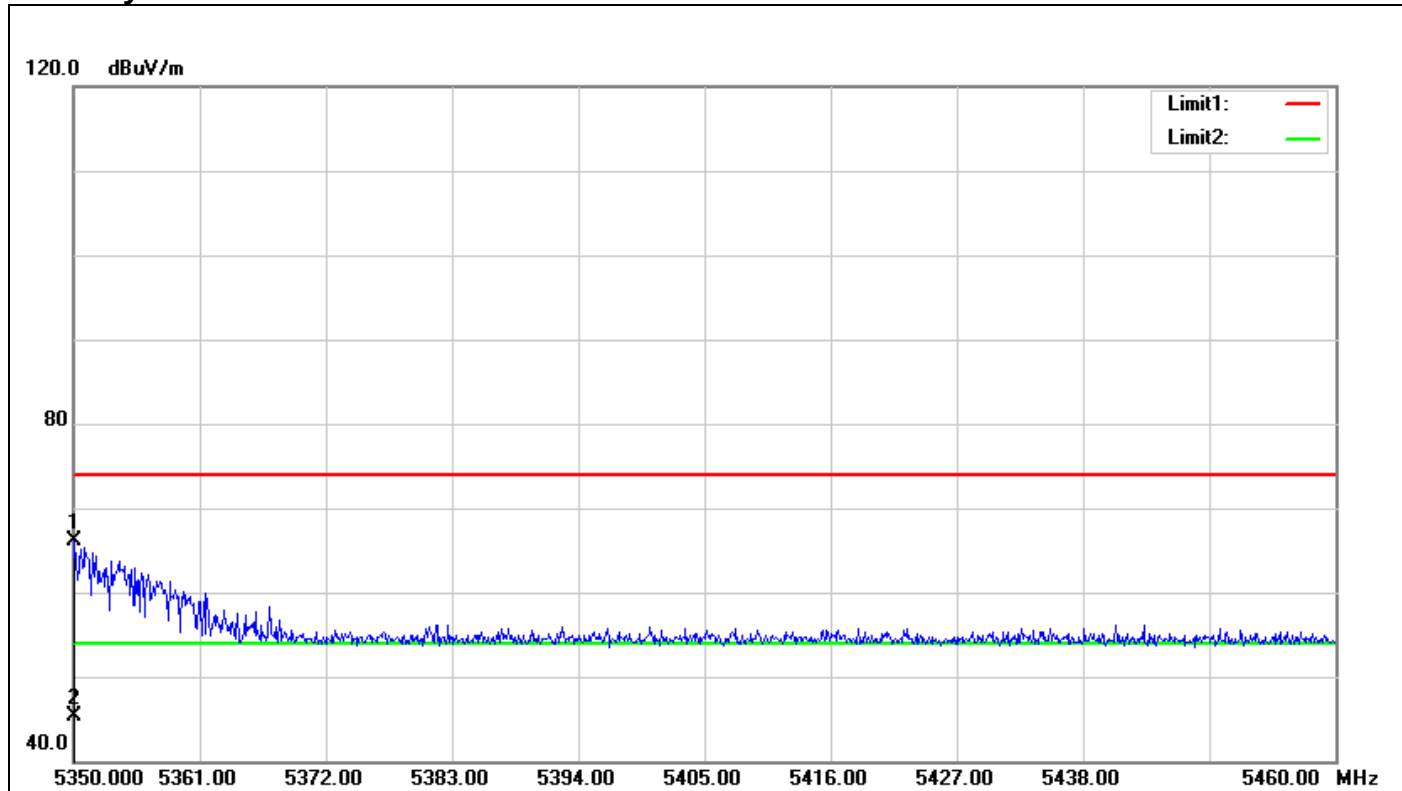
Band Edges (IEEE 802.11a mode / CH 5320 MHz)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5350.550	65.49	5.31	70.80	74.00	-3.20	150	185	peak
2	5350.550	43.36	5.31	48.67	54.00	-5.33	150	185	AVG

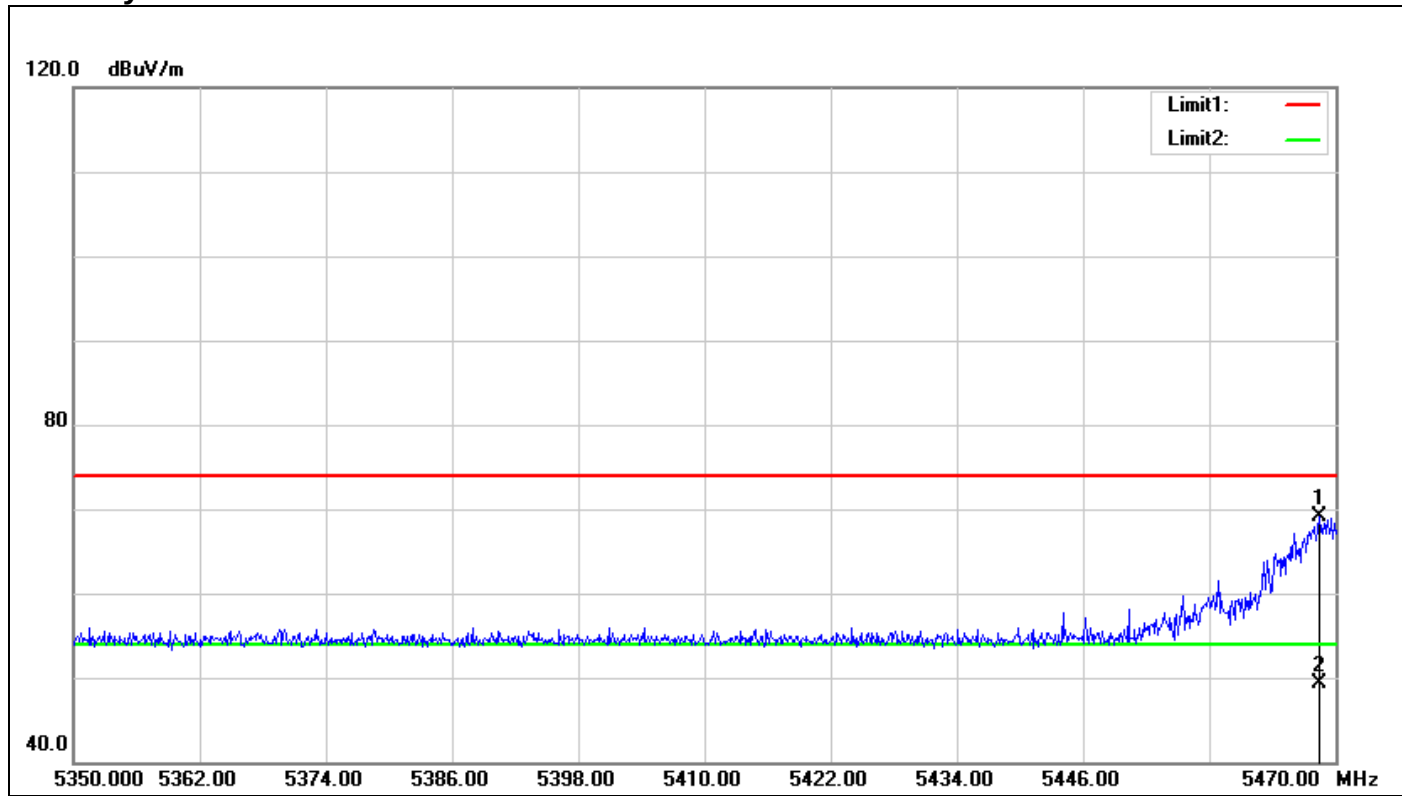
Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5350.110	60.84	5.31	66.15	74.00	-7.85	150	65	peak
2	5350.110	40.08	5.31	45.39	54.00	-8.61	150	65	AVG

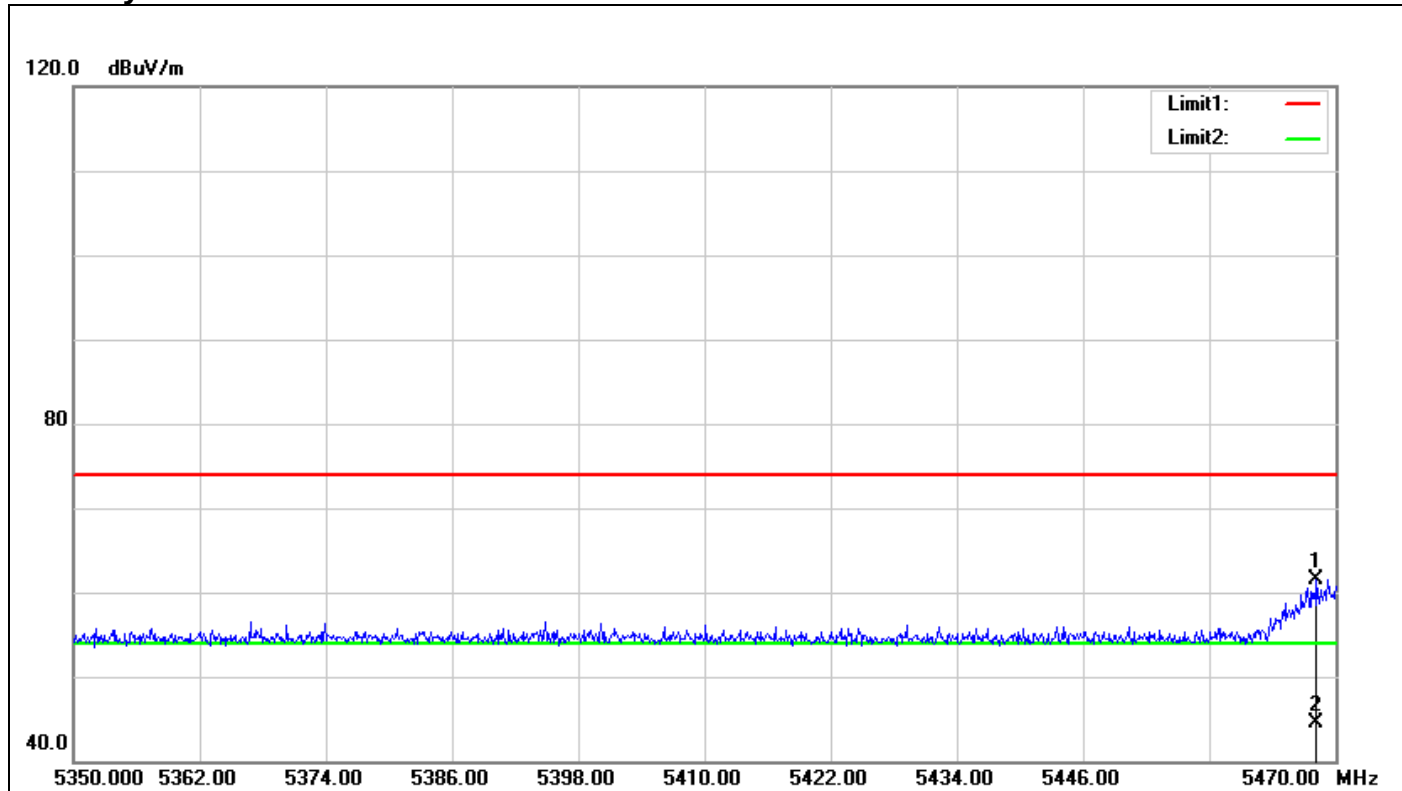
Band Edges (IEEE 802.11a mode / CH 5500 MHz)

Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5468.440	63.67	5.40	69.07	74.00	-4.93	150	33	peak
2	5468.440	43.91	5.40	49.31	54.00	-4.69	150	33	AVG

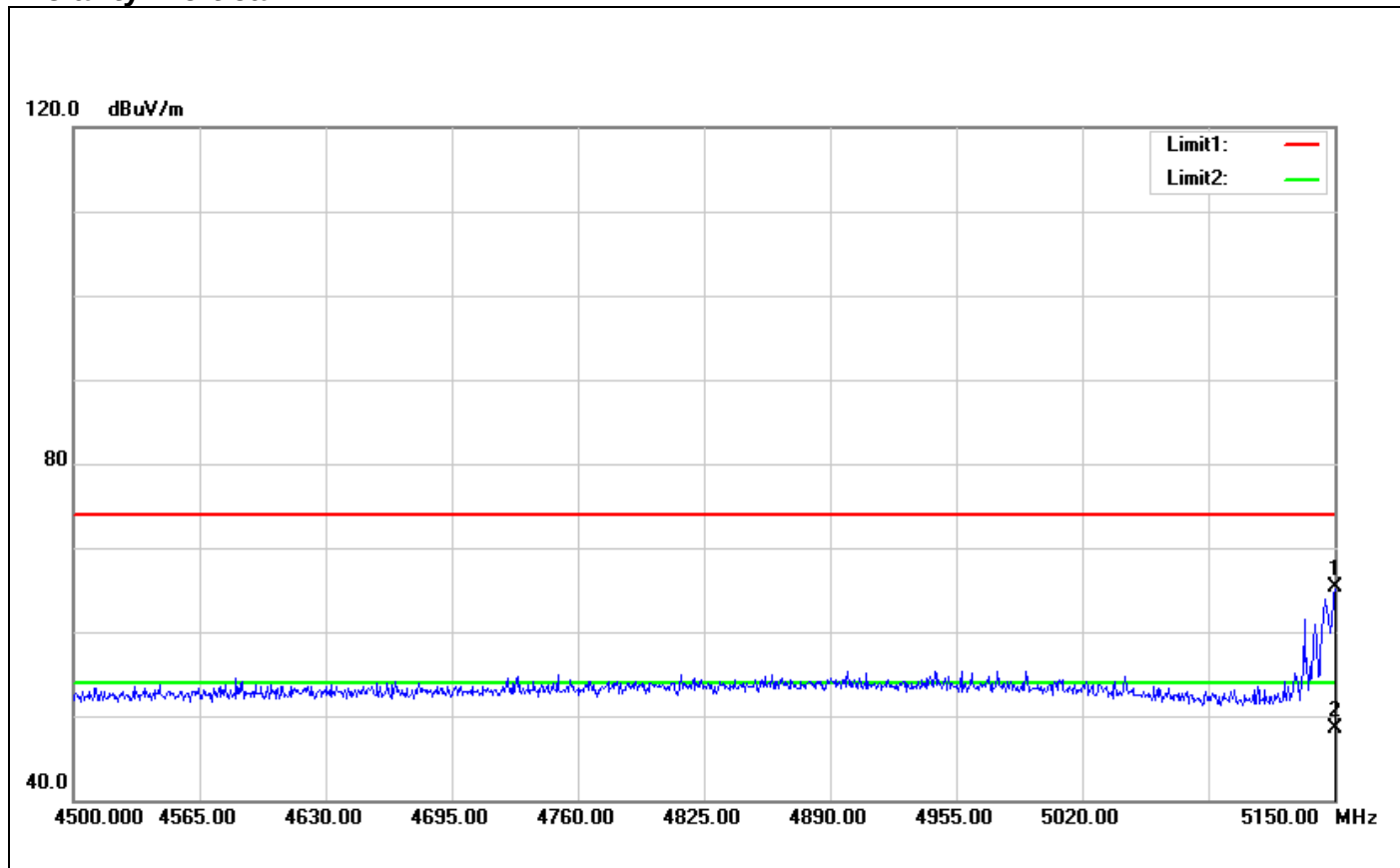
Polarity: Horizontal



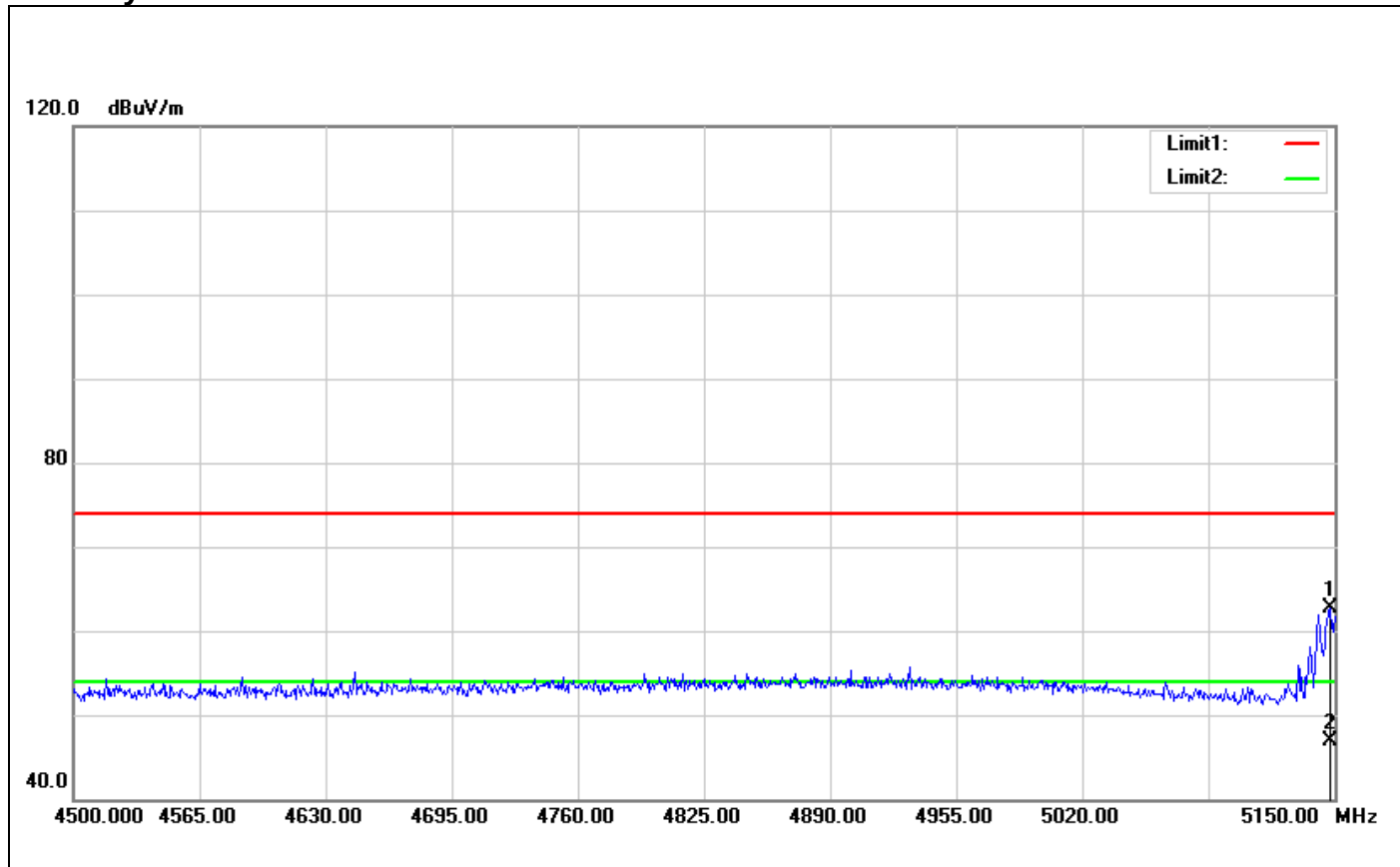
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5468.200	56.14	5.40	61.54	74.00	-12.46	150	202	peak
2	5468.200	39.07	5.40	44.47	54.00	-9.53	150	202	AVG

Band Edges (IEEE 802.11n HT 20 MHz Channel mode / CH 5180 MHz)

Polarity: Vertical



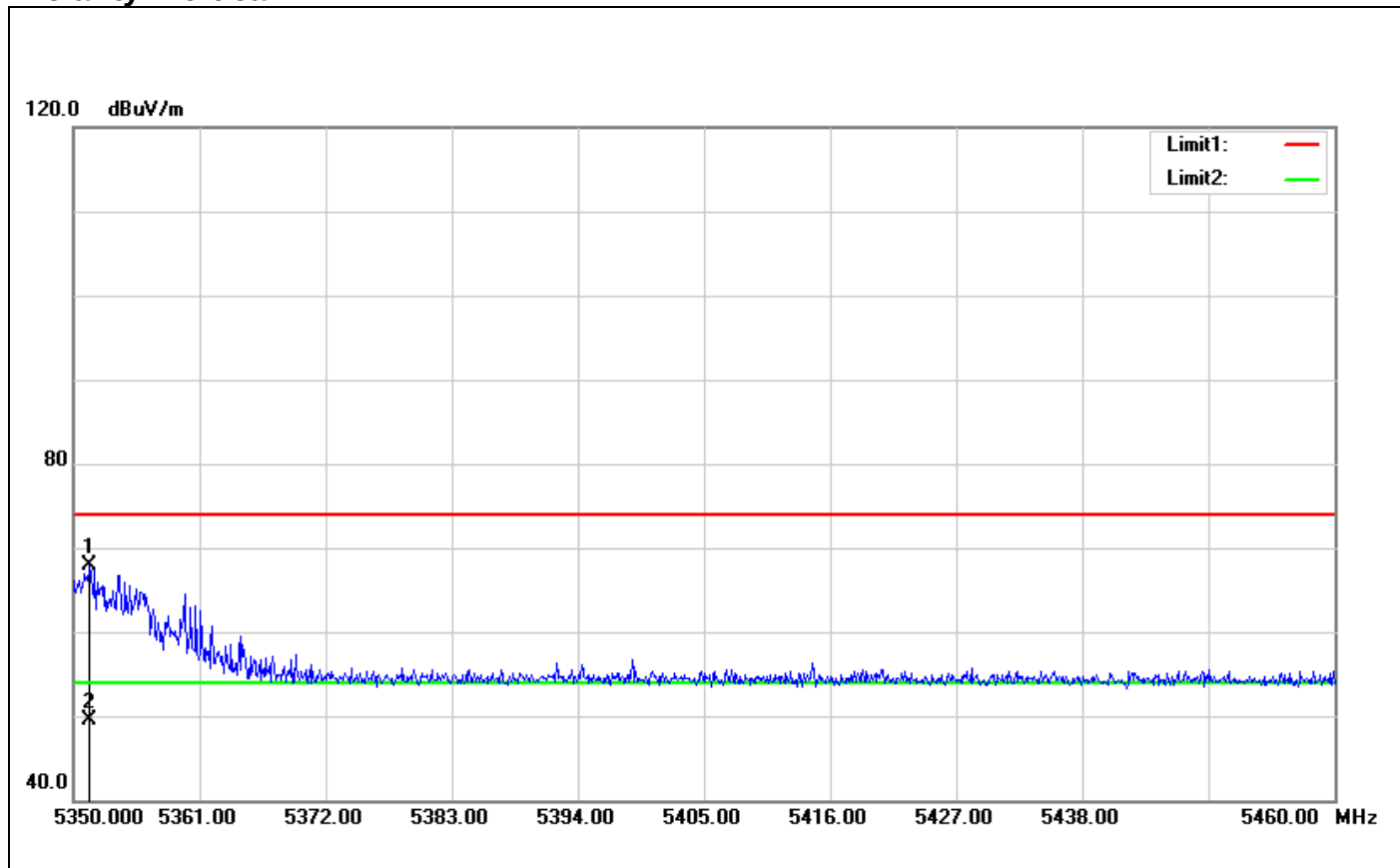
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5150.000	62.30	3.04	65.34	74.00	-8.66	150	201	peak
2	5150.000	45.54	3.04	48.58	54.00	-5.42	150	201	AVG

Polarity: Horizontal

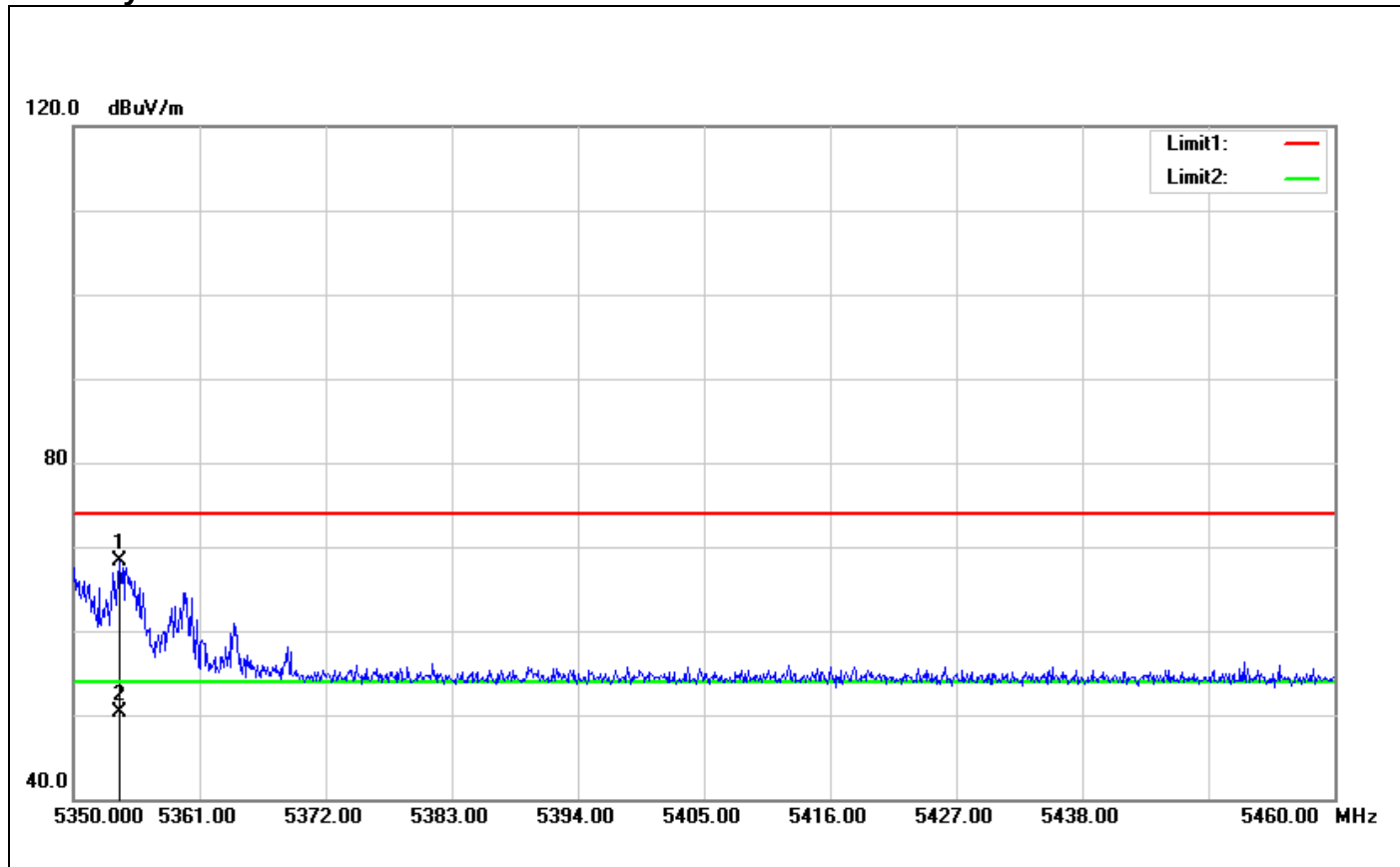
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5147.400	59.64	3.02	62.66	74.00	-11.34	150	332	peak
2	5147.400	43.86	3.02	46.88	54.00	-7.12	150	332	AVG

Band Edges (IEEE 802.11n HT 20 MHz Channel mode / CH 5320 MHz)

Polarity: Vertical



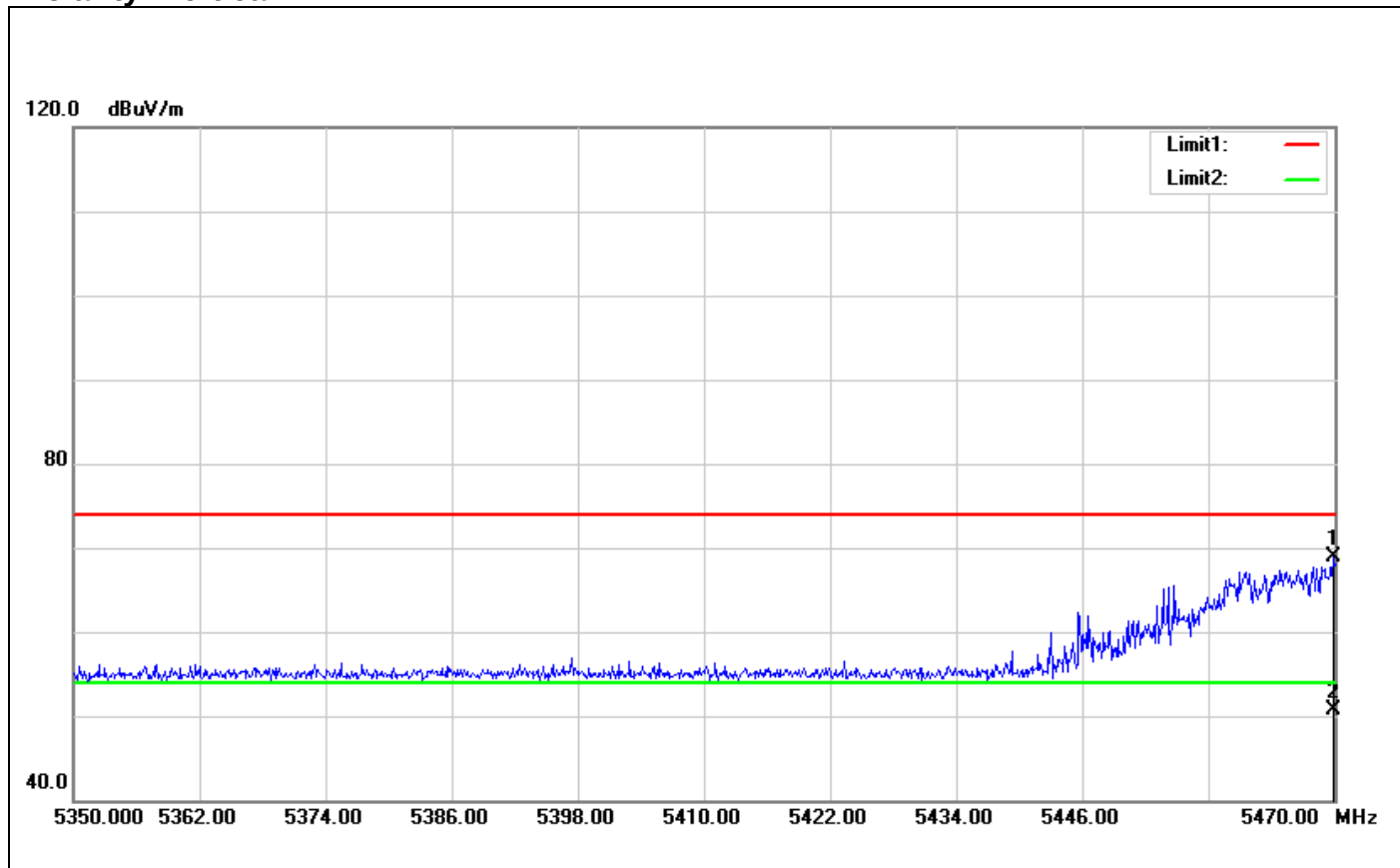
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5351.430	62.61	5.32	67.93	74.00	-6.07	150	112	peak
2	5351.430	44.13	5.32	49.45	54.00	-4.55	150	112	AVG

Polarity: Horizontal

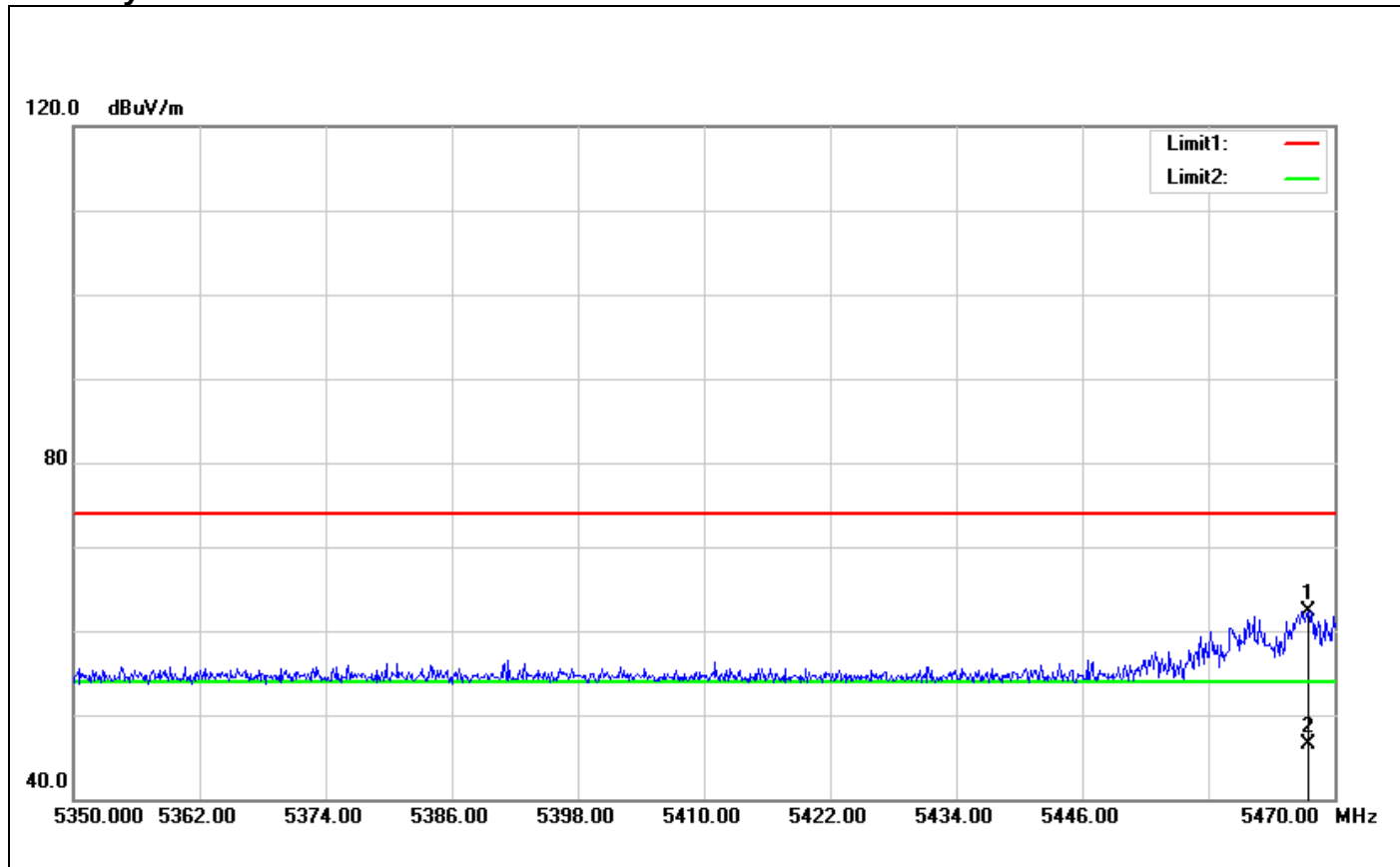
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5354.070	62.97	5.34	68.31	74.00	-5.69	150	24	peak
2	5354.070	45.00	5.34	50.34	54.00	-3.66	150	24	AVG

Band Edges (IEEE 802.11n HT 20 MHz Channel mode / CH 5500 MHz)

Polarity: Vertical



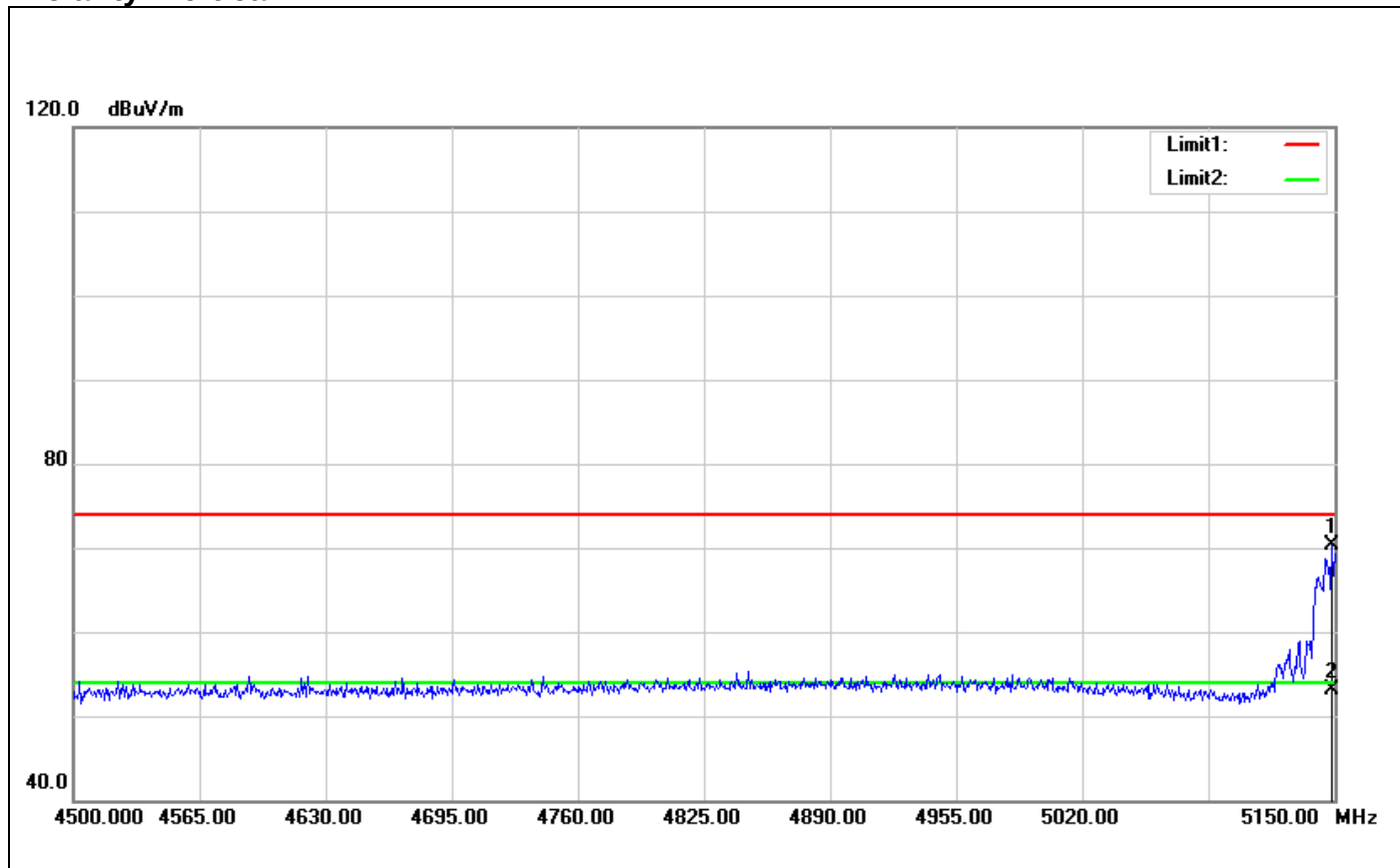
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5469.880	63.49	5.39	68.88	74.00	-5.12	150	322	peak
2	5469.880	45.25	5.39	50.64	54.00	-3.36	150	322	AVG

Polarity: Horizontal

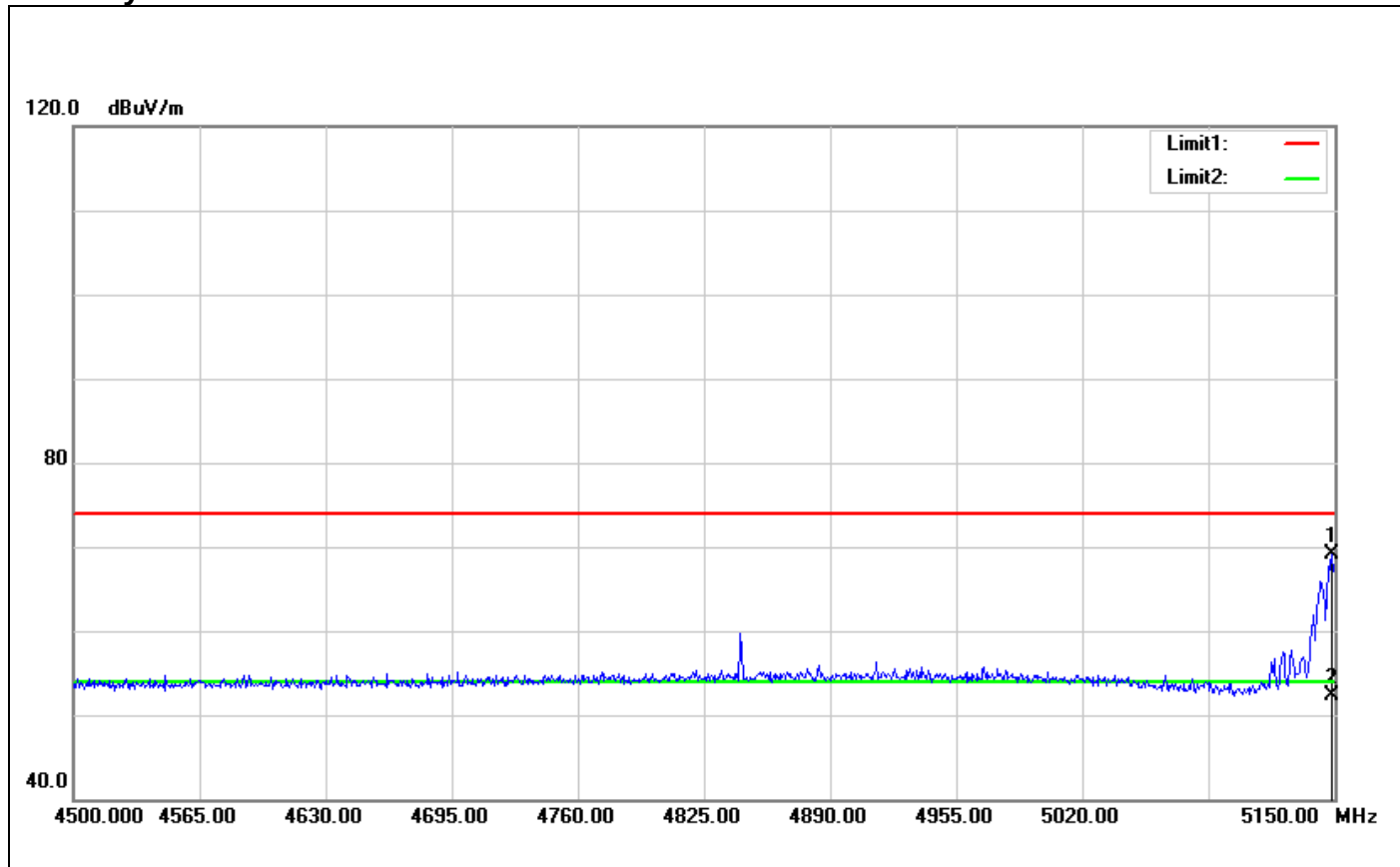
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5467.480	56.93	5.40	62.33	74.00	-11.67	150	235	peak
2	5467.480	41.04	5.40	46.44	54.00	-7.56	150	235	AVG

Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5190 MHz)

Polarity: Vertical



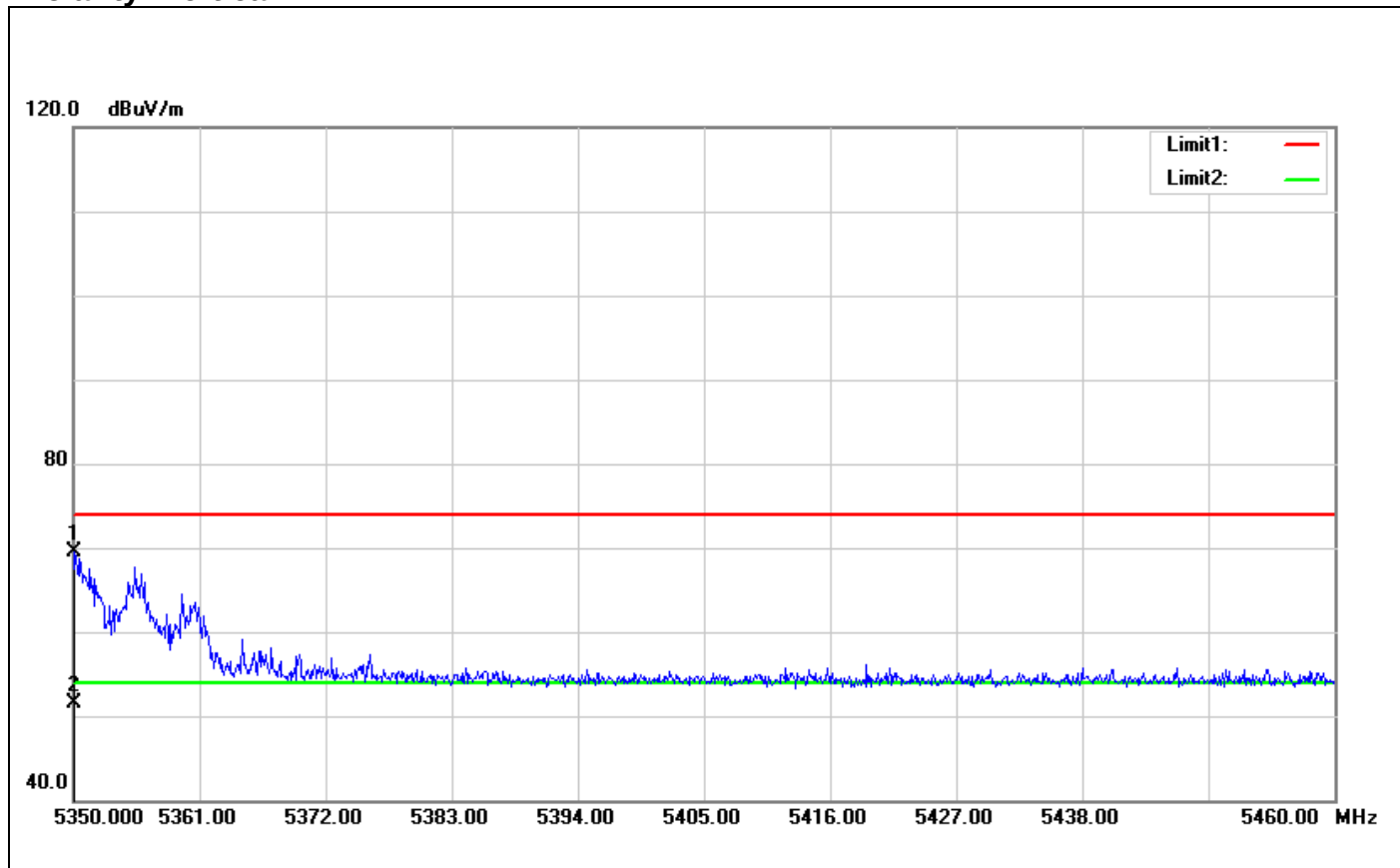
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5148.700	67.20	3.03	70.23	74.00	-3.77	150	103	peak
2	5148.700	50.08	3.03	53.11	54.00	-0.89	150	103	AVG

Polarity: Horizontal

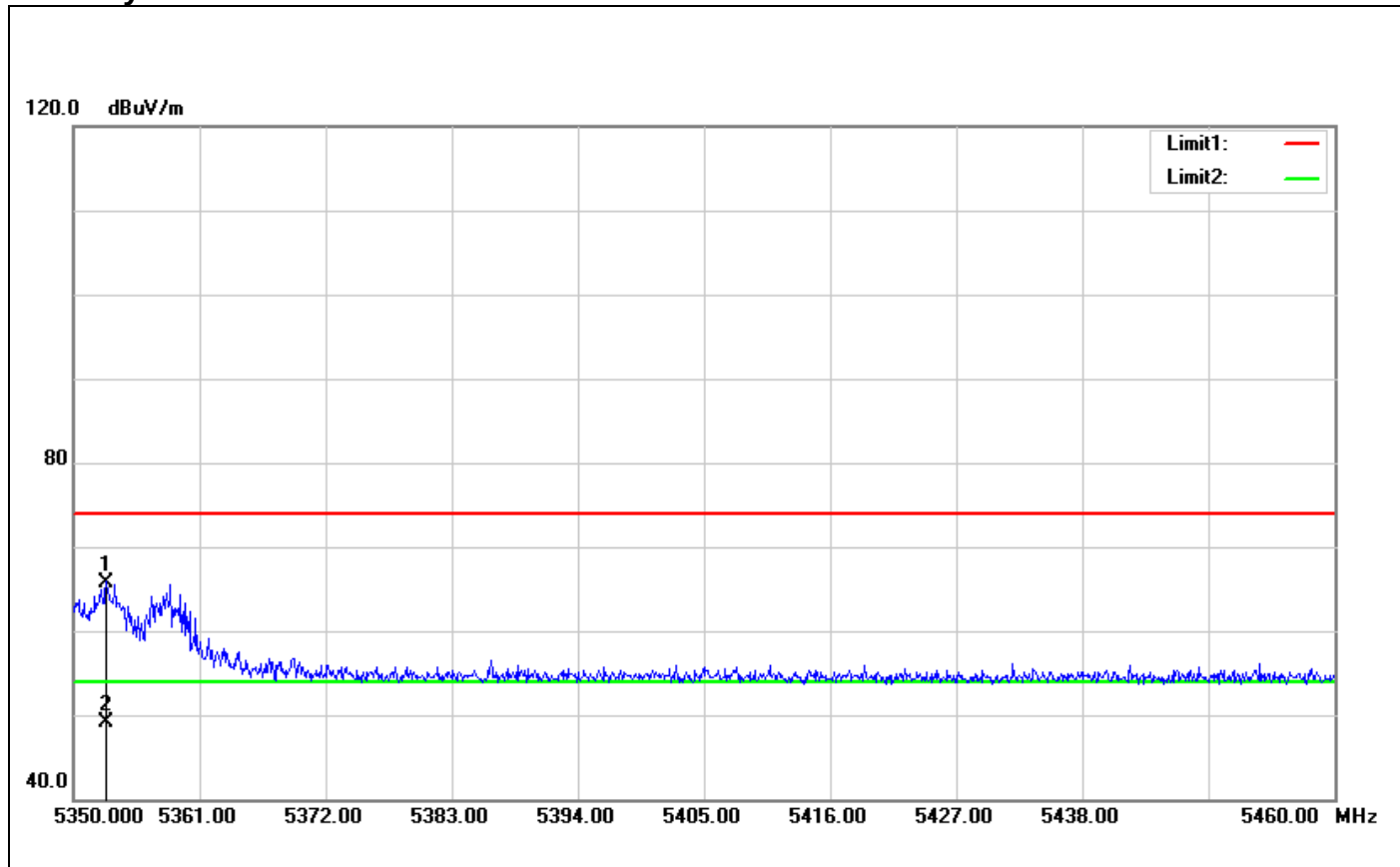
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5148.700	66.03	3.03	69.06	74.00	-4.94	150	103	peak
2	5148.700	49.24	3.03	52.27	54.00	-1.73	150	103	AVG

Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5310 MHz)

Polarity: Vertical



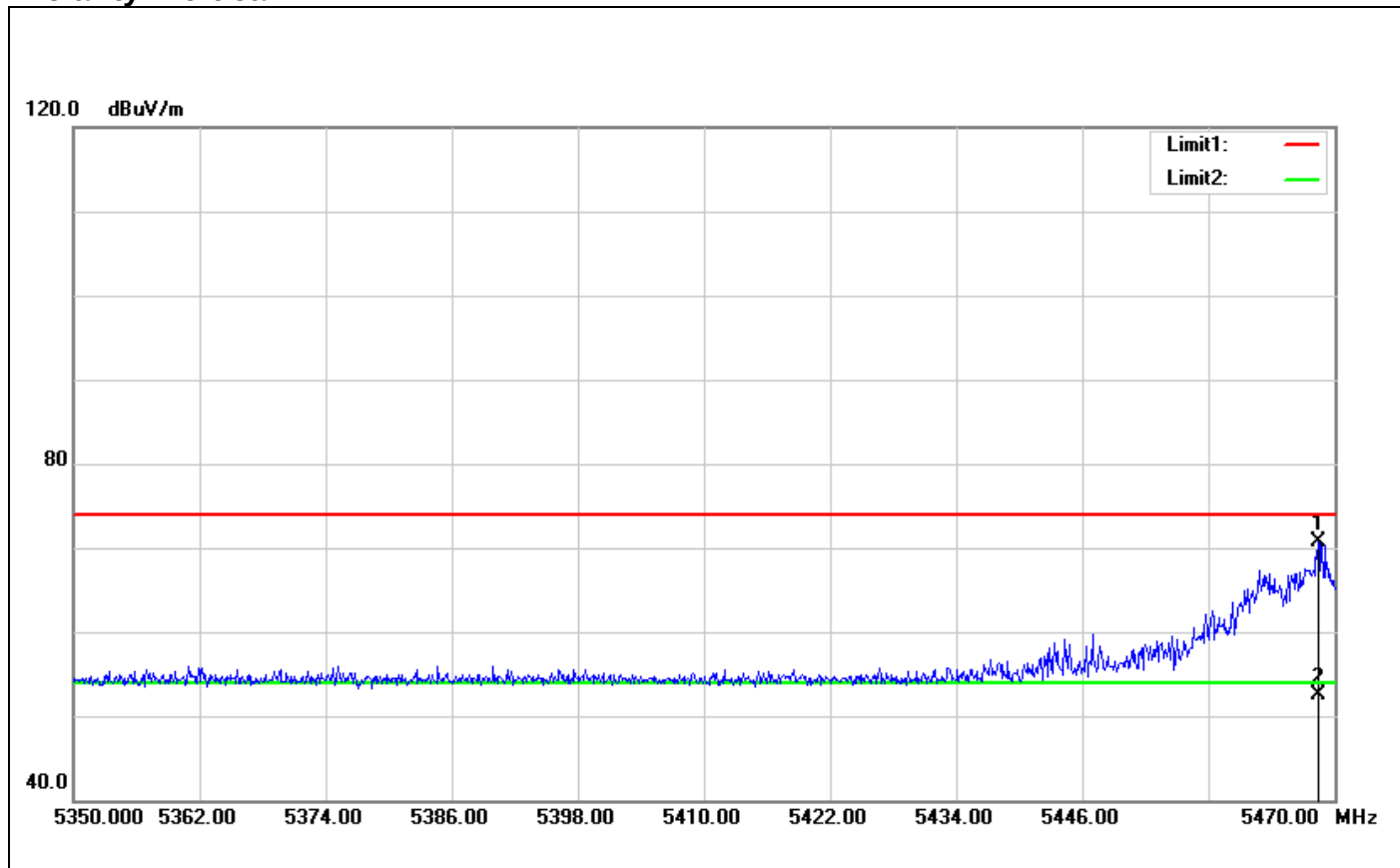
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5350.110	64.27	5.31	69.58	74.00	-4.42	150	68	peak
2	5350.110	46.11	5.31	51.42	54.00	-2.58	150	68	AVG

Polarity: Horizontal

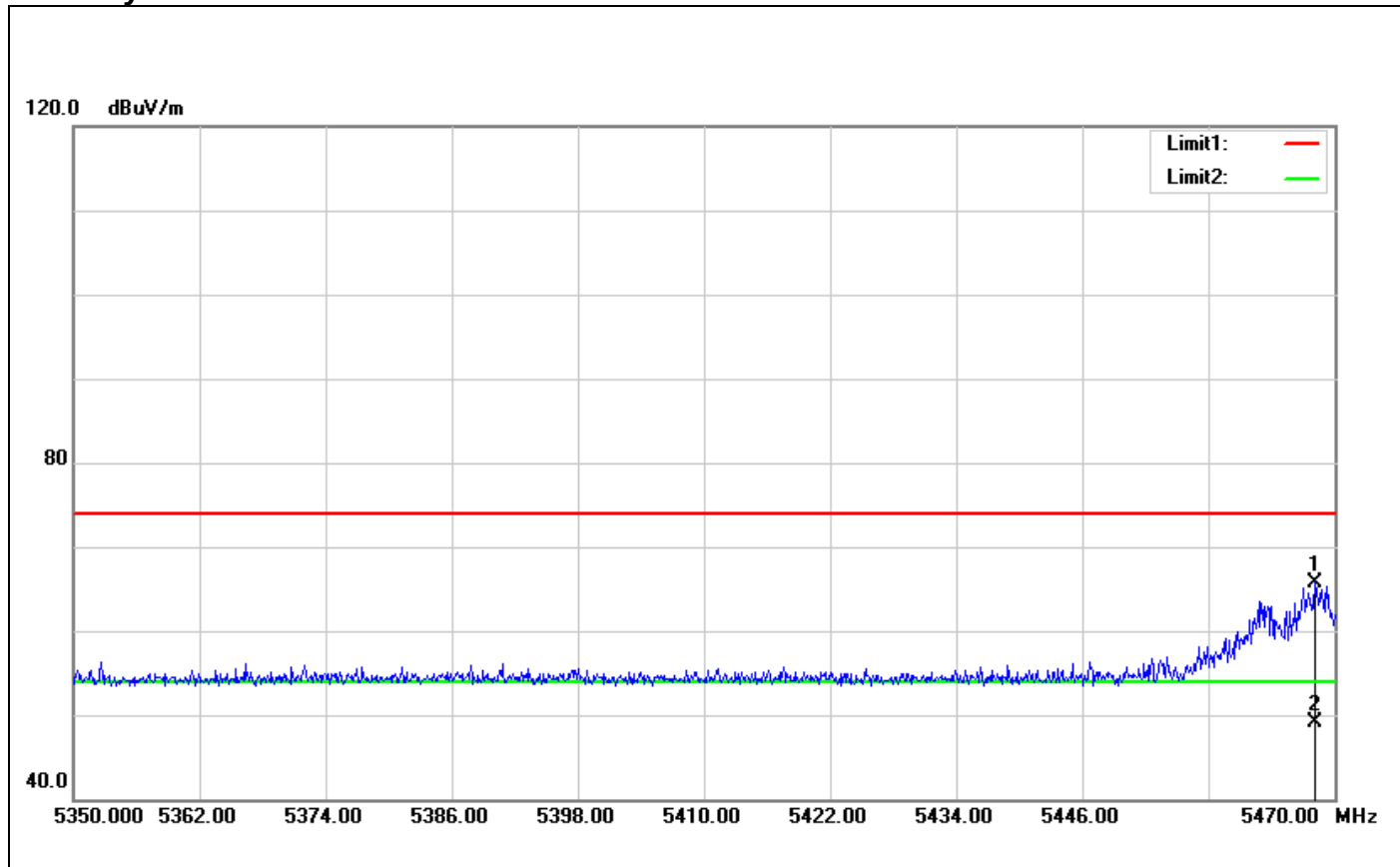
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5352.860	60.47	5.33	65.80	74.00	-8.20	150	157	peak
2	5352.860	43.74	5.33	49.07	54.00	-4.93	150	157	AVG

Band Edges (IEEE 802.11n HT 40 MHz mode / CH 5510 MHz)

Polarity: Vertical



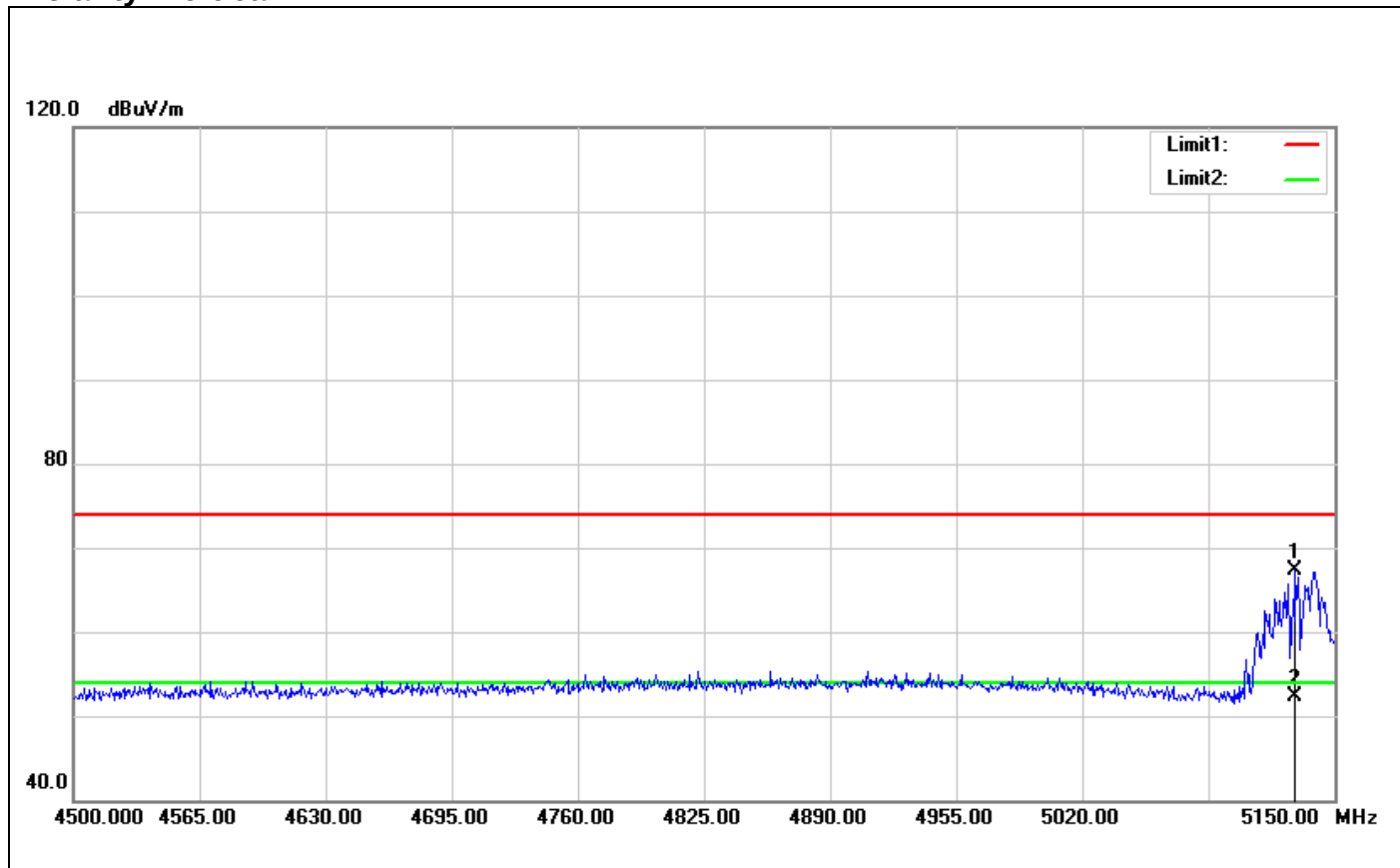
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5468.440	65.26	5.40	70.66	74.00	-3.34	150	287	peak
2	5468.440	47.15	5.40	52.55	54.00	-1.45	150	287	AVG

Polarity: Horizontal

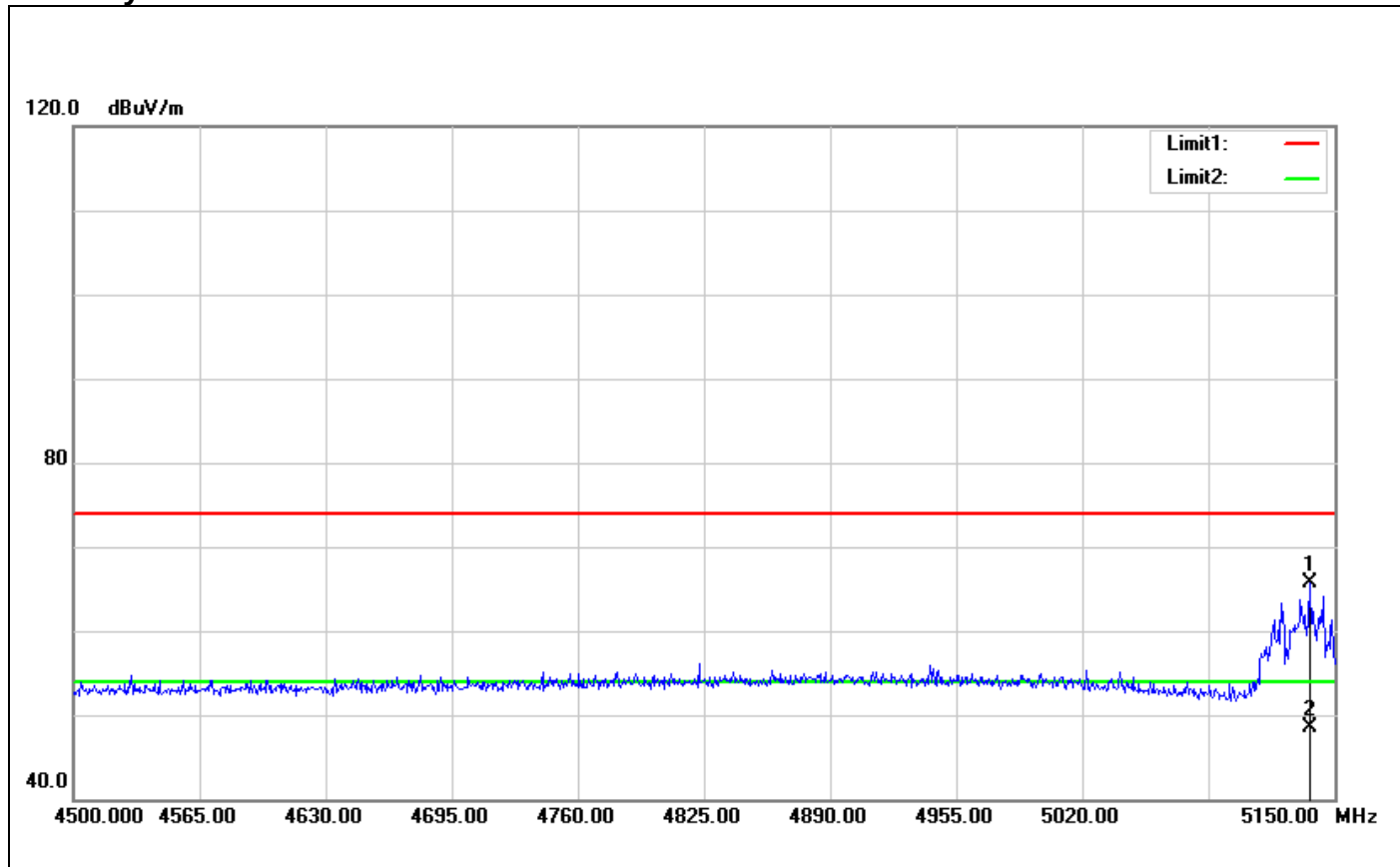
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5468.080	60.40	5.40	65.80	74.00	-8.20	150	111	peak
2	5468.080	43.78	5.40	49.18	54.00	-4.82	150	111	AVG

Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5210 MHz)

Polarity: Vertical



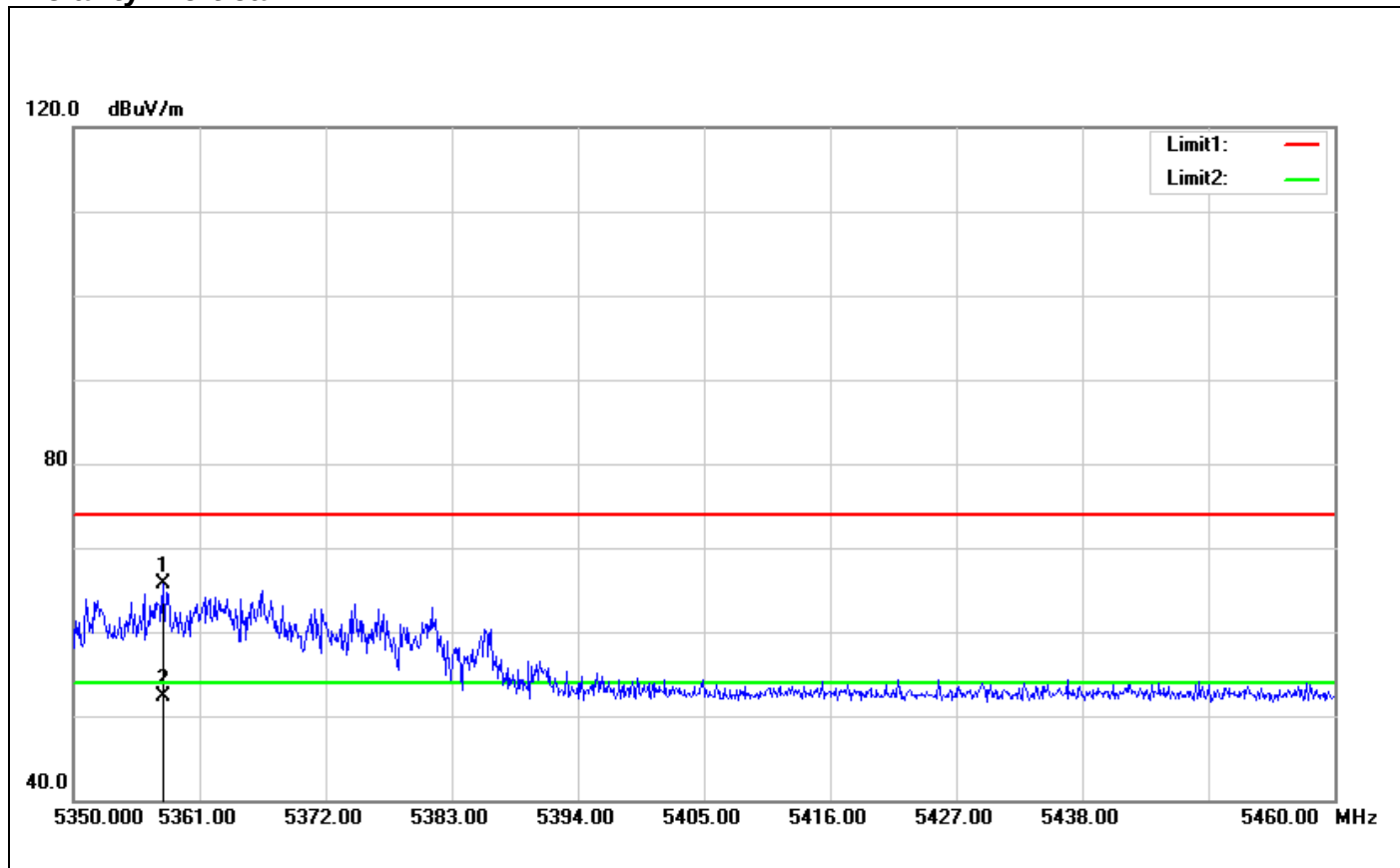
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5129.850	64.40	2.90	67.30	74.00	-6.70	140	302	peak
2	5129.850	49.33	2.90	52.23	54.00	-1.77	140	302	AVG

Polarity: Horizontal

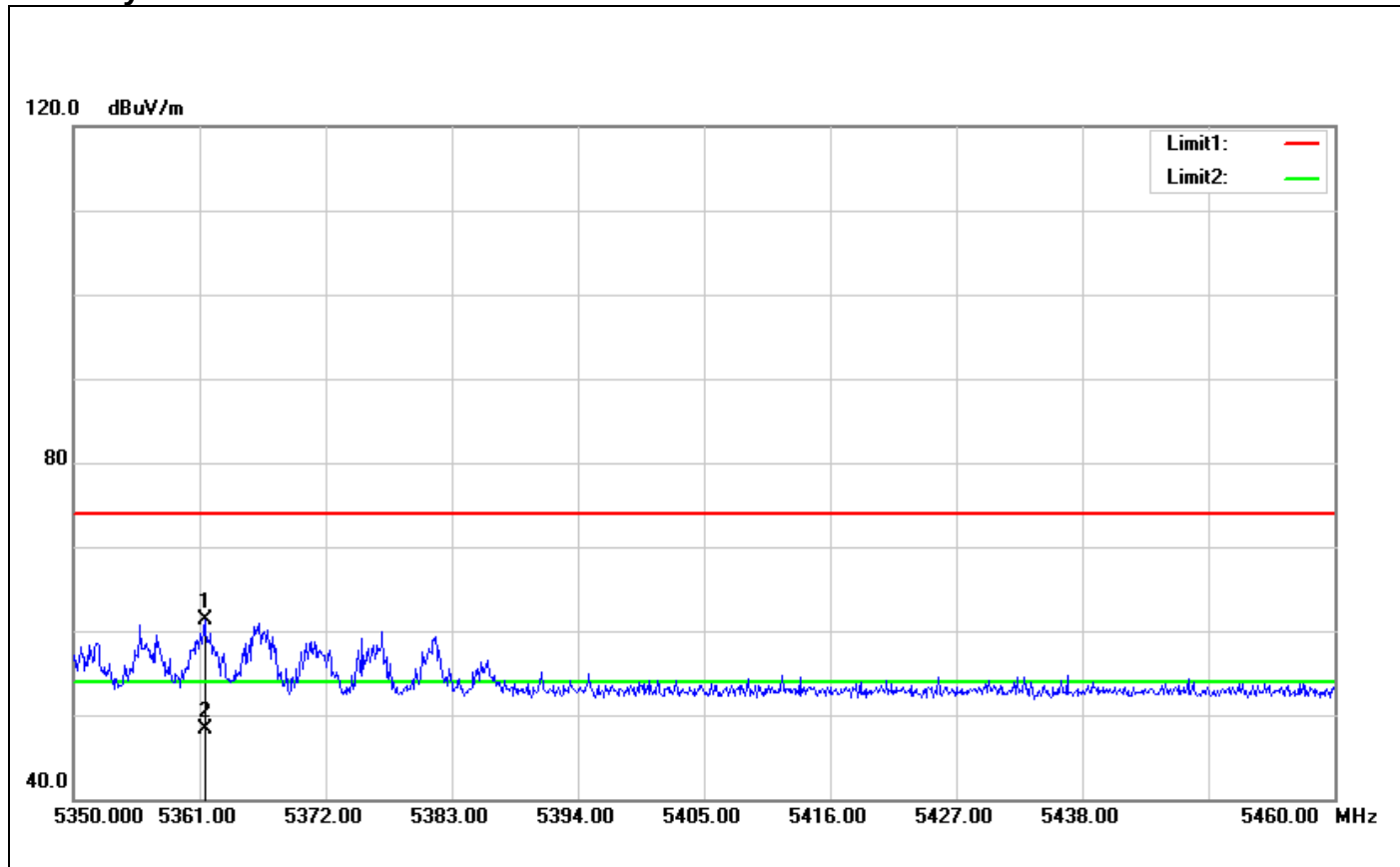
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5137.000	62.80	2.95	65.75	74.00	-8.25	150	152	peak
2	5137.000	45.60	2.95	48.55	54.00	-5.45	150	152	AVG

Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5290 MHz)

Polarity: Vertical



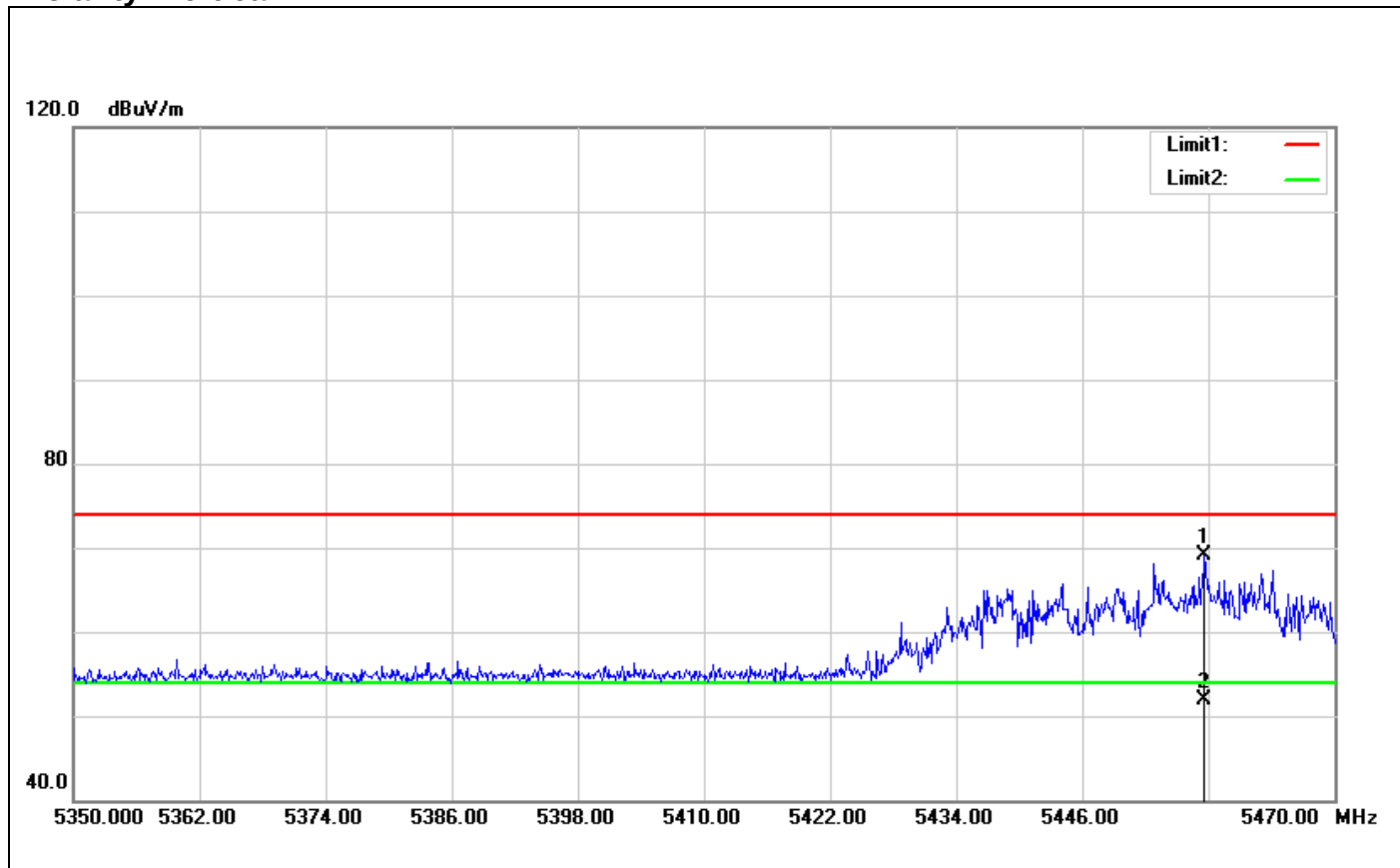
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5357.810	60.43	5.37	65.80	74.00	-8.20	150	325	peak
2	5357.810	46.95	5.37	52.32	54.00	-1.68	150	325	AVG

Polarity: Horizontal

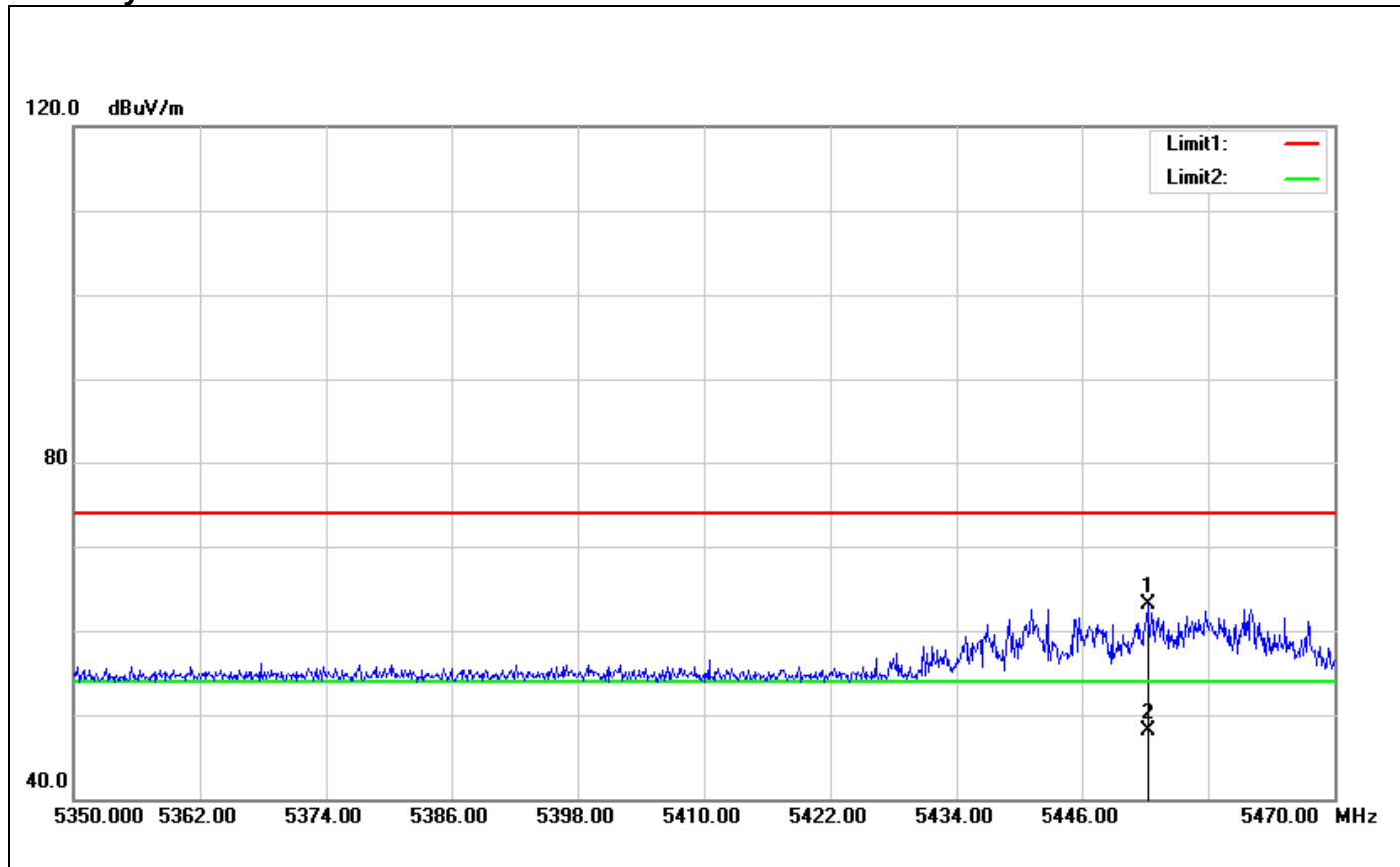
No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5361.440	55.88	5.40	61.28	74.00	-12.72	150	359	peak
2	5361.440	42.99	5.40	48.39	54.00	-5.61	150	359	AVG

Band Edges (IEEE 802.11ac VHT 80 MHz mode / CH 5530 MHz)

Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5457.640	63.57	5.45	69.02	74.00	-4.98	150	14	peak
2	5457.640	46.50	5.45	51.95	54.00	-2.05	150	14	AVG

Polarity: Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5452.240	57.55	5.47	63.02	74.00	-10.98	150	105	peak
2	5452.240	42.58	5.47	48.05	54.00	-5.95	150	105	AVG

7.5 PEAK POWER SPECTRAL DENSITY

LIMIT

According to §15.407(a)

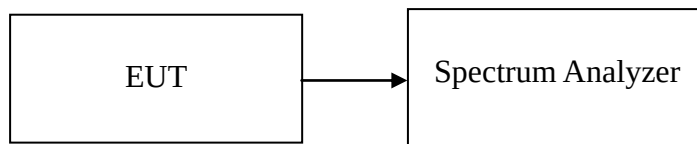
- (1) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 11dBm in any 1MHz band.
- (2) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11dBm in any 1MHz band.

According to RSS-247,

- (1) The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
- (2) The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

If transmitting antennas of directional gain greater than 6dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5180	-5.63	11.00	-16.63	PASS
Mid	5220	-6.02	11.00	-17.02	PASS
High	5240	-5.80	11.00	-16.8	PASS

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5180	-10.20	-8.75	-6.40	11.00	-17.4	PASS
Mid	5220	-10.30	-4.19	-3.24	11.00	-14.24	PASS
High	5240	-5.91	-4.39	-2.07	11.00	-13.07	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5190	-12.72	-6.75	-5.77	11.00	-16.77	PASS
High	5230	-9.40	-7.21	-5.16	11.00	-16.16	PASS

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5210MHz

Channel	Frequency (MHz)	Chain 0 PPSD (dBm)	Chain 1 PPSD (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Mid	5210	-16.50	-14.93	-12.63	11.00	-23.63	PASS

Remark:

1. Total PPSD (dBm) = $10 \cdot \log(10^{(\text{Chain 0 PPSD} / 10)} + 10^{(\text{Chain 1 PPSD} / 10)})$

Test mode: IEEE 802.11a mode/ 5260 ~ 5320MHz

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5260	-6.34	11.00	-17.34	PASS
Mid	5280	-6.51	11.00	-17.51	PASS
High	5320	-5.82	11.00	-16.82	PASS

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz

Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5260	-5.70	-4.62	-2.12	11.00	-13.12	PASS
Mid	5280	-5.91	-5.01	-2.43	11.00	-13.43	PASS
High	5320	-6.09	-5.16	-2.59	11.00	-13.59	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5270	-9.31	-7.48	-5.29	11.00	-16.29	PASS
High	5310	-9.03	-8.06	-5.51	11.00	-16.51	PASS

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5290MHz

Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Mid	5290	-16.30	-14.38	-12.22	11.00	-23.22	PASS

Remark:

1. Total PPSP (dBm) = $10 \cdot \log(10^{(\text{Chain 0 PPSP} / 10)} + 10^{(\text{Chain 1 PPSP} / 10)})$

Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5500	-5.38	11.00	-16.38	PASS
Mid	5580	-6.05	11.00	-17.05	PASS
High	5700	-6.00	11.00	-17	PASS

Test mode: IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz

Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5500	-5.12	-3.67	-1.32	11.00	-12.32	PASS
Mid	5580	-5.91	-5.91	-2.90	11.00	-13.9	PASS
High	5700	-4.83	-3.45	-1.08	11.00	-12.08	PASS

Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

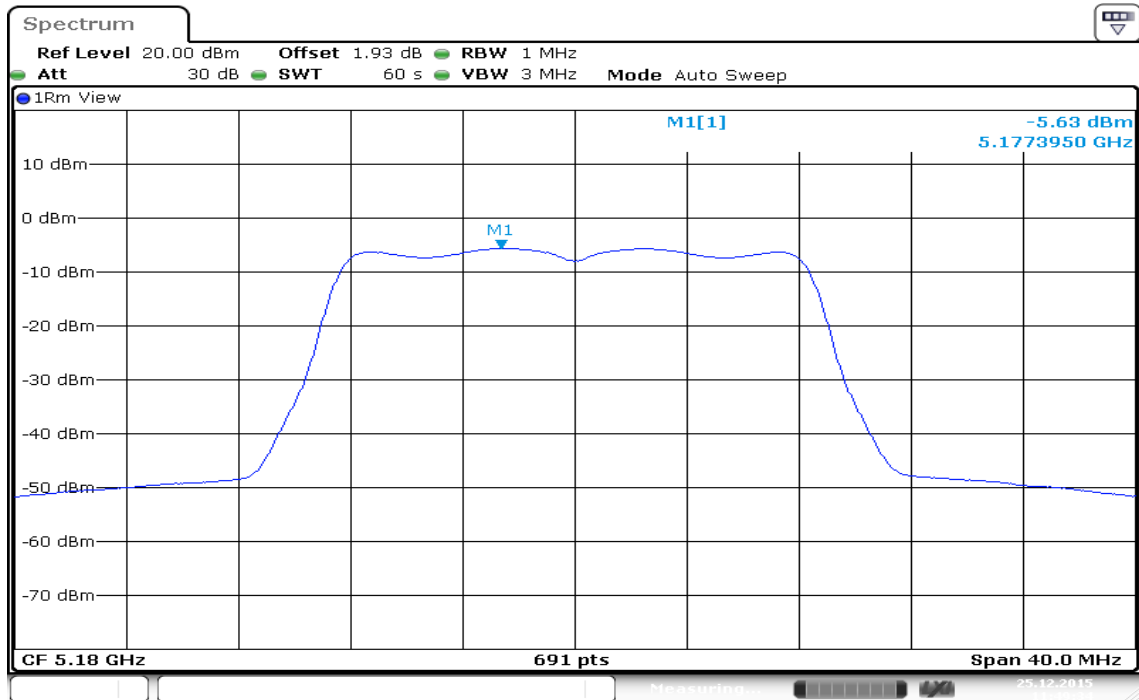
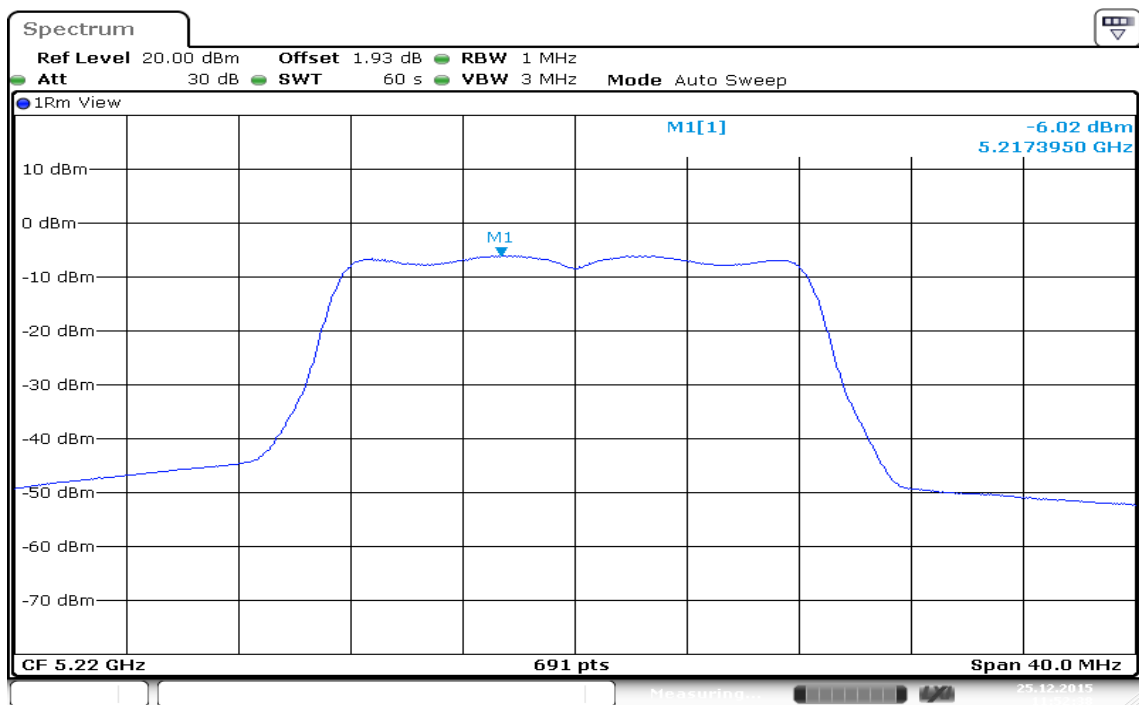
Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Low	5510	-9.71	-8.17	-5.86	11.00	-16.86	PASS
Mid	5550	-9.39	-8.35	-5.83	11.00	-16.83	PASS
High	5670	-16.37	-7.72	-7.16	11.00	-18.16	PASS

Test mode: IEEE 802.11ac VHT 80 MHz mode / 5530 MHz

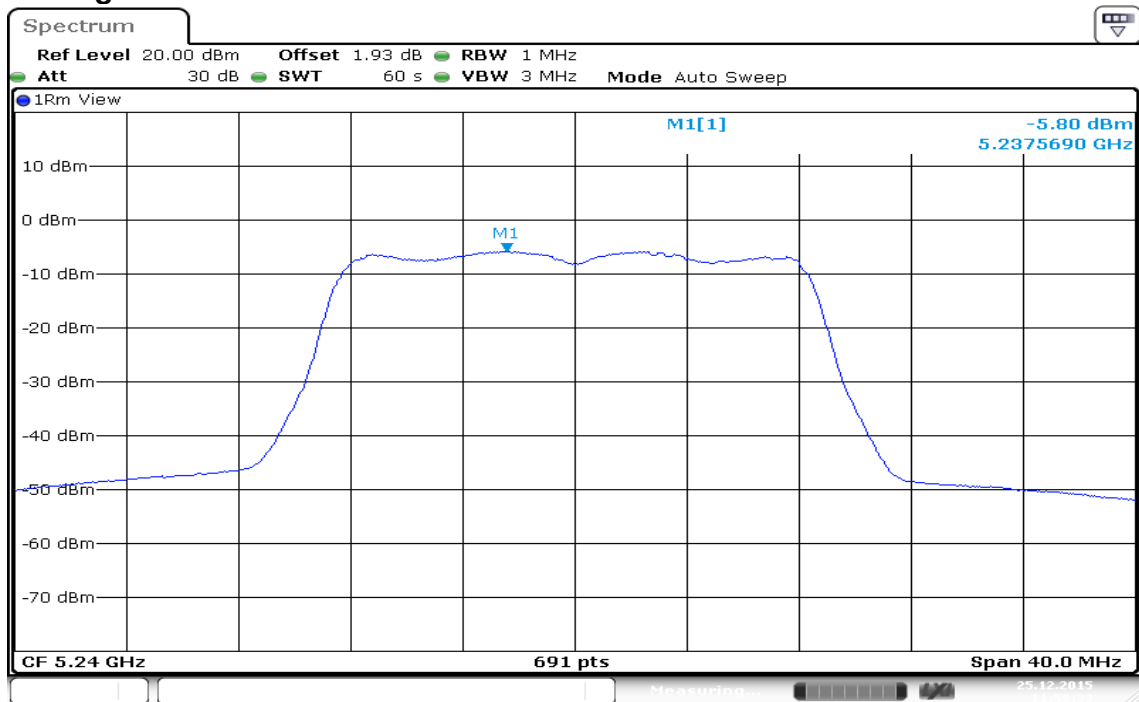
Channel	Frequency (MHz)	Chain 0 PPSP (dBm)	Chain 1 PPSP (dBm)	PPSD (dBm)	Limit (dBm)	Margin	Result
Mid	5530	-16.48	-15.51	-12.96	11.00	-23.96	PASS

Remark:

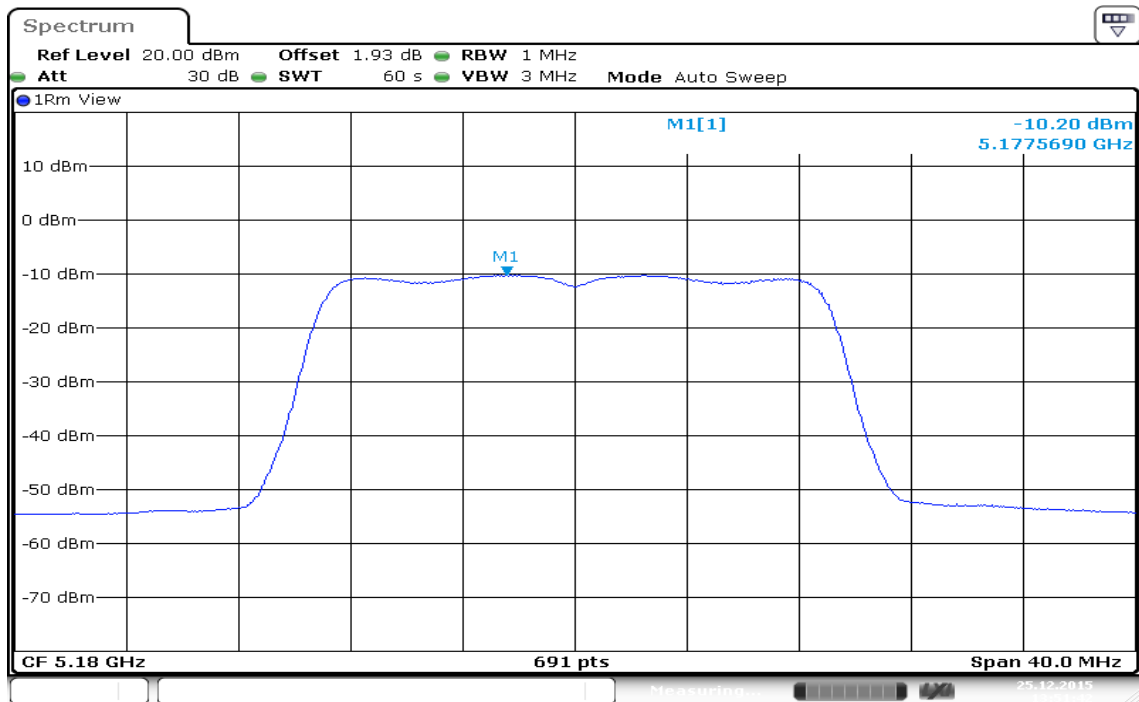
1. Total PPSP (dBm) = $10 \cdot \log(10^{(\text{Chain 0 PPSP} / 10)} + 10^{(\text{Chain 1 PPSP} / 10)})$

Test Plot**IEEE 802.11a mode / 5180 ~ 5240MHz****CH Low****CH Mid**

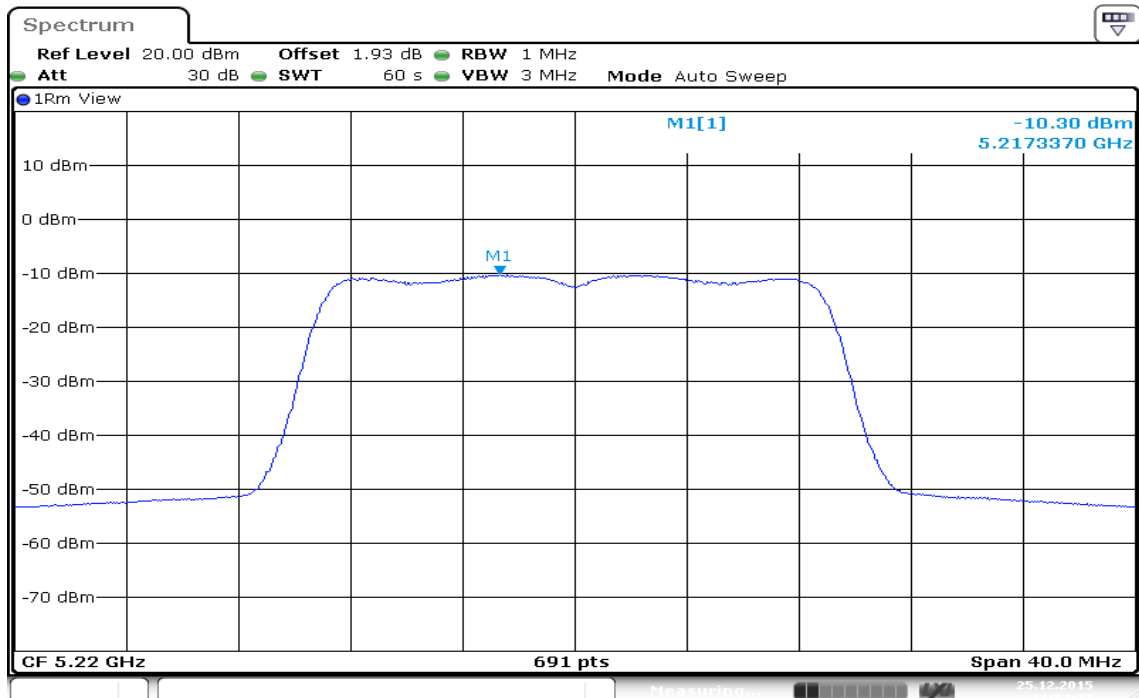
CH High



Date: 25.DEC.2015 11:56:34

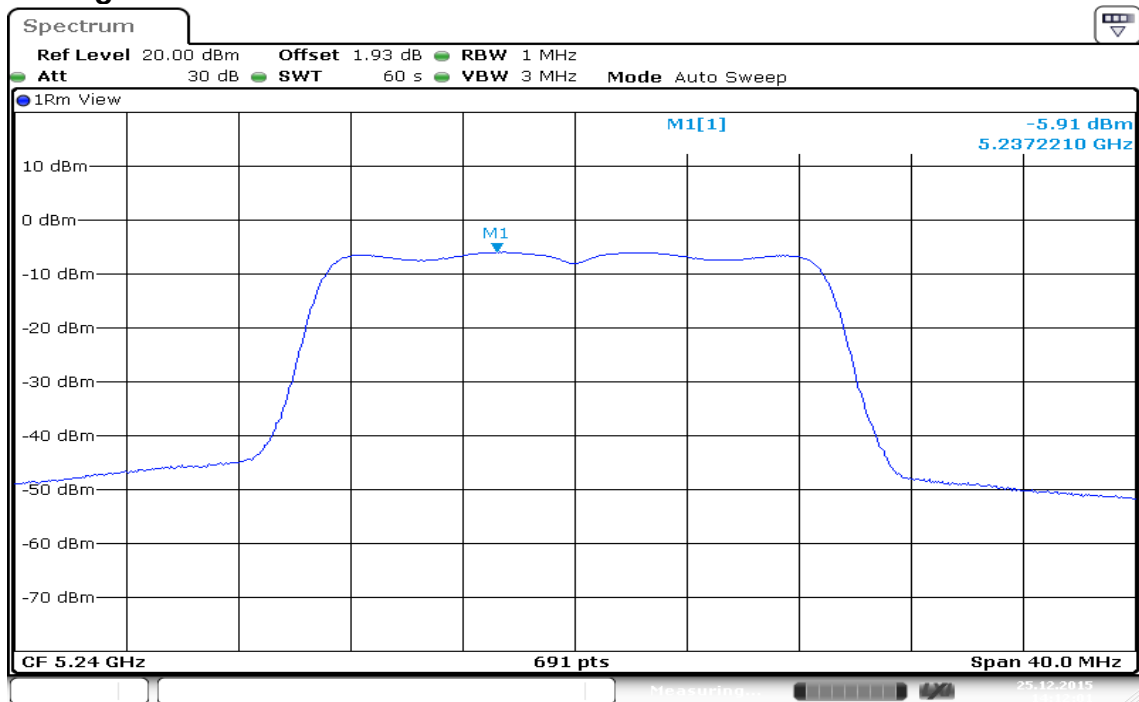
IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 0**CH Low**

Date: 25.DEC.2015 13:51:42

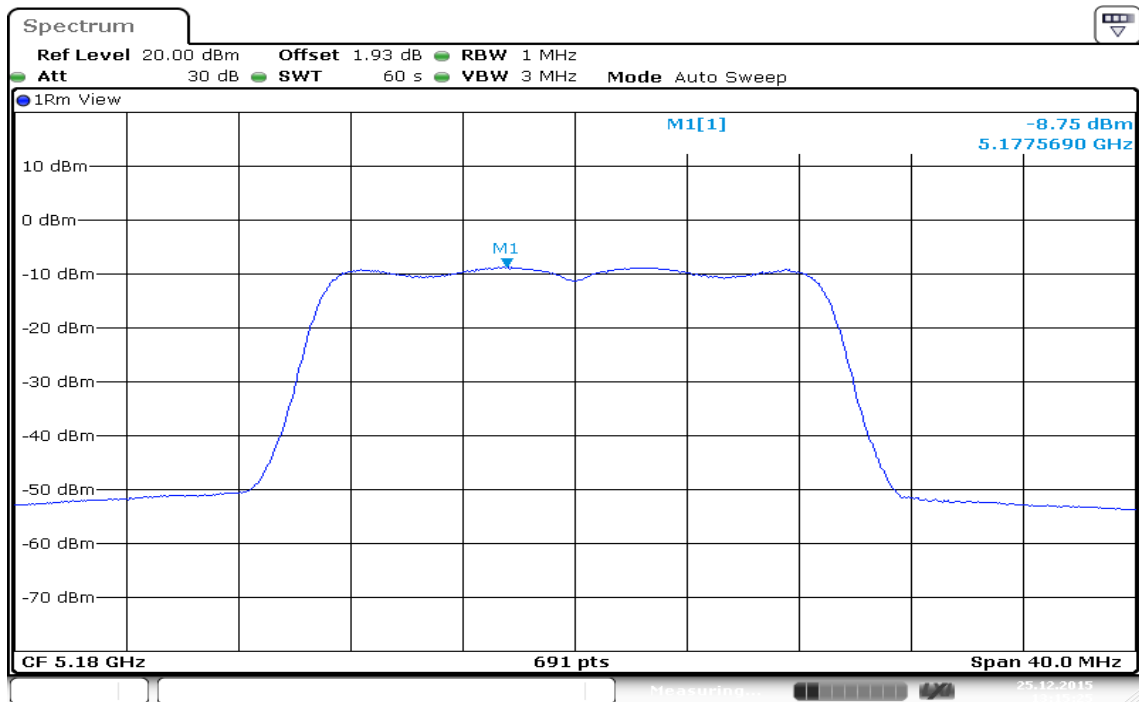
CH Mid

Date: 25.DEC.2015 13:54:27

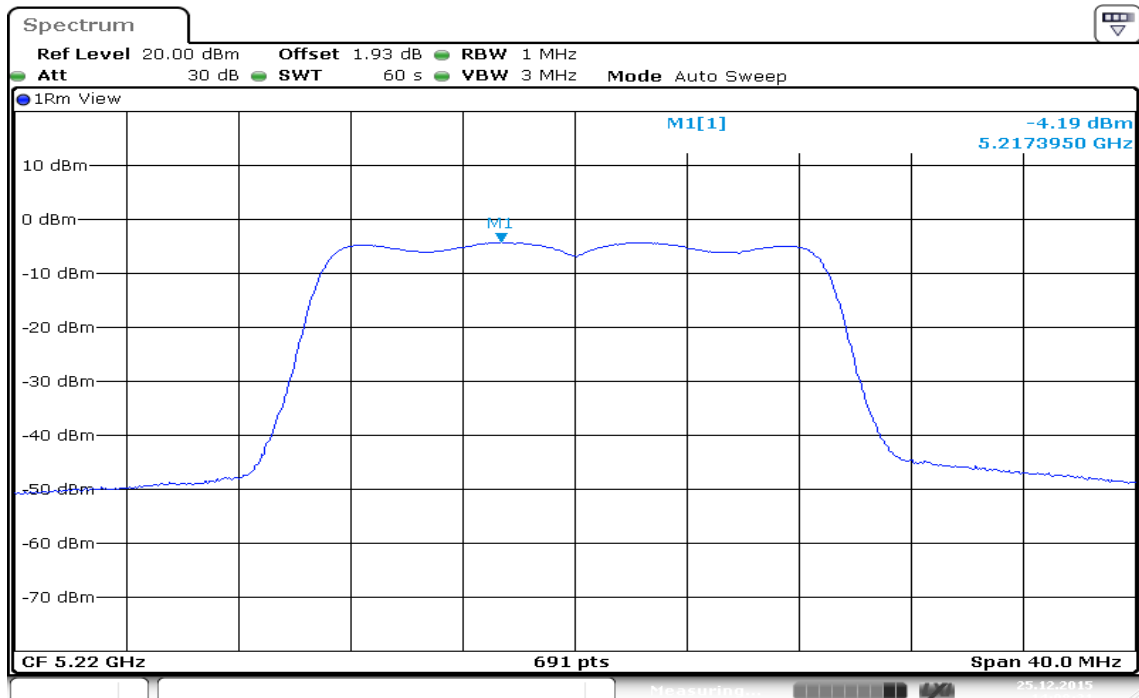
CH High



Date: 25.DEC.2015 14:12:01

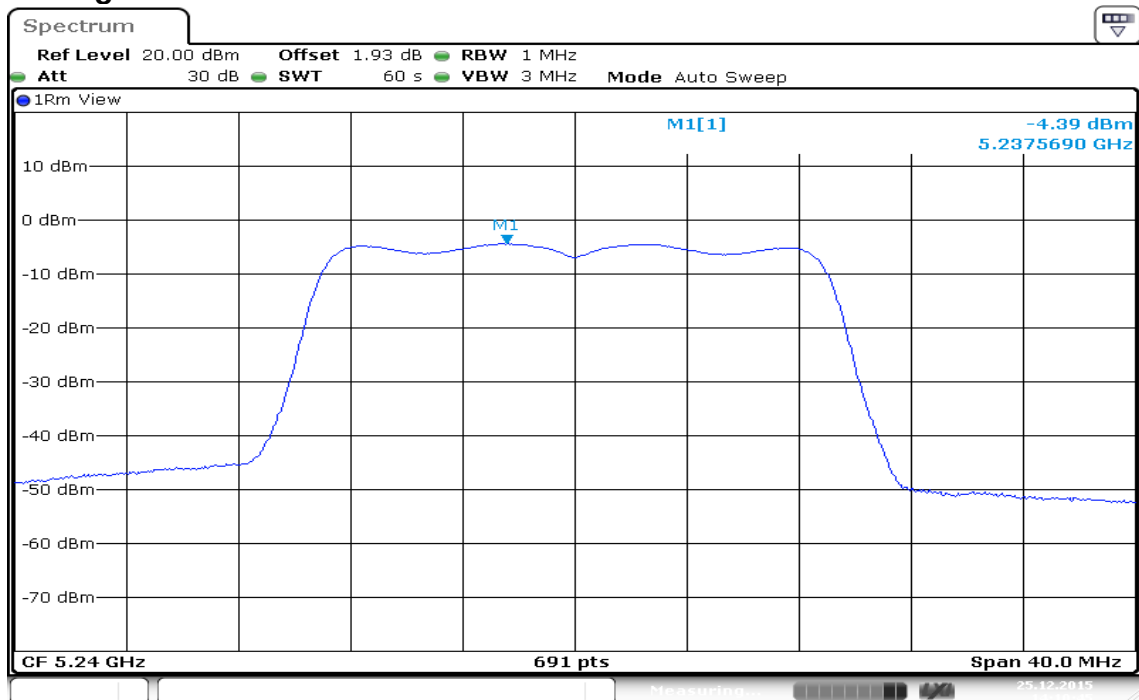
IEEE 802.11n HT 20 MHz Channel mode / 5180 ~ 5240MHz / Chain 1**CH Low**

Date: 25.DEC.2015 13:15:25

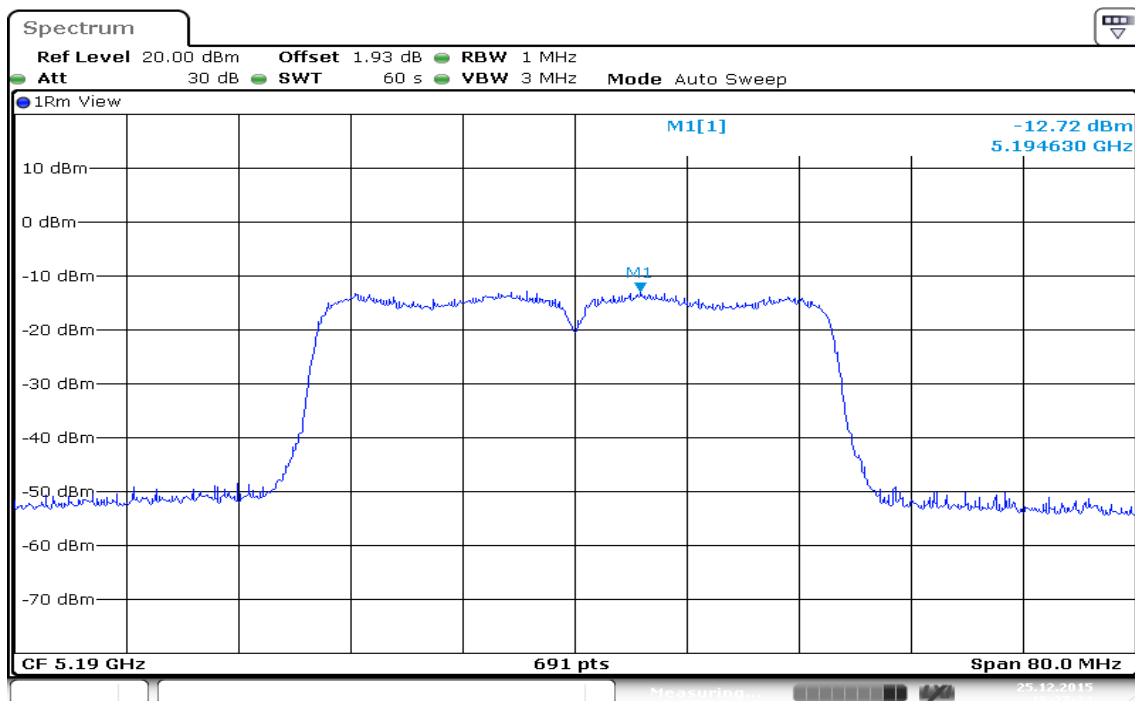
CH Mid

Date: 25.DEC.2015 14:08:31

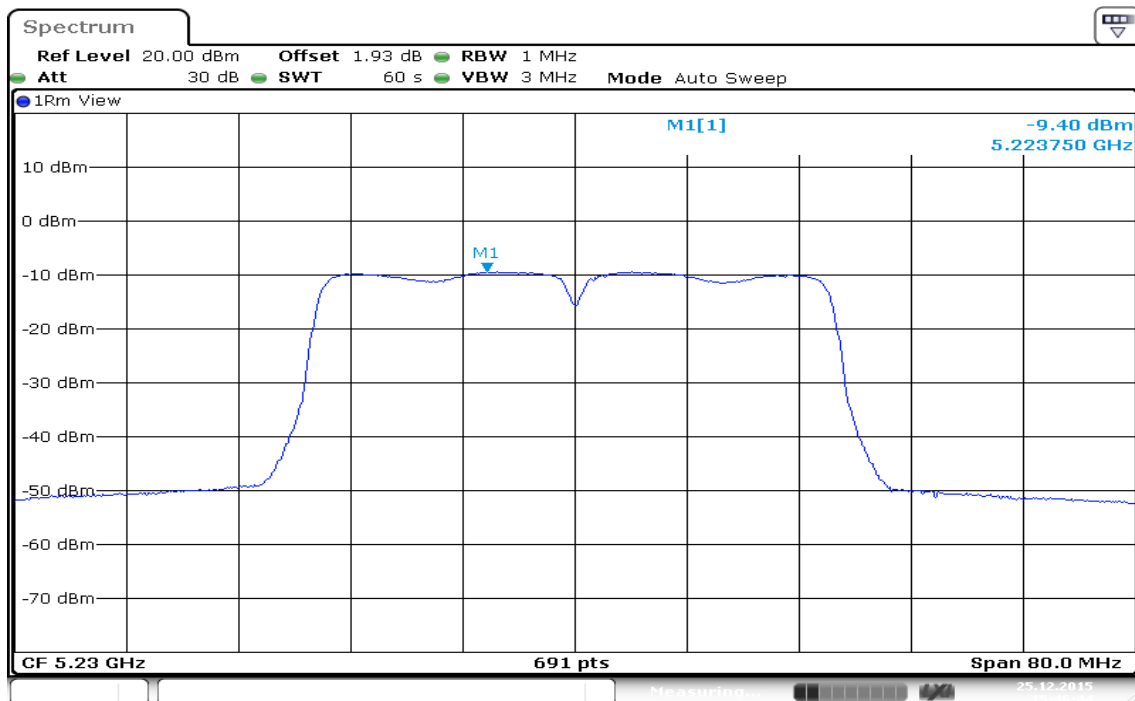
CH High



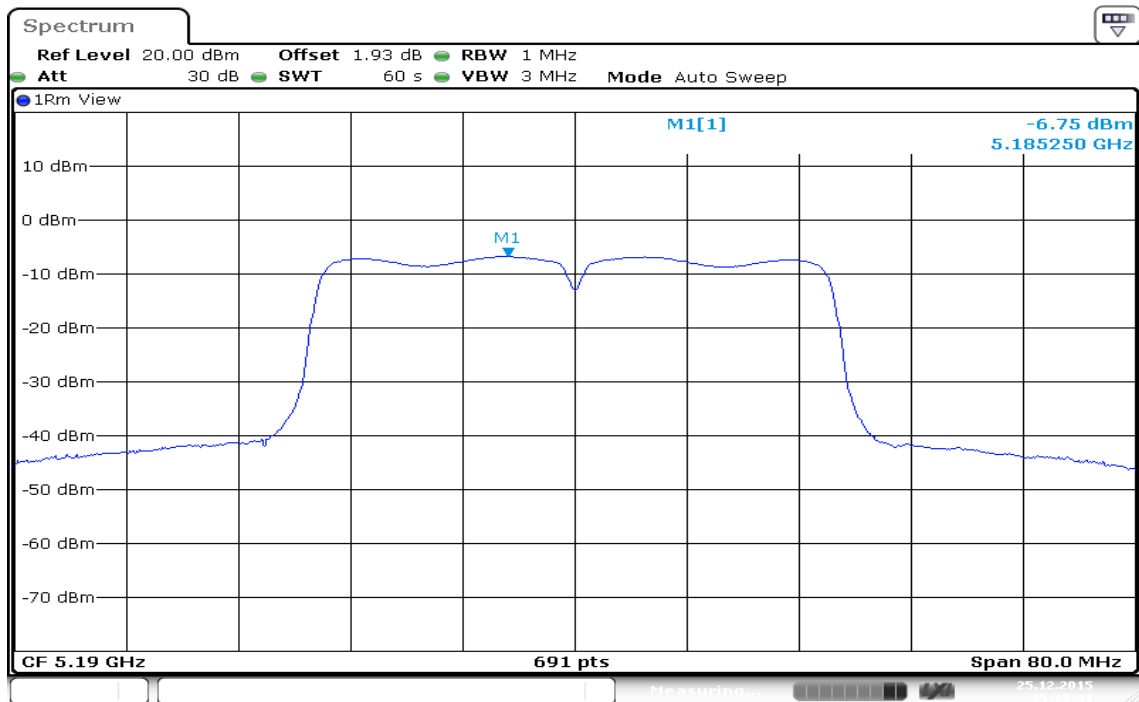
Date: 25.DEC.2015 14:10:45

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 0**CH Low**

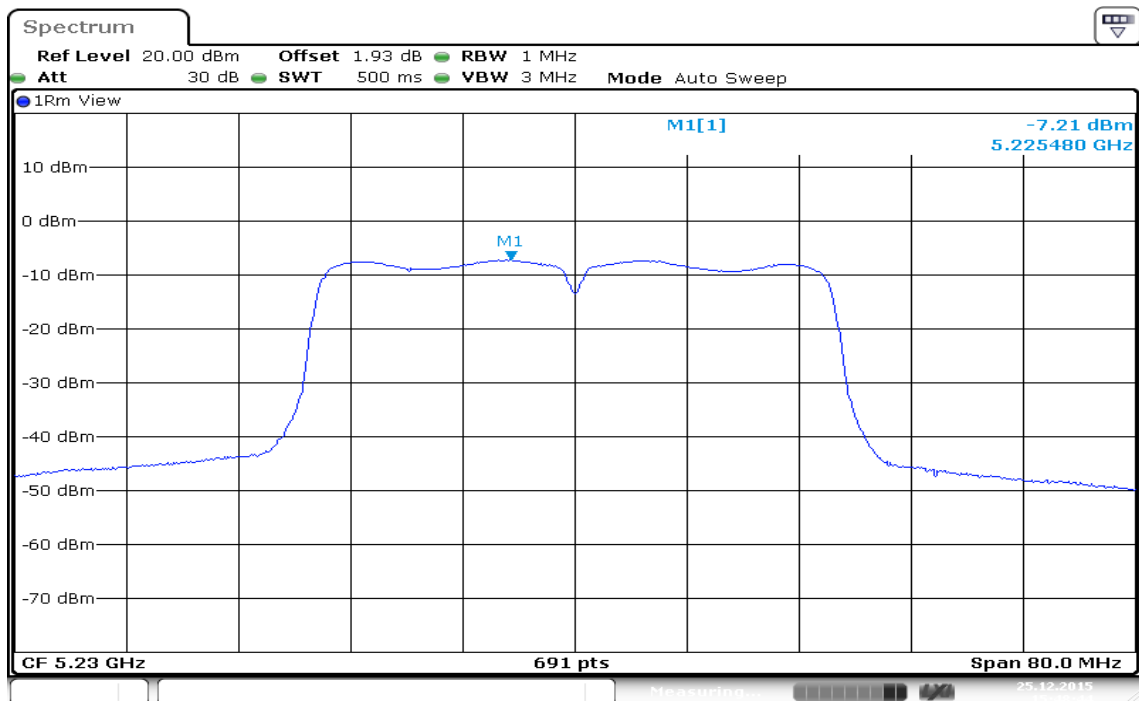
Date: 25.DEC.2015 15:27:33

CH High

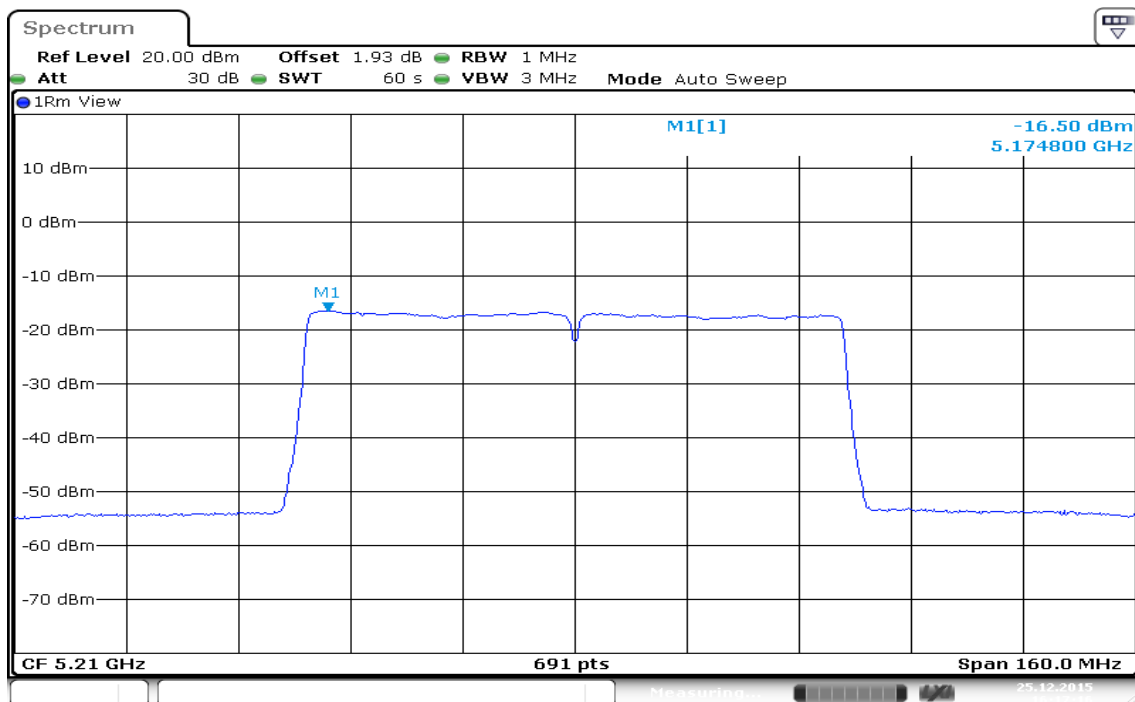
Date: 25.DEC.2015 15:46:45

IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz / Chain 1**CH Low**

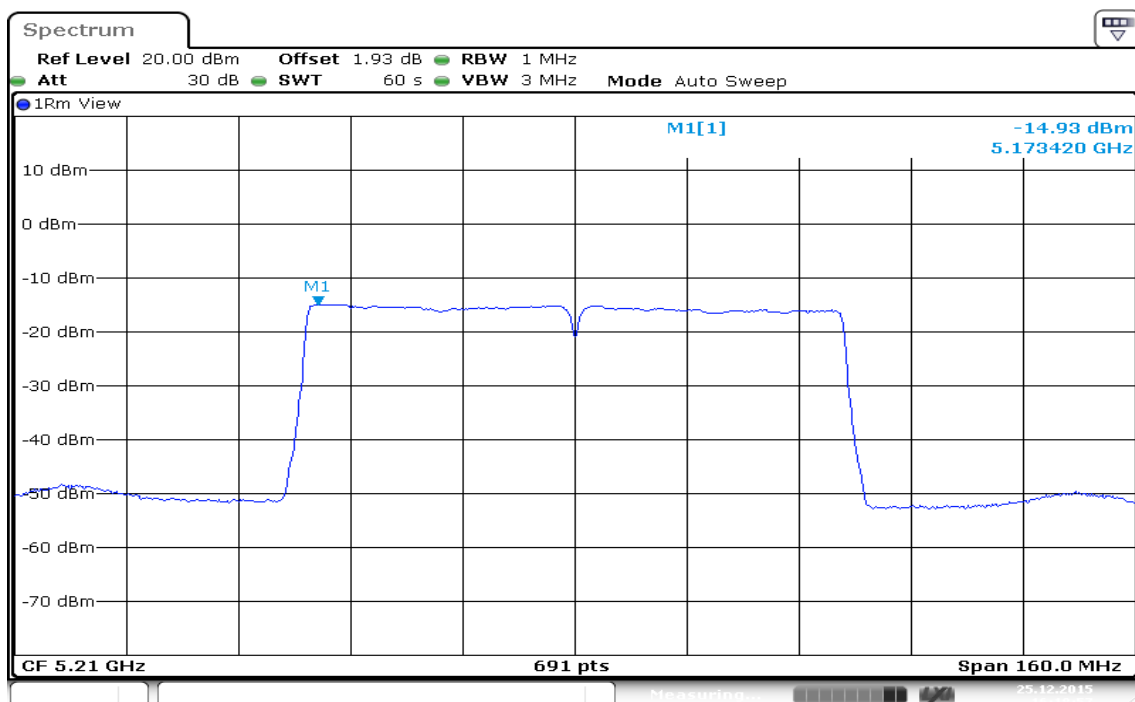
Date: 25.DEC.2015 15:31:42

CH High

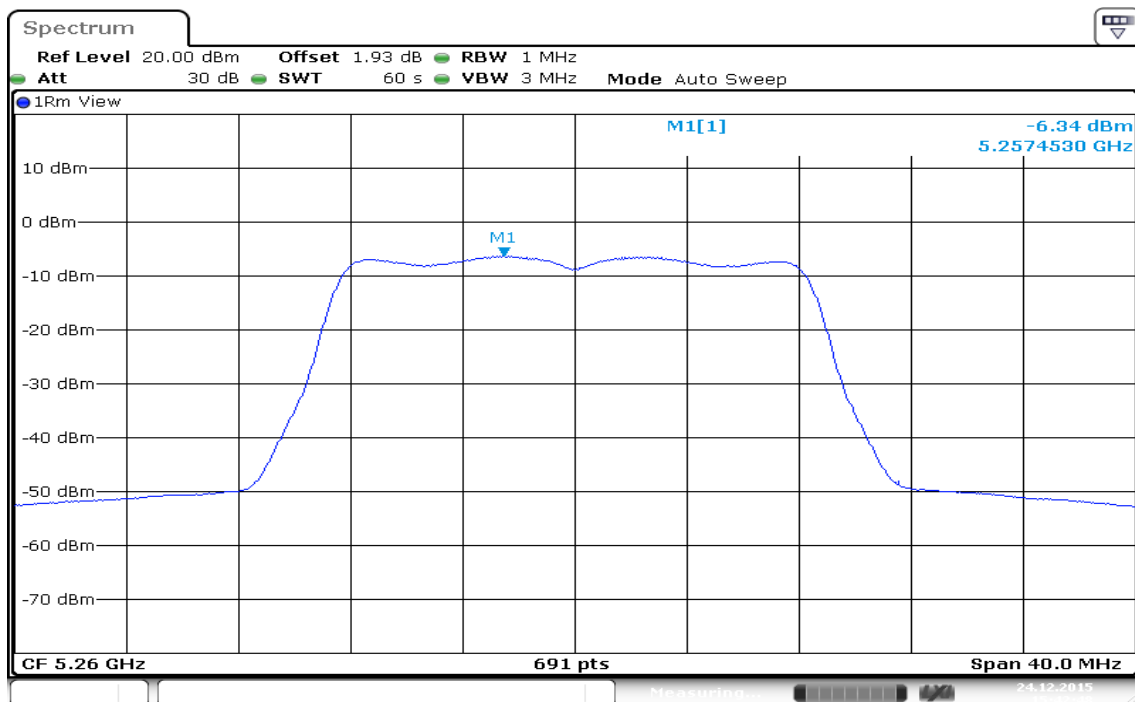
Date: 25.DEC.2015 15:48:44

IEEE 802.11ac VHT 80 MHz mode / 5210MHz/ Chain 0**CH Mid**

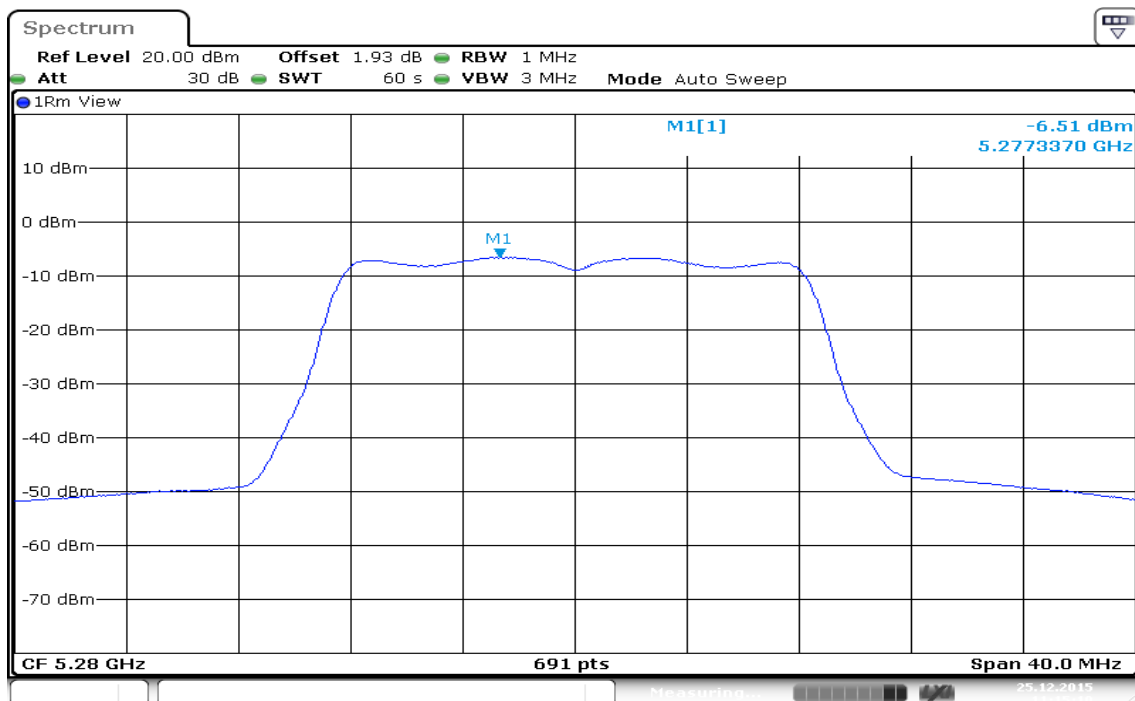
Date: 25.DEC.2015 16:17:17

IEEE 802.11ac VHT 80 MHz mode / 5210MHz/ Chain 1**CH Mid**

Date: 25.DEC.2015 16:18:57

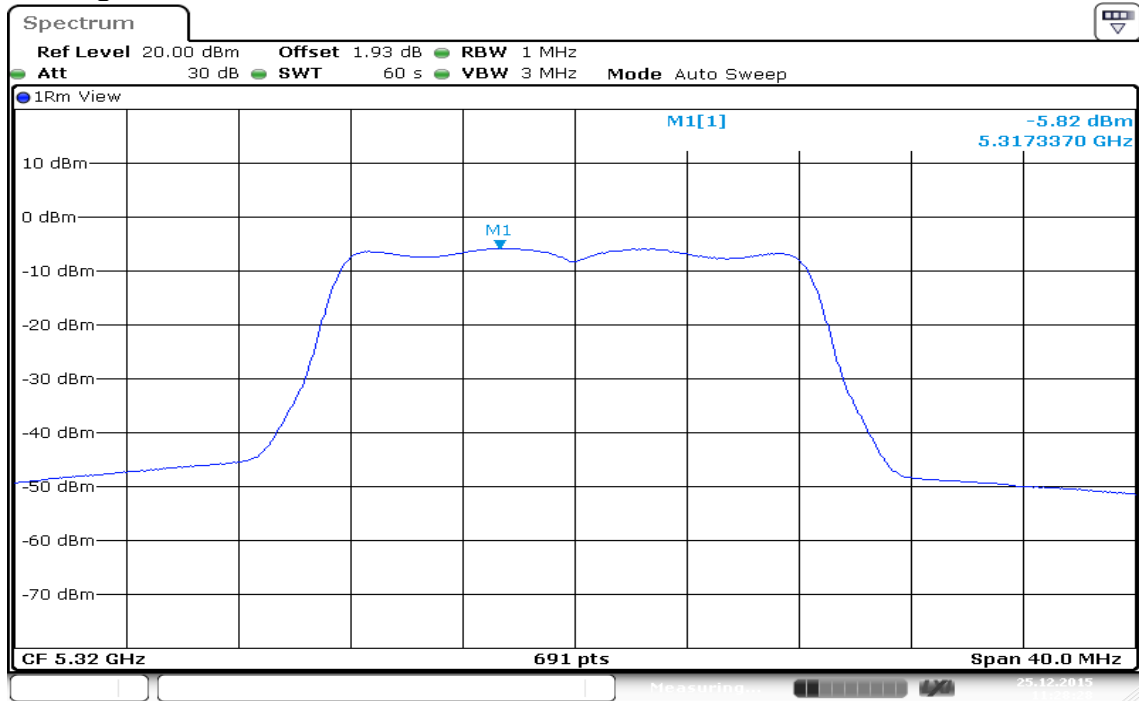
IEEE 802.11a mode / 5260 ~ 5320MHz**CH Low**

Date: 24.DEC.2015 15:42:48

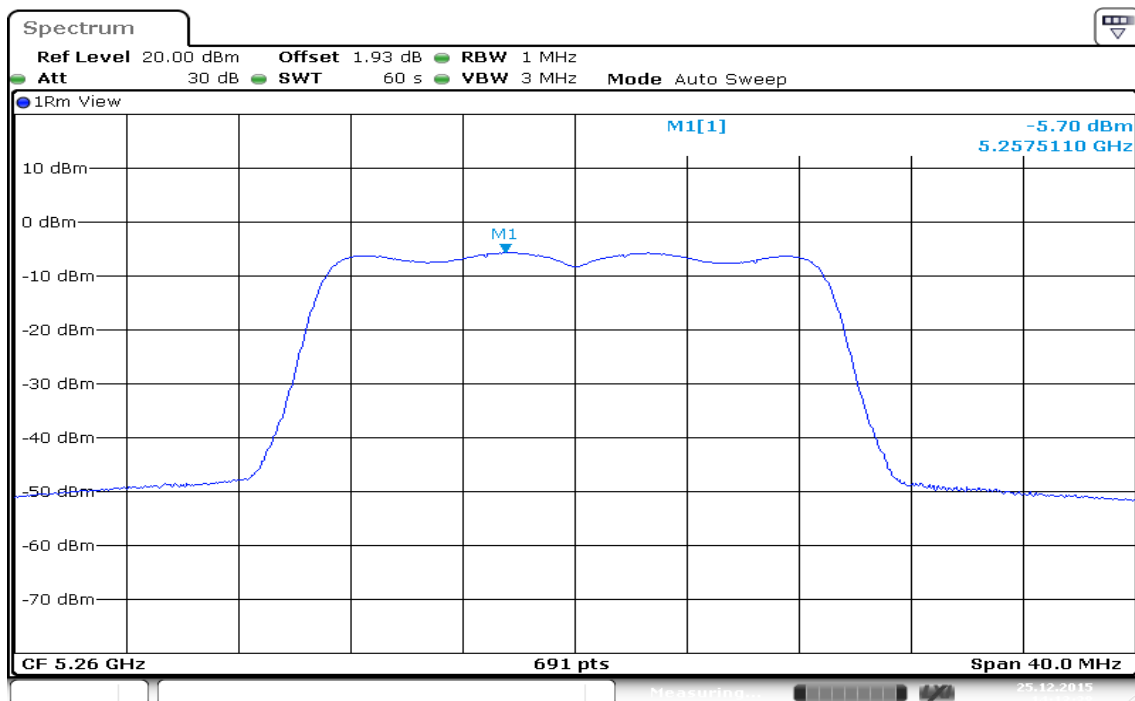
CH Mid

Date: 25.DEC.2015 11:15:11

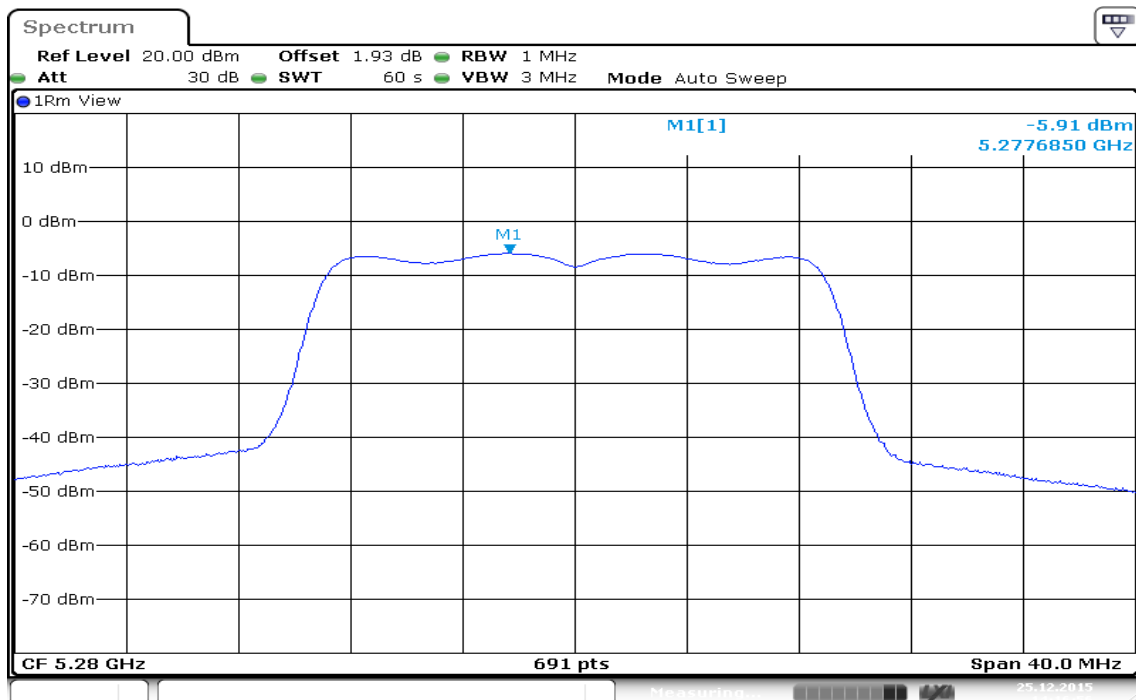
CH High



Date: 25.DEC.2015 11:28:28

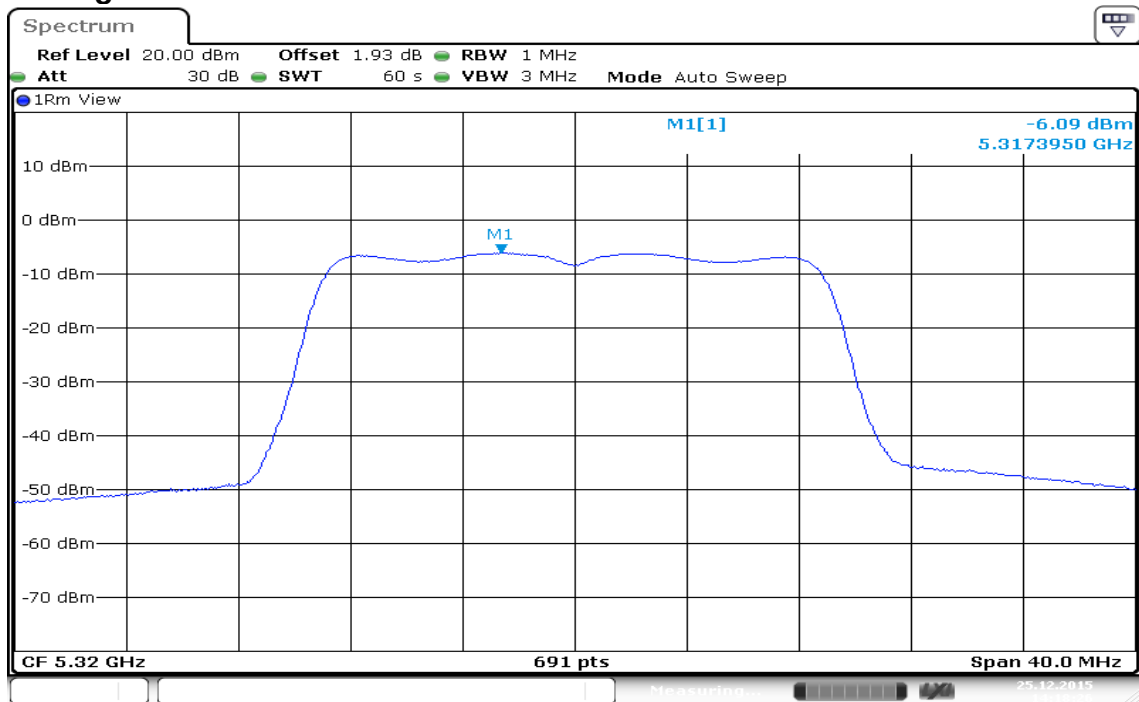
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 0**CH Low**

Date: 25.DEC.2015 14:13:38

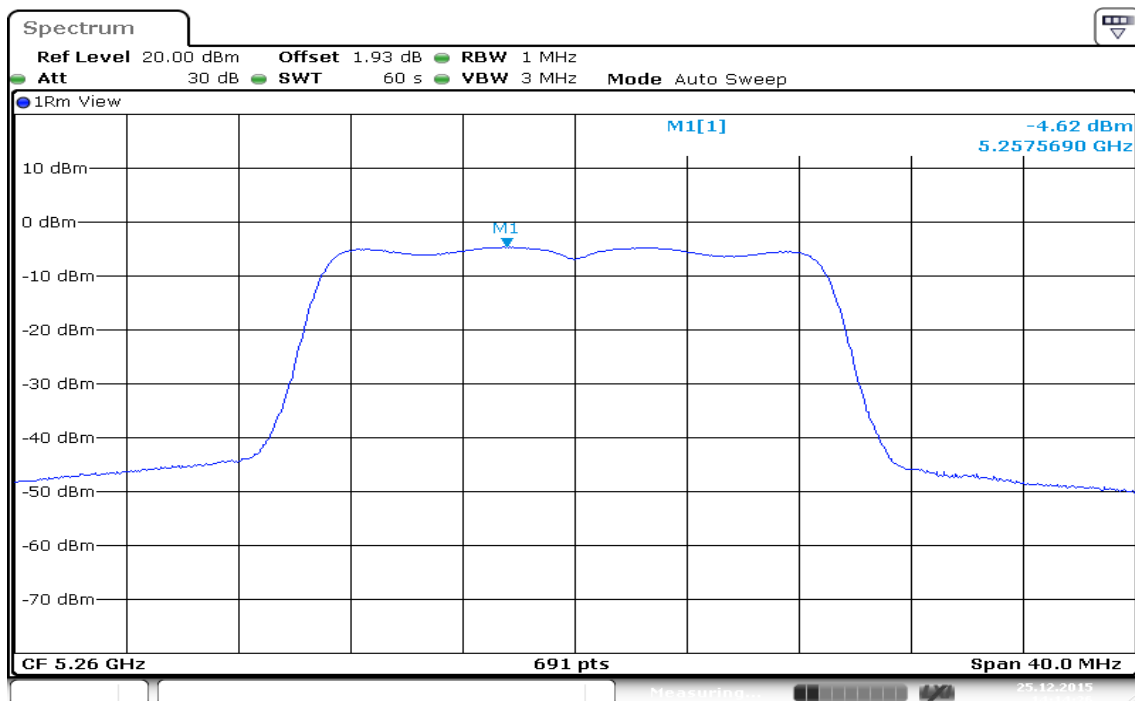
CH Mid

Date: 25.DEC.2015 14:16:57

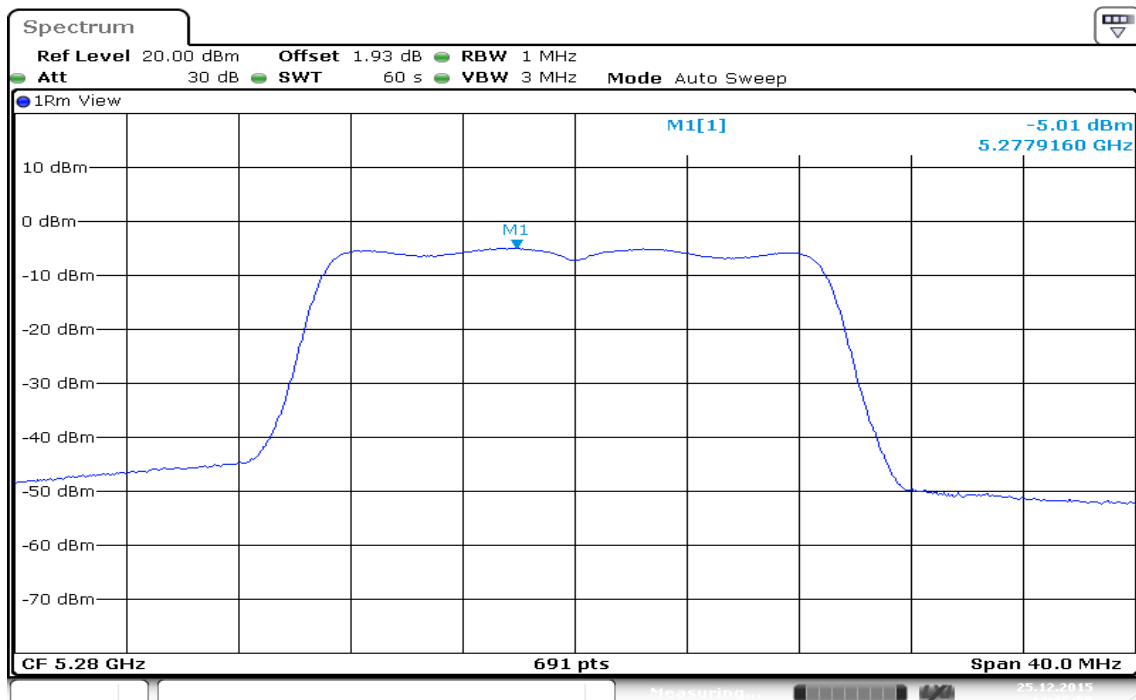
CH High



Date: 25.DEC.2015 14:18:26

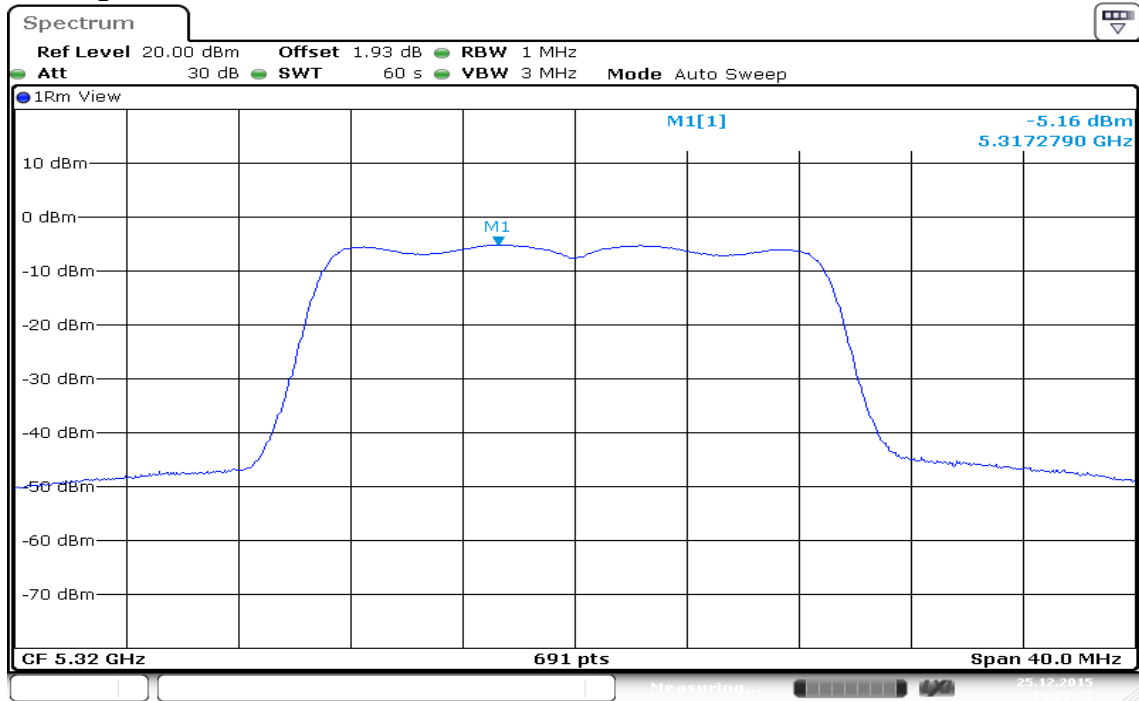
IEEE 802.11n HT 20 MHz Channel mode / 5260 ~ 5320MHz / Chain 1**CH Low**

Date: 25.DEC.2015 14:14:27

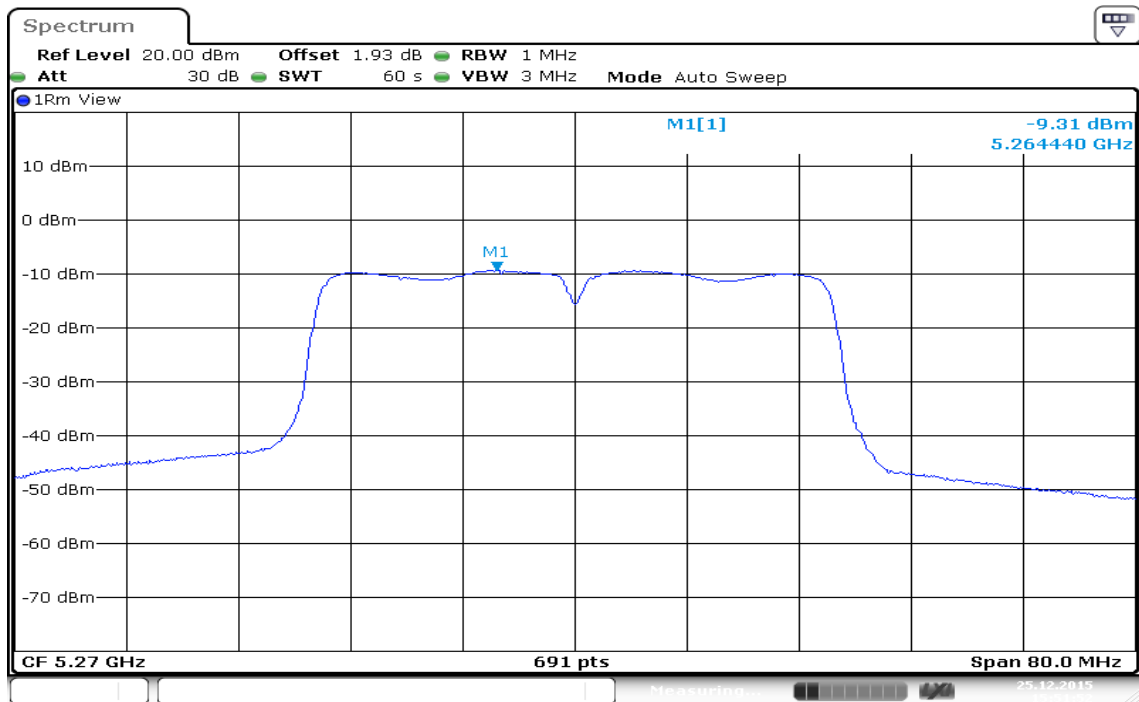
CH Mid

Date: 25.DEC.2015 14:16:00

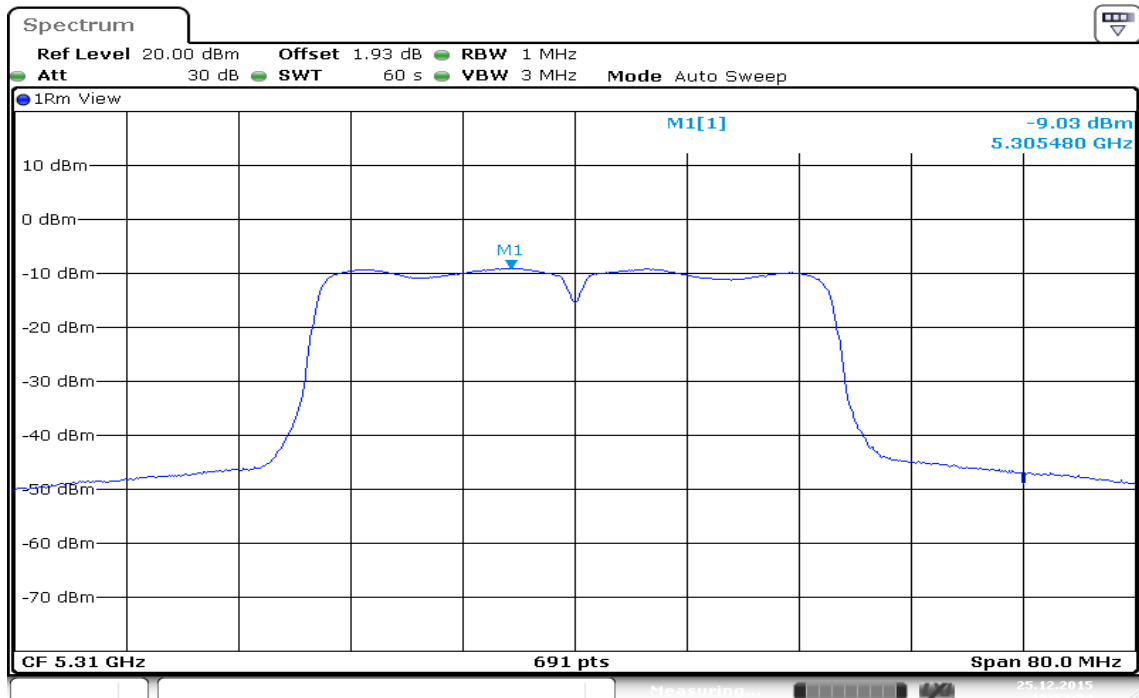
CH High



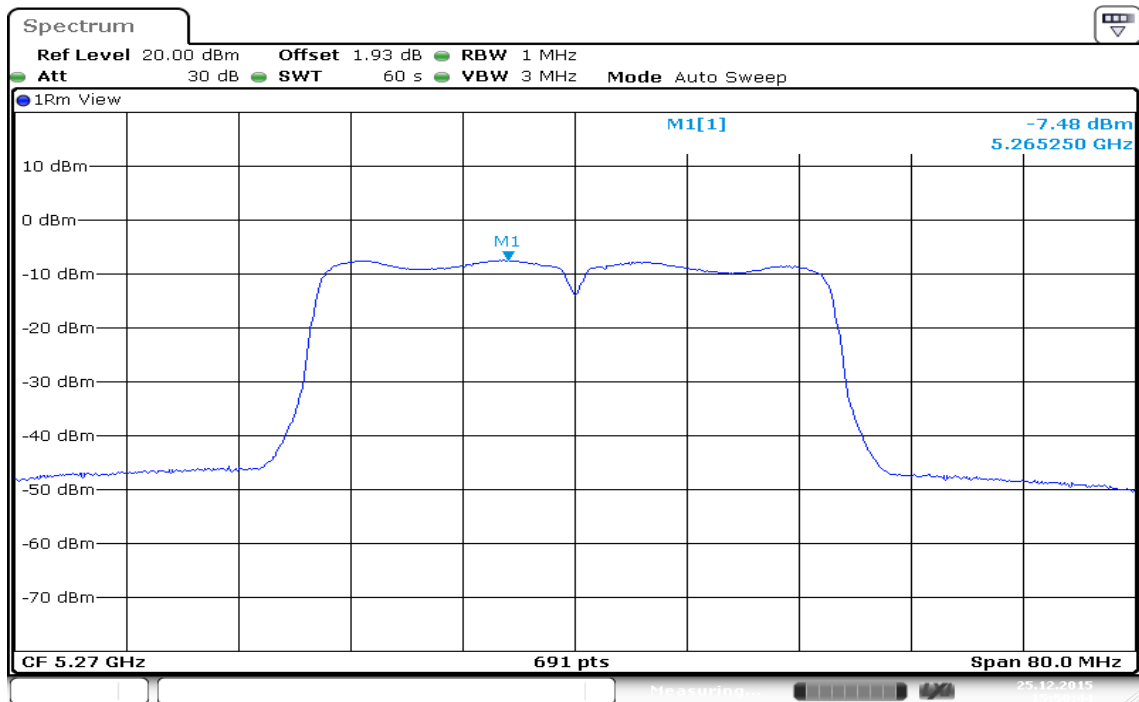
Date: 25.DEC.2015 14:19:21

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 0**CH Low**

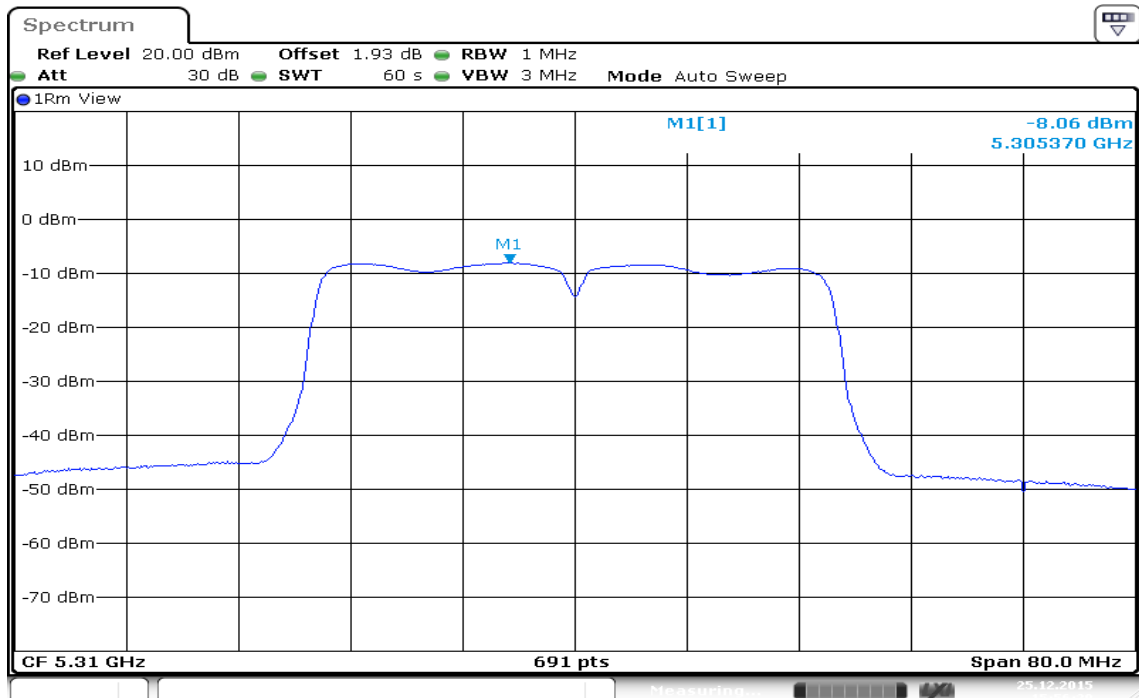
Date: 25.DEC.2015 15:51:52

CH High

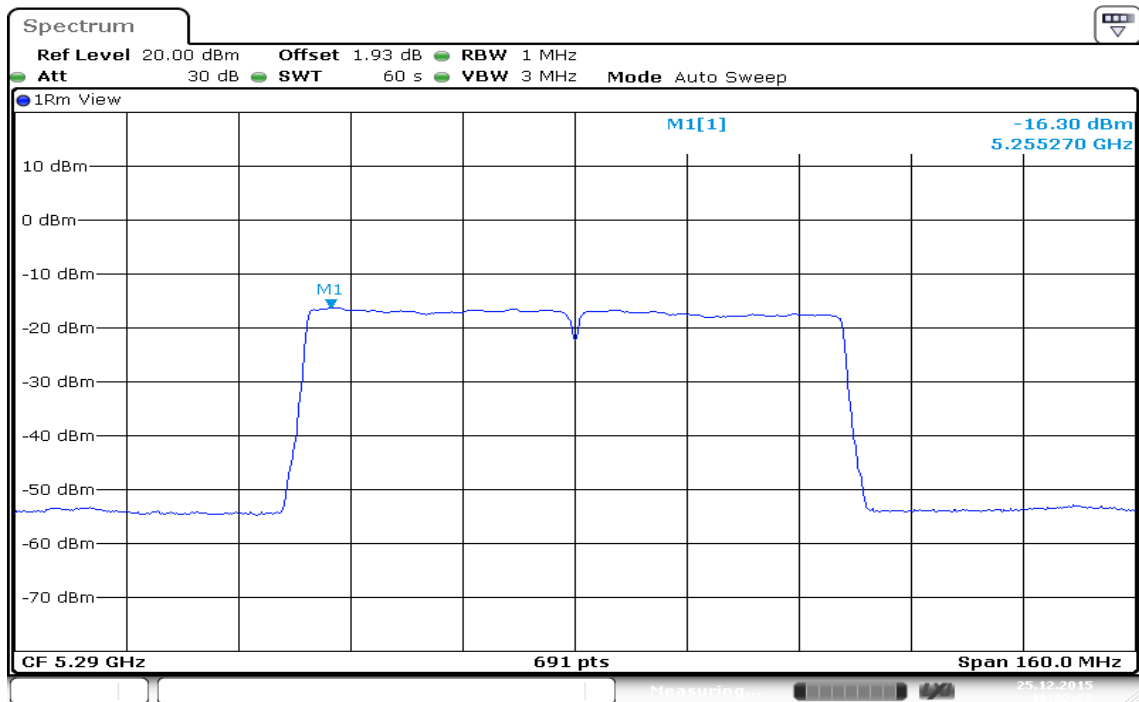
Date: 25.DEC.2015 15:53:55

IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz / Chain 1**CH Low**

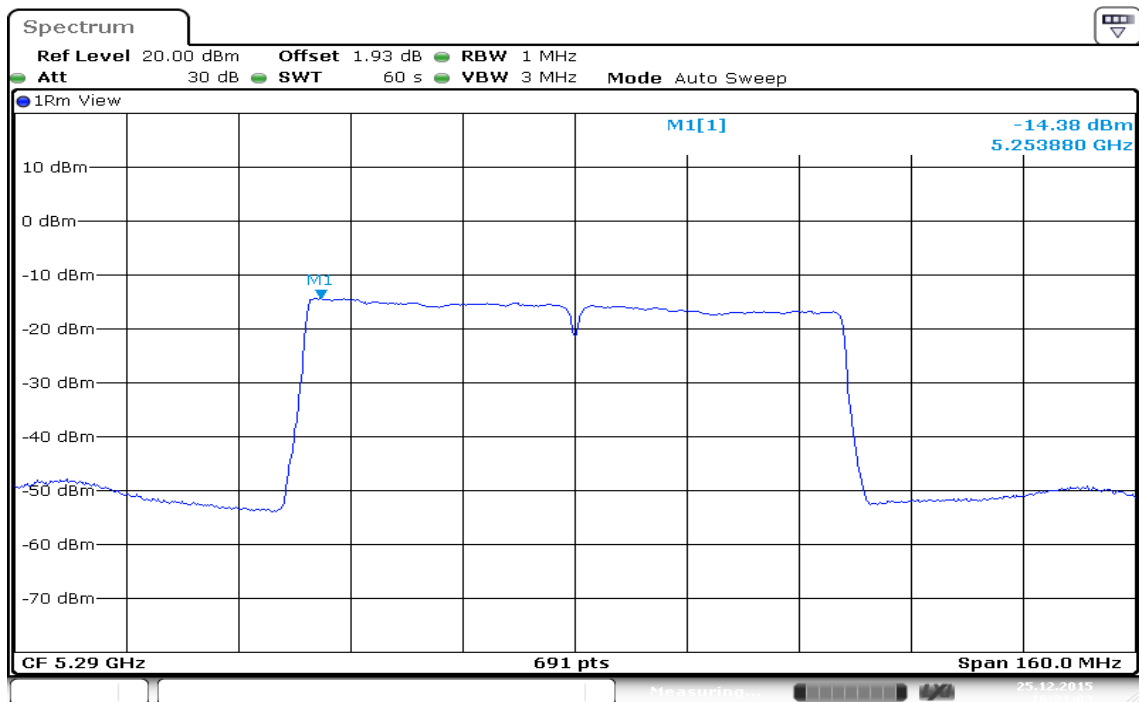
Date: 25.DEC.2015 15:50:44

CH High

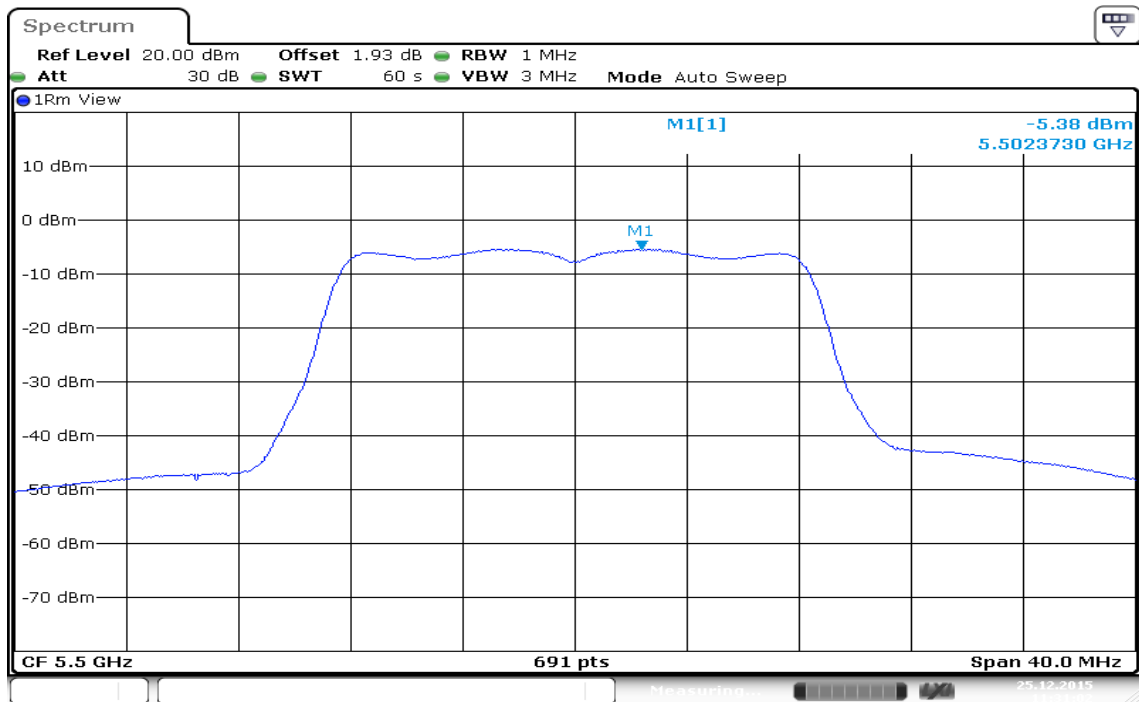
Date: 25.DEC.2015 15:56:20

IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 0**CH Mid**

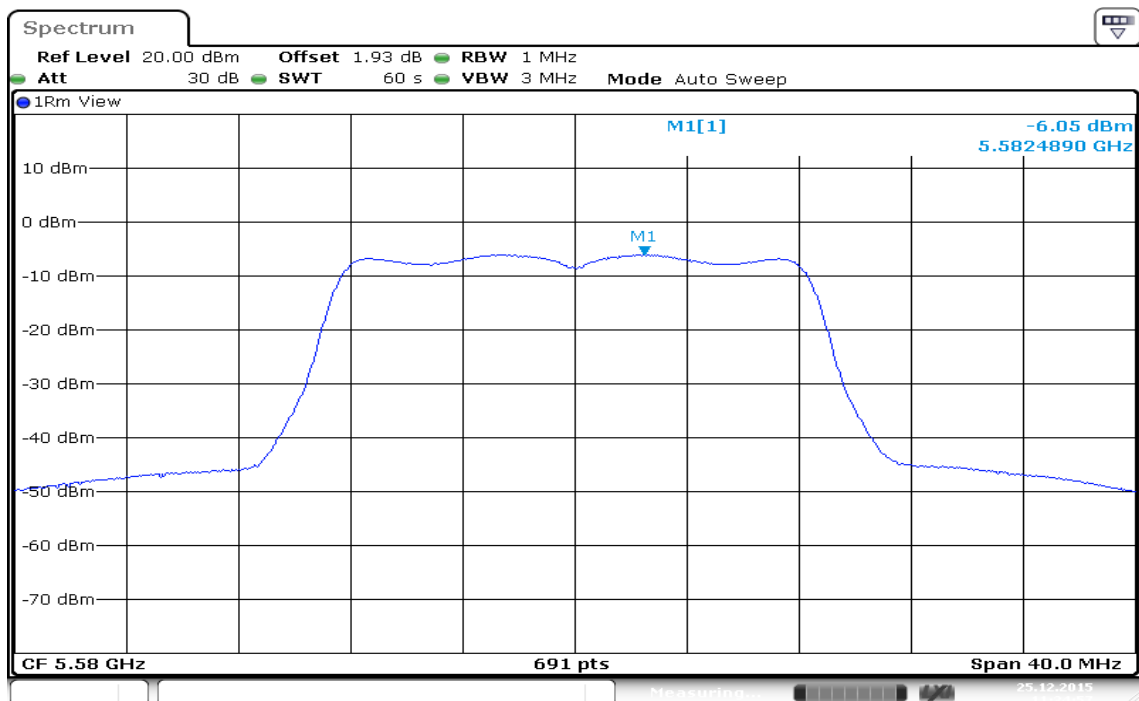
Date: 25.DEC.2015 16:22:27

IEEE 802.11ac VHT 80 MHz mode / 5290MHz / Chain 1**CH Mid**

Date: 25.DEC.2015 16:21:04

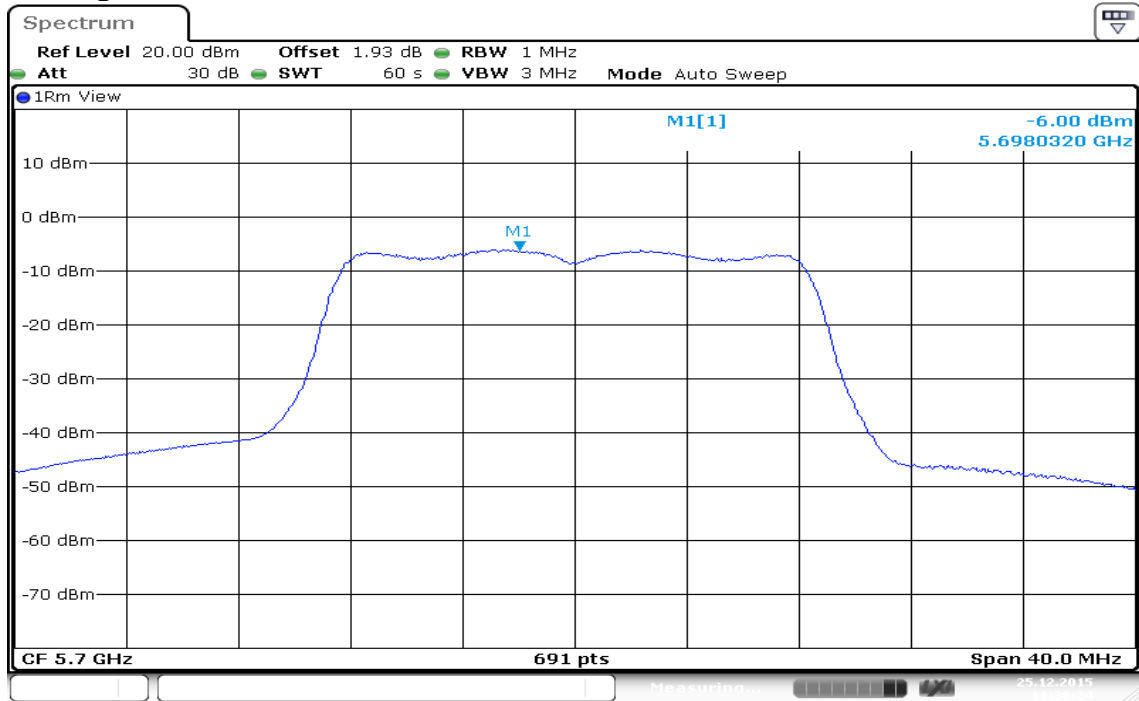
Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz**CH Low**

Date: 25.DEC.2015 11:31:02

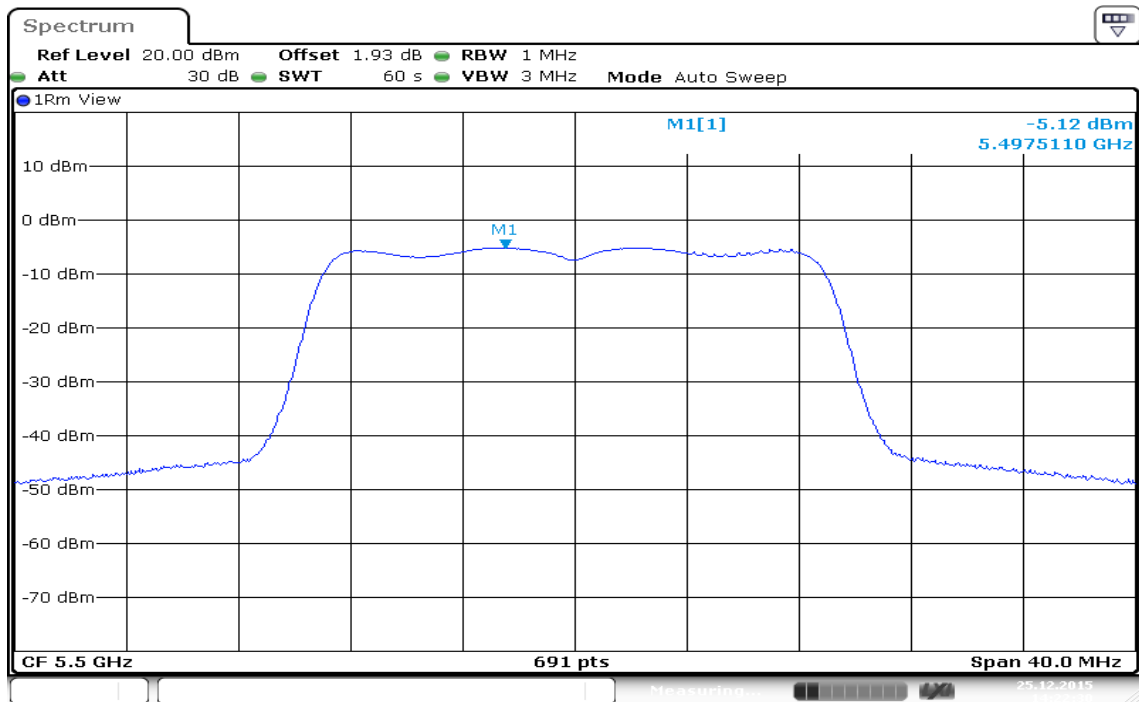
CH Mid

Date: 25.DEC.2015 11:34:57

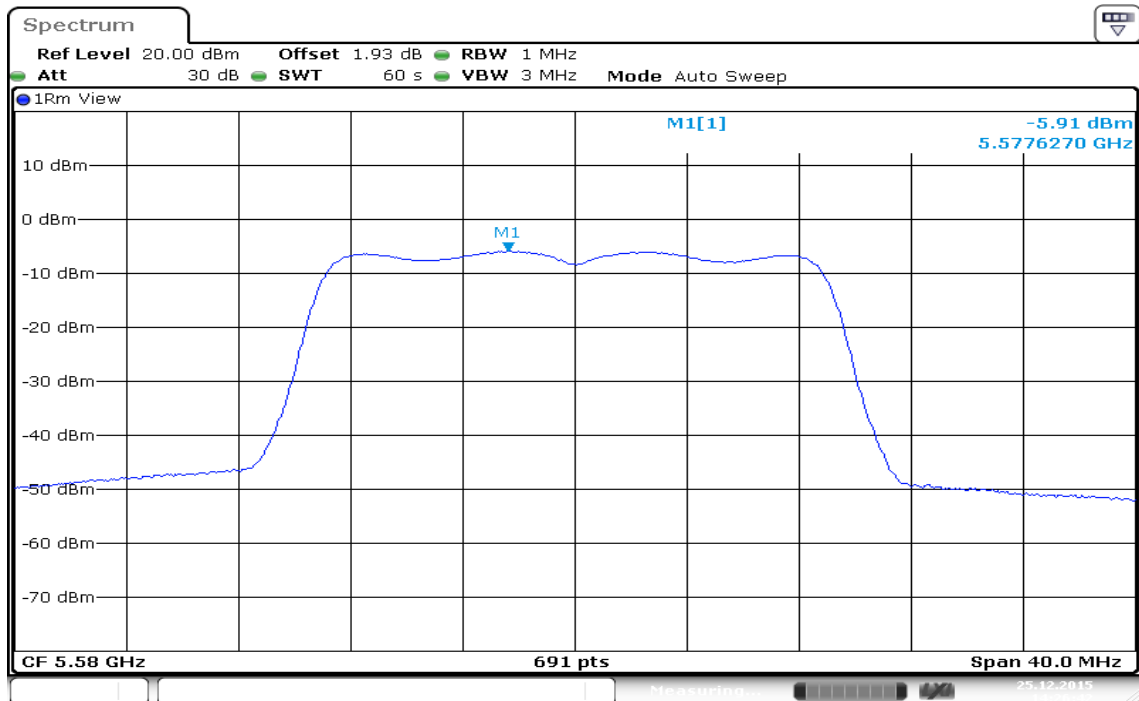
CH High



Date: 25.DEC.2015 11:38:24

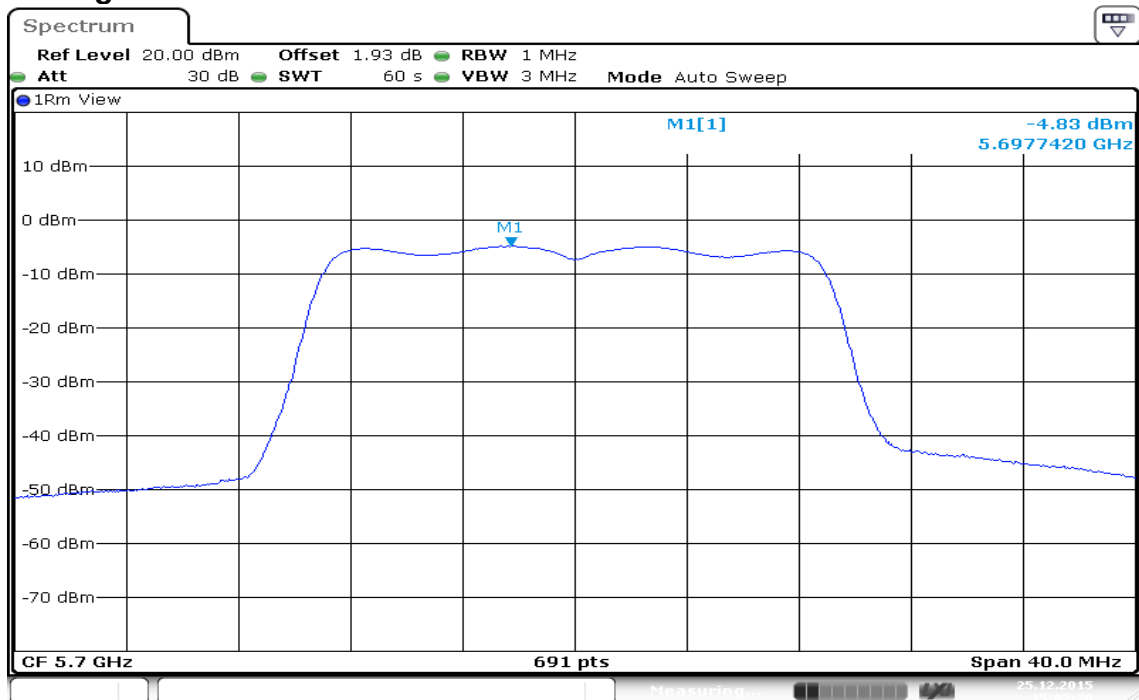
IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 0**CH Low**

Date: 25.DEC.2015 14:22:31

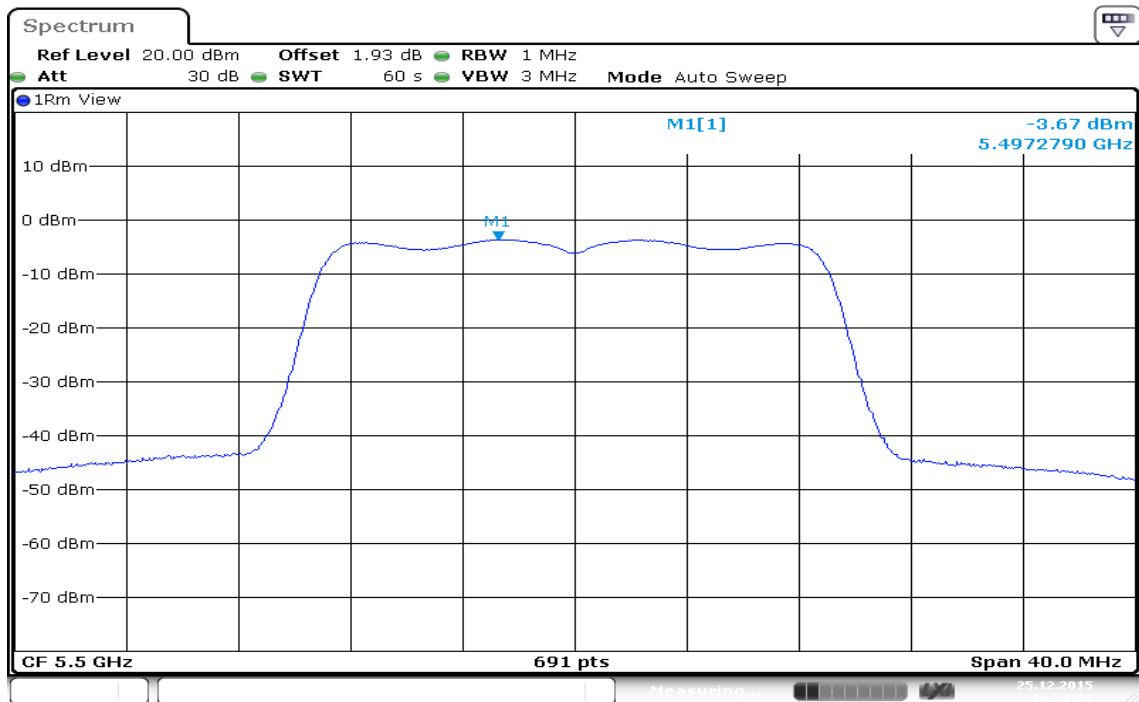
CH Mid

Date: 25.DEC.2015 14:26:43

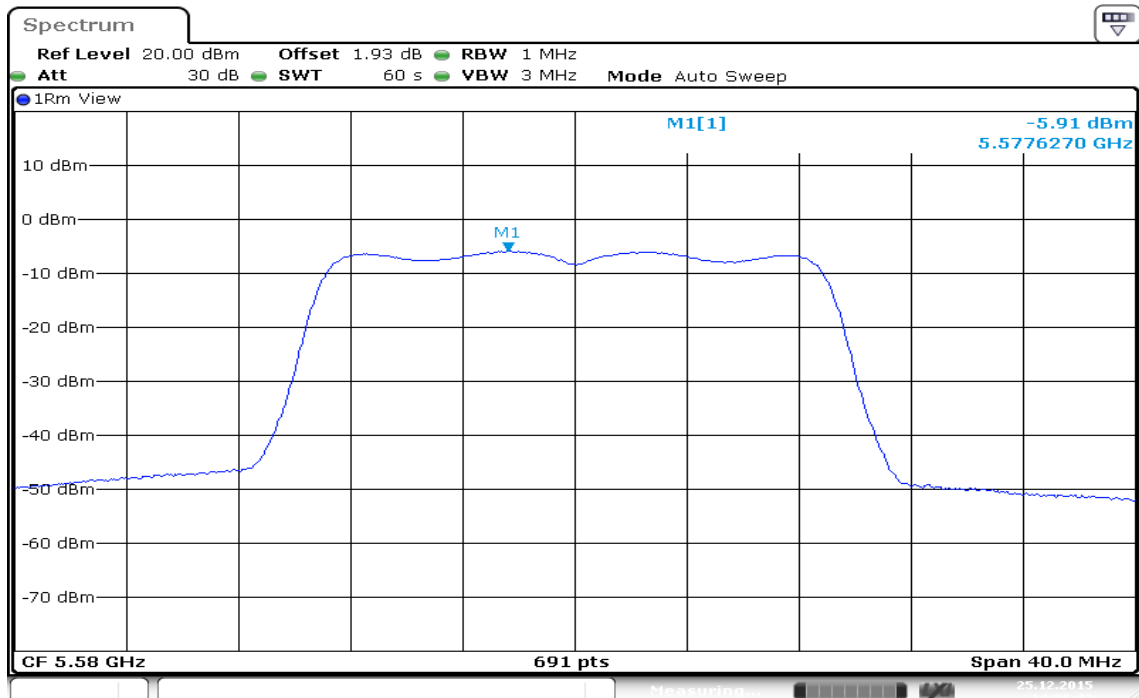
CH High



Date: 25,DEC,2015 15:02:26

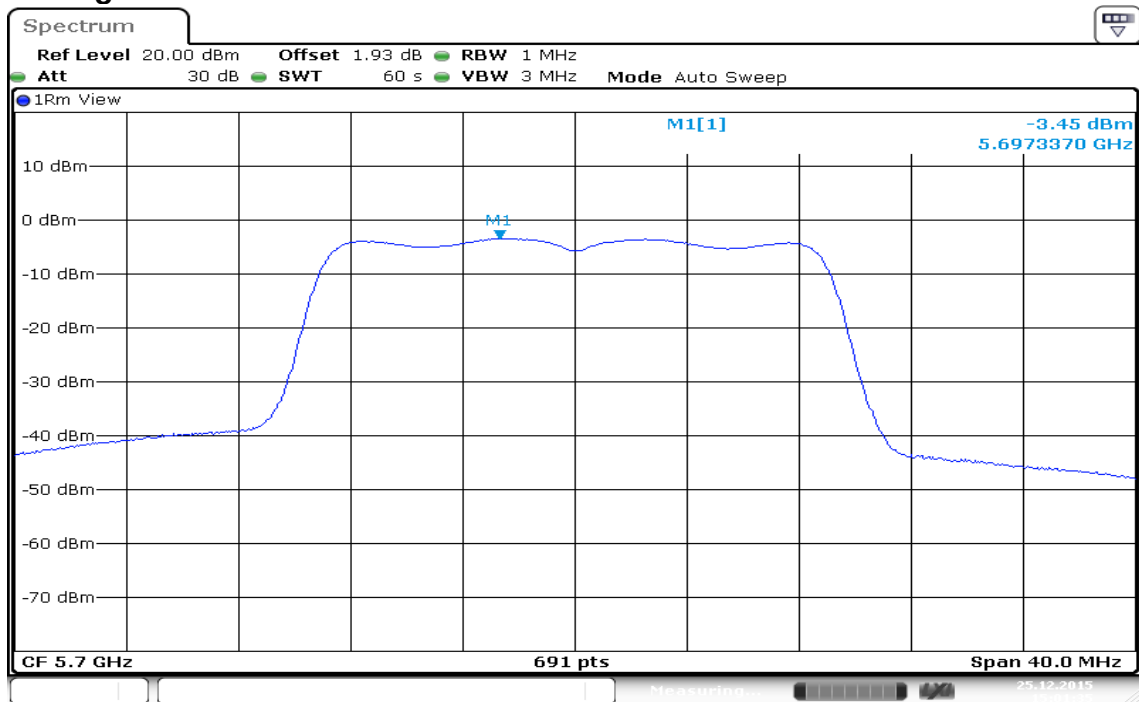
IEEE 802.11n HT 20 MHz Channel mode / 5500 ~ 5700MHz / Chain 1**CH Low**

Date: 25.DEC.2015 14:21:22

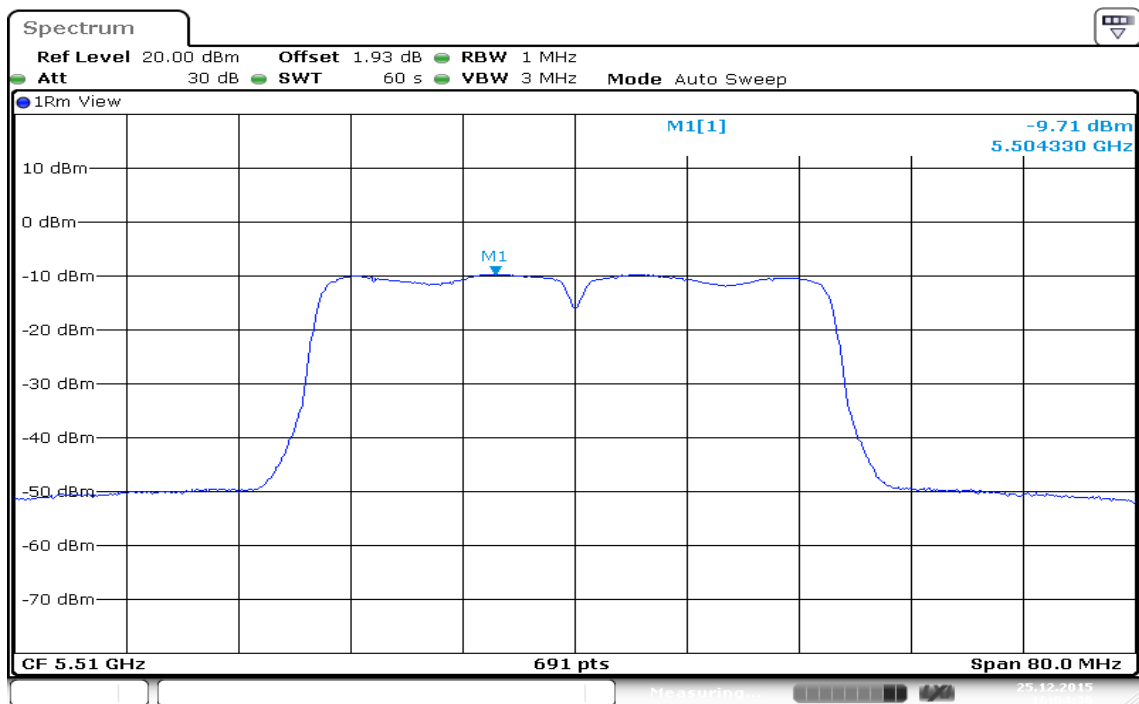
CH Mid

Date: 25.DEC.2015 14:26:43

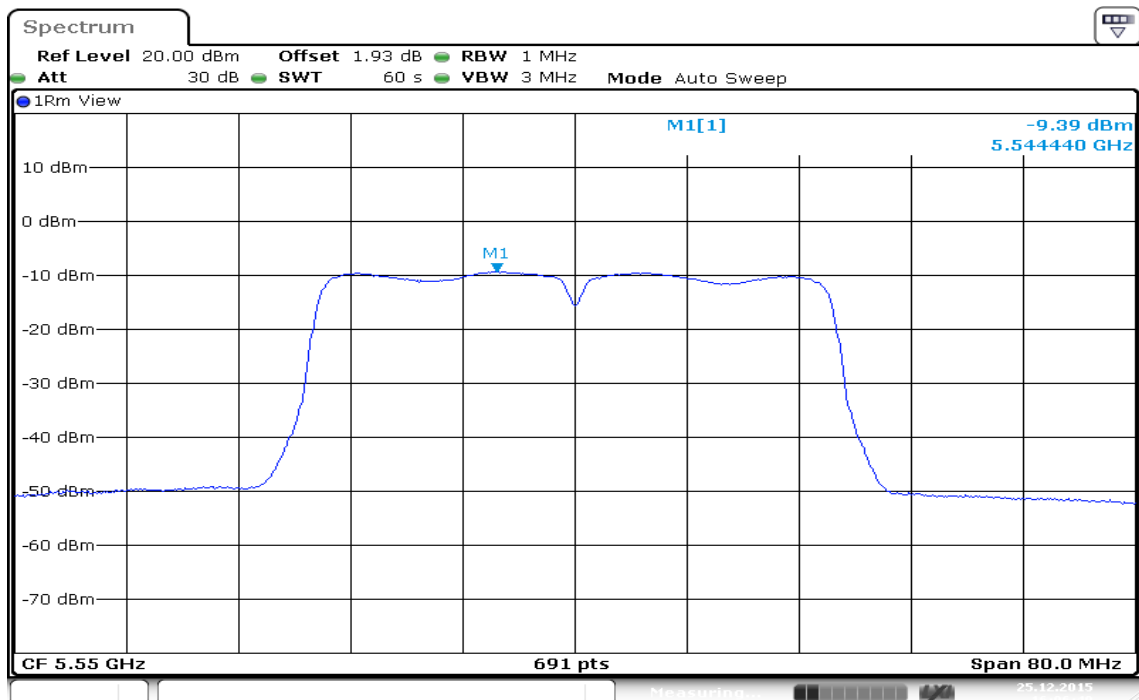
CH High



Date: 25.DEC.2015 15:01:35

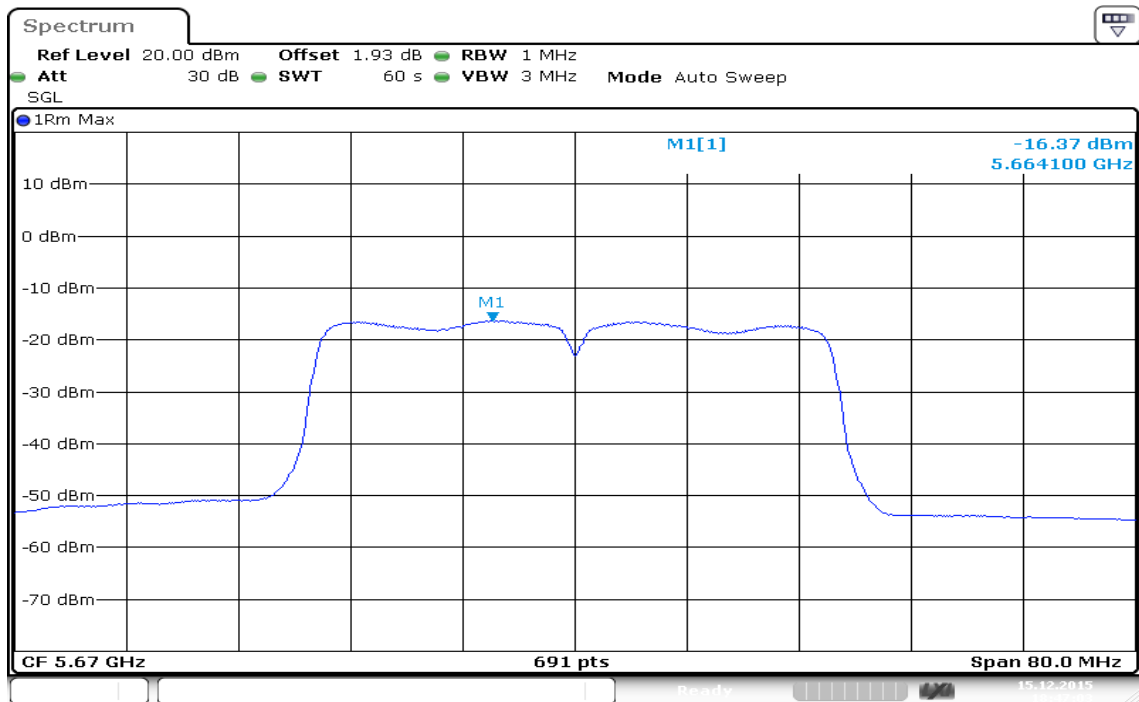
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 0**CH Low**

Date: 25.DEC.2015 16:04:37

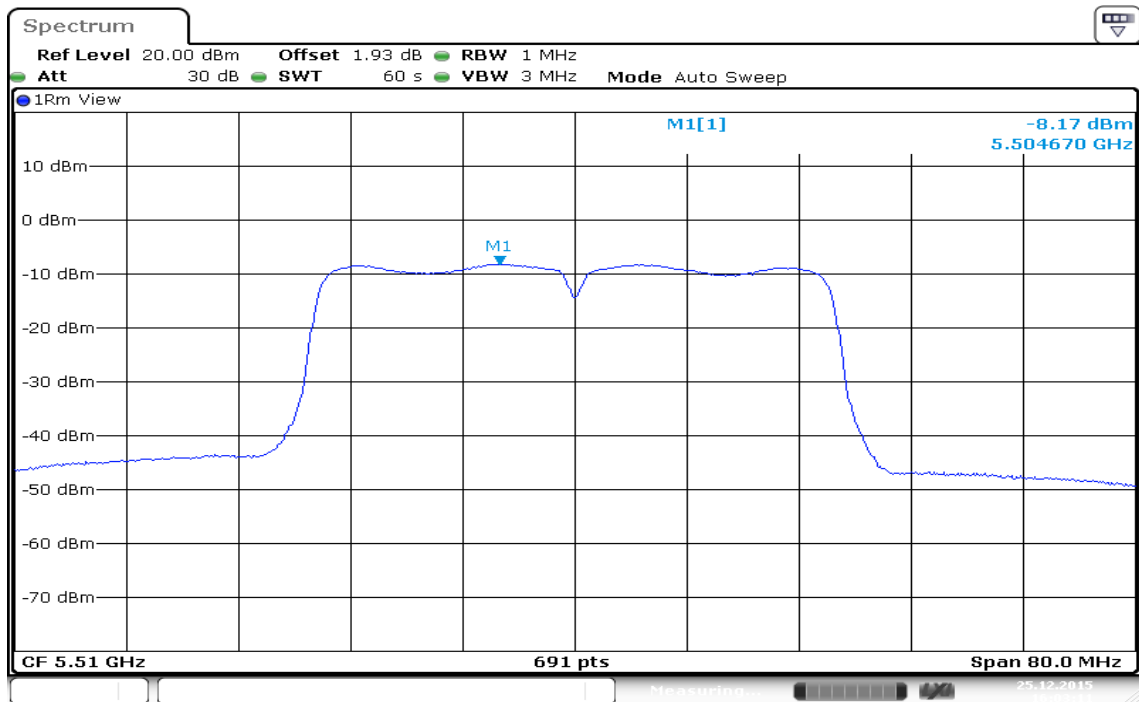
CH Mid

Date: 25.DEC.2015 16:06:49

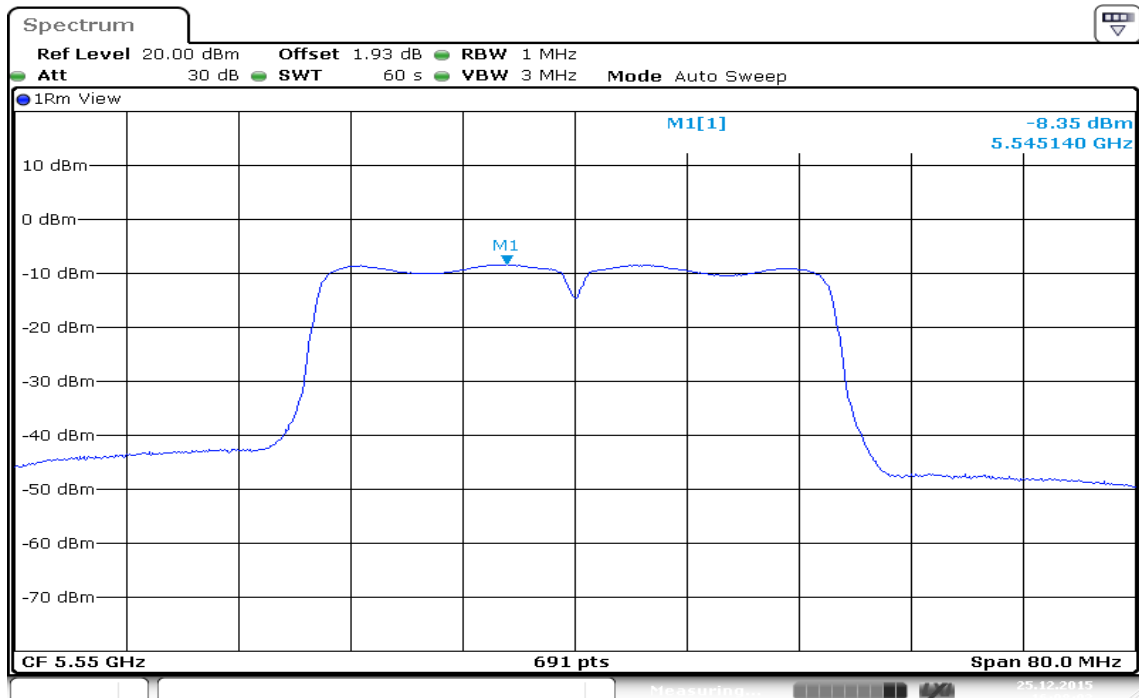
CH High



Date: 15.DEC.2015 18:47:04

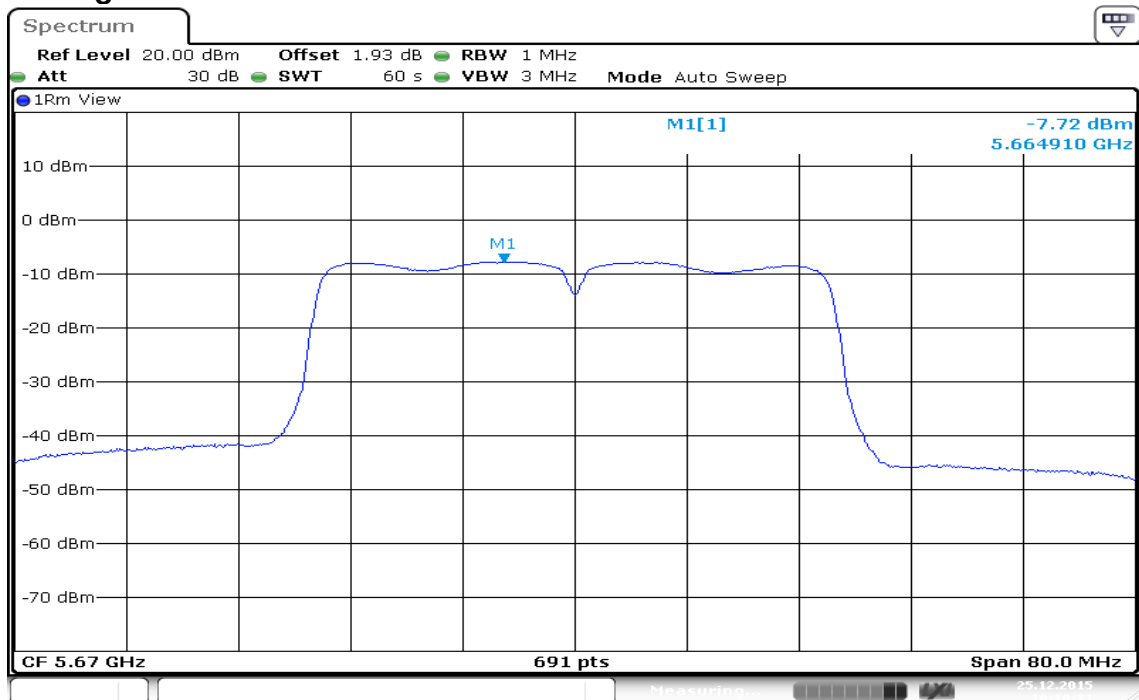
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz / Chain 1**CH Low**

Date: 25.DEC.2015 16:03:12

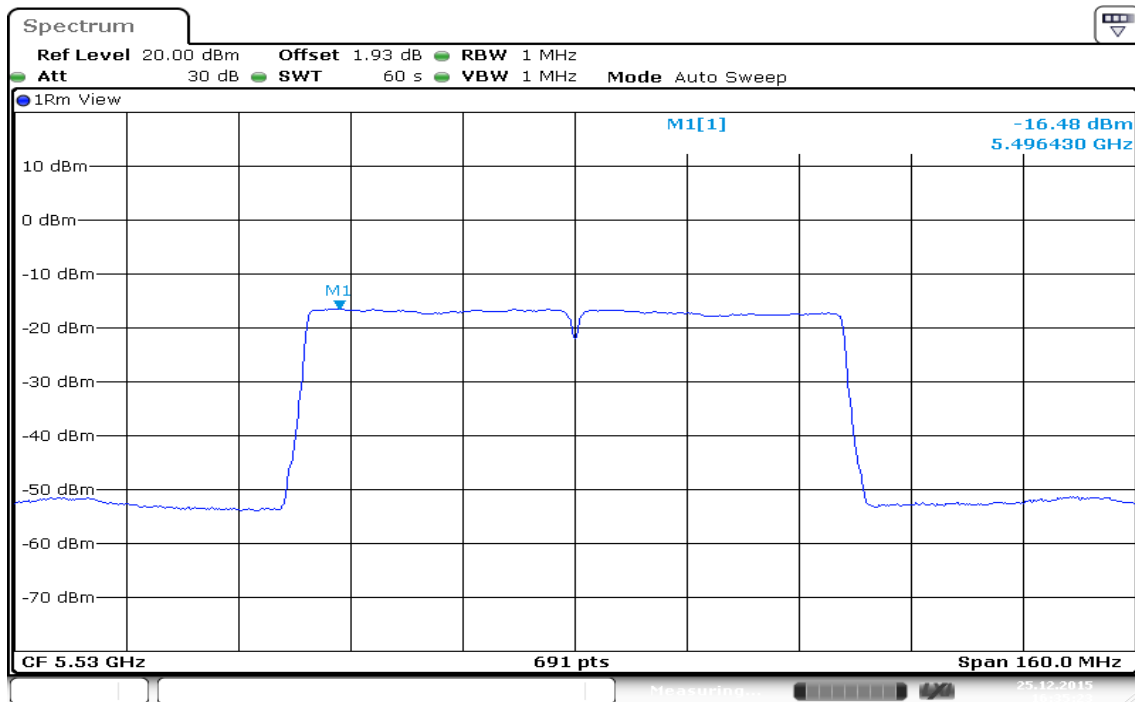
CH High

Date: 25.DEC.2015 16:08:03

CH High



Date: 25.DEC.2015 16:10:11

IEEE 802.11ac VHT 80 MHz mode / 5530MHz / Chain 0**CH Mid****IEEE 802.11ac VHT 80 MHz mode / 5530MHz / Chain 1****CH Mid**