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

TEST REPORT

For

Tablet Computer

Model: A6003

Trade Name: acer

Issued to

Acer Incorporated
8F, 88, Sec 1, Xintai 5th Rd. Xizhi, New Taipei City 221 Taiwan, R.O.C

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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service@ccsrf.com
Issued Date: June 2, 2016

Testing Laboratory
1309

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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		June 2, 2016		Initial Issue	ALL	Kelly Cheng

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION 4

2. EUT DESCRIPTION 5

3. TEST METHODOLOGY 7

3.1 EUT CONFIGURATION 7
3.2 EUT EXERCISE 7
3.3 GENERAL TEST PROCEDURES 7
3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS 8
3.5 DESCRIPTION OF TEST MODES 9

4. INSTRUMENT CALIBRATION 11

4.1 MEASURING INSTRUMENT CALIBRATION 11
4.2 MEASUREMENT EQUIPMENT USED 11
4.3 MEASUREMENT UNCERTAINTY 12

5. FACILITIES AND ACCREDITATIONS 13

5.1 FACILITIES 13
5.2 EQUIPMENT 13
5.3 LABORATORY ACCREDITATIONS AND LISTING 13
5.4 TABLE OF ACCREDITATIONS AND LISTINGS 14

6. SETUP OF EQUIPMENT UNDER TEST 15

6.1 SETUP CONFIGURATION OF EUT 15
6.2 SUPPORT EQUIPMENT 15

7. FCC PART 15 REQUIREMENTS & RSS-247 REQUIREMENTS 16

7.1 99% BANDWIDTH 16
7.2 26 DB EMISSION BANDWIDTH 36
7.3 MAXIMUM CONDUCTED OUTPUT POWER 56
7.4 BAND EDGES MEASUREMENT 60
7.5 PEAK POWER SPECTRAL DENSITY 112
7.6 RADIATED UNDESIRABLE EMISSION 132
7.7 POWERLINE CONDUCTED EMISSIONS 188
7.8 FREQUENCY STABILITY 191
7.9 DYNAMIC FREQUENCY SELECTION 193

APPENDIX I PHOTOGRAPHS OF TEST SETUP 206

1. TEST RESULT CERTIFICATION

Applicant: Acer Incorporated
8F, 88, Sec 1, Xintai 5th Rd. Xizhi, New Taipei City 221 Taiwan, R.O.C

Manufacturer: Acer Incorporated
8F, 88, Sec 1, Xintai 5th Rd. Xizhi, New Taipei City 221 Taiwan, R.O.C

Equipment Under Test: Tablet Computer

Model Number: A6003

Trade Name: acer

Date of Test: May 30 ~ June 3, 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.

Tested by:

Dennis Li
Engineer
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Tablet Computer
Model Number	A6003
Trade Name	acer
Received Date	May 13, 2016
Power Supply	1.VDC from Power Adapter 2. Power from Battery 3. Powered from host device via USB

Operating Frequency Range & Number of Channels

	Mode	Frequency Range (MHz)	Number of Channels
U-NII-1	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
U-NII-2A	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
U-NII-2C	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

Transmit Power

	Mode	Frequency Range (MHz)	Output Power (dBm)	Output Power (w)
U-NII-1	IEEE 802.11a	5180 ~ 5240	11.53	0.0142
	IEEE 802.11n HT 20 MHz	5180 ~ 5240	12.36	0.0172
	IEEE 802.11n HT 40 MHz	5190 ~ 5230	13.08	0.0203
U-NII-2A	IEEE 802.11a	5260 ~ 5320	10.28	0.0107
	IEEE 802.11n HT 20 MHz	5260 ~ 5320	10.52	0.0113
	IEEE 802.11n HT 40 MHz	5270 ~ 5310	12.83	0.0192
U-NII-2C	IEEE 802.11a	5500 ~ 5700	12.48	0.0177
	IEEE 802.11n HT 20 MHz	5500 ~ 5700	12.74	0.0188
	IEEE 802.11n HT 40 MHz	5510 ~ 5670	12.59	0.0182

Modulation Technique	OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Specification	Model: A10L FPC Antenna / Gain: 2.84dBi

Remark: *1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*

2. Keypast List：

Components	Vendor	Model Name or Key Spec.
EMMC(FLASH)	Hynix	H26M52103FMR (16GB)
CPU	MTK	MT8163V/B (64-bit Quad Cortex A53)
DDR3L	Hynix	H5TC4G63AFR-PBA (1GB / 256*16)
M/B	Sun & lynn	A10L_V1.1 (94V-0)
10.1” LCD Panel	Kingdisplay	KD101N37-40NA-A10
Battery	TCL	PR-279594N (1ICP3/95/94-2) 3.7V, 6100mAh / 22.57Wh
Front Camera module	microkore	W05P4021 V2 (GC2355)
Rear Camera module	microkore	W05P4021 V2 (OV5670)
Speaker left	Haosheng	XHB160903B08-08-B-RH (8Ω)
Speaker right	Haosheng	XHB160903B08-07-B-RH (8Ω)
Adapter	Delta	ADP-10HW A I/P: 100-240Vac~, 0.4A, 50-60Hz O/P: 5.35Vdc, 2.0A
	Lite-On	PA-1100-25 I/P: 100-240Vac~, 0.3A, 50/60Hz O/P: 5.2Vdc, 2.0A
RF Module	MTK	MT6625LN/BT, WIFI

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 v01r02General UNII Test Procedures New Rules

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: A6003) comes with two types of power adapter (model: PA-1100-25 / ADP-10HW A) for sale. After the preliminary test, the power adapter ADP-10HW A was found to emit the worst emissions and therefore had been tested under operating condition.

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.

U-NII-1:

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.

U-NII-2A:

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.

U-NII-2C:

IEEE 802.11a for 5500 ~ 5720MHz:
Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5720MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT 20 MHz for 5500 ~ 5720MHz:
Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5720MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT 40 MHz for 5510 ~ 5710MHz:
Channel Low (5510MHz), Channel Mid (5550MHz) and Channel High (5710MHz) with 13.5Mbps 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 lie-down position (X 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 Date**	**Calibration Due**
DC Power Supplies	GW Instek	SPS-3610	GPE880163	01/19/2016	01/18/2017
Power Meter	Anritsu	ML2495A	1012009	07/08/2015	07/07/2016
Power Sensor	Anritsu	MA2411B	917072	07/08/2015	07/07/2016
Signal Analyzer	R&S	FSV 40	101073	07/20/2015	07/19/2016
Spectrum Analyzer	Agilent	E4446A	US42510268	02/15/2016	02/14/2017
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/08/2015	10/07/2016
Vector Signal Generator	R&S	SMU 200A	102239	03/10/2016	03/09/2017
AC Power Source	EXTECH	6205	1140845	N.C.R	N.C.R

Wugu 966 Chamber A					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	08/06/2015	08/05/2016
EMI Test Receiver	R&S	ESCI	100064	06/05/2015	06/04/2016
Horn Antenna	EMCO	3117	55165	02/24/2016	02/23/2017
Horn Antenna	EMCO	3116	26370	01/15/2016	01/14/2017
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	01/12/2016	01/11/2017
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	01/12/2016	01/11/2017
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	01/14/2016	01/13/2017
Pre-Amplifier	EMCI	EMC 012635	980151	06/05/2015	06/04/2016
Pre-Amplifier	EMCI	EM330	N/A	06/05/2015	06/04/2016
Spectrum Analyzer	Agilent	E4446A	US42510252	12/08/2015	12/07/2016
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	EZ-EMC (CCS-3A1RE)				

Conducted Emission Room # B					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Capacitive Voltage Probe	FCC	F-CVP-1	100185	03/09/2016	03/08/2017
EMI Test Receiver	R&S	ESCI	101073	09/09/2015	09/08/2016
LISN	SCHWARZBECK	NSLK 8127	8127-541	11/23/2015	11/22/2016
LISN	R&S	ENV216	101054	05/11/2016	05/10/2017
Test S/W	CCS-3A1-CE				

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-247, 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	Testing Laboratory 1309
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.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
	N/A						

Remark:

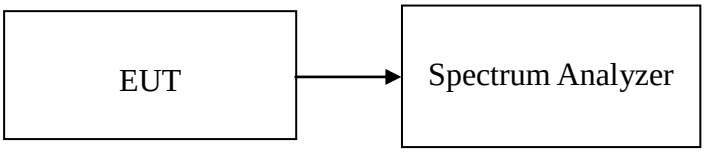
1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

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	16.9030
High	5240	17.1345

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.7134
Mid	5220	17.8292
High	5240	17.8292

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.1215
High	5230	36.2373

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.0767
Mid	5280	16.9030
High	5320	16.9030

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.5976
Mid	5280	17.6555
High	5320	17.5976

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.1215
High	5310	36.1215

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.7872
Mid	5580	16.7293
High	5700	16.7872

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.5976
Mid	5580	17.6555
High	5700	17.5976

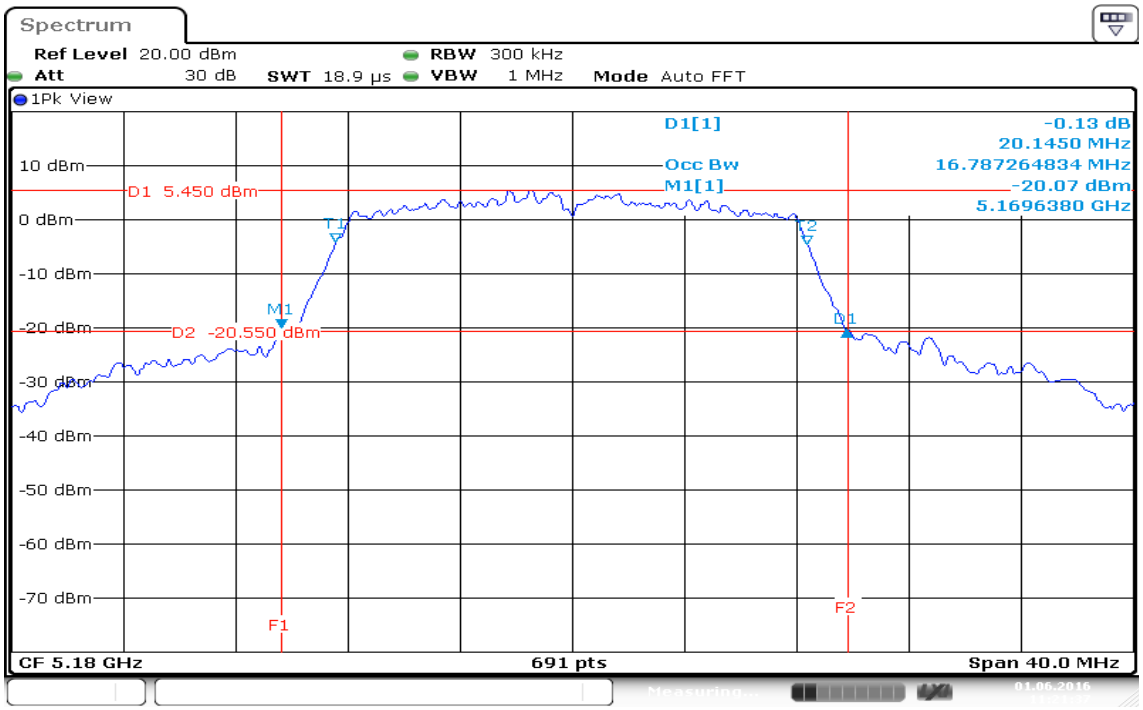
Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5710MHz

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.4688
Mid	5550	36.2373
High	5670	36.3531

Test Plot

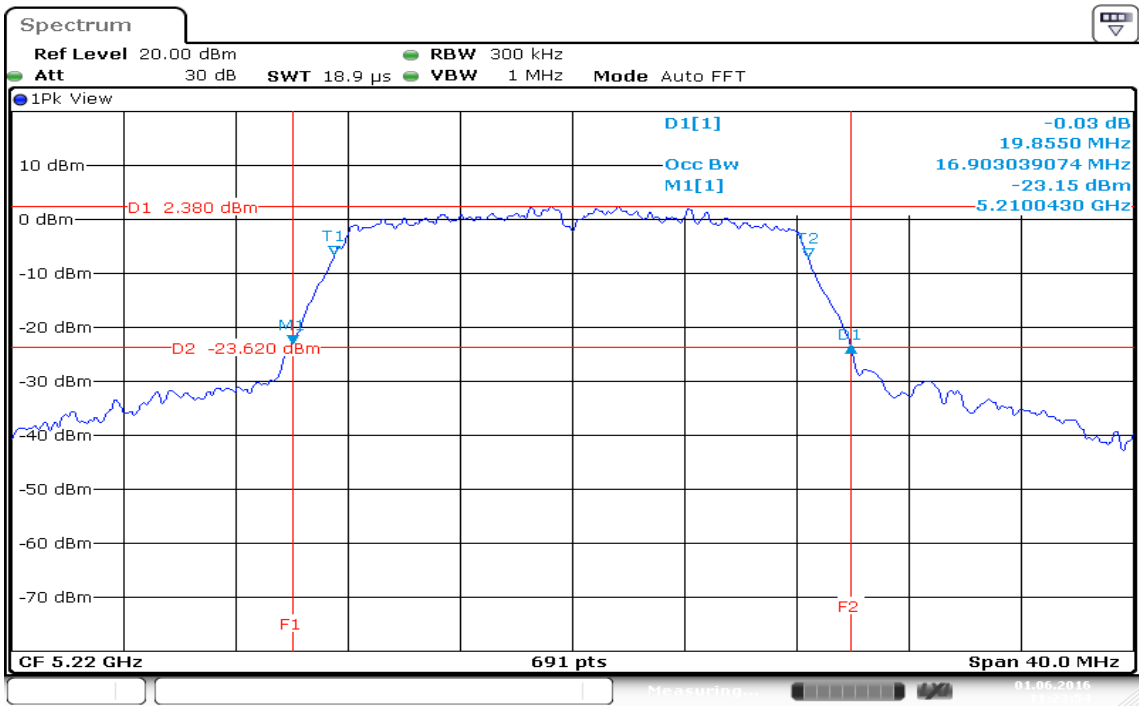
IEEE 802.11a mode / 5180 ~ 5240MHz

99% Bandwidth (CH Low)



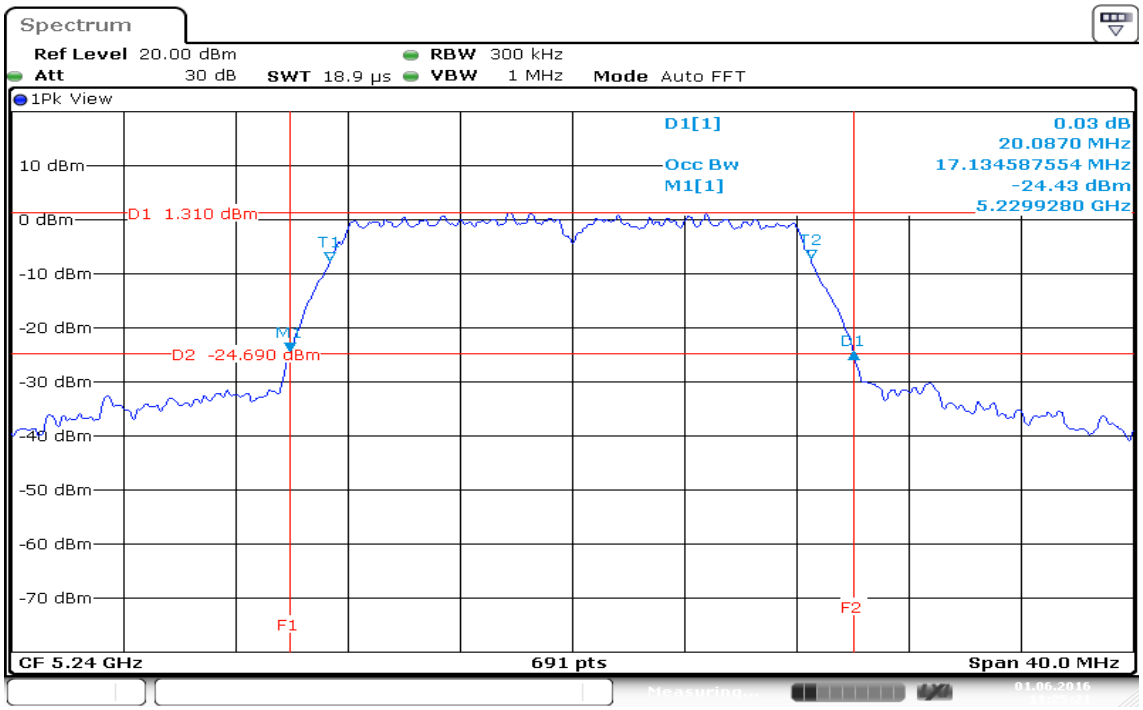
Date: 1.JUN.2016 11:21:37

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 11:23:55

99% Bandwidth (CH high)



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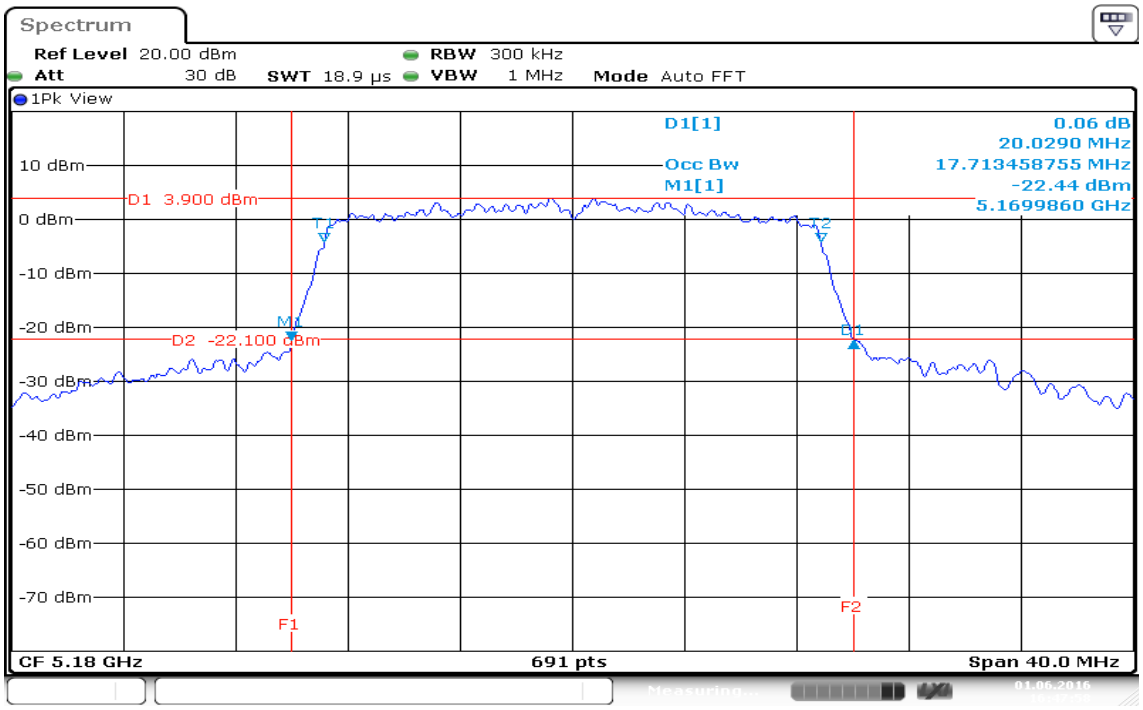
IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

99% Bandwidth (CH Low)



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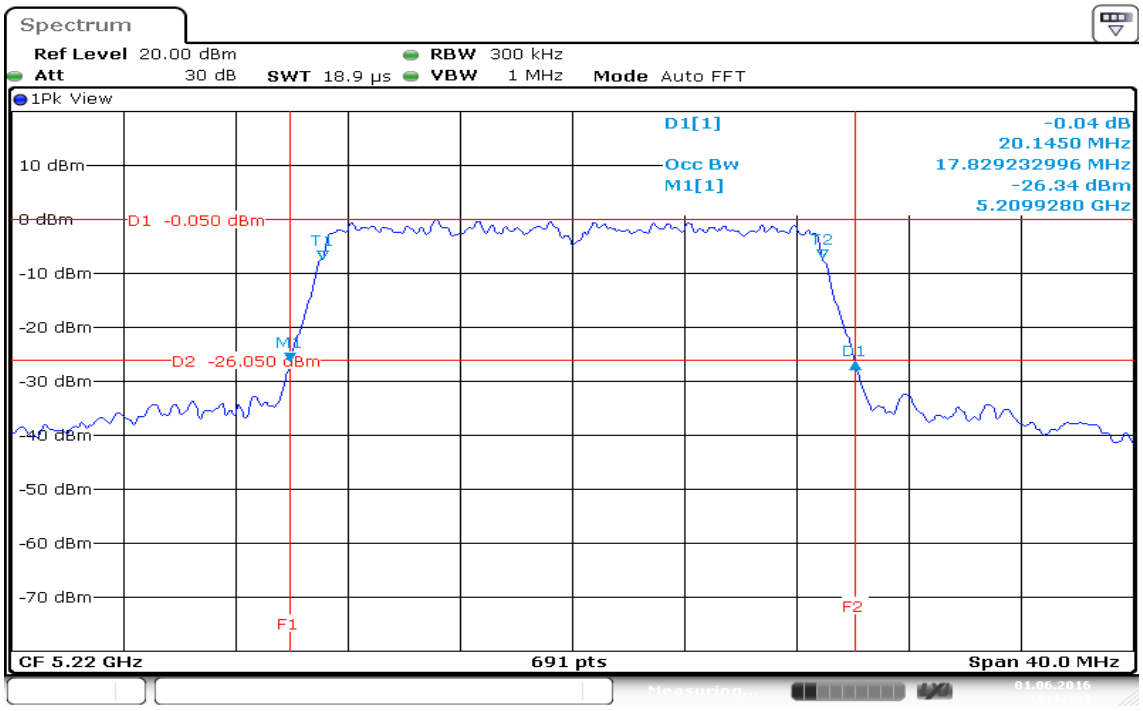
99% Bandwidth (CH Mid)



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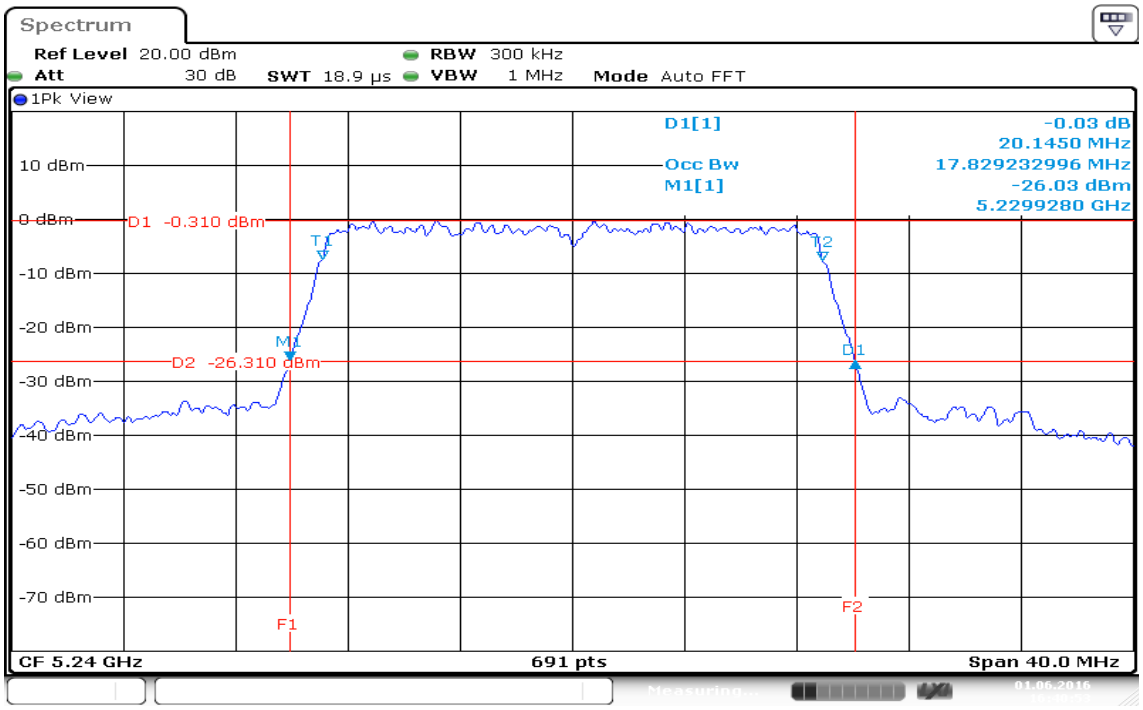
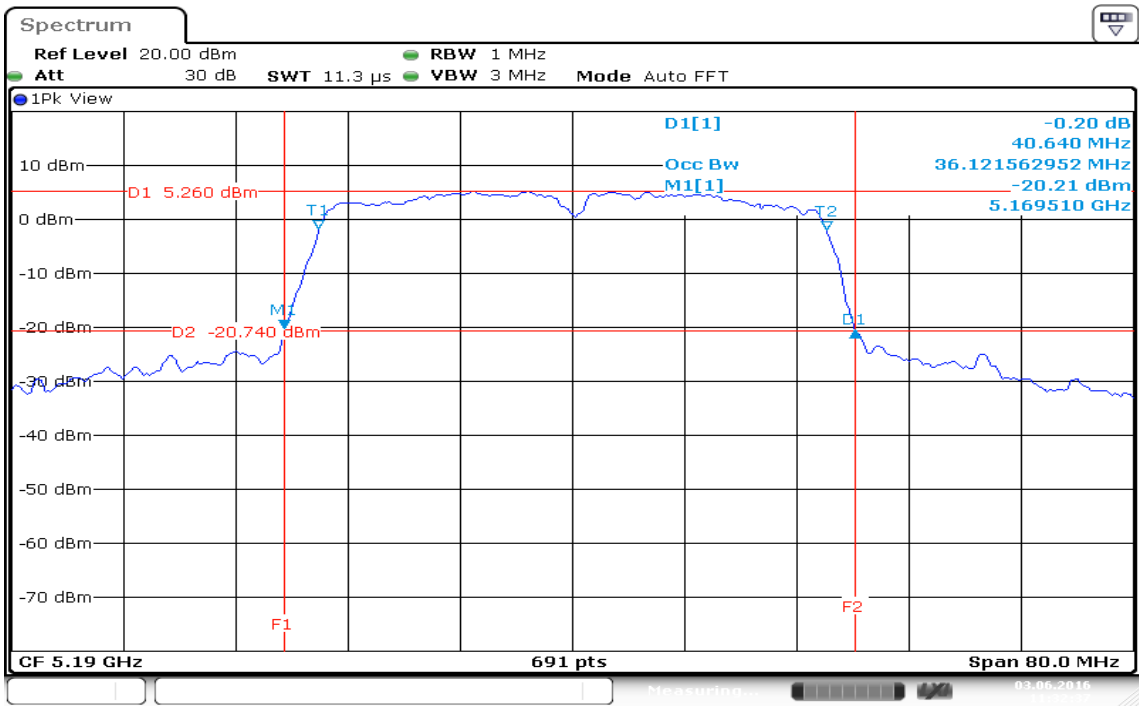
99% Bandwidth (CH High)



Date: 1.JUN.2016 16:40:53

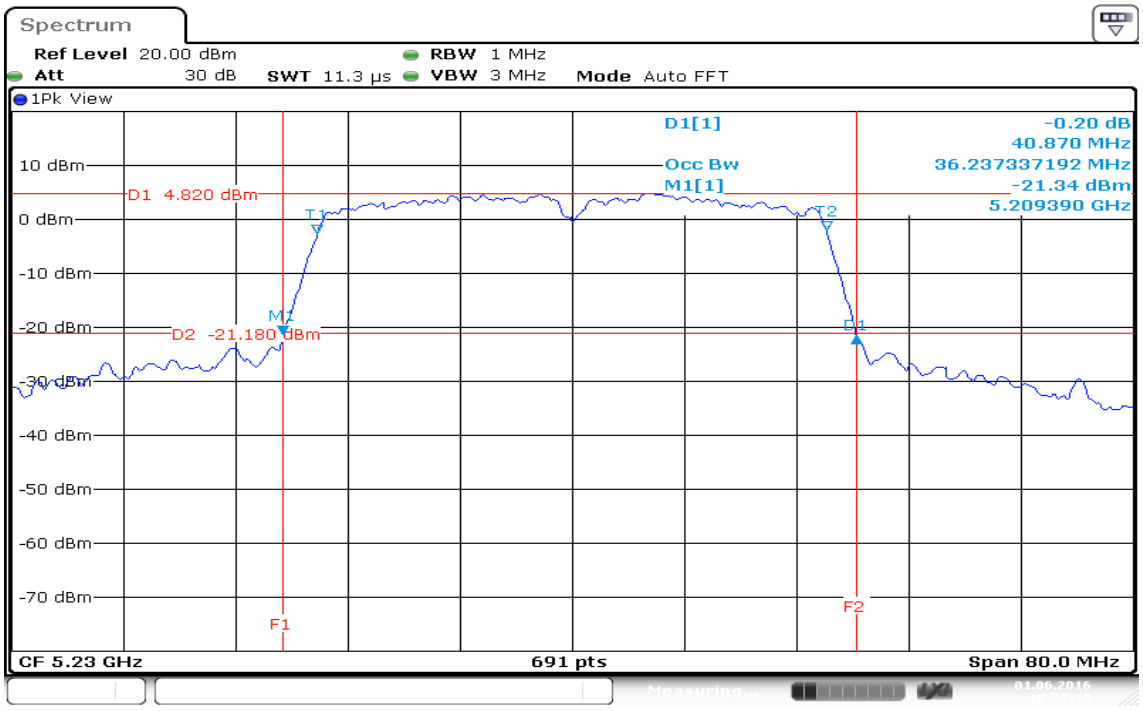
IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

99% Bandwidth (CH Low)



Date: 3.JUN.2016 11:32:37

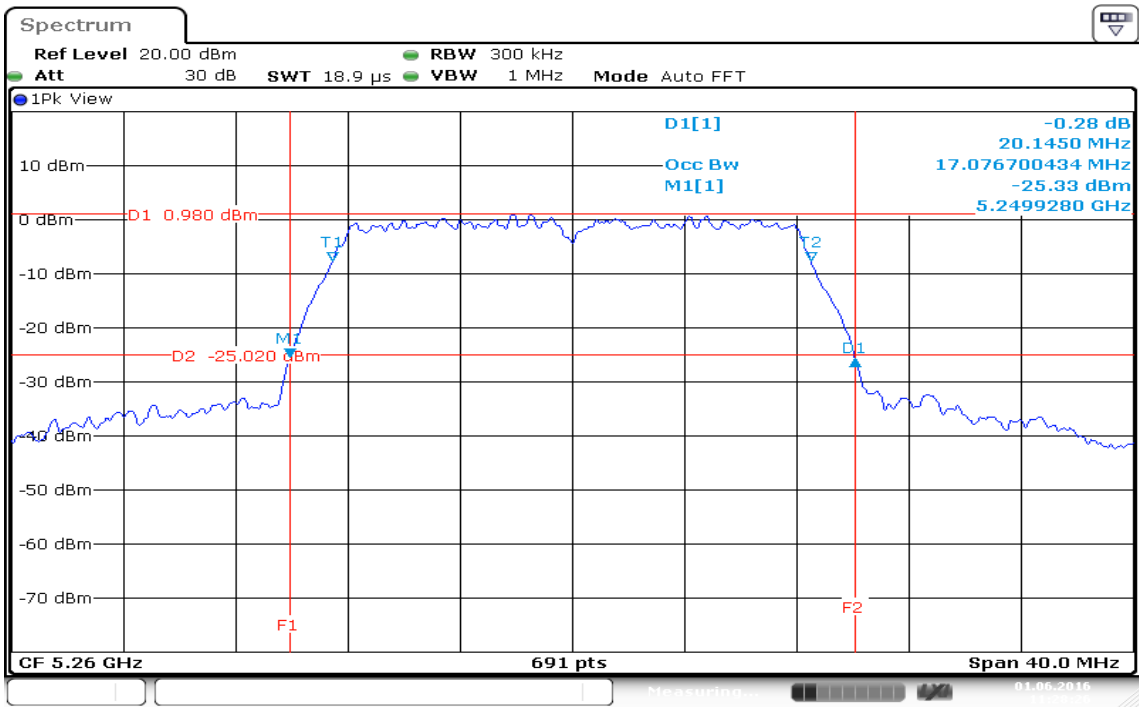
99% Bandwidth (CH High)



Date: 1.JUN.2016 18:55:38

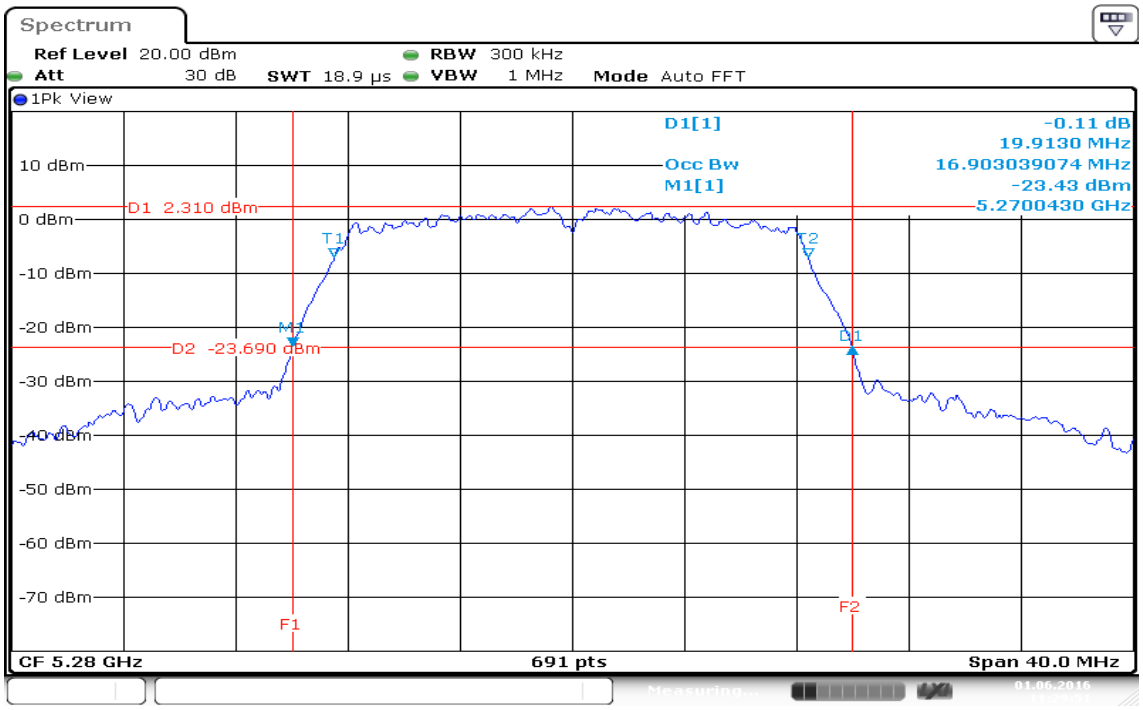
IEEE 802.11a mode / 5260 ~ 5320MHz

99% Bandwidth (CH Low)



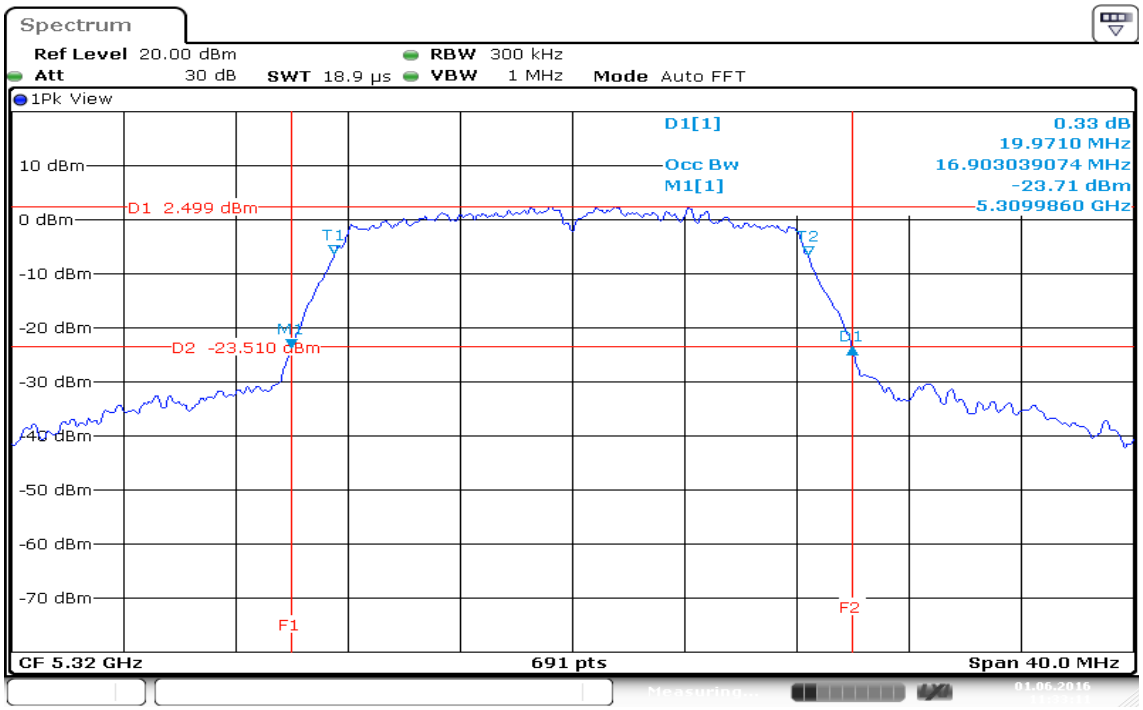
Date: 1.JUN.2016 11:28:26

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 11:29:52

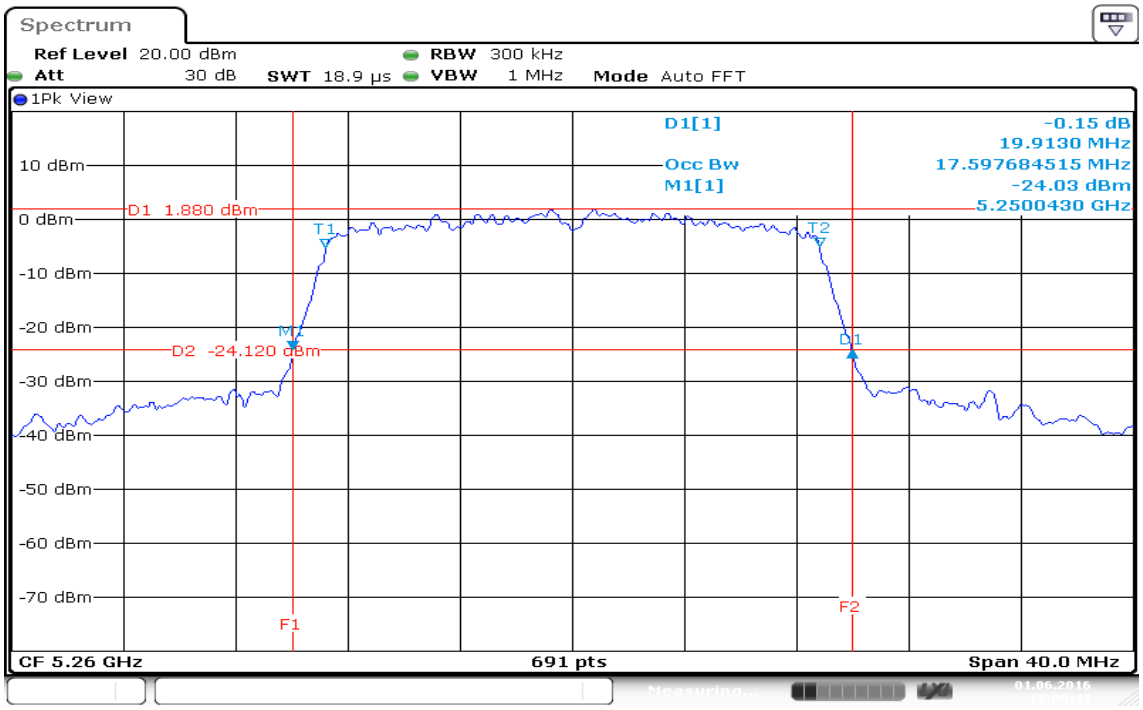
99% Bandwidth (CH High)



Date: 1.JUN.2016 11:33:11

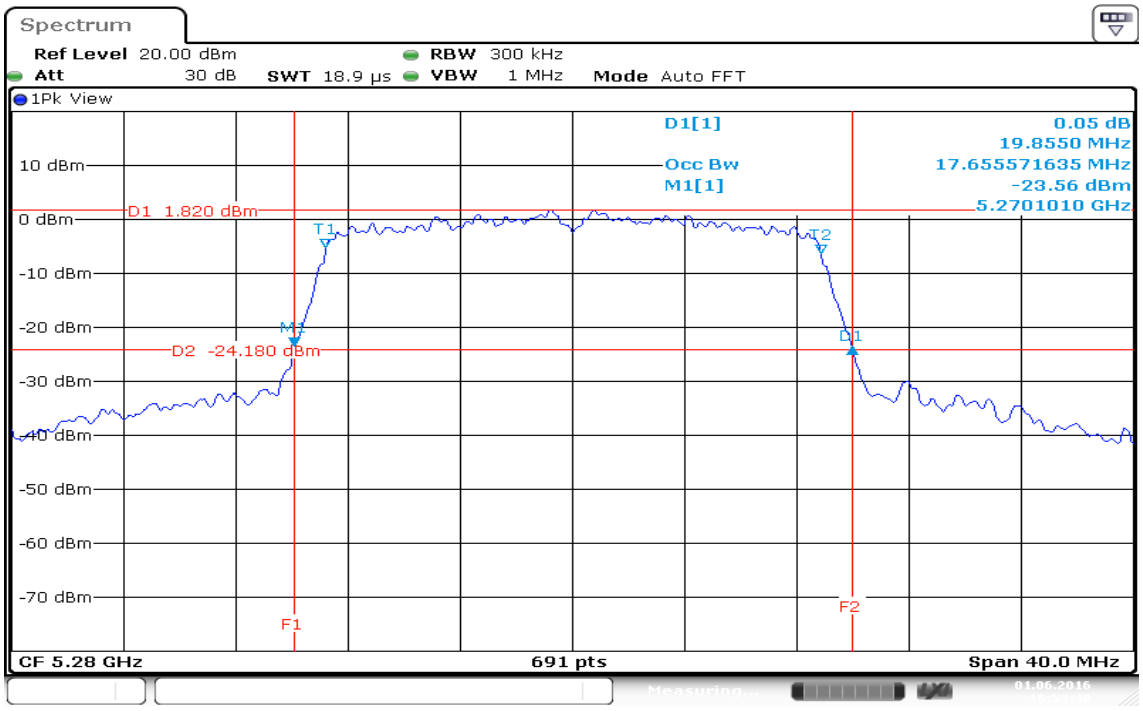
IEEE 802.11n HT 20 MHz mode / 5260 ~ 5320MHz

99% Bandwidth (CH Low)



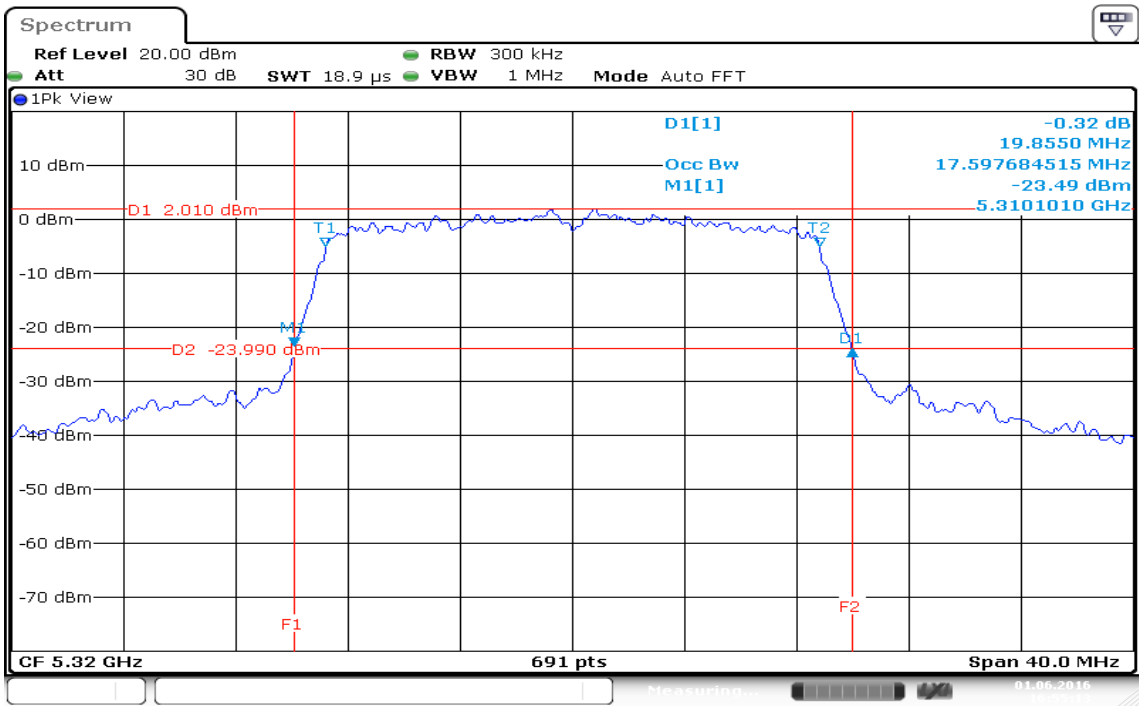
Date: 1.JUN.2016 17:00:44

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 16:53:40

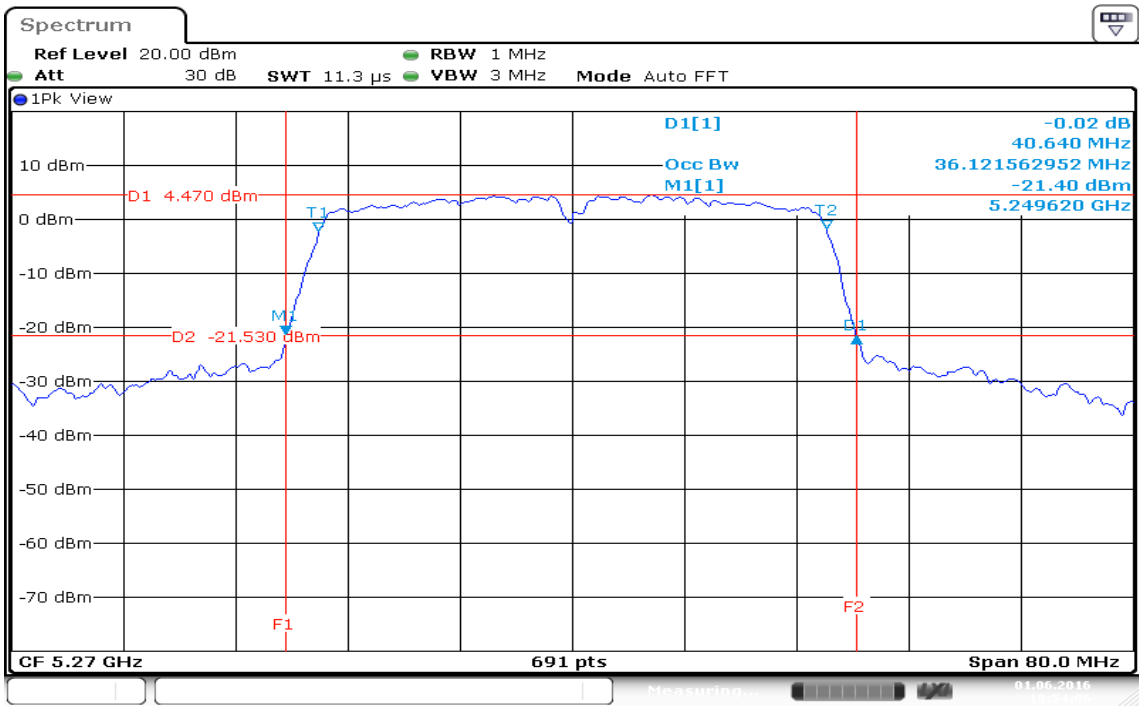
99% Bandwidth (CH High)



Date: 1.JUN.2016 16:55:14

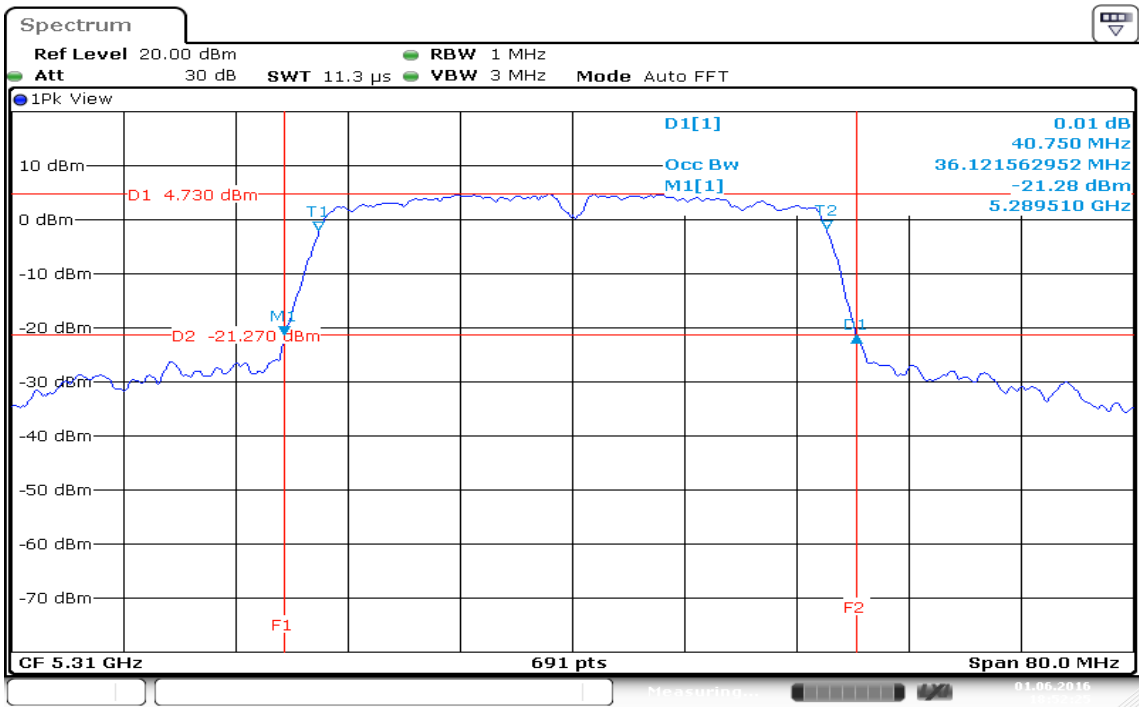
IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

99% Bandwidth (CH Low)



Date: 1.JUN.2016 18:54:06

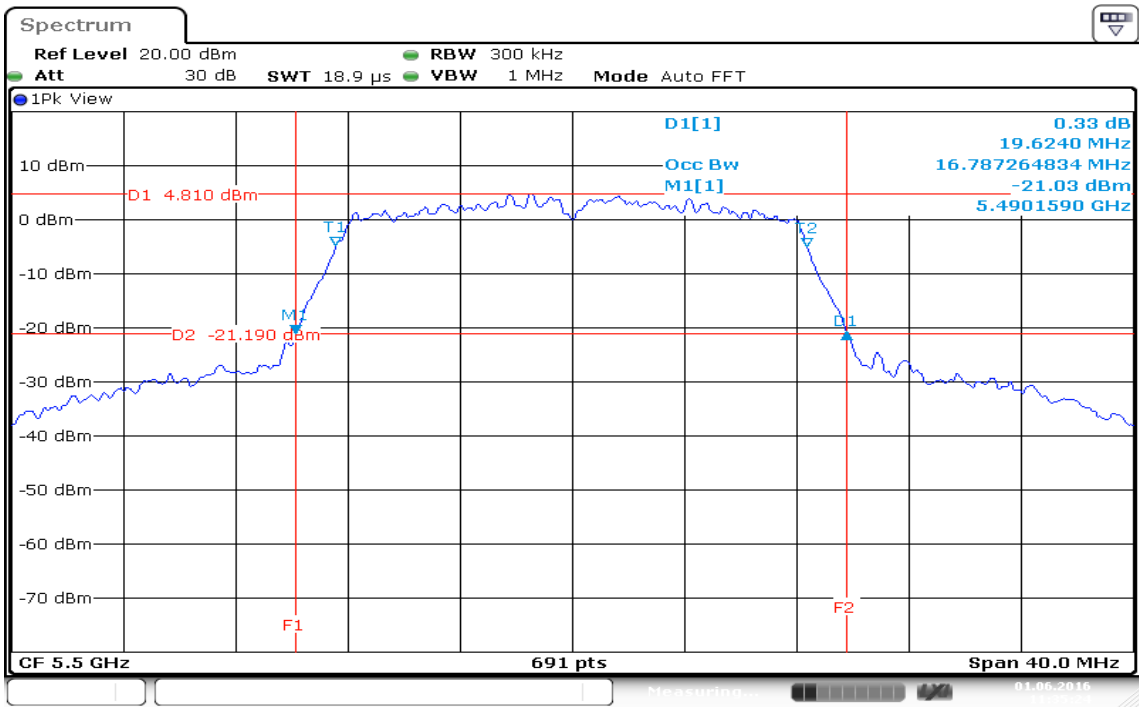
99% Bandwidth (CH High)



Date: 1.JUN.2016 18:52:25

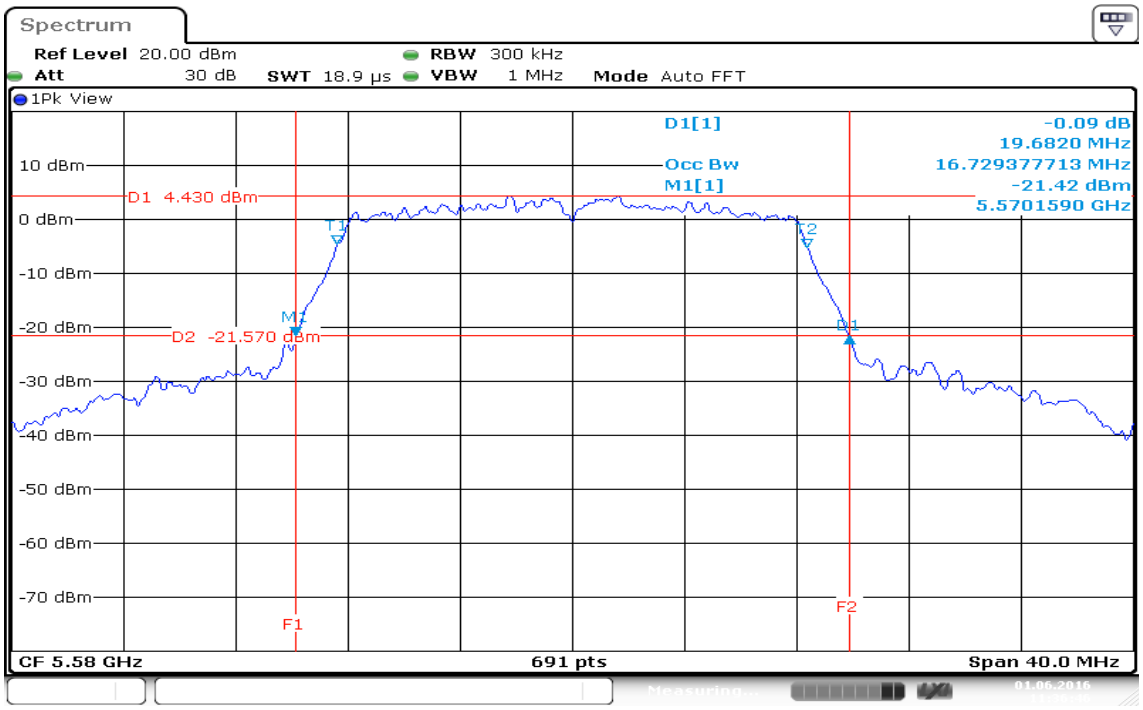
Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

99% Bandwidth (CH Low)



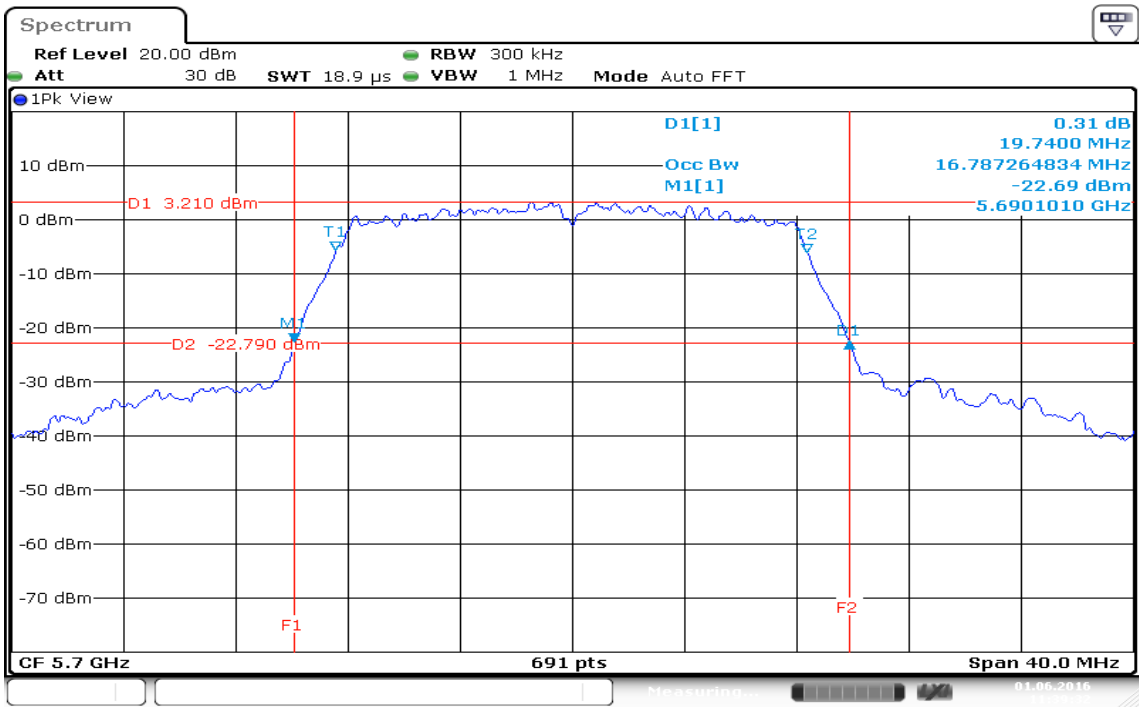
Date: 1.JUN.2016 11:35:24

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 11:36:46

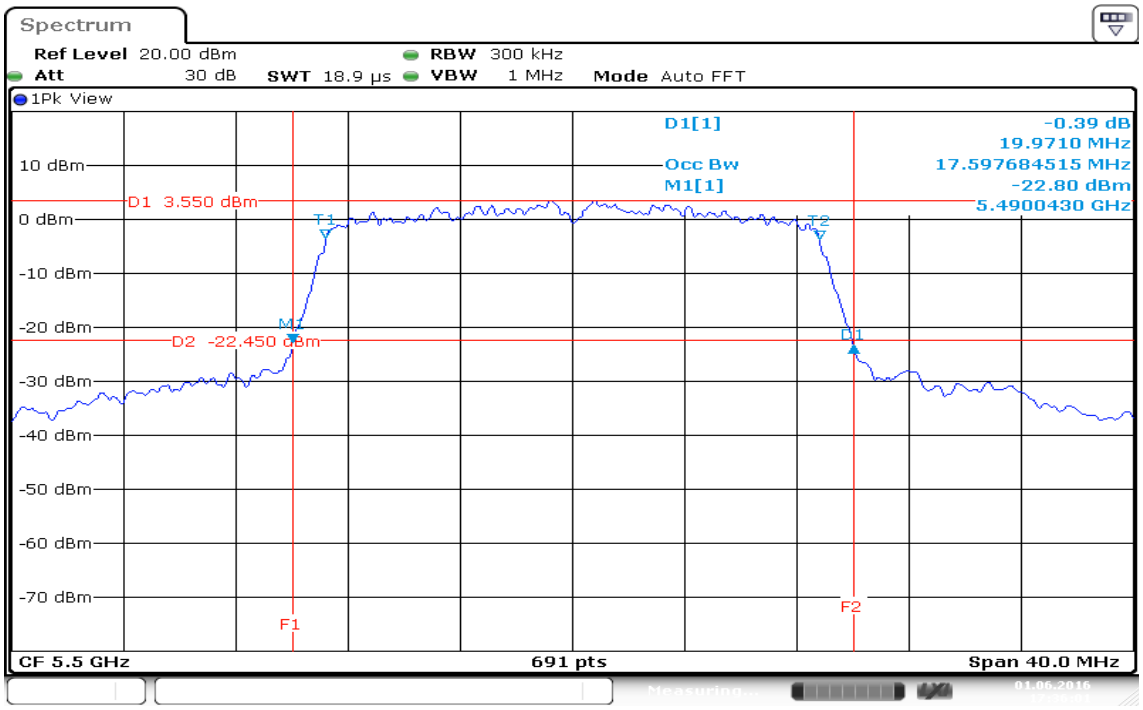
99% Bandwidth (CH High)



Date: 1.JUN.2016 11:39:32

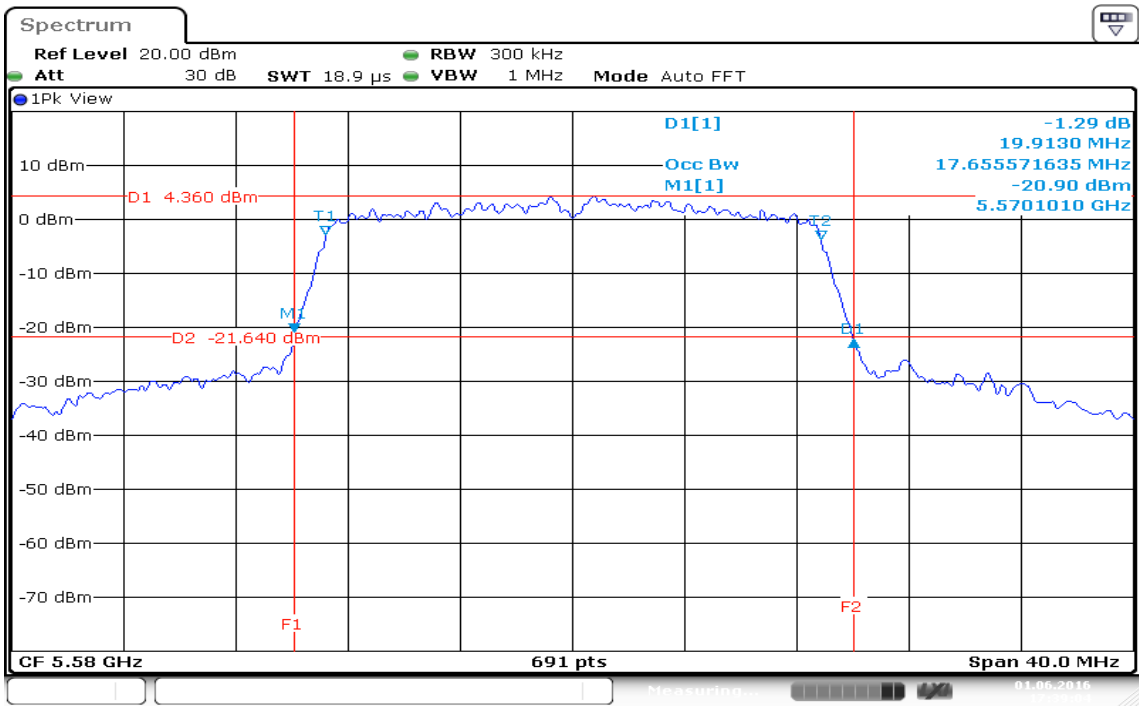
IEEE 802.11n HT 20 MHz mode / 5500 ~ 5700MHz

99% Bandwidth (CH Low)



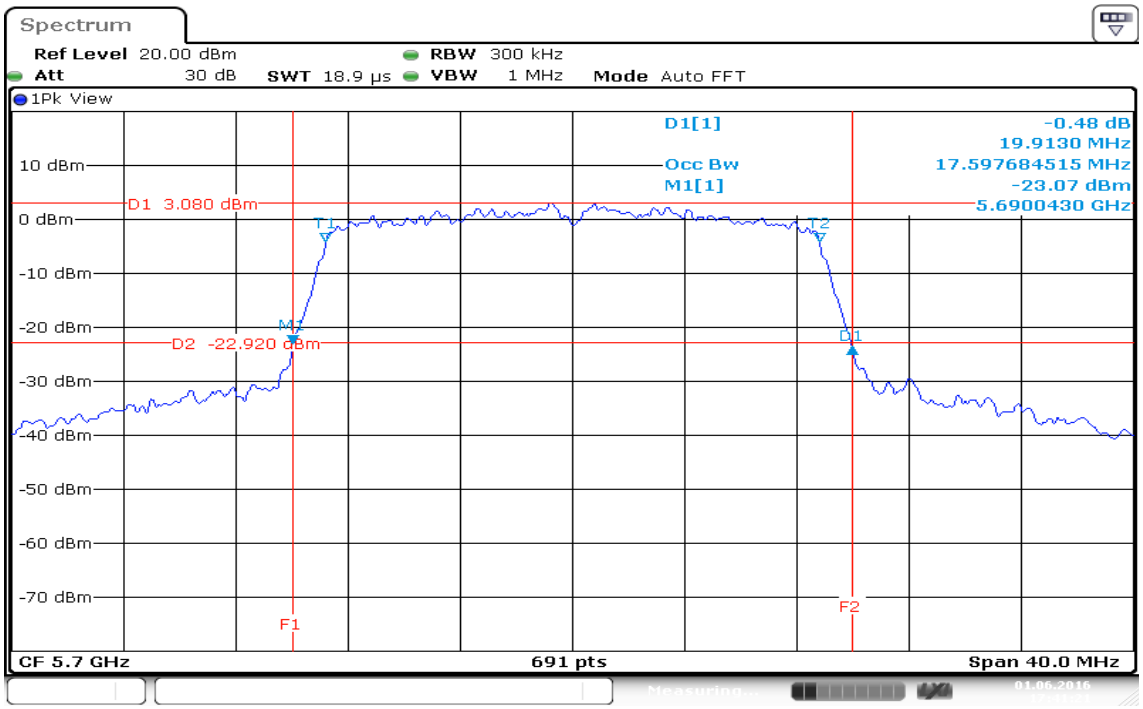
Date: 1.JUN.2016 17:36:02

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 17:39:05

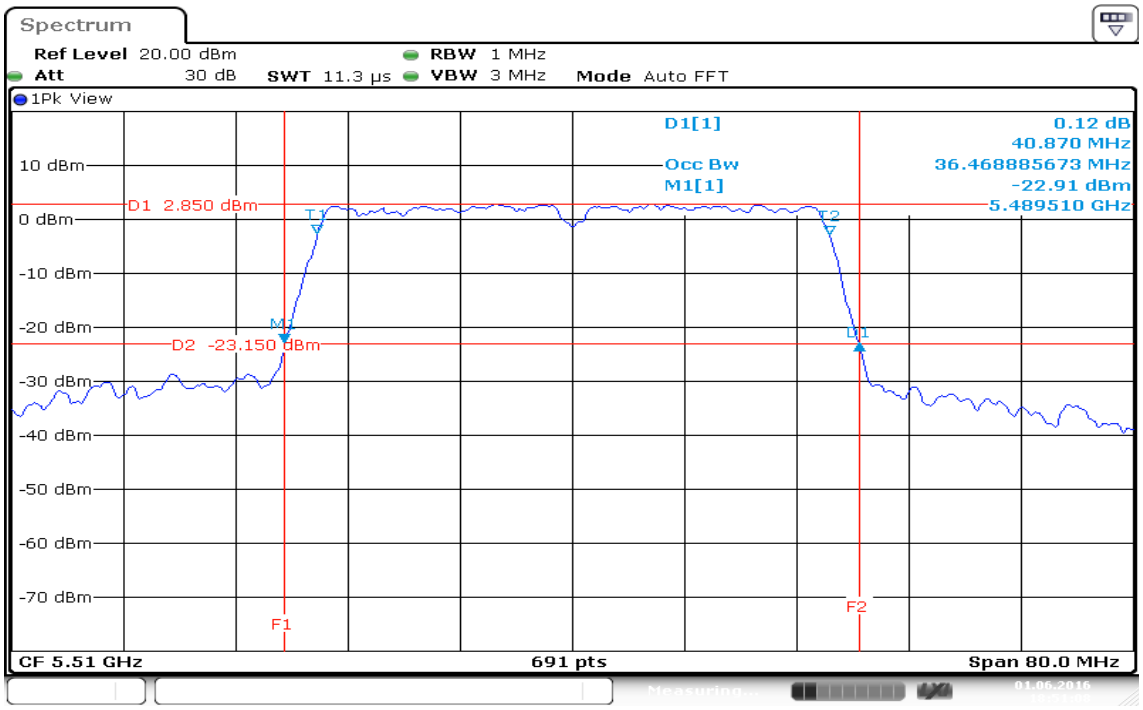
99% Bandwidth (CH High)



Date: 1.JUN.2016 17:41:22

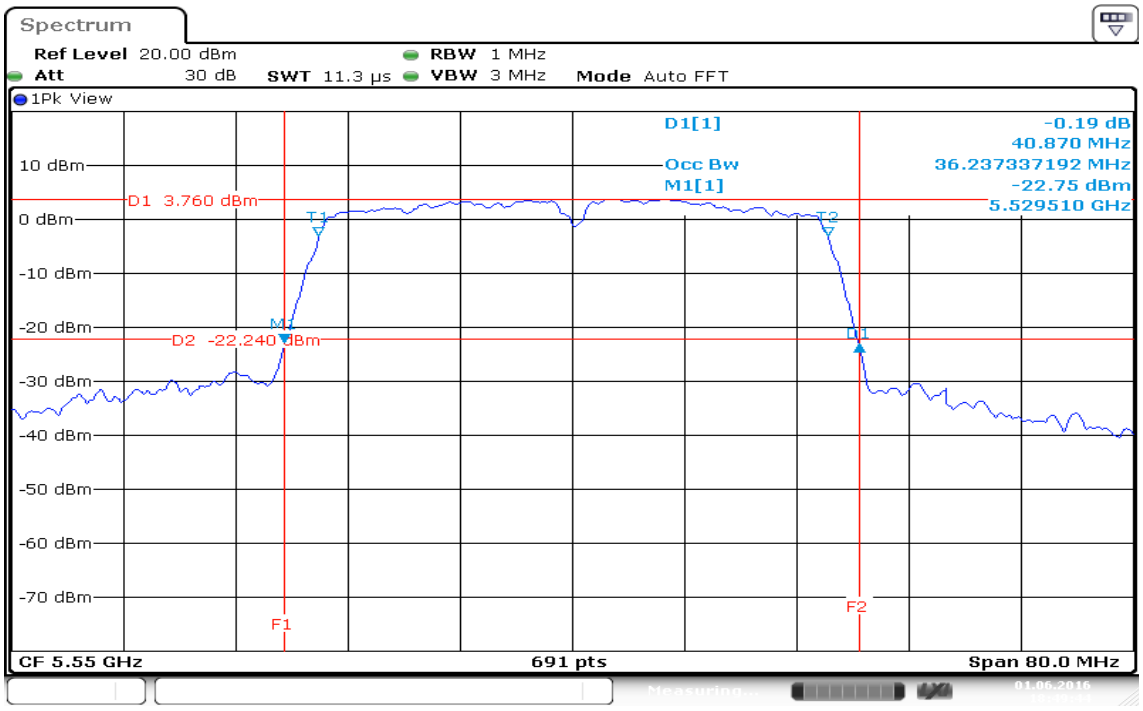
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

99% Bandwidth (CH Low)



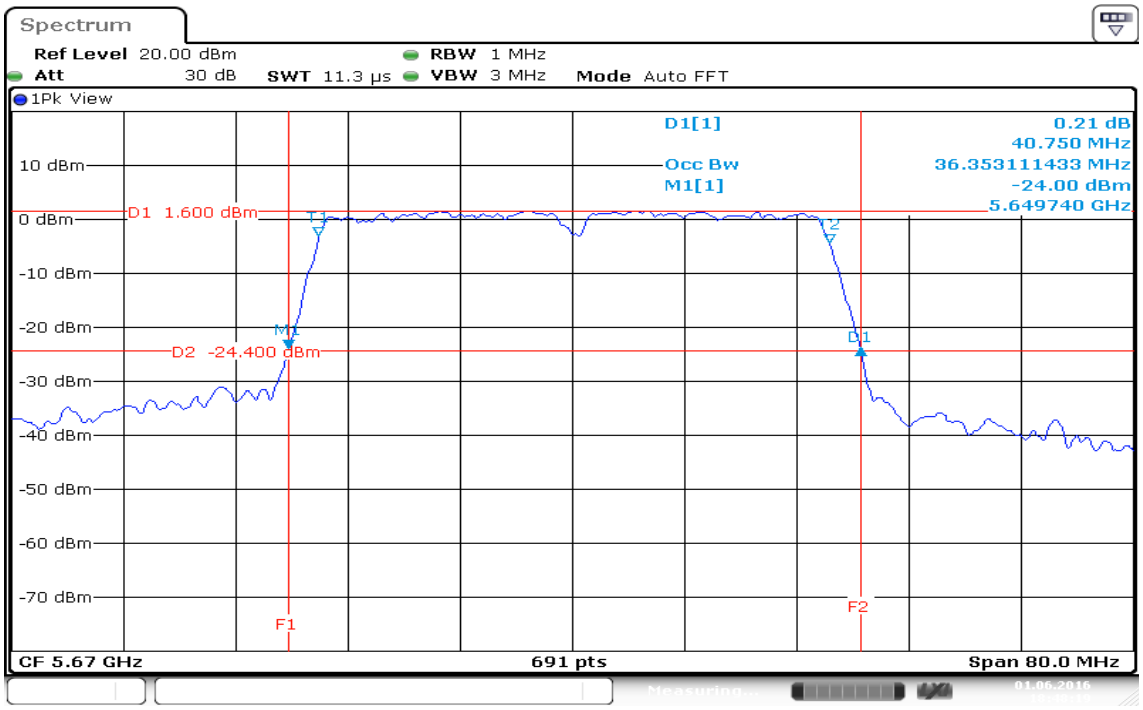
Date: 1.JUN.2016 18:51:09

99% Bandwidth (CH Mid)



Date: 1.JUN.2016 18:49:45

99% Bandwidth (CH High)



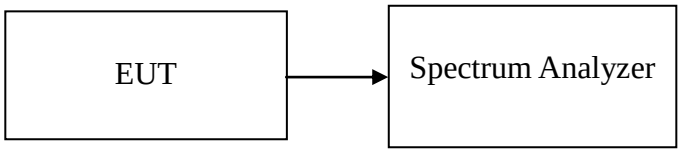
Date: 1.JUN.2016 18:48:20

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	20.1450
Mid	5220	19.8550
High	5240	20.0870

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5180	20.0290
Mid	5220	20.1450
High	5240	20.1450

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5190	40.640
Mid	5230	40.870

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5260	20.1450
Mid	5280	19.9130
High	5320	19.9710

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5260	19.9130
Mid	5280	19.8550
High	5320	19.8550

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5270	40.640
Mid	5310	40.750

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5500	19.6240
Mid	5580	19.6820
High	5700	19.7400

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

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5500	19.9710
Mid	5580	19.9130
High	5700	19.9130

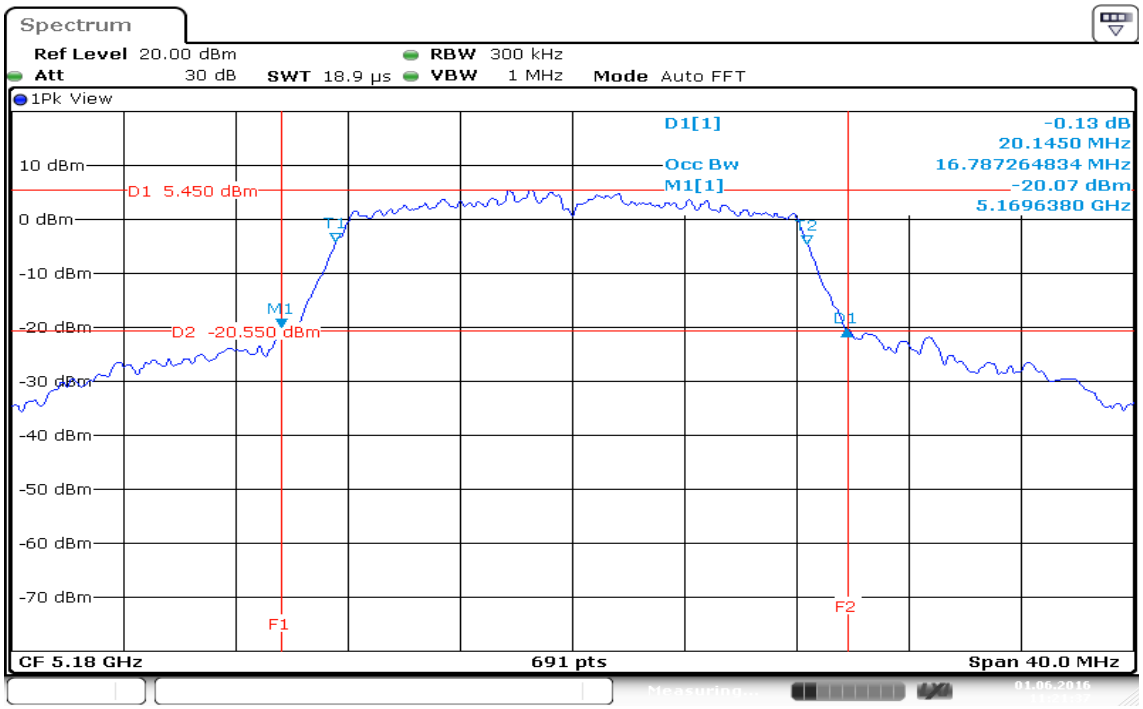
Test mode: IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

Channel	Frequency (MHz)	26db Bandwidth (MHz)
Low	5510	40.870
Mid	5550	40.870
High	5670	40.750

Test Plot

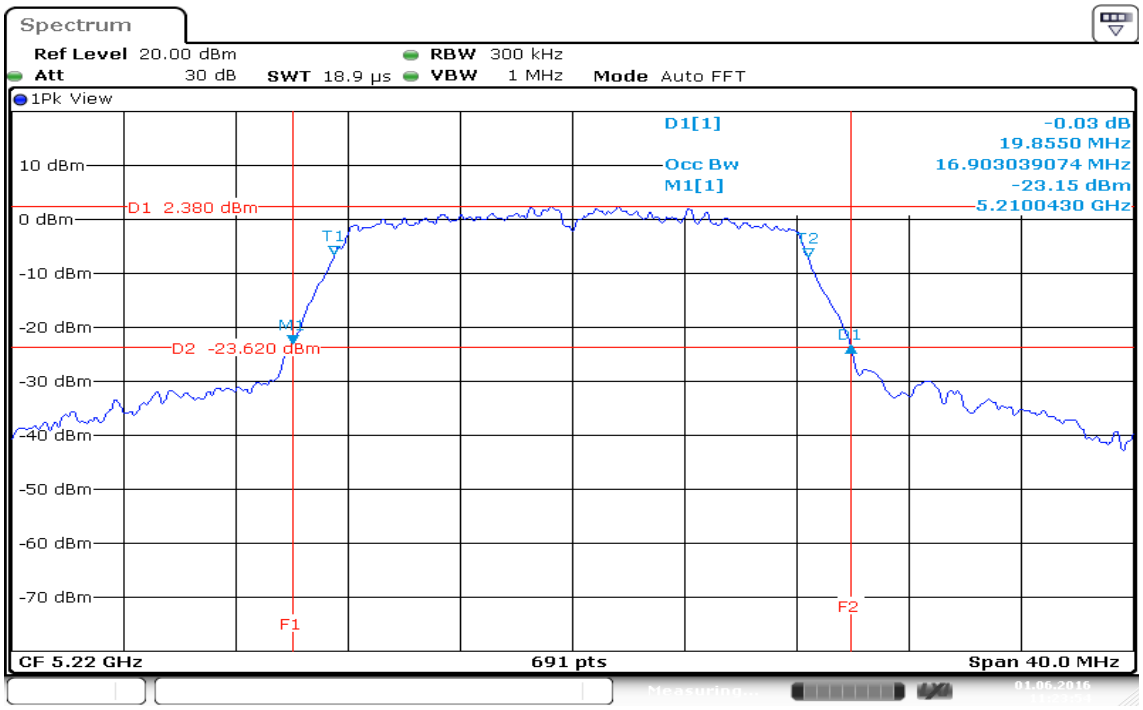
IEEE 802.11a for 5180 ~ 5240MHz

CH Low



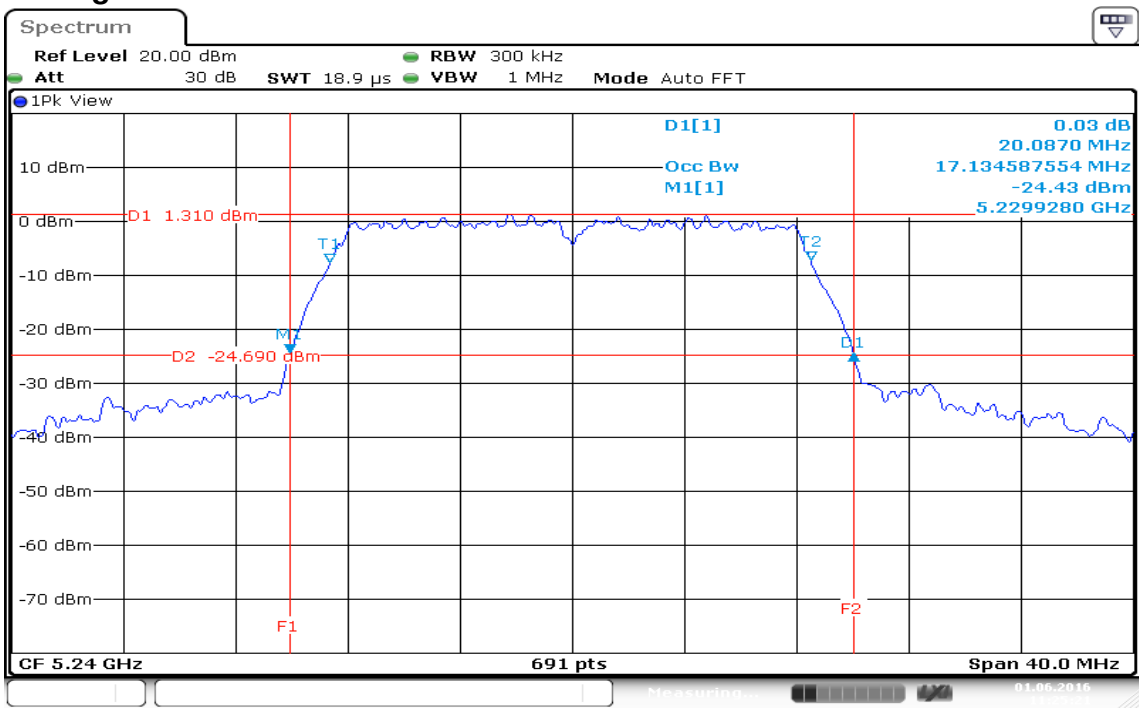
Date: 1.JUN.2016 11:21:37

CH Mid



Date: 1.JUN.2016 11:23:55

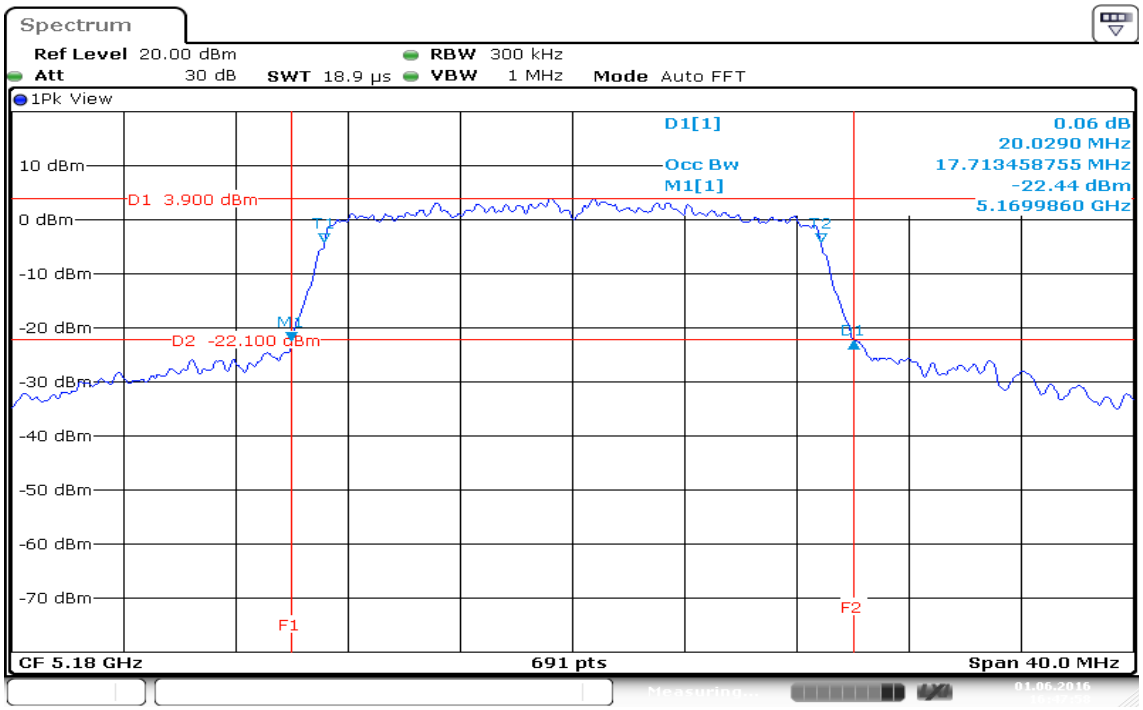
CH High



Date: 1.JUN.2016 11:25:22

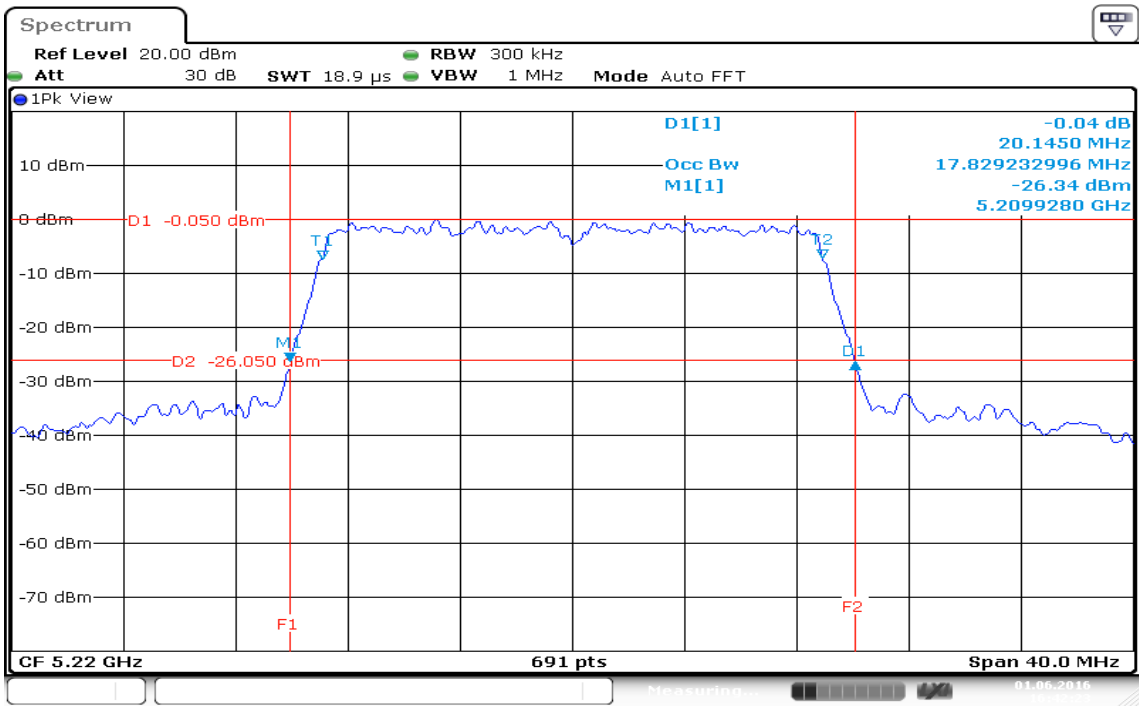
IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

CH Low



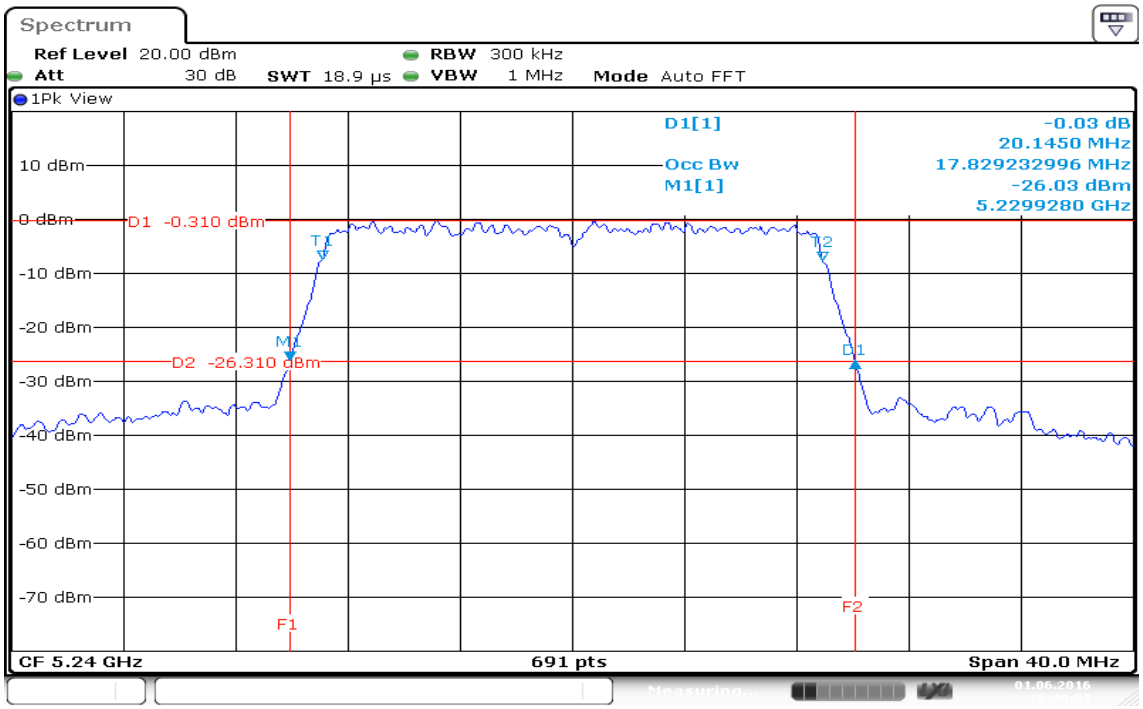
Date: 1.JUN.2016 16:47:59

CH Mid



Date: 1.JUN.2016 16:42:23

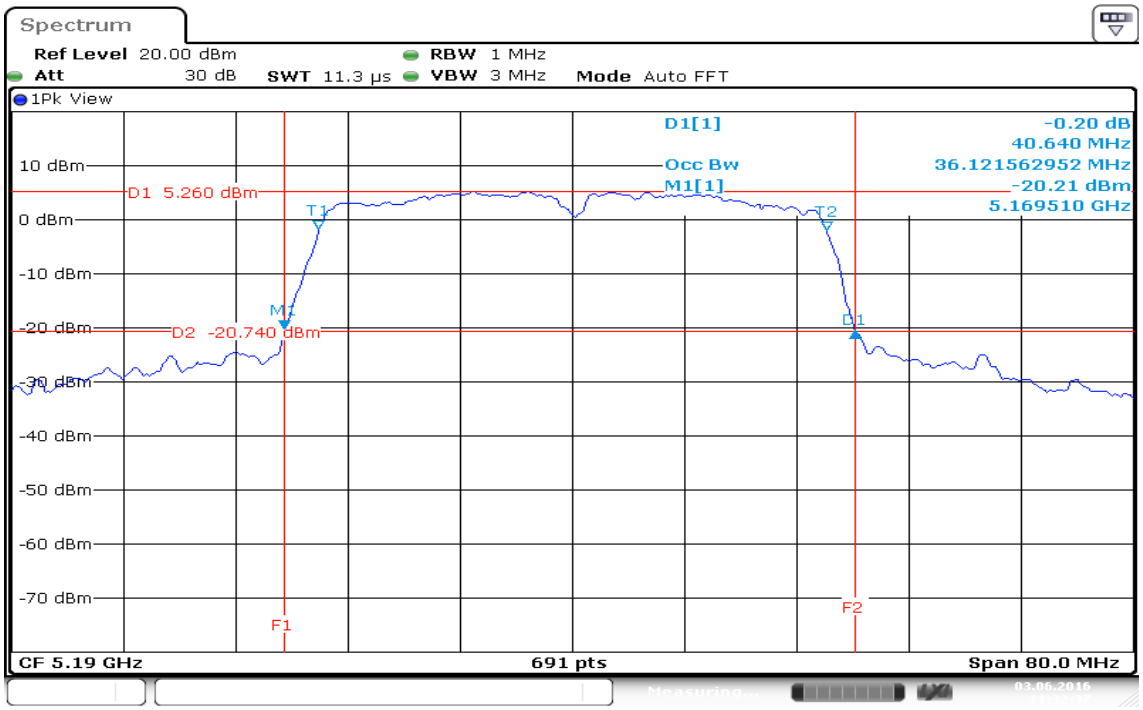
CH High



Date: 1.JUN.2016 16:40:53

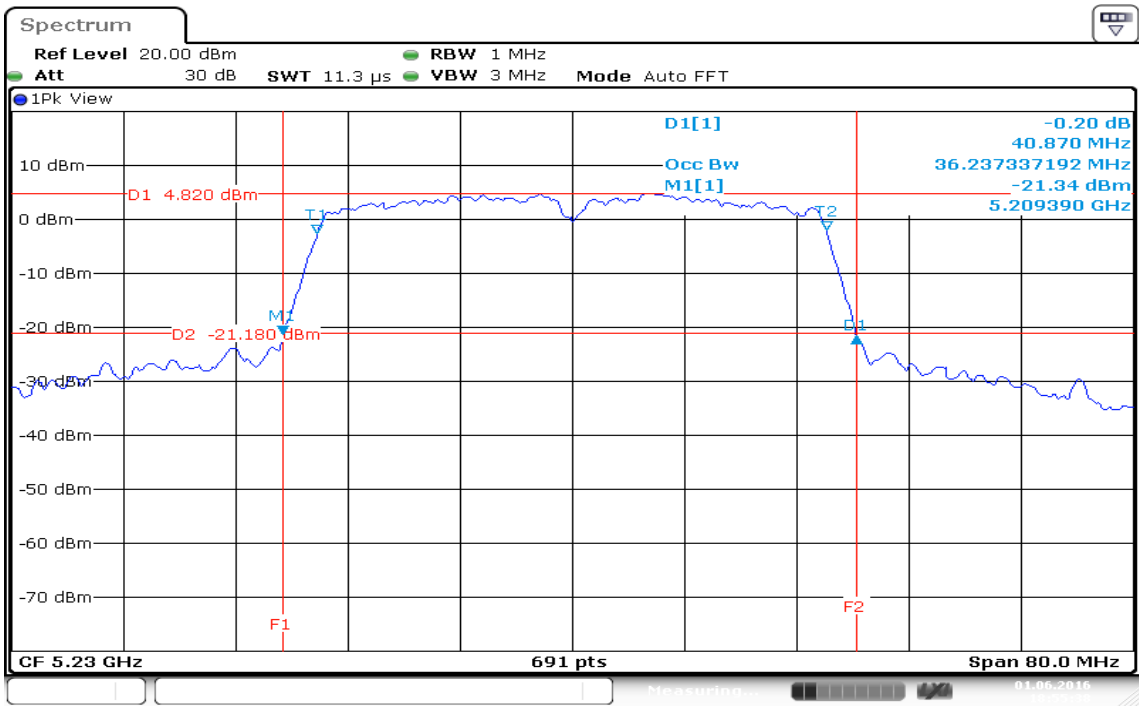
IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

CH Low



Date: 3.JUN.2016 11:32:37

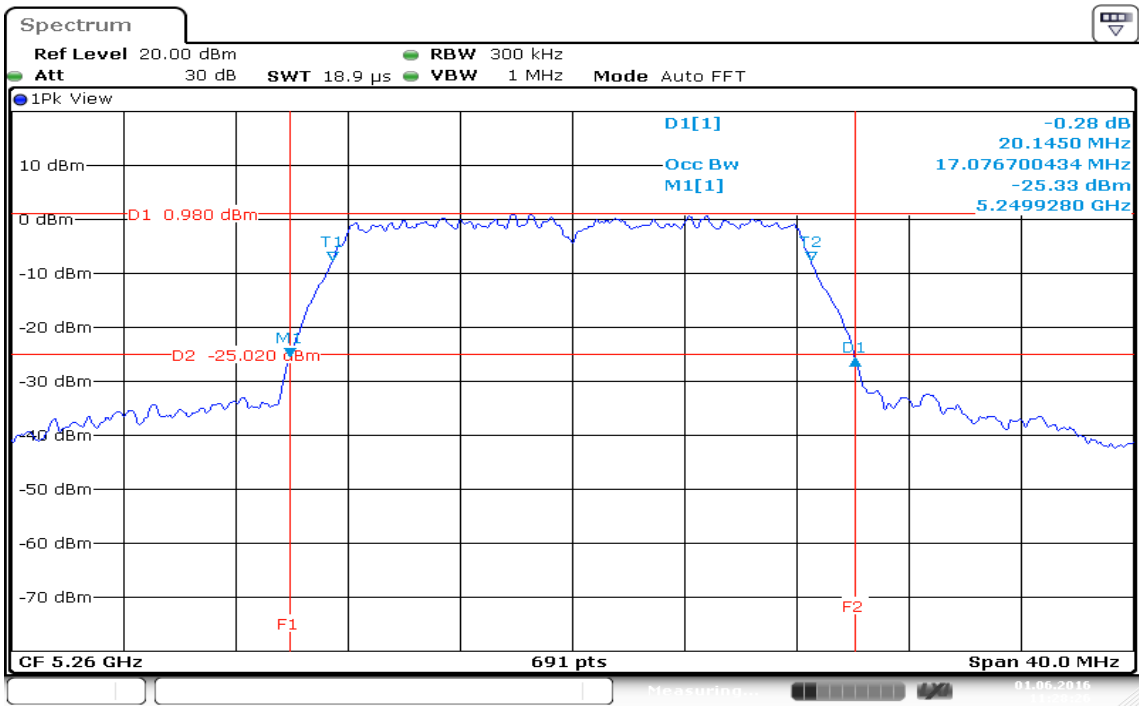
CH High



Date: 1.JUN.2016 18:55:38

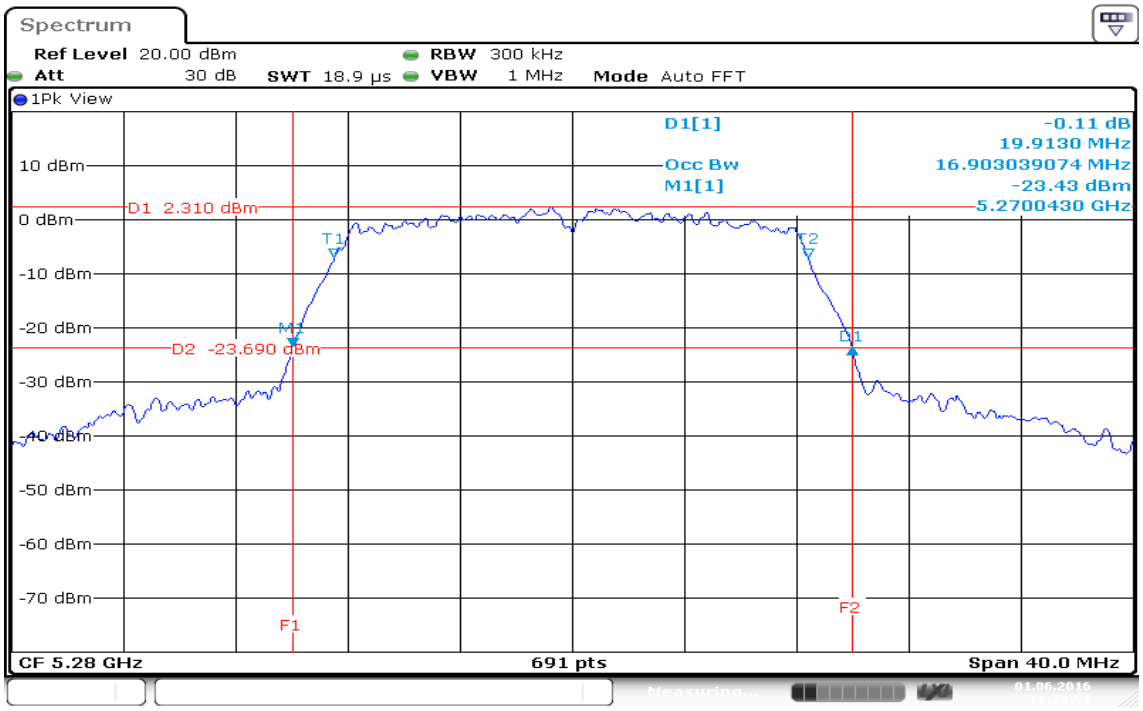
IEEE 802.11a mode / 5260 ~ 5320MHz

CH Low



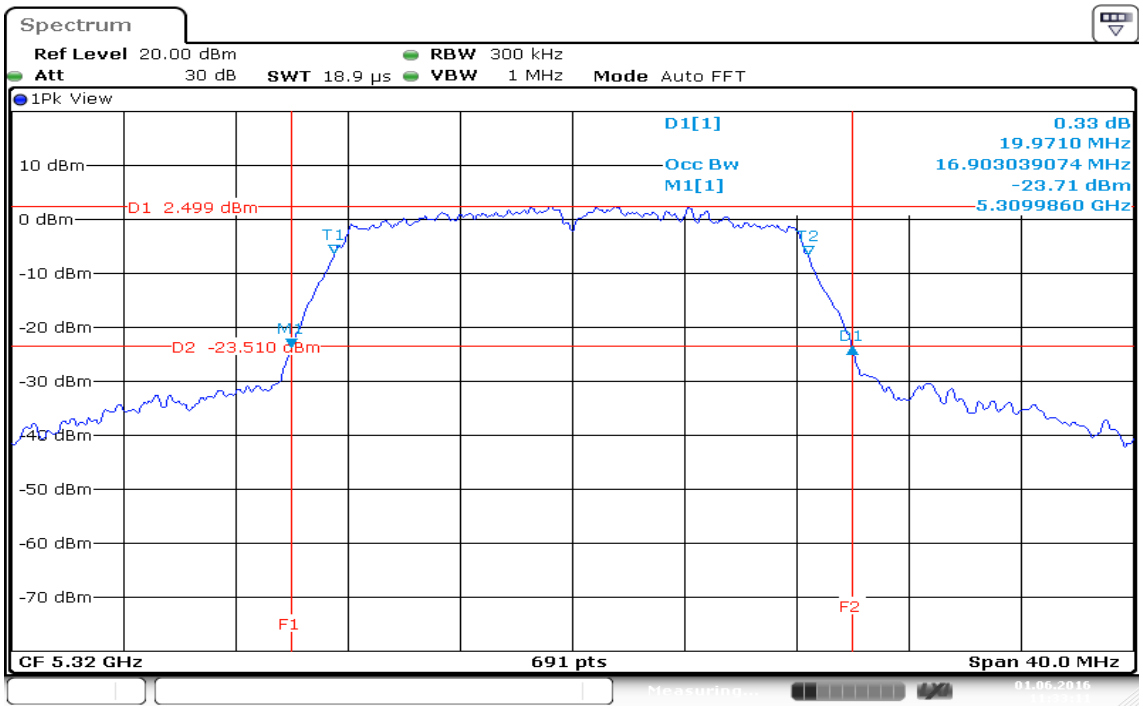
Date: 1.JUN.2016 11:28:26

CH Mid



Date: 1.JUN.2016 11:29:52

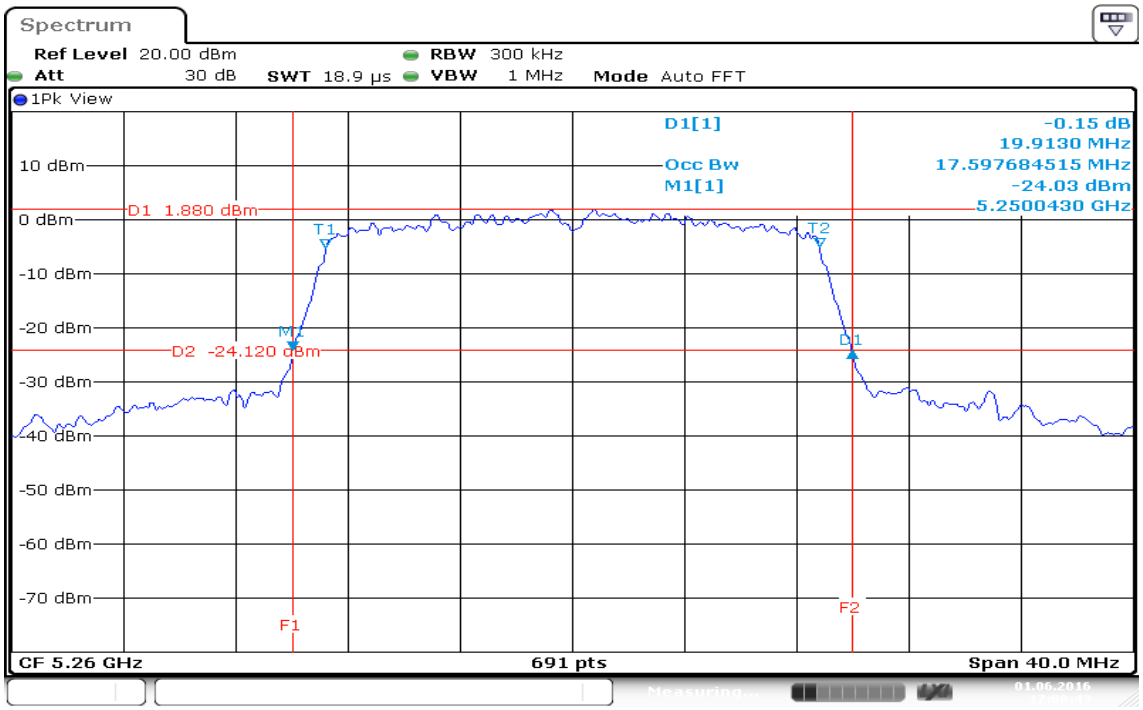
CH High



Date: 1.JUN.2016 11:33:11

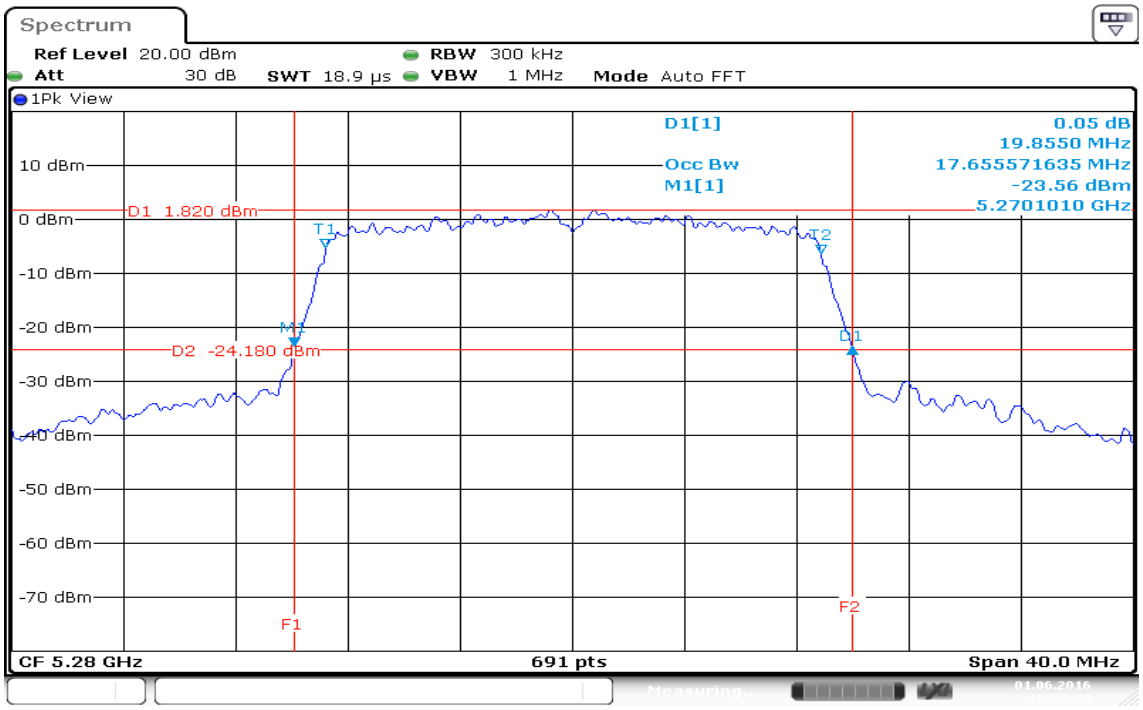
IEEE 802.11n HT 20 MHz mode / 5260 ~ 5320MHz

CH Low



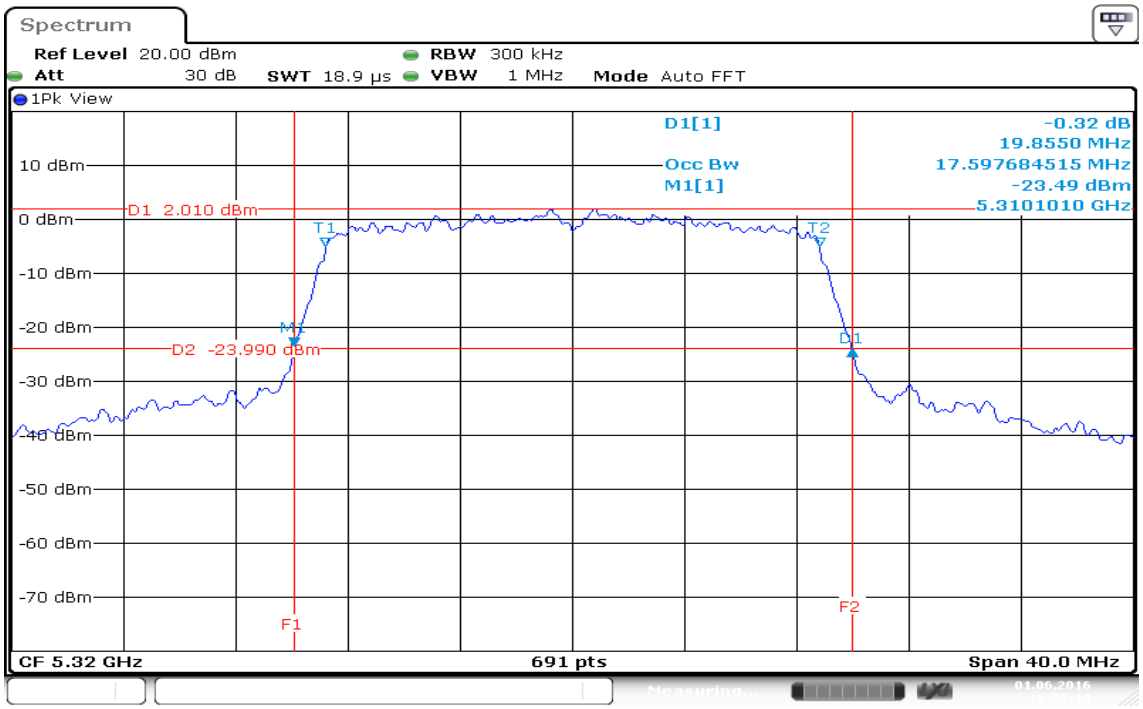
Date: 1.JUN.2016 17:00:44

CH Mid



Date: 1.JUN.2016 16:53:40

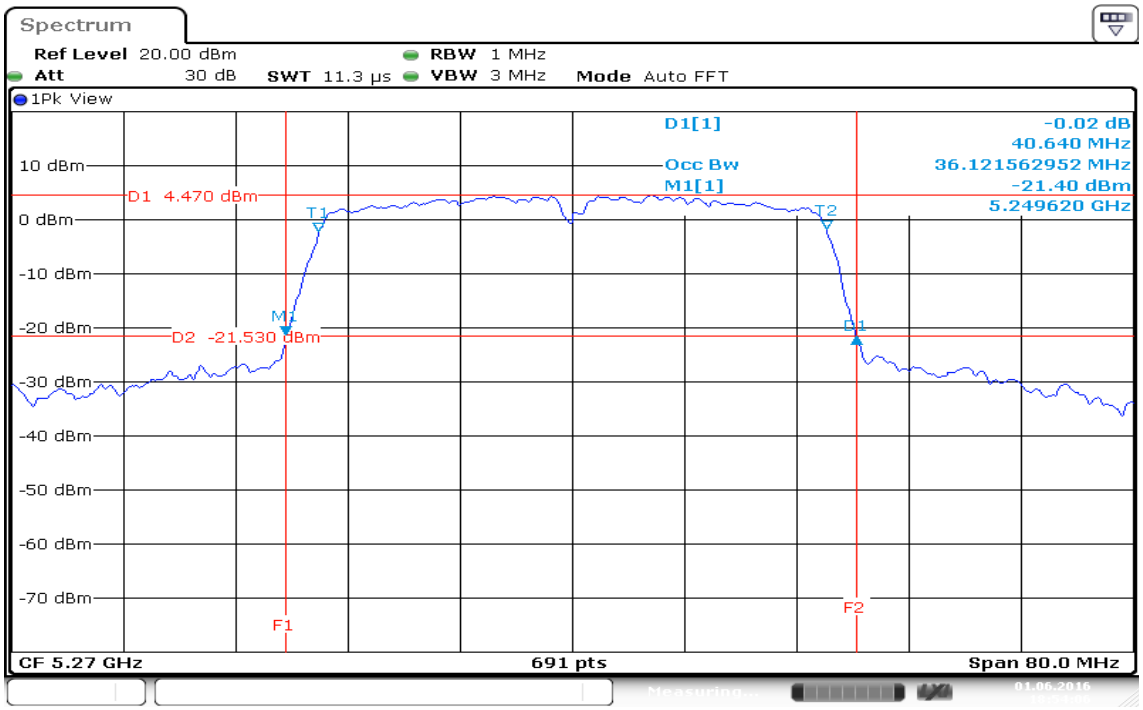
CH High



Date: 1.JUN.2016 16:55:14

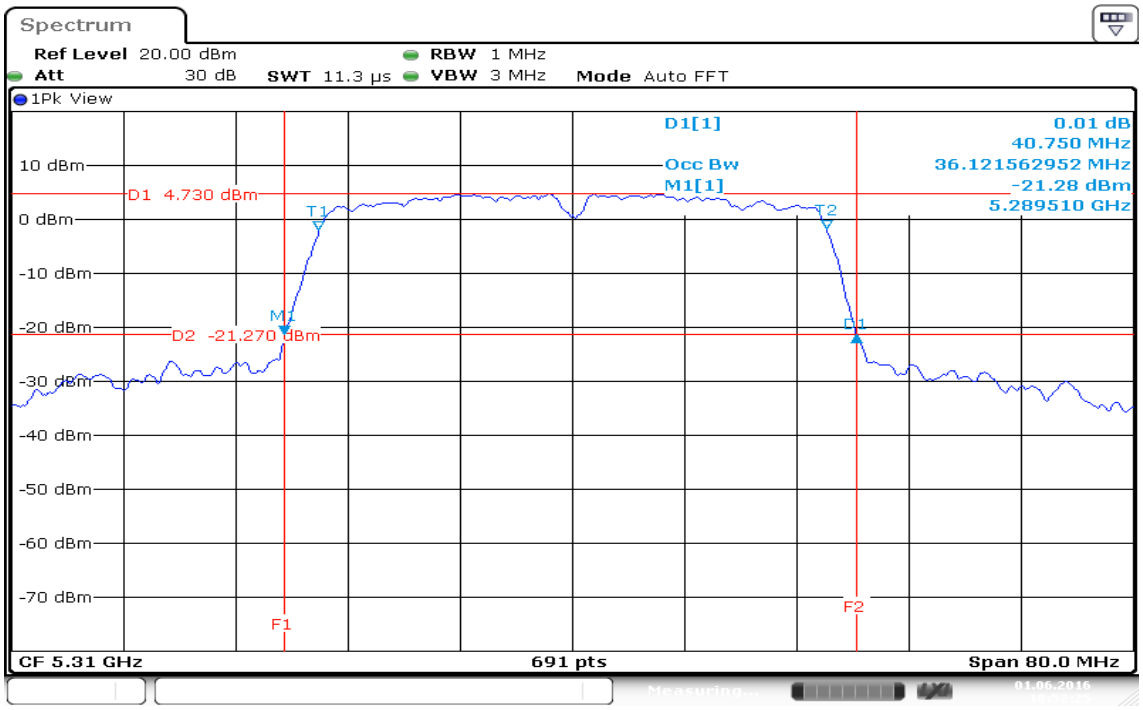
IEEE 802.11n HT 40 MHz mode / 5270 ~ 5310MHz

CH Low



Date: 1.JUN.2016 18:54:06

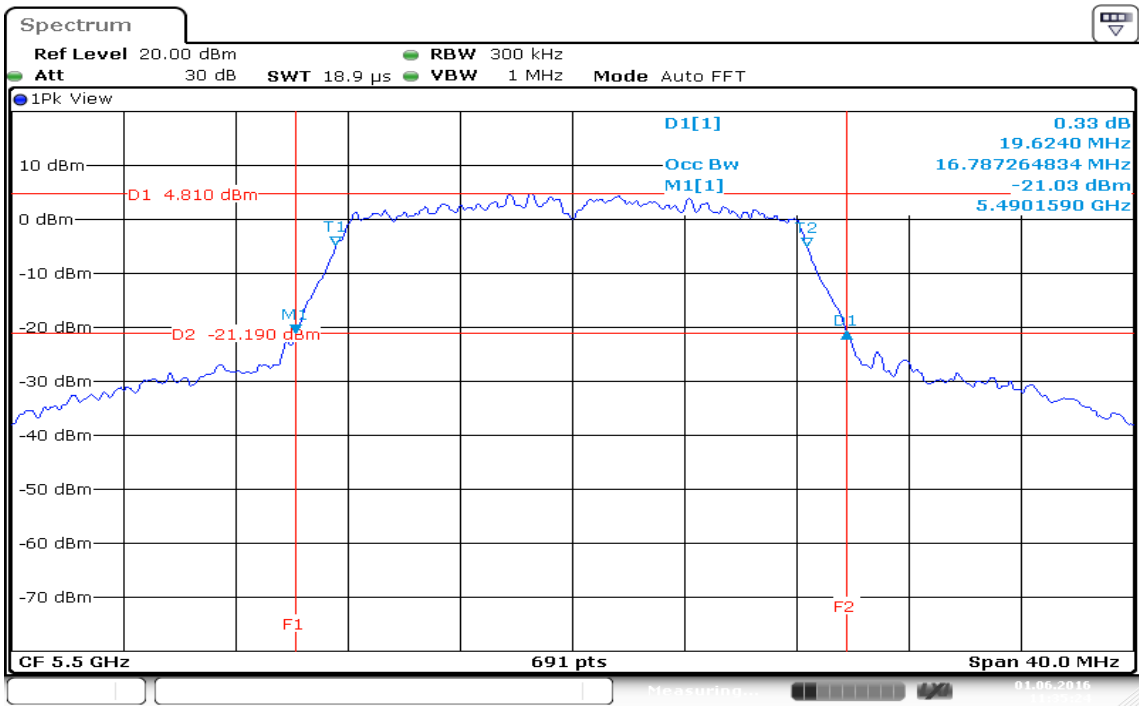
CH High



Date: 1.JUN.2016 18:52:25

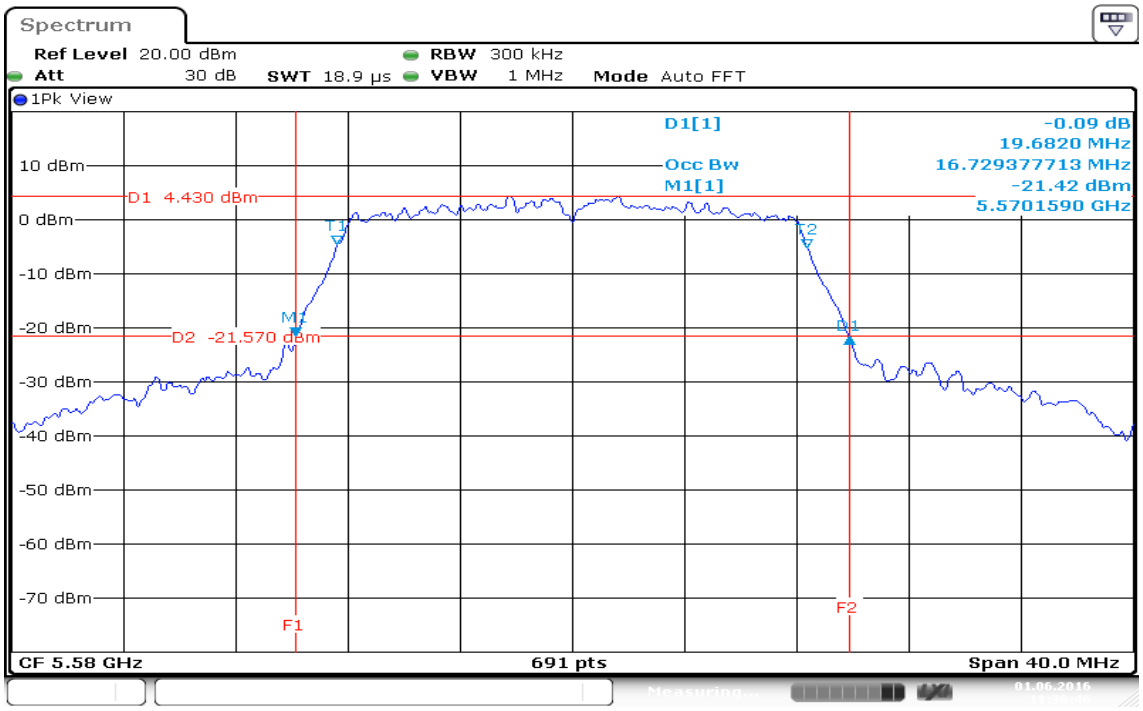
Test mode: IEEE 802.11a mode / 5500 ~ 5700MHz

CH Low



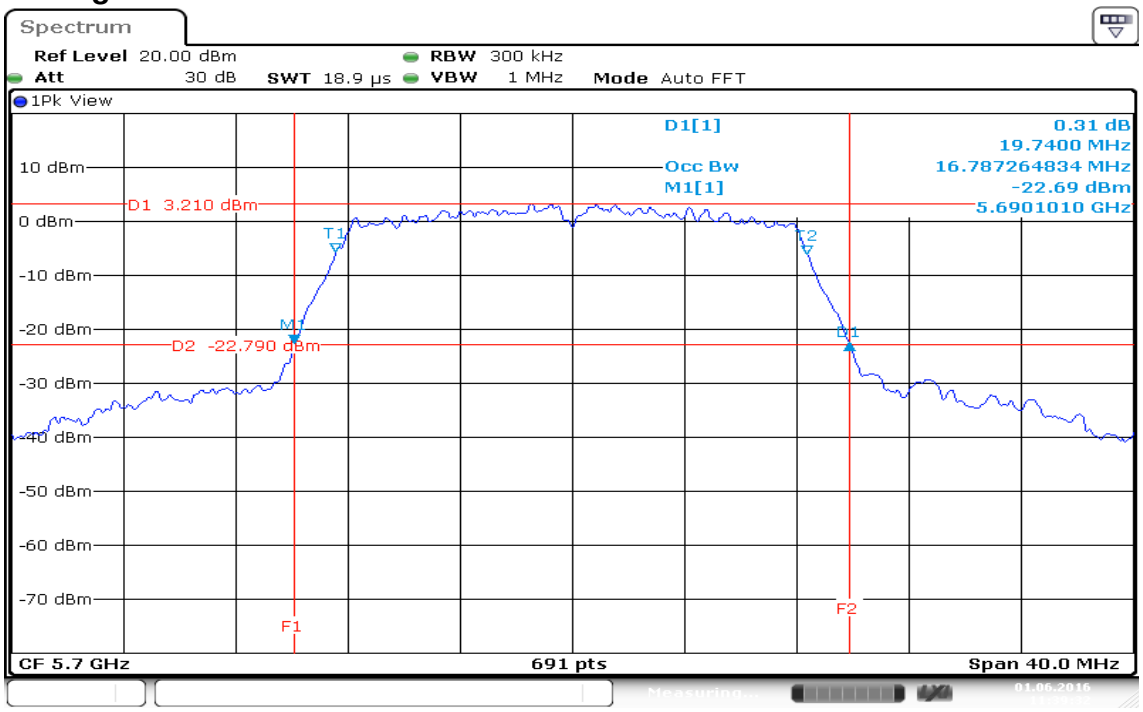
Date: 1.JUN.2016 11:35:24

CH Mid



Date: 1.JUN.2016 11:36:46

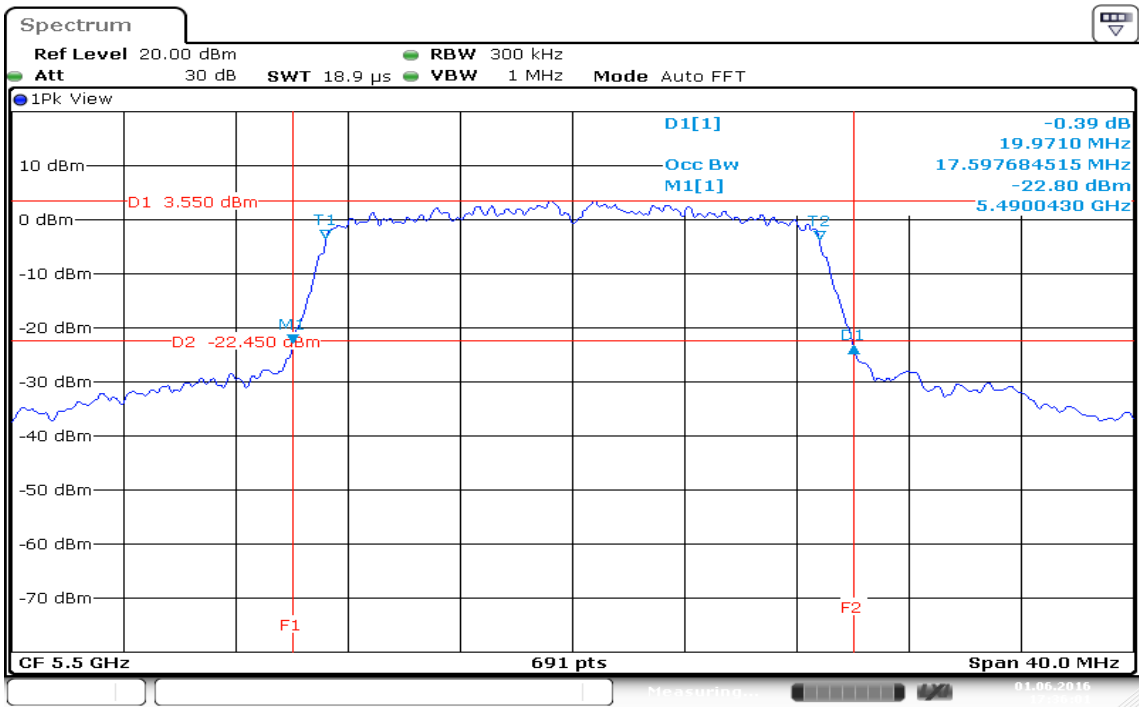
CH High



Date: 1.JUN.2016 11:39:32

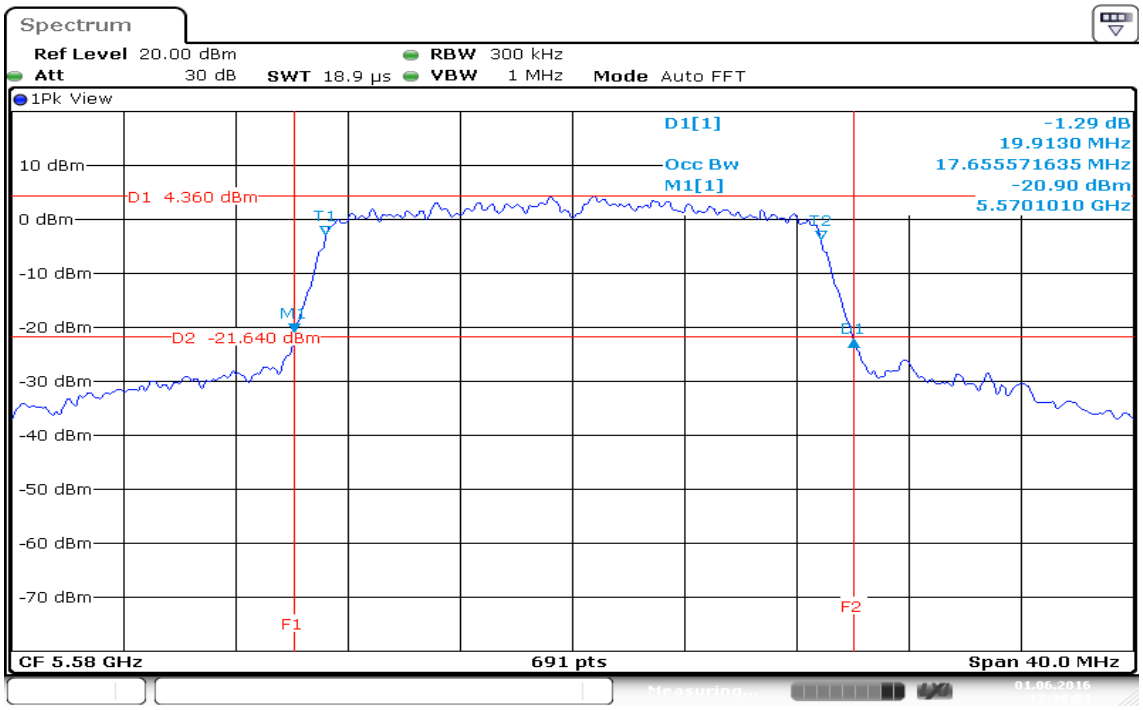
IEEE 802.11n HT 20 MHz mode / 5500 ~ 5720MHz

CH Low



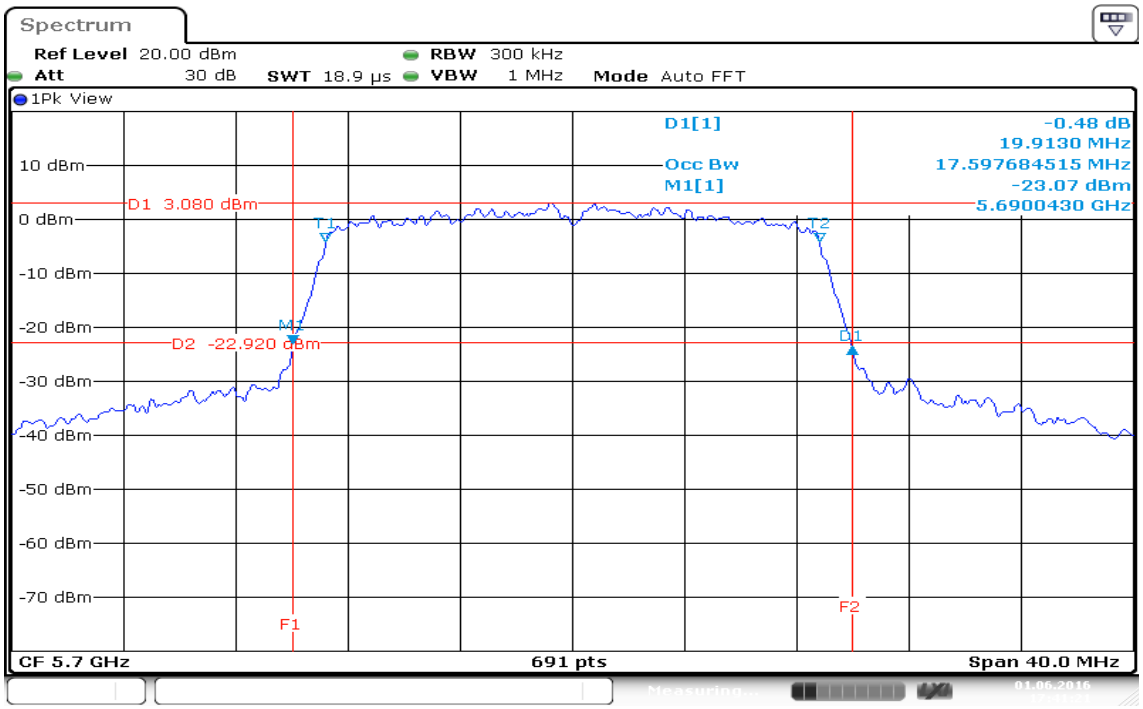
Date: 1.JUN.2016 17:36:02

CH Mid



Date: 1.JUN.2016 17:39:05

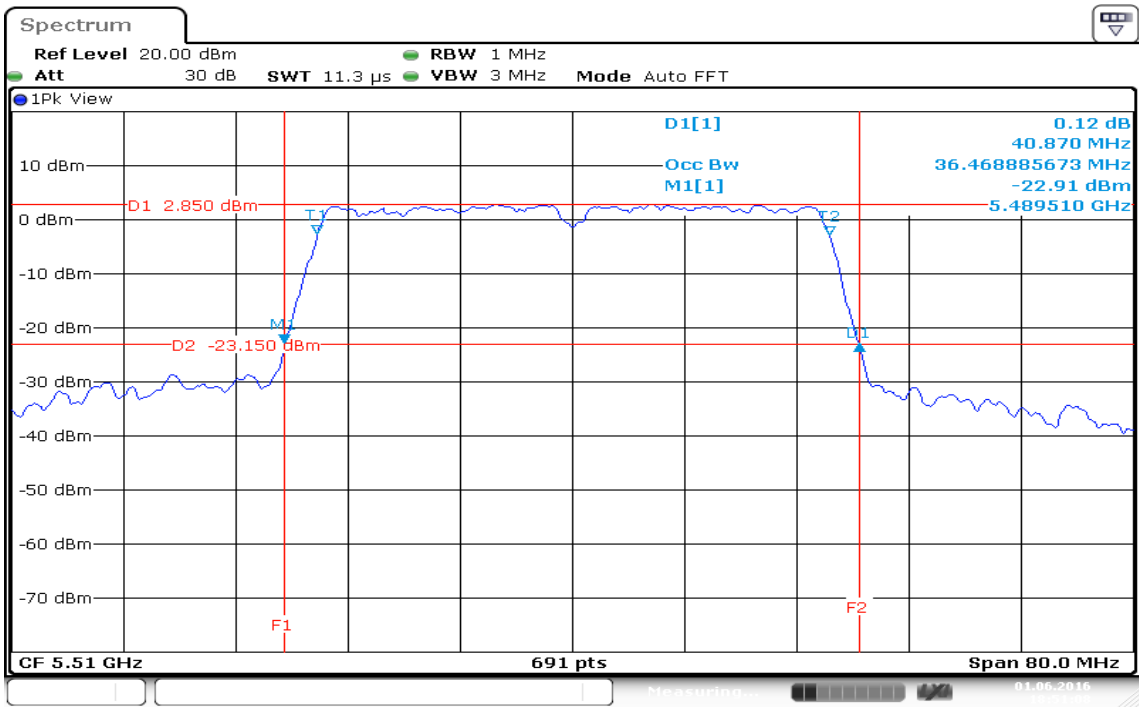
CH High



Date: 1.JUN.2016 17:41:22

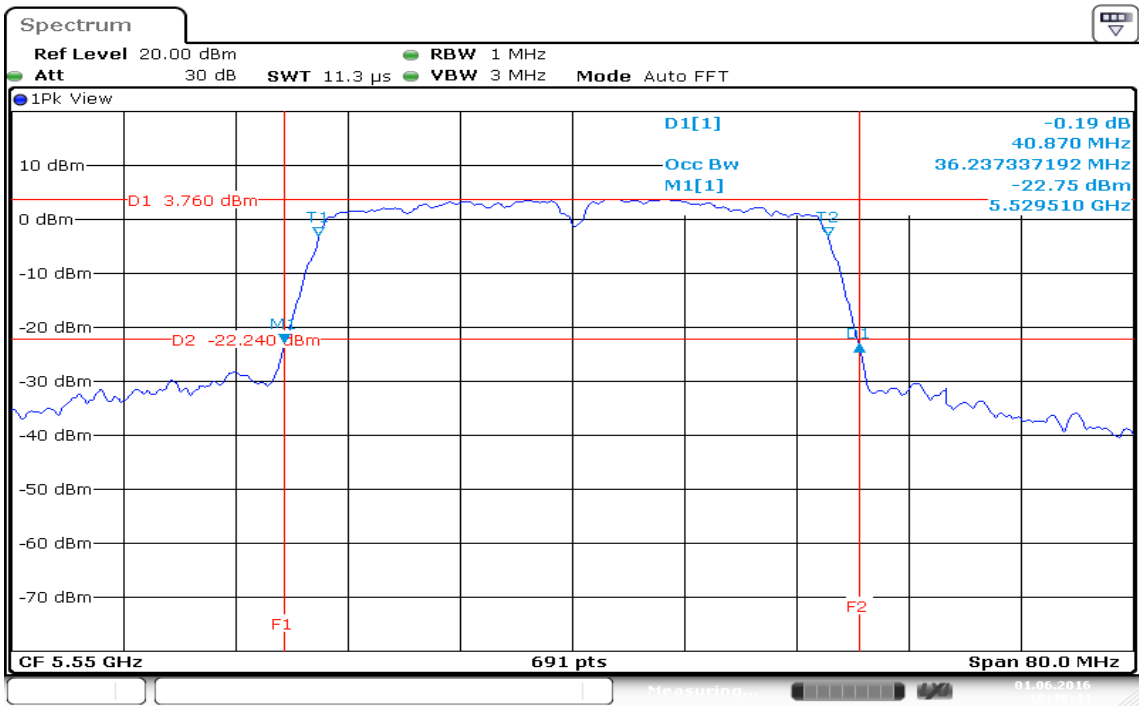
IEEE 802.11n HT 40 MHz mode / 5510 ~ 5670MHz

CH Low



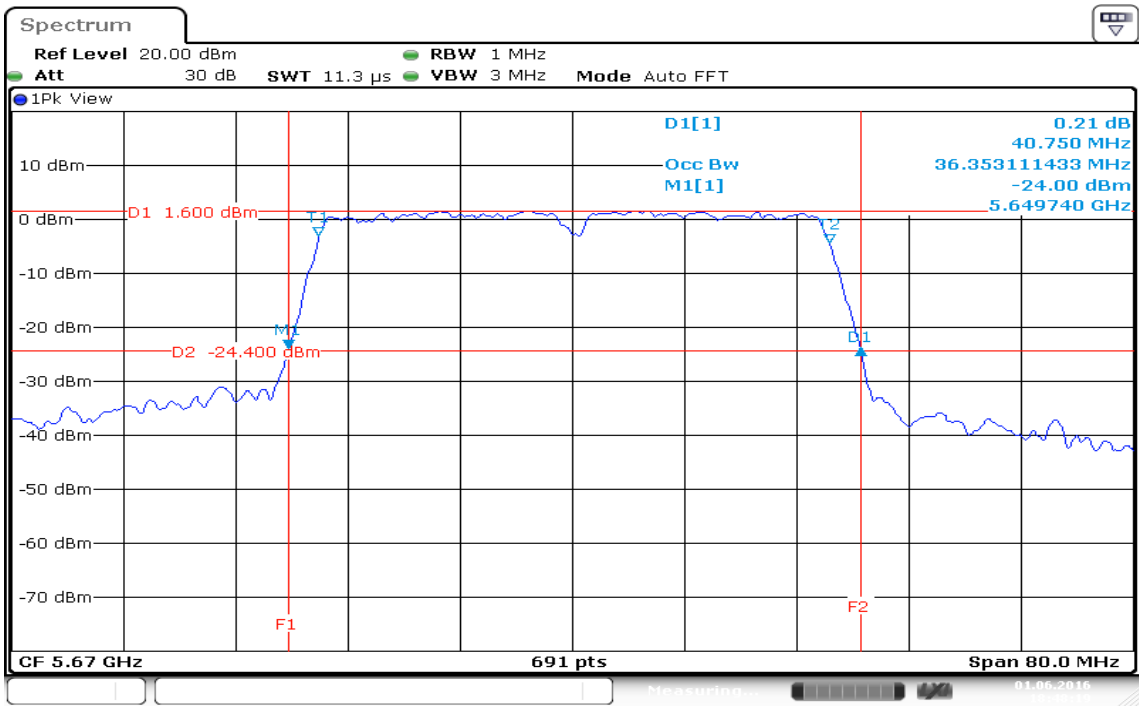
Date: 1.JUN.2016 18:51:09

CH Mid



Date: 1.JUN.2016 18:49:45

CH High



Date: 1.JUN.2016 18:48:20

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 dBm + 10log 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,

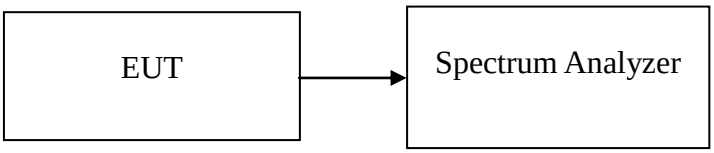
(1) For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or 10 + 10 Log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

(2) For the band 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or 11 + 10 Log10 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 Log10 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 Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5180	***11.53**	0.0142	24.00
Mid	5220	10.54	0.0113	24.00
High	5240	10.27	0.0106	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5180	***12.36**	0.0172	24.00
Mid	5220	10.65	0.0116	24.00
High	5240	9.87	0.0097	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5190	***13.08**	0.0203	24.00
High	5230	12.41	0.0174	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5260	9.93	0.0098	24.00
Mid	5280	10.02	0.0100	24.00
High	5320	***10.28**	0.0107	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5260	10.38	0.0109	24.00
Mid	5280	10.47	0.0111	24.00
High	5320	***10.52**	0.0113	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5270	12.71	0.0187	24.00
High	5310	***12.83**	0.0192	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5500	12.28	0.0169	24.00
Mid	5580	12.09	0.0162	24.00
High	5700	***12.48**	0.0177	24.00

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

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5500	12.25	0.0168	24.00
Mid	5580	12.63	0.0183	24.00
High	5700	***12.74**	0.0188	24.00

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

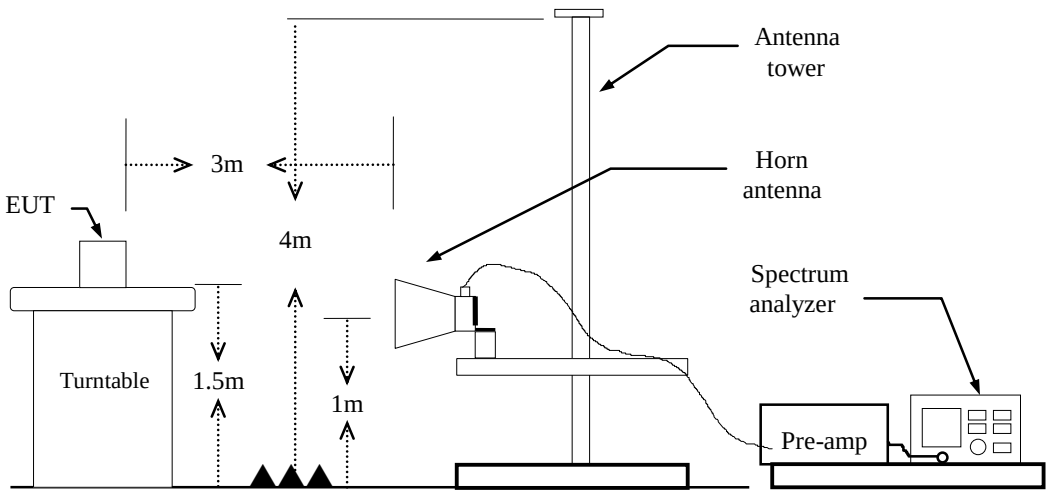
Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (W)	Limit (dBm)
Low	5510	12.34	0.0171	24.00
Mid	5550	***12.59**	0.0182	24.00
High	5670	12.48	0.0177	24.00

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 in 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



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 1.5m 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≧98%, VBW=10Hz.
   if duty cycle<98% VBW=1/T.
   IEEE 802.11a mode: ≧98%, VBW=10Hz
   IEEE 802.11n HT 20 MHz mode: ≧98%, VBW=10Hz
   IEEE 802.11n HT 40 MHz mode: ≧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 Un-restricted Band Emissions

The peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

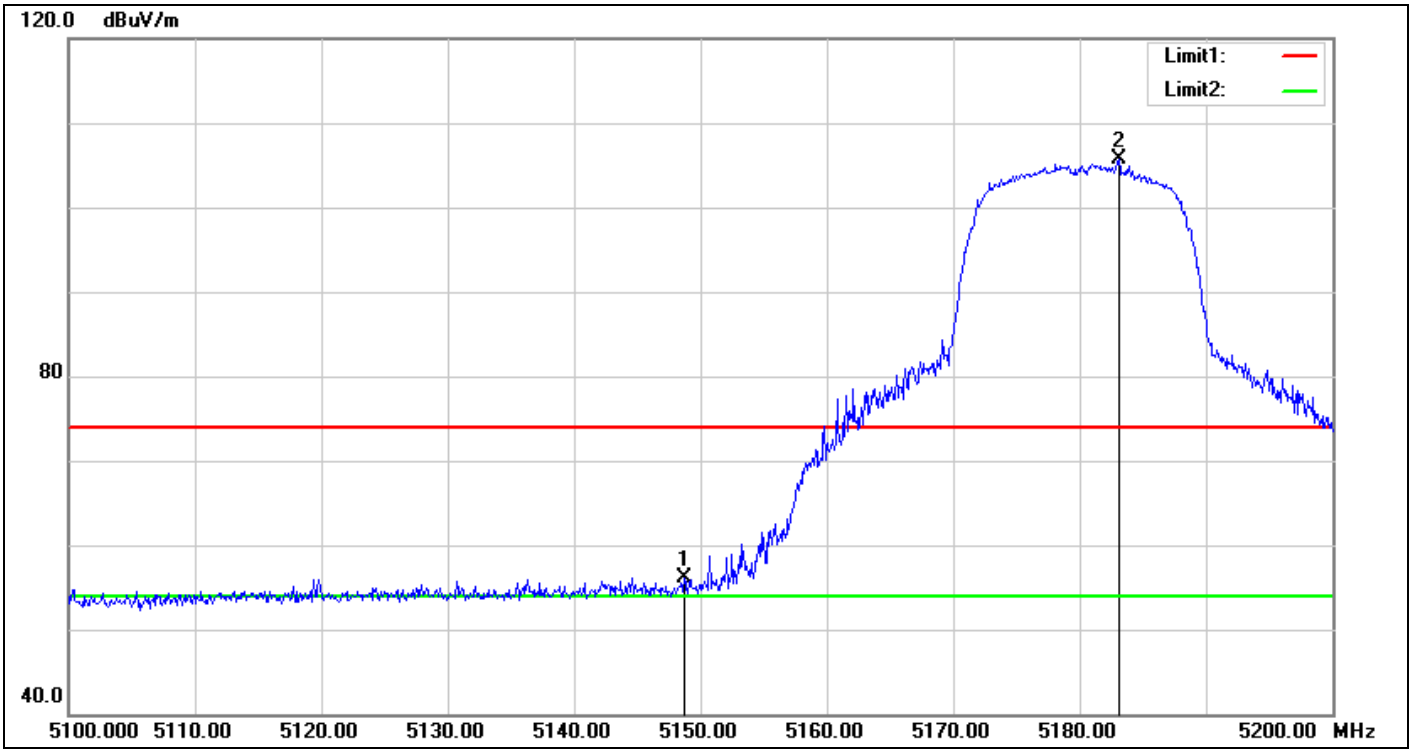
TEST RESULTS

Refer to attach spectrum analyzer data chart.

U-NII-1

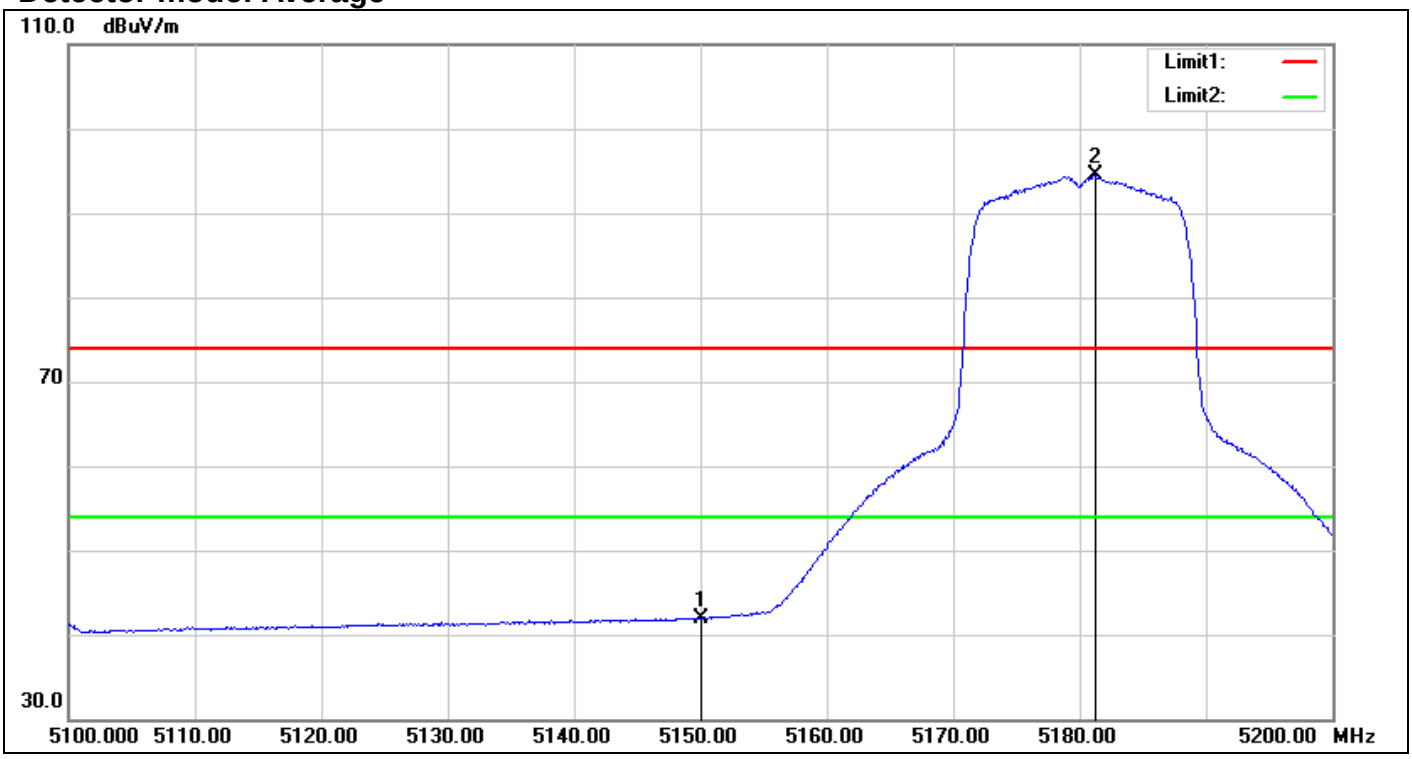
IEEE 802.11a Mode / CH Low

Detector mode: Peak



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5148.700	53.01	3.03	56.04	74.00	-17.96	peak
2	5183.100	101.78	4.00	105.78	74.00	31.78	peak

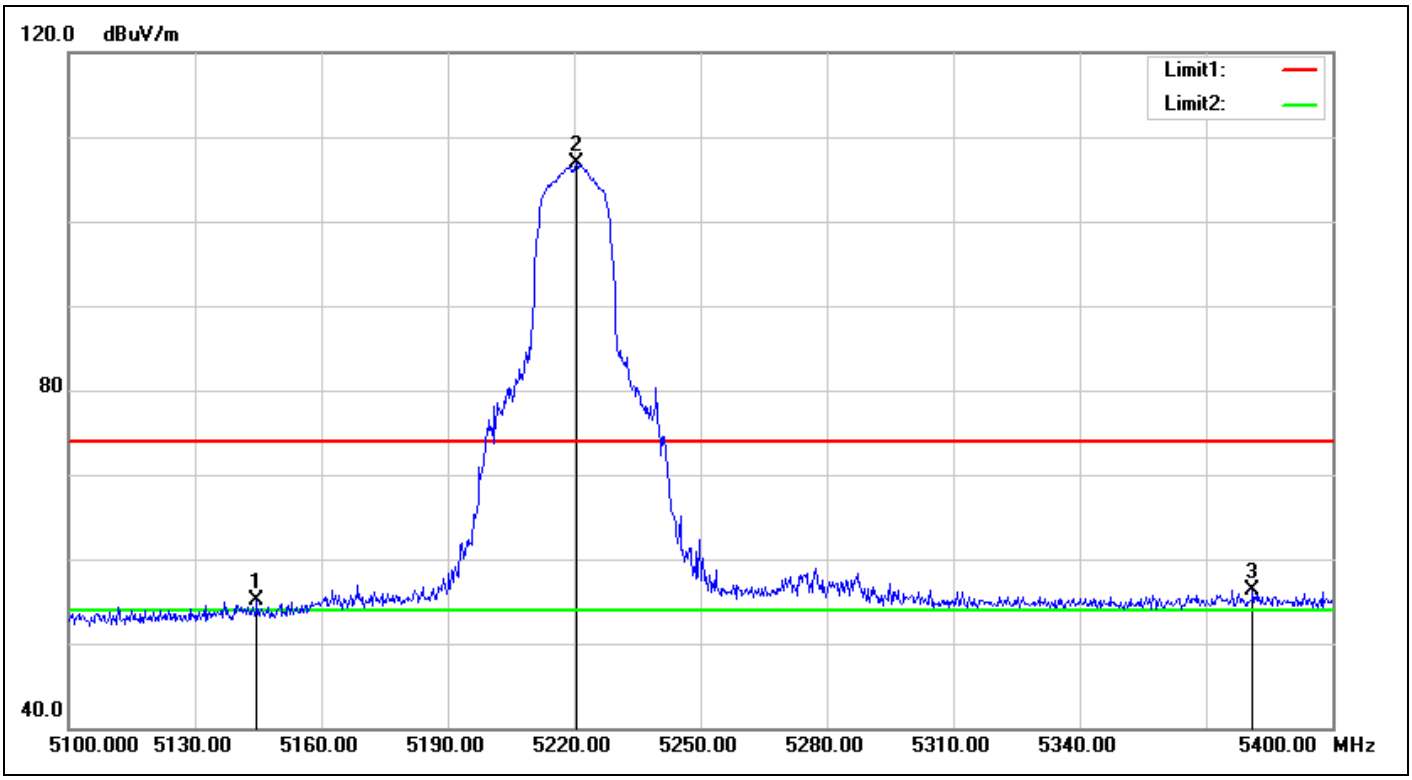
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	38.90	3.04	41.94	54.00	-12.06	AVG
2	5181.200	90.51	3.94	94.45	54.00	40.45	AVG

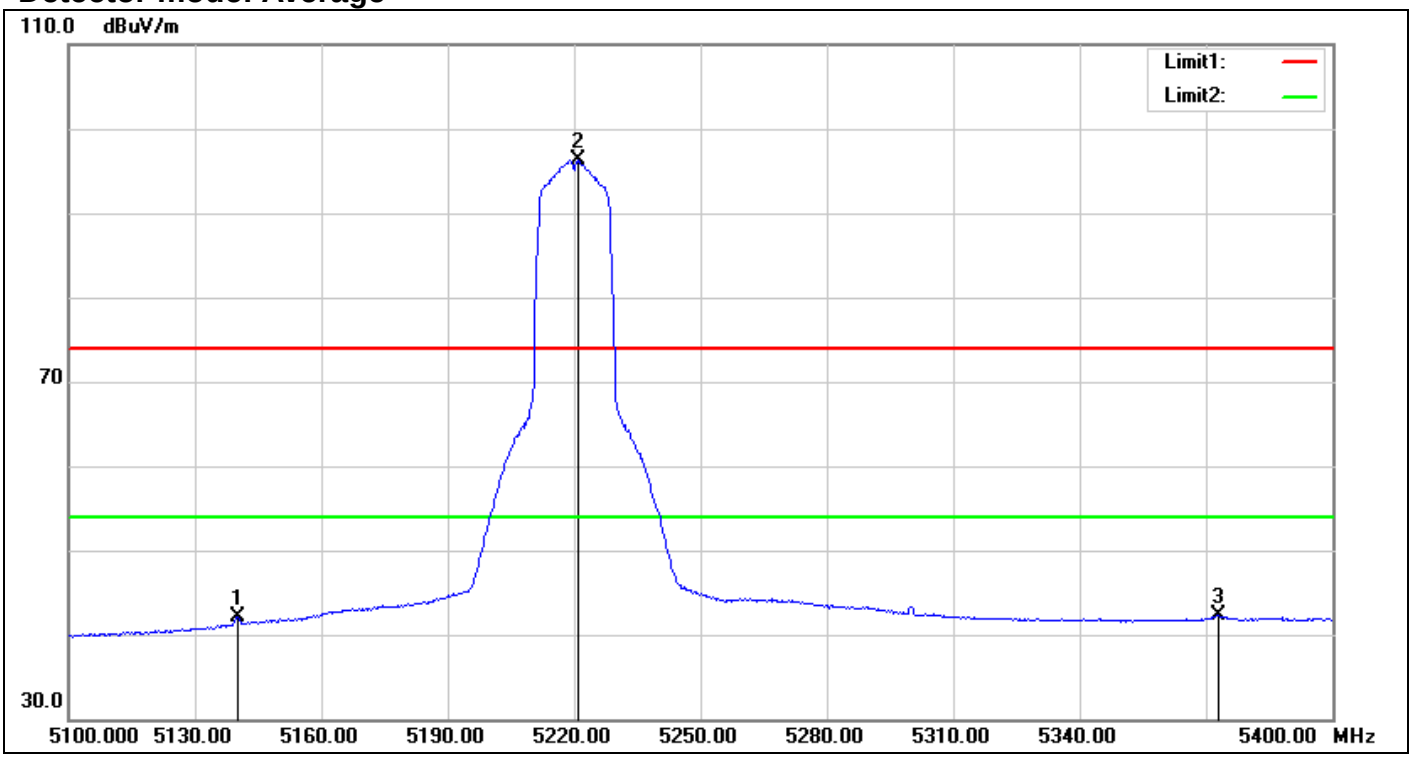
IEEE 802.11a Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5144.700	52.06	3.00	55.06	74.00	-18.94	peak
2	5220.600	102.30	4.56	106.86	74.00	32.86	peak
3	5381.100	50.78	5.57	56.35	74.00	-17.65	peak

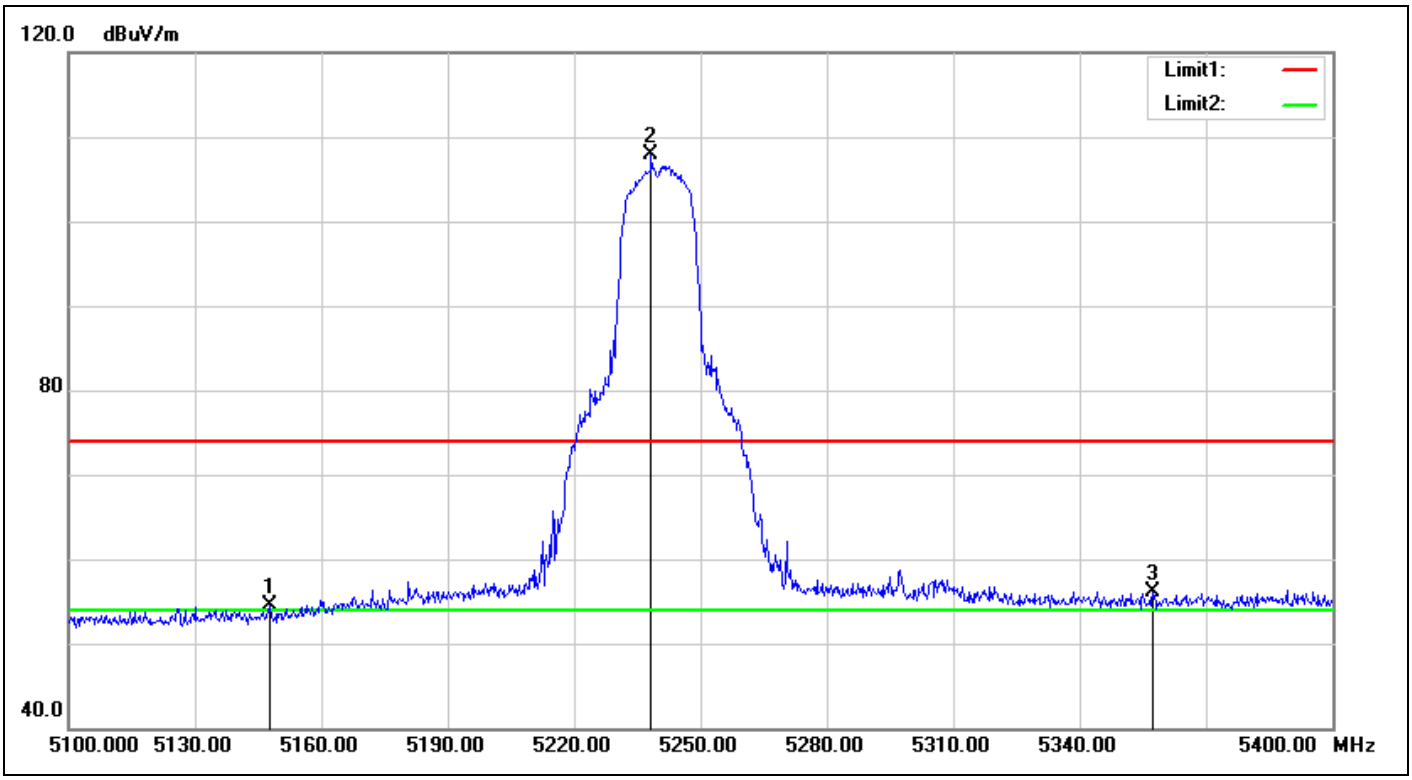
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5140.200	39.14	2.97	42.11	54.00	-11.89	AVG
2	5220.900	91.78	4.56	96.34	54.00	42.34	AVG
3	5373.000	36.77	5.50	42.27	54.00	-11.73	AVG

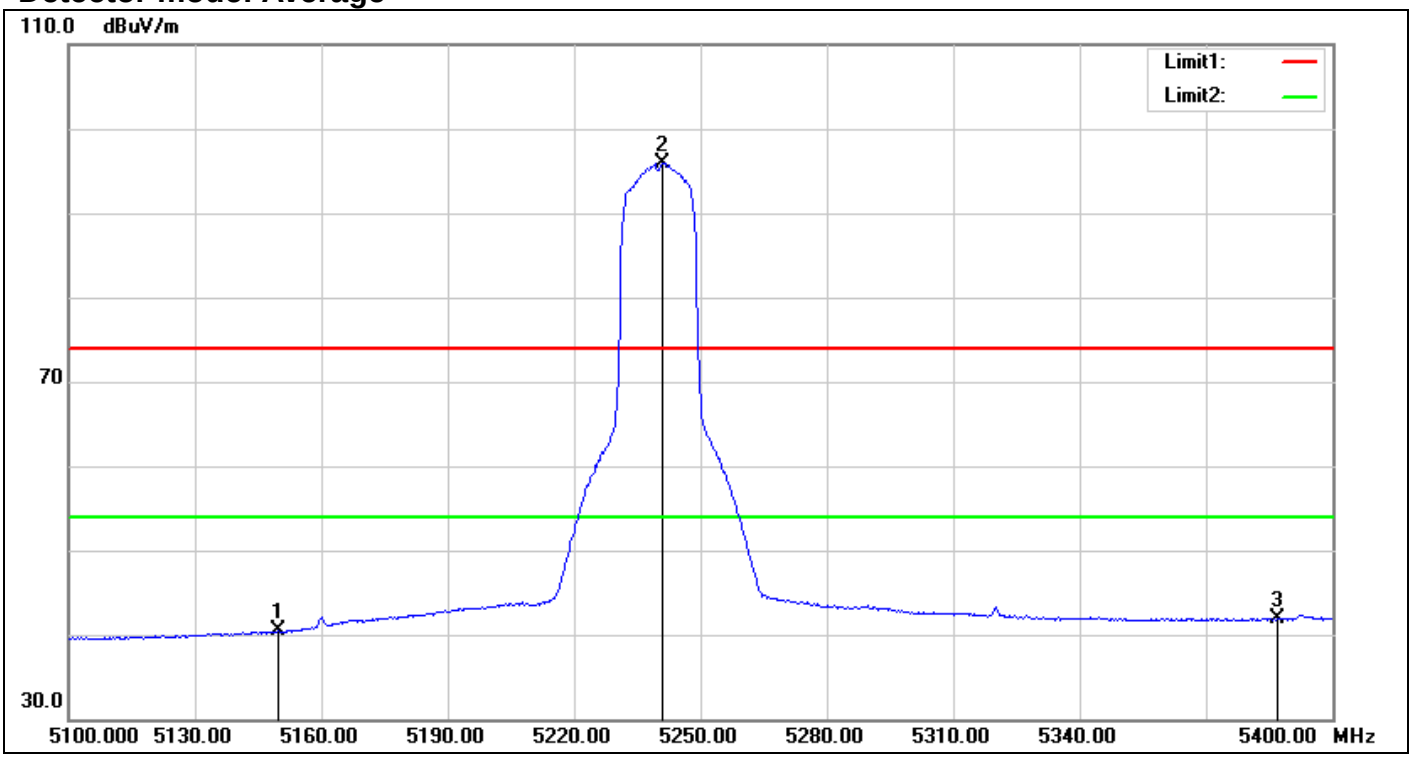
IEEE 802.11a Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5147.700	51.49	3.02	54.51	74.00	-19.49	peak
2	5238.300	103.27	4.62	107.89	74.00	33.89	peak
3	5357.400	50.64	5.37	56.01	74.00	-17.99	peak

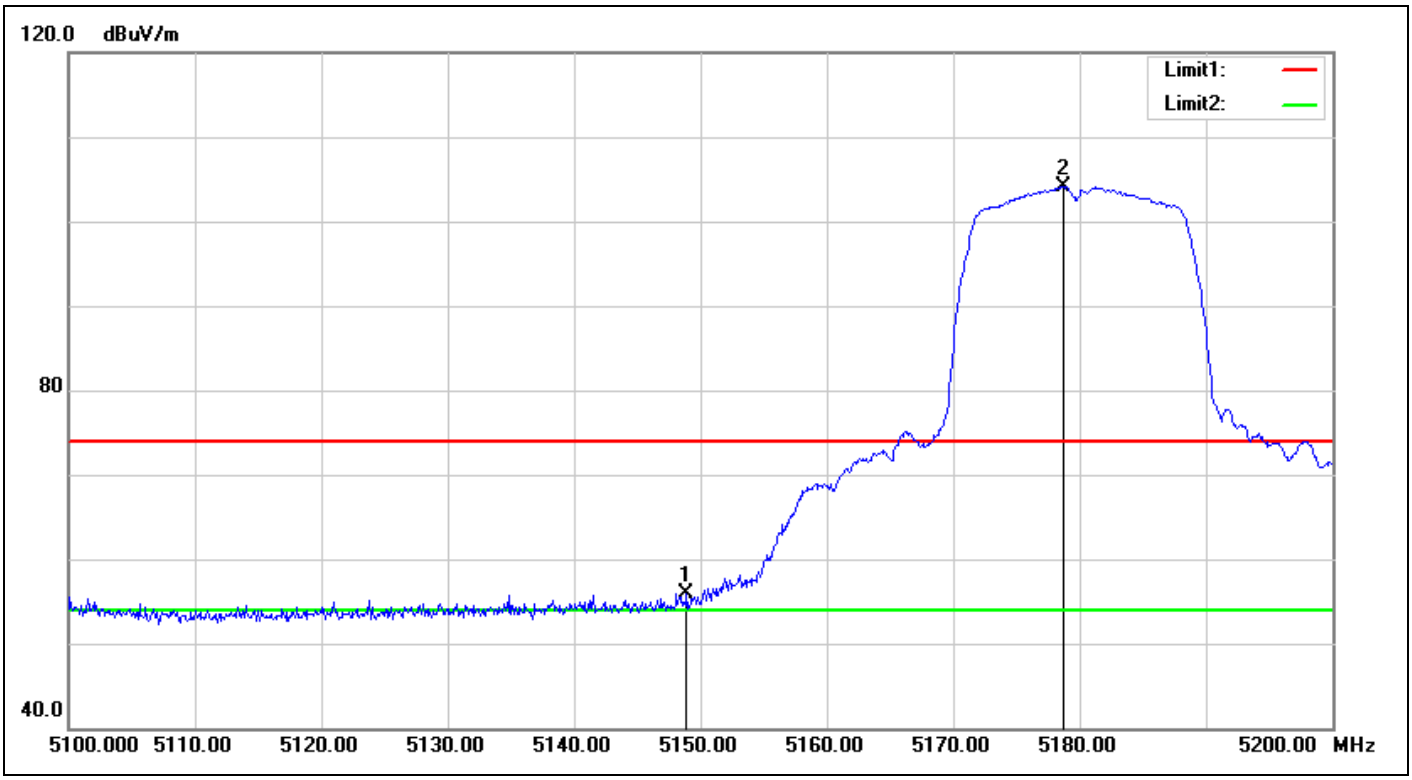
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5149.800	37.37	3.04	40.41	54.00	-13.59	AVG
2	5241.000	91.33	4.63	95.96	54.00	41.96	AVG
3	5387.100	36.35	5.61	41.96	54.00	-12.04	AVG

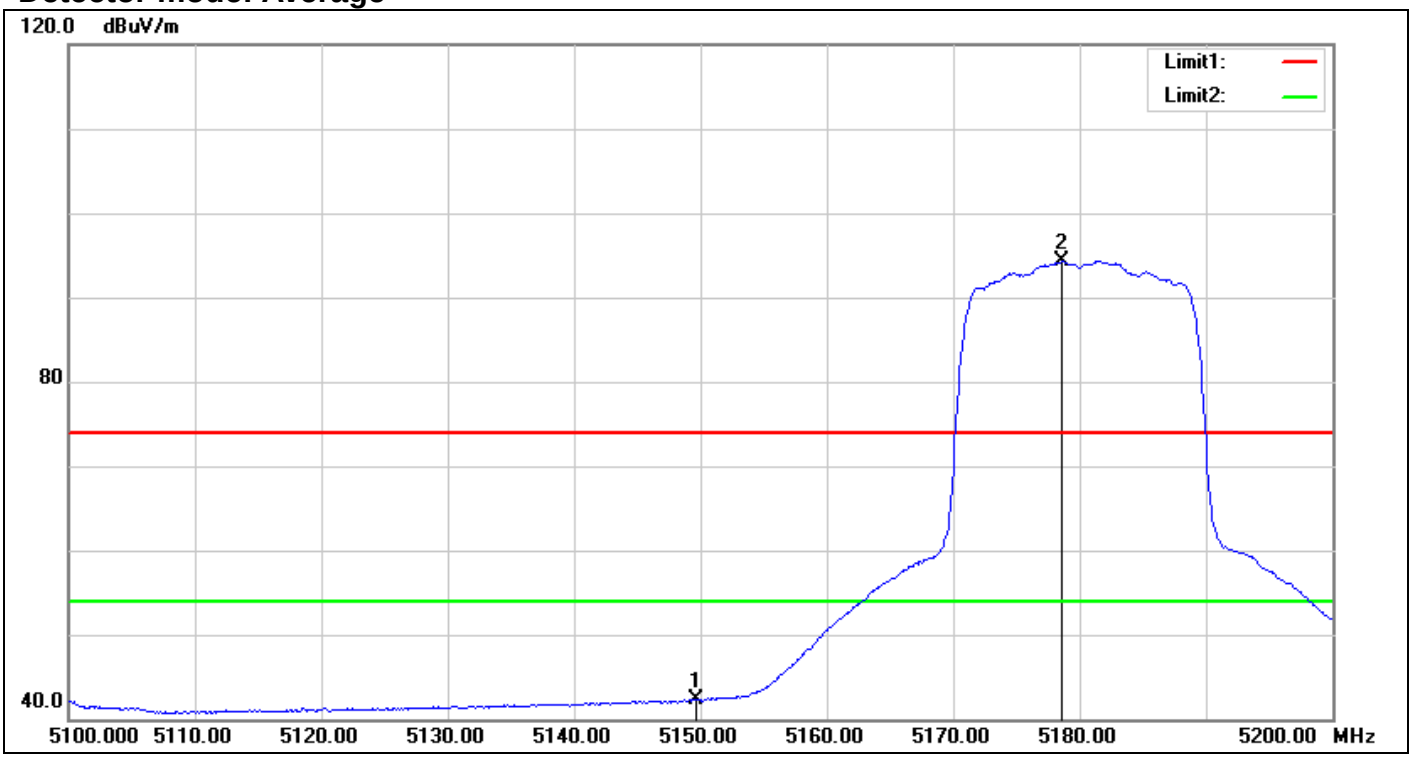
IEEE 802.11n HT20 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5148.900	52.93	3.03	55.96	74.00	-18.04	peak
2	5178.700	100.26	3.87	104.13	74.00	30.13	peak

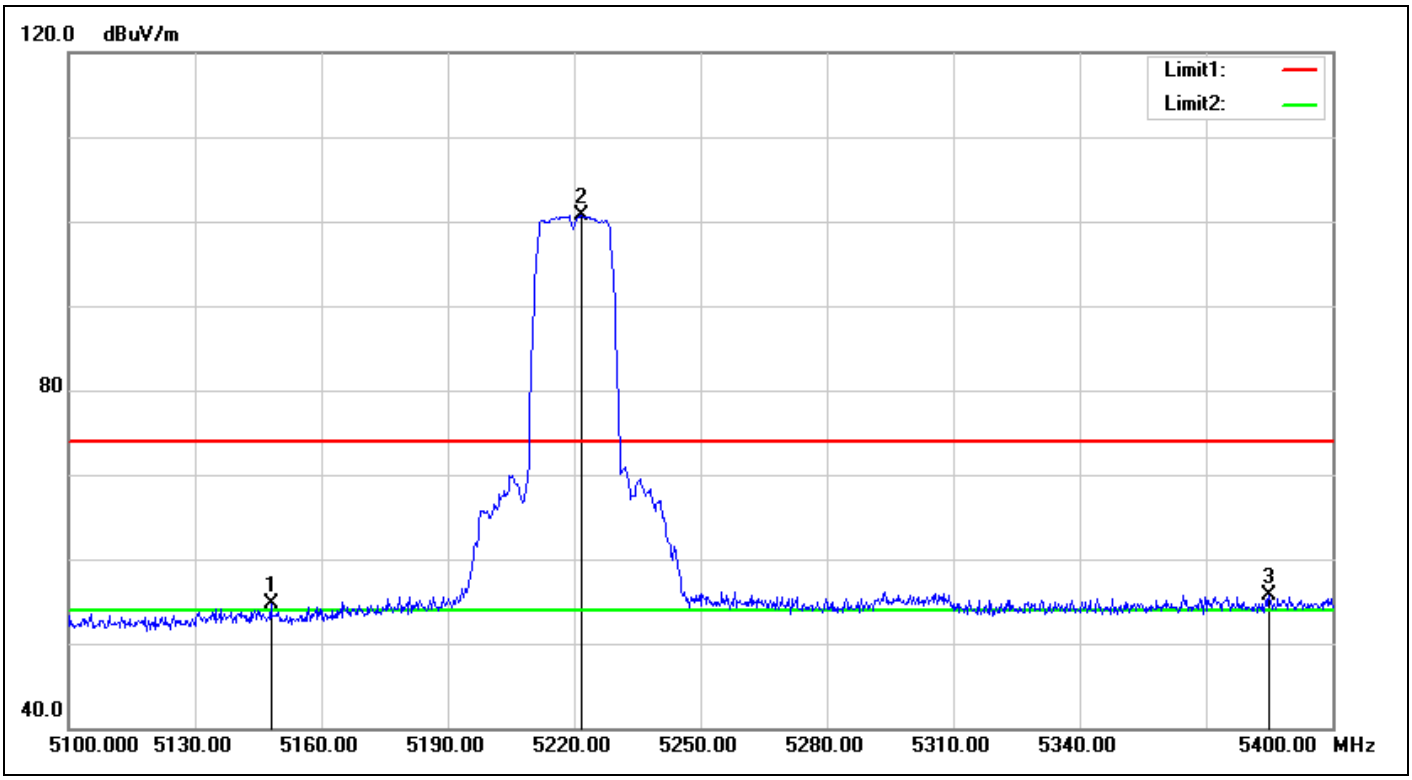
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5149.700	39.30	3.04	42.34	54.00	-11.66	AVG
2	5178.600	90.44	3.87	94.31	54.00	40.31	AVG

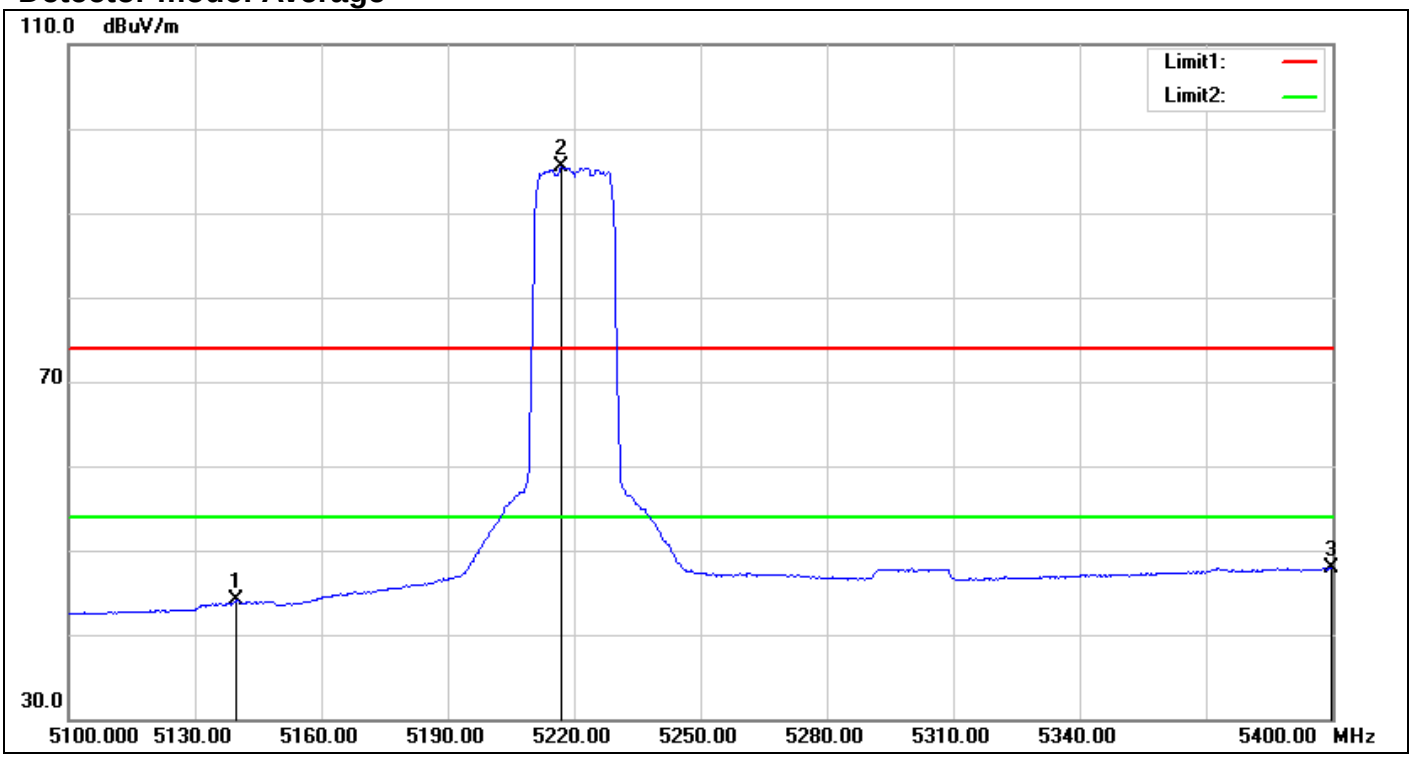
IEEE 802.11n HT20 MHz Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5148.000	51.75	3.03	54.78	74.00	-19.22	peak
2	5221.800	96.16	4.56	100.72	74.00	26.72	peak
3	5385.000	50.09	5.60	55.69	74.00	-18.31	peak

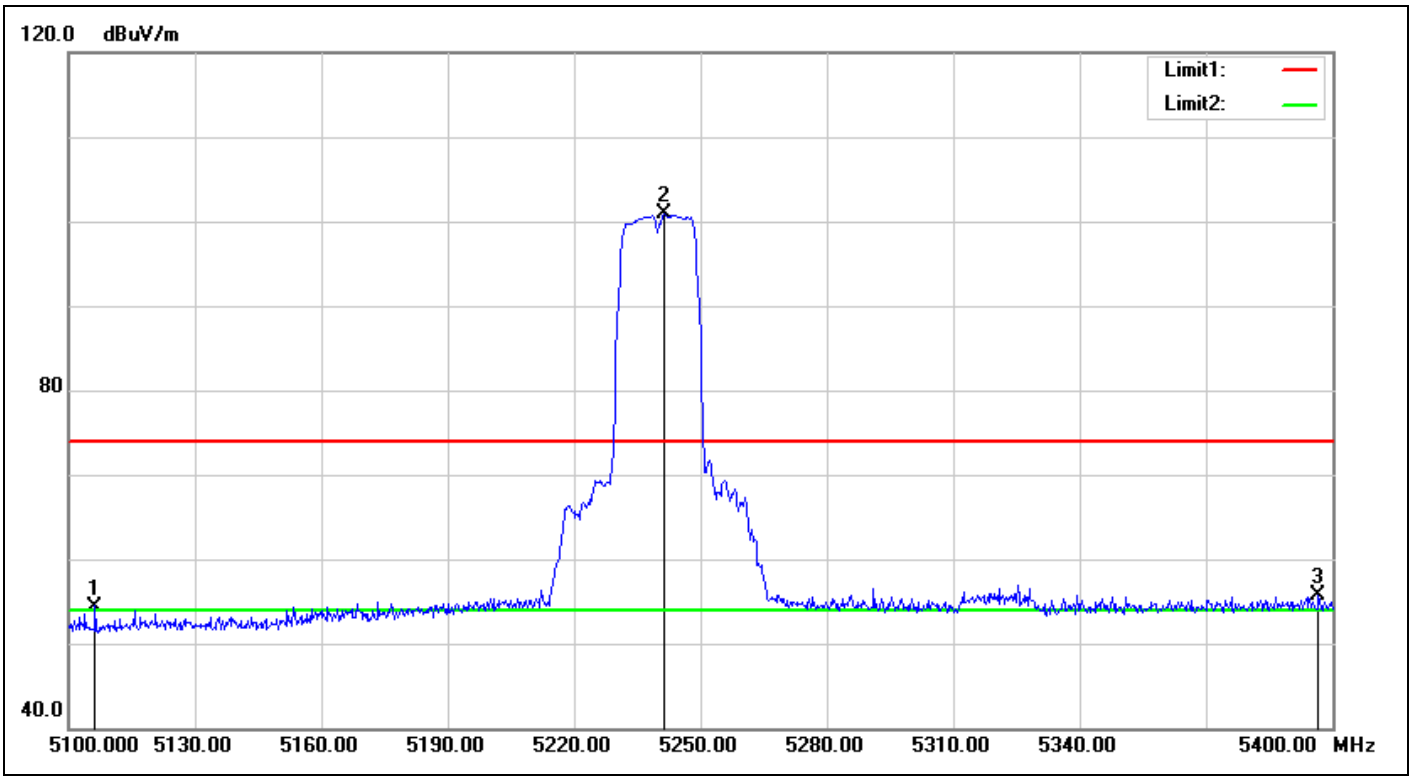
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5139.900	41.09	2.97	44.06	54.00	-9.94	AVG
2	5217.000	90.89	4.55	95.44	54.00	41.44	AVG
3	5399.700	42.22	5.72	47.94	54.00	-6.06	AVG

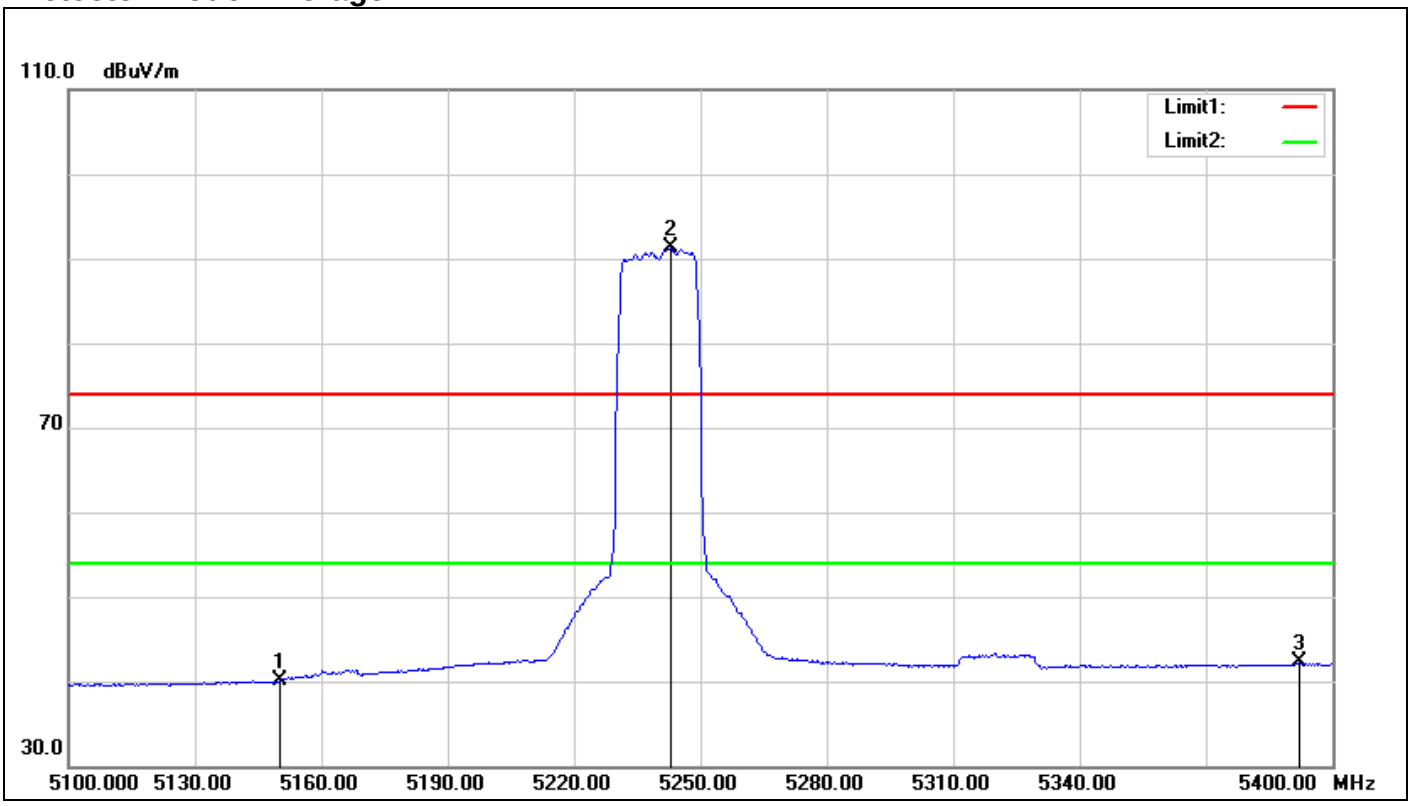
IEEE 802.11n HT20 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5106.300	51.66	2.74	54.40	74.00	-19.60	peak
2	5241.300	96.18	4.63	100.81	74.00	26.81	peak
3	5396.700	49.97	5.69	55.66	74.00	-18.34	peak

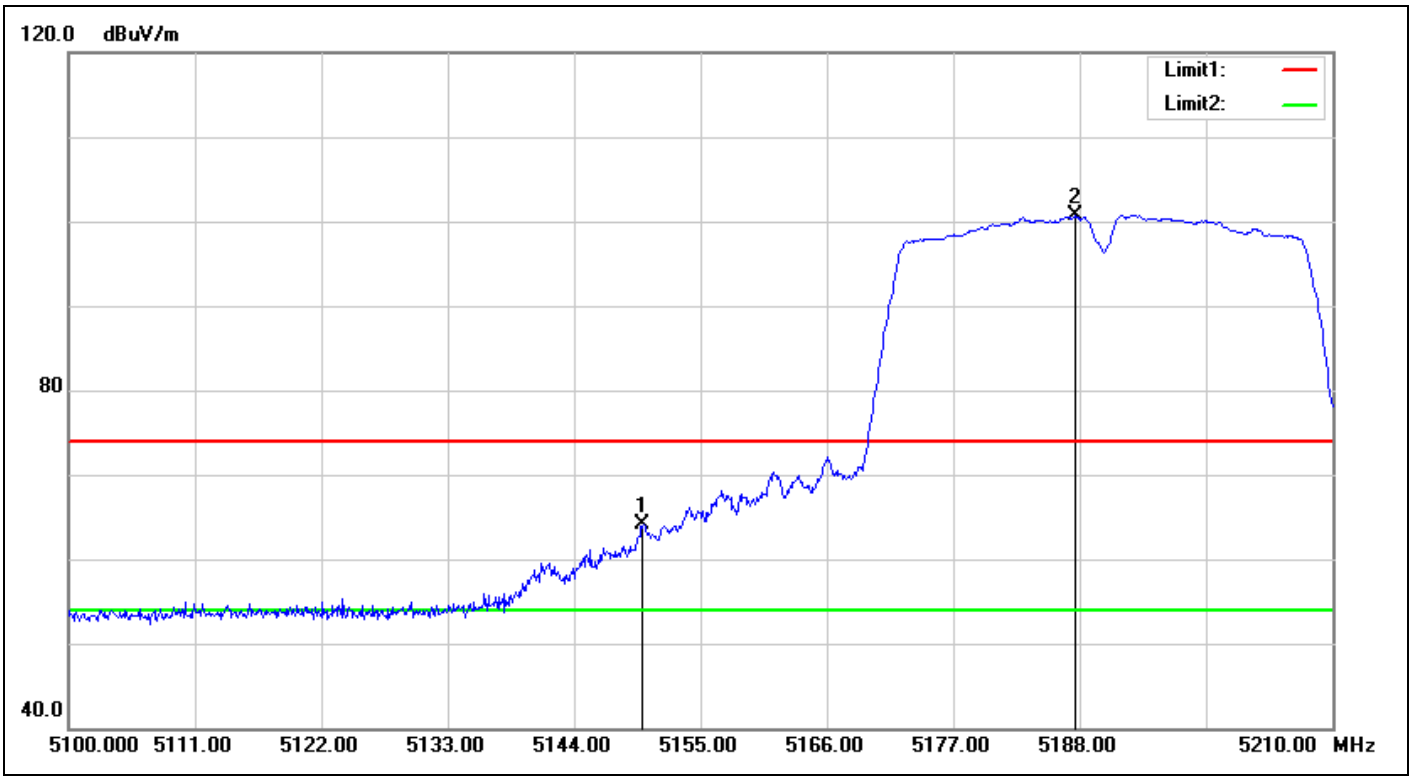
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.100	37.07	3.04	40.11	54.00	-13.89	AVG
2	5243.100	86.66	4.64	91.30	54.00	37.30	AVG
3	5392.200	36.56	5.66	42.22	54.00	-11.78	AVG

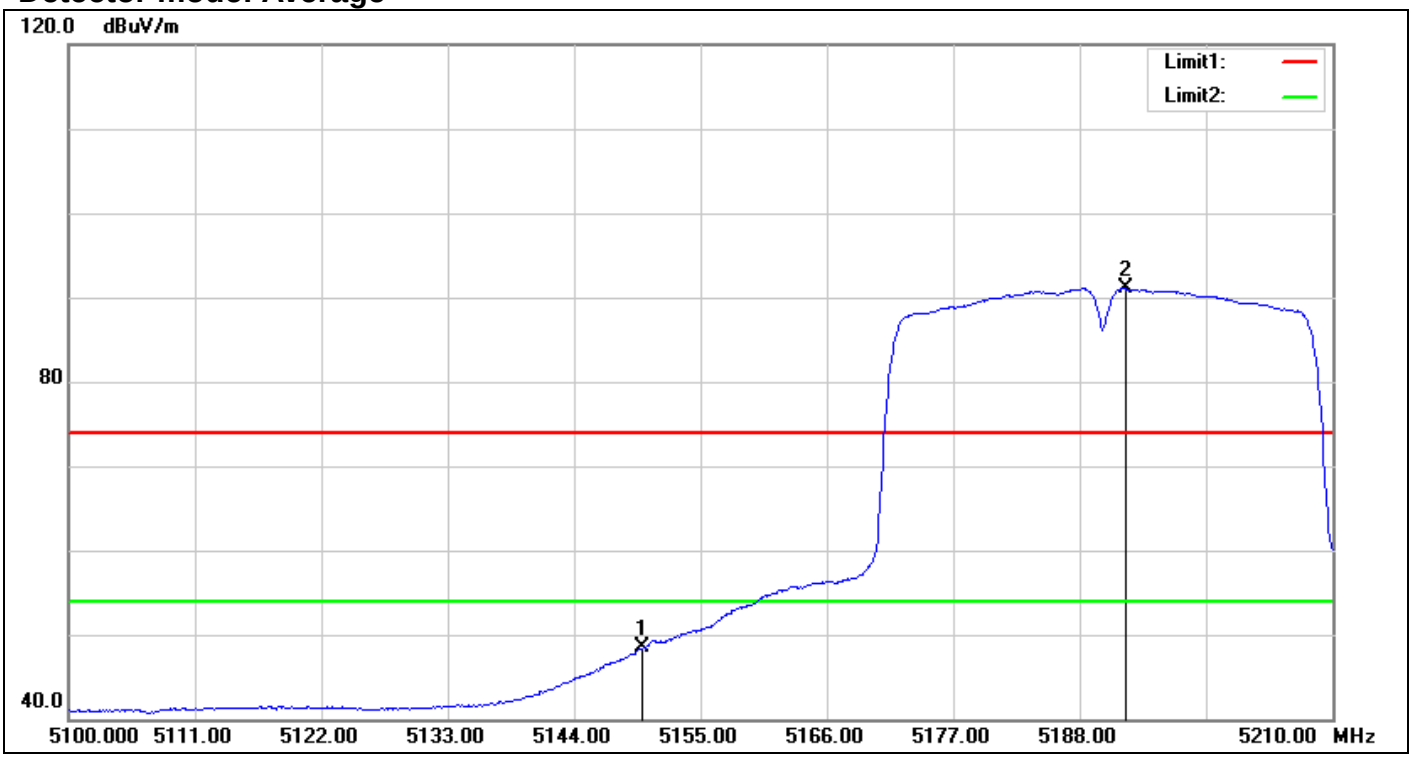
IEEE 802.11n HT40 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5150.000	61.03	3.04	64.07	74.00	-9.93	peak
2	5187.670	96.66	4.13	100.79	74.00	26.79	peak

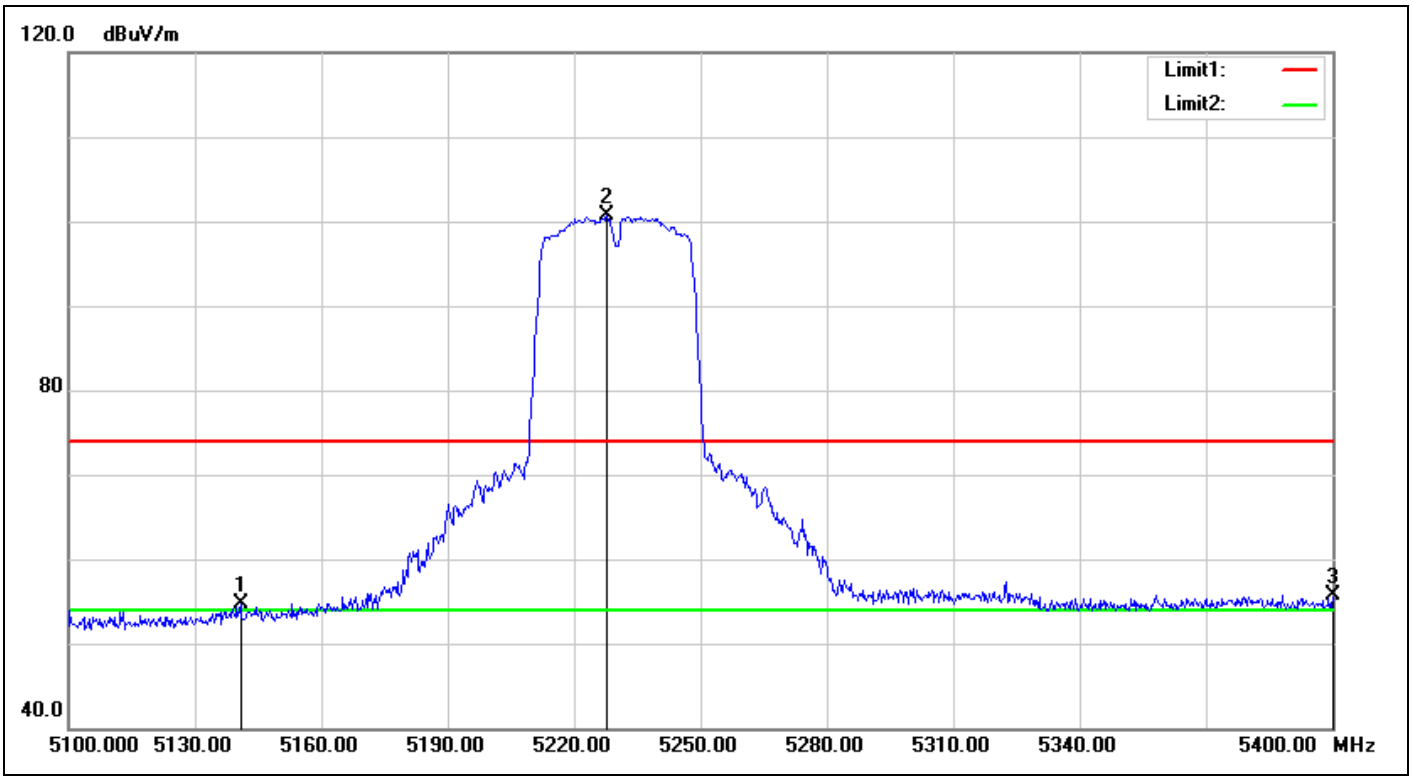
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5150.000	45.37	3.04	48.41	54.00	-5.59	AVG
2	5192.070	86.80	4.26	91.06	54.00	37.06	AVG

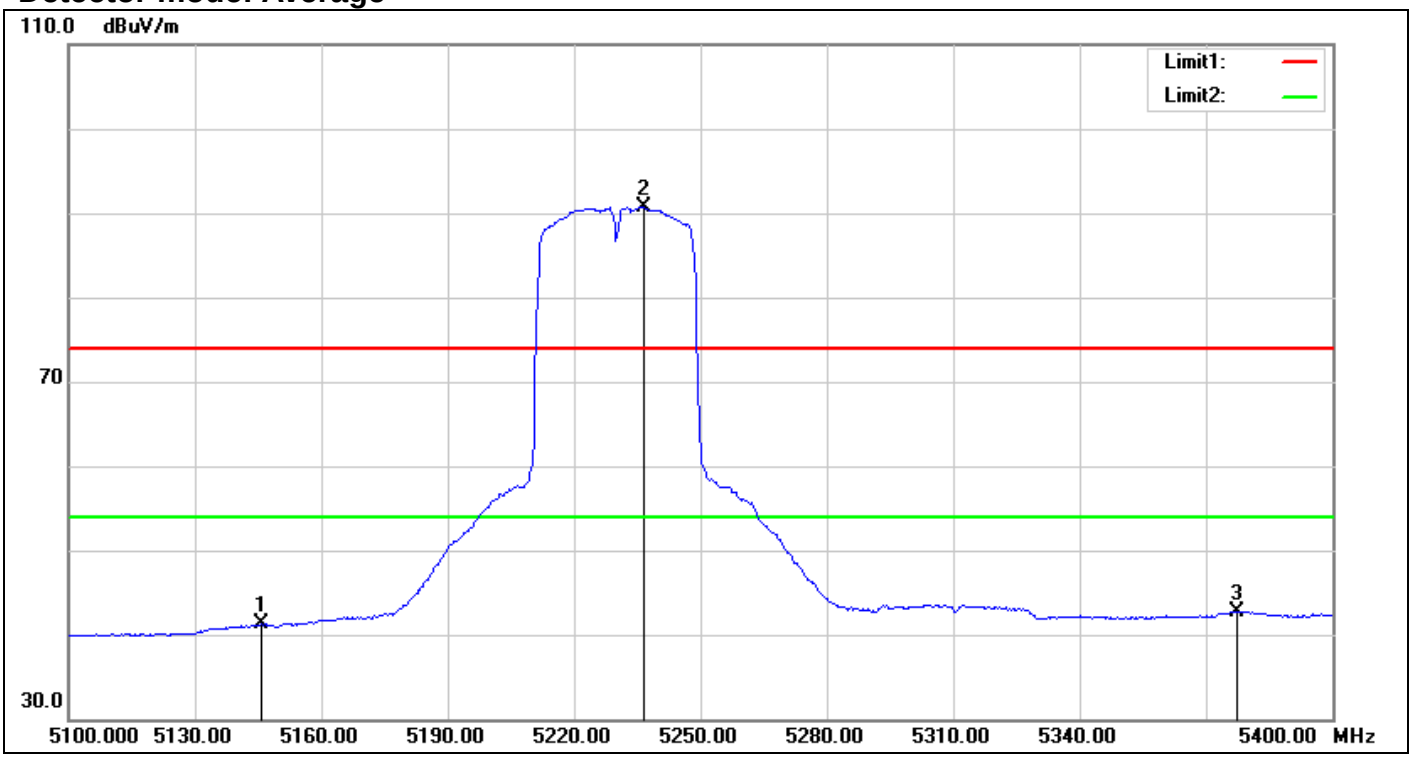
IEEE 802.11n HT40 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5140.800	51.81	2.98	54.79	74.00	-19.21	peak
2	5227.800	96.09	4.58	100.67	74.00	26.67	peak
3	5400.000	49.99	5.72	55.71	74.00	-18.29	peak

Detector mode: Average

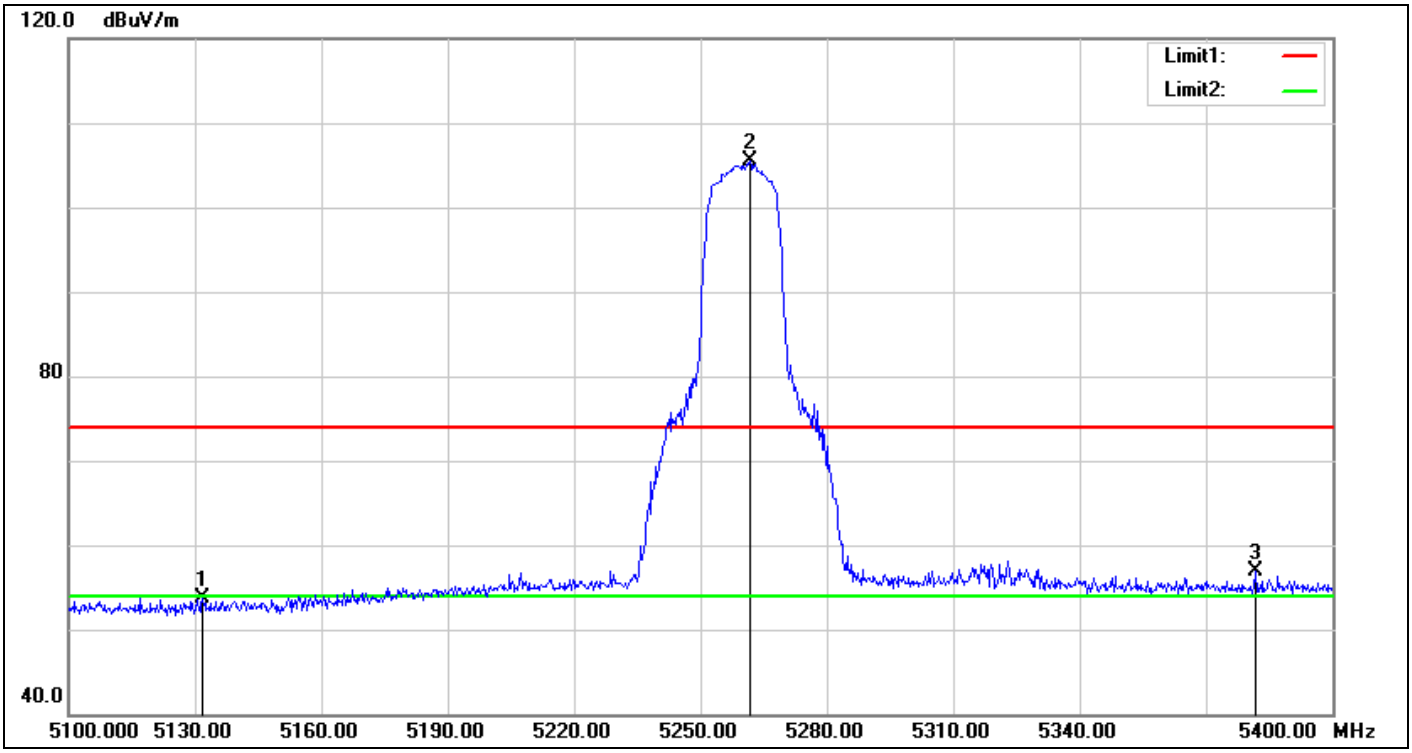


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.900	38.28	3.01	41.29	54.00	-12.71	AVG
2	5236.500	86.10	4.61	90.71	54.00	36.71	AVG
3	5377.500	37.21	5.54	42.75	54.00	-11.25	AVG

U-NII-2A

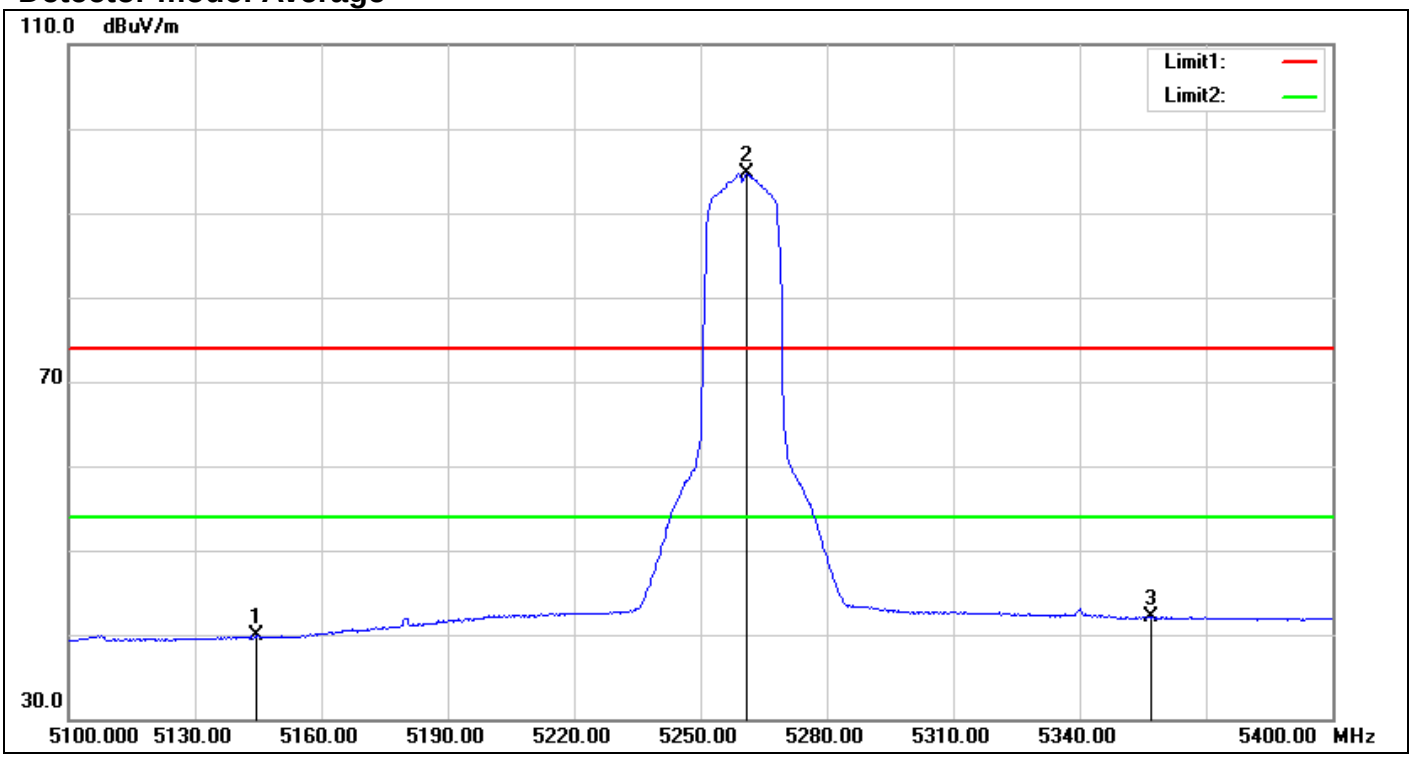
IEEE 802.11a Mode / CH Low

Detector mode: Peak



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5131.800	50.81	2.92	53.73	74.00	-20.27	peak
2	5261.700	100.86	4.70	105.56	74.00	31.56	peak
3	5381.700	51.42	5.57	56.99	74.00	-17.01	peak

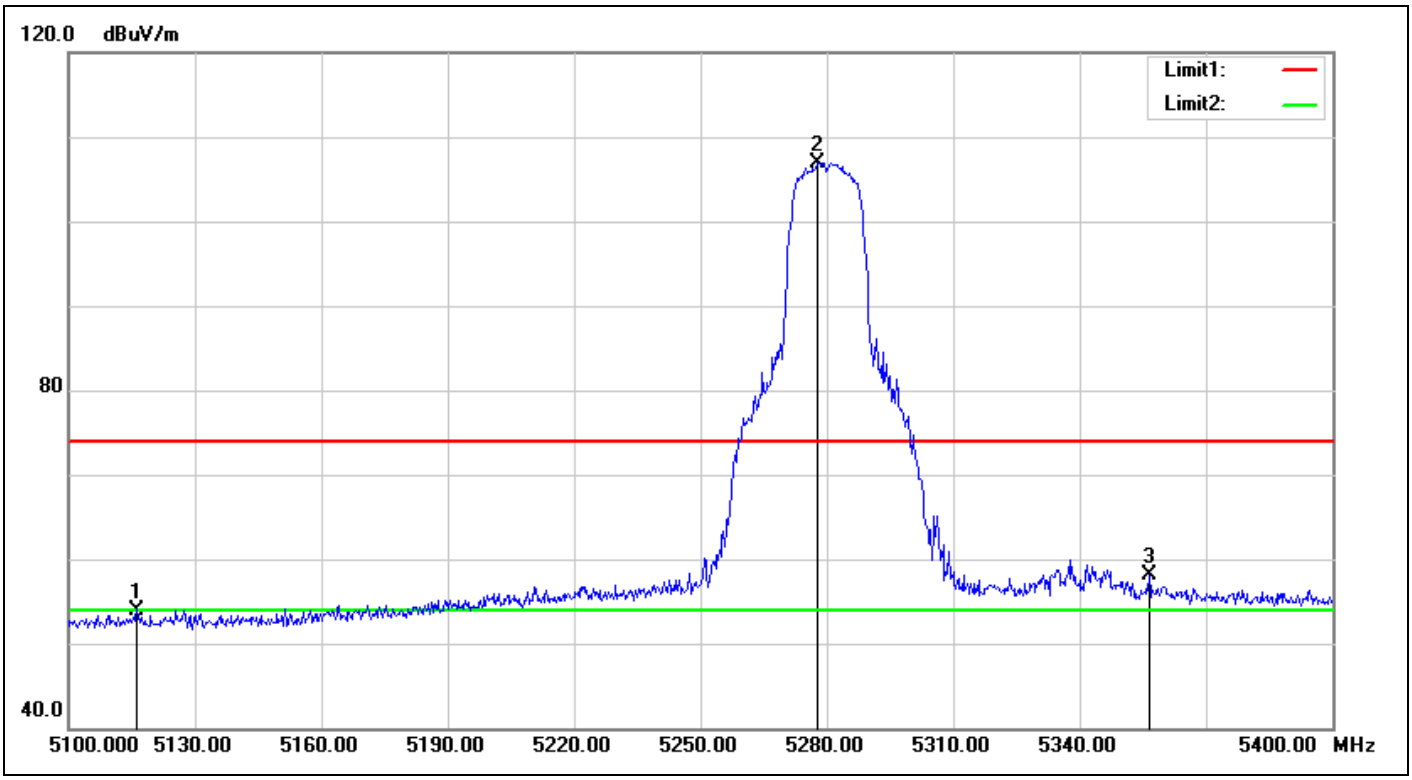
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.400	36.88	3.00	39.88	54.00	-14.12	AVG
2	5260.800	90.06	4.70	94.76	54.00	40.76	AVG
3	5357.100	36.74	5.37	42.11	54.00	-11.89	AVG

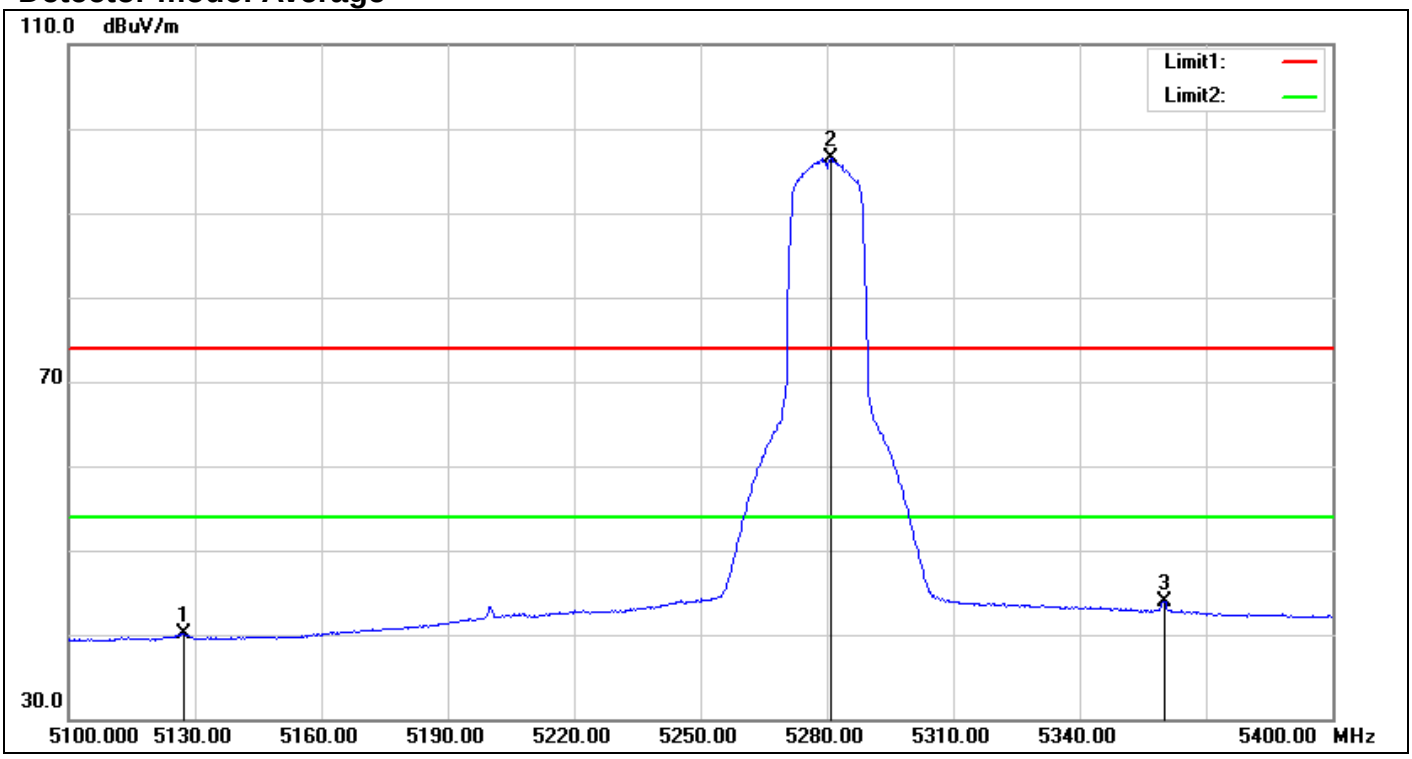
IEEE 802.11a Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5116.200	51.19	2.81	54.00	74.00	-20.00	peak
2	5277.600	102.25	4.75	107.00	74.00	33.00	peak
3	5356.500	52.77	5.36	58.13	74.00	-15.87	peak

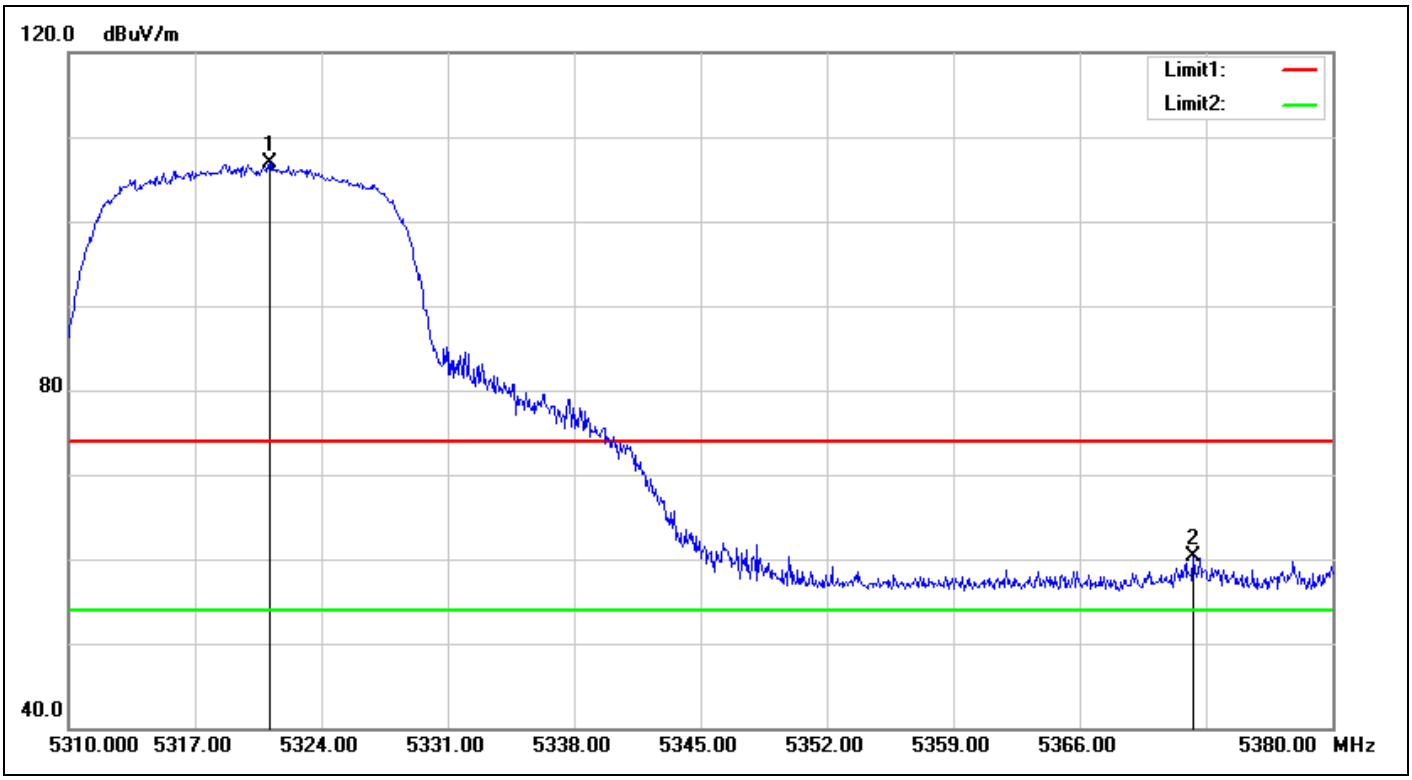
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5127.300	37.16	2.89	40.05	54.00	-13.95	AVG
2	5280.900	91.69	4.77	96.46	54.00	42.46	AVG
3	5360.100	38.60	5.39	43.99	54.00	-10.01	AVG

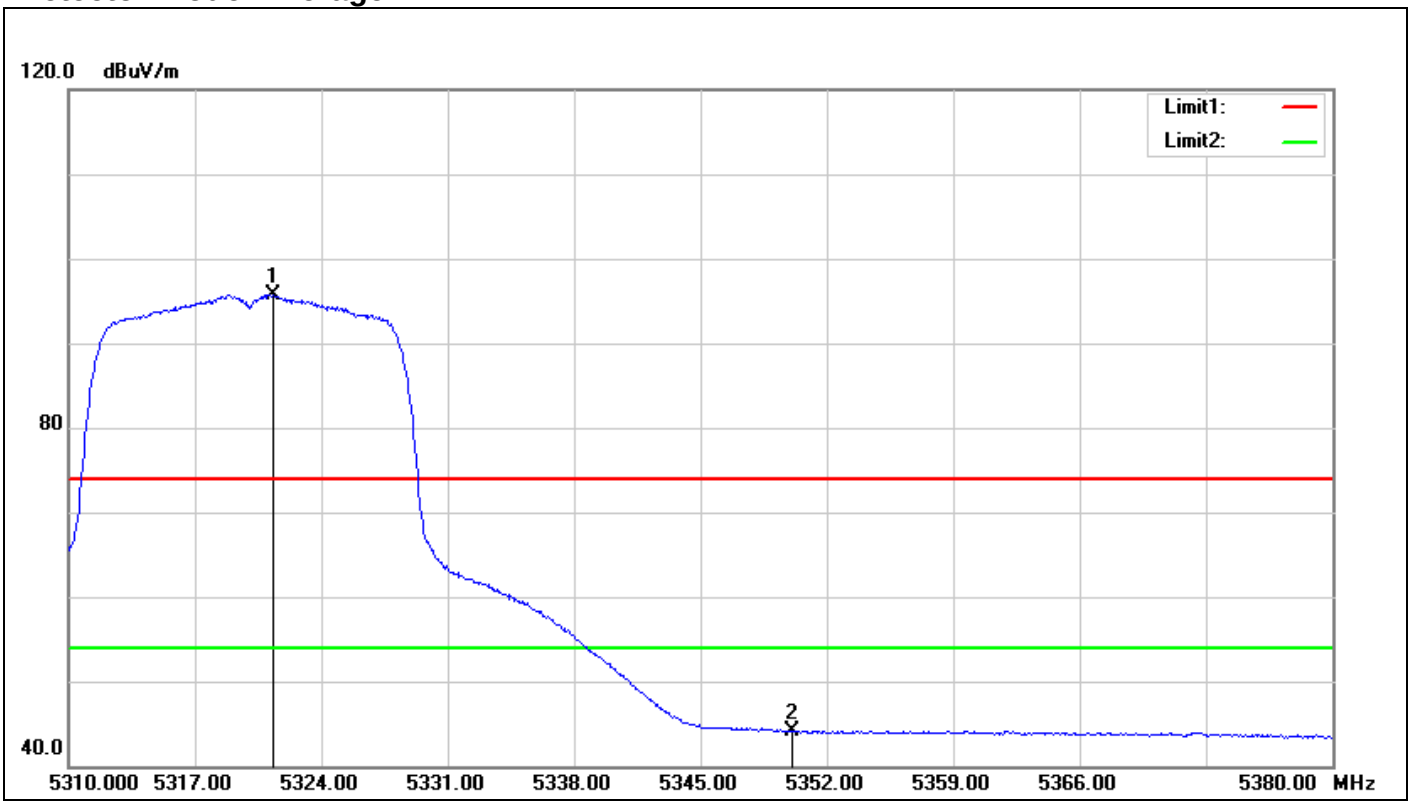
IEEE 802.11a Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5321.130	101.89	5.03	106.92	74.00	32.92	peak
2	5372.300	54.85	5.49	60.34	74.00	-13.66	peak

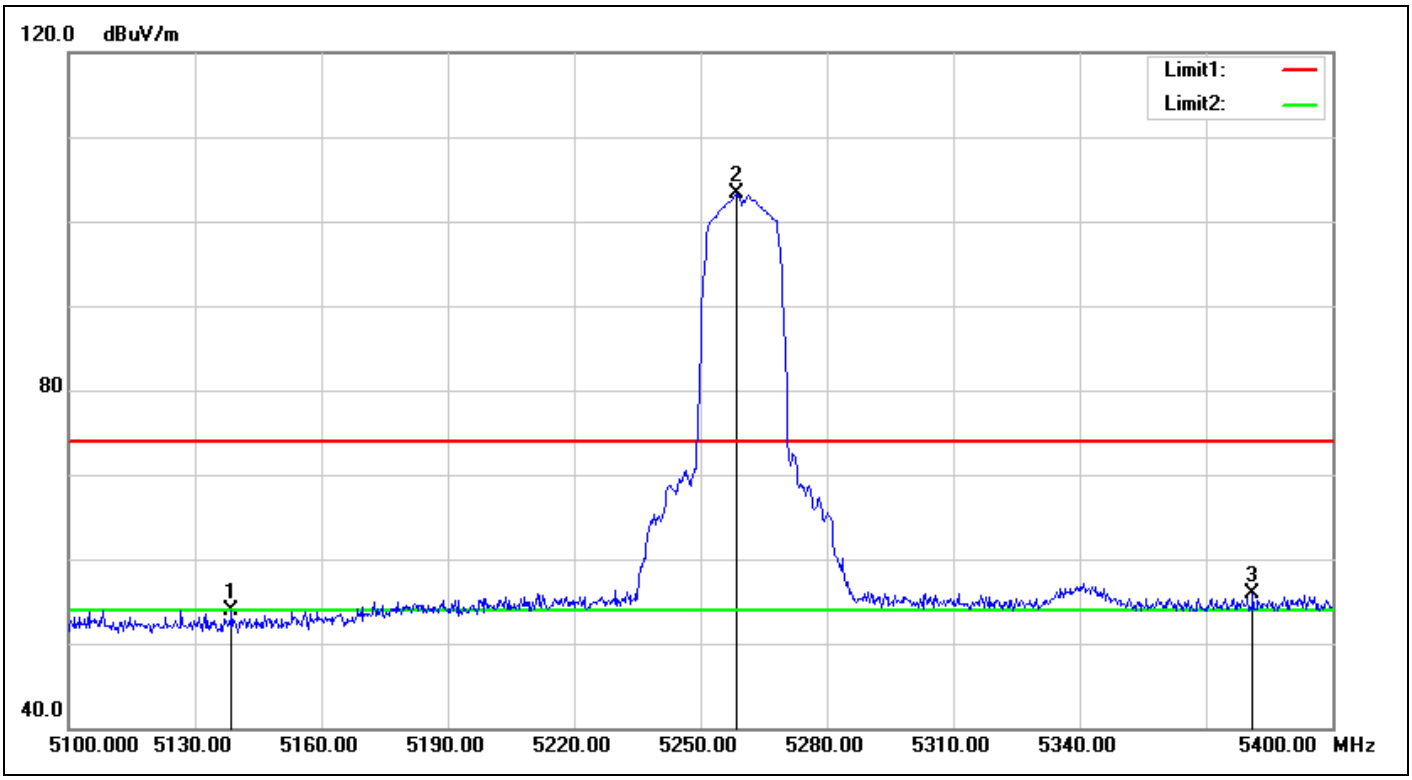
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5321.340	90.73	5.03	95.76	54.00	41.76	AVG
2	5350.040	38.86	5.31	44.17	54.00	-9.83	AVG

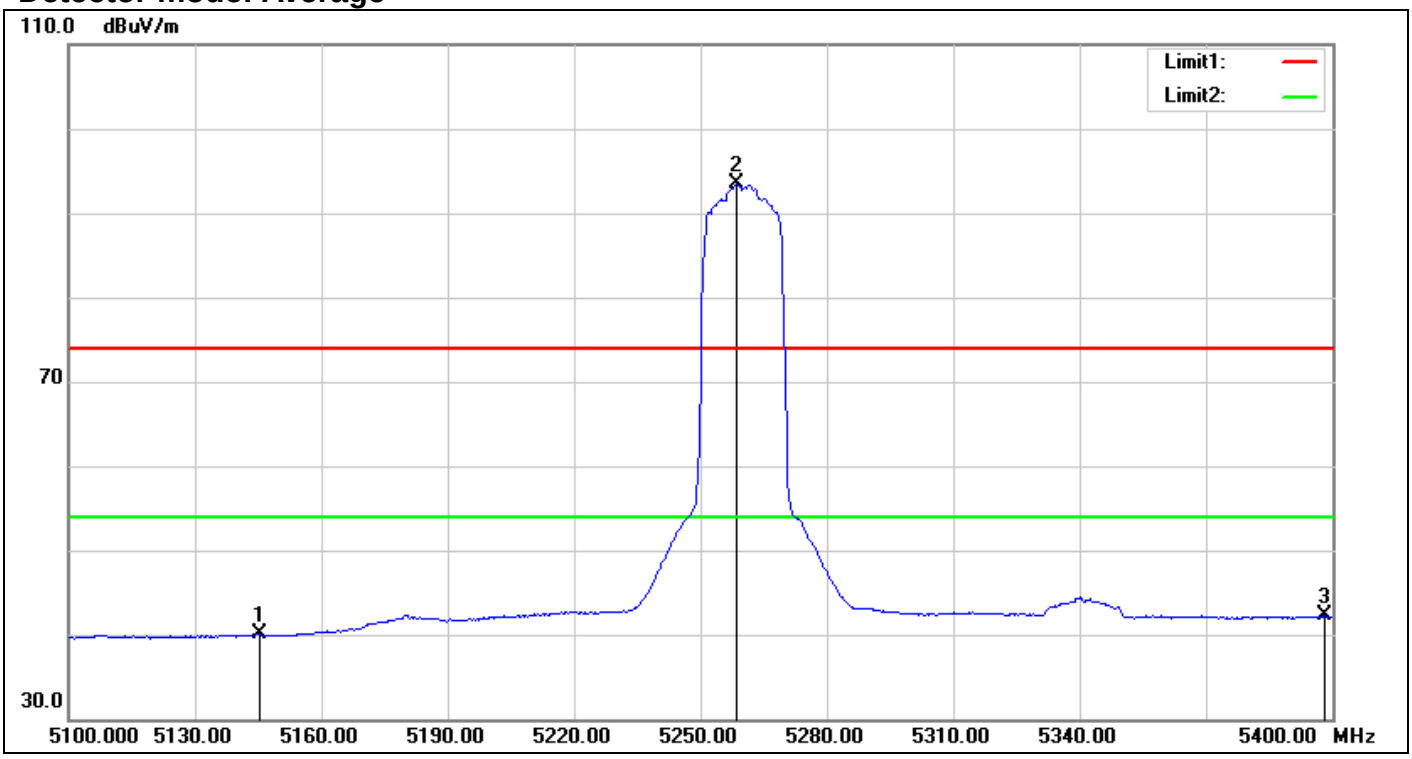
IEEE 802.11n HT20 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5138.700	51.00	2.96	53.96	74.00	-20.04	peak
2	5258.700	98.59	4.69	103.28	74.00	29.28	peak
3	5381.100	50.41	5.57	55.98	74.00	-18.02	peak

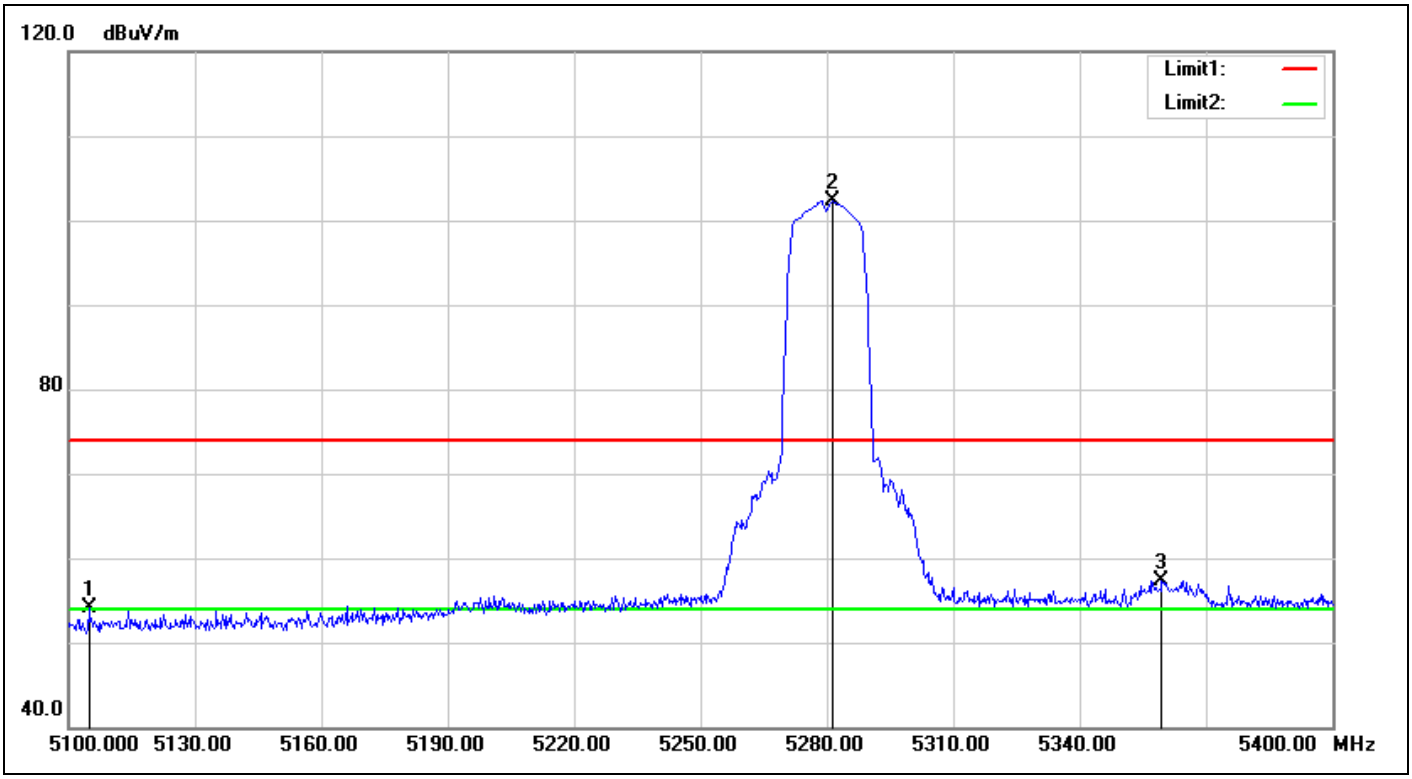
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5145.300	37.11	3.01	40.12	54.00	-13.88	AVG
2	5258.400	88.76	4.69	93.45	54.00	39.45	AVG
3	5398.200	36.55	5.71	42.26	54.00	-11.74	AVG

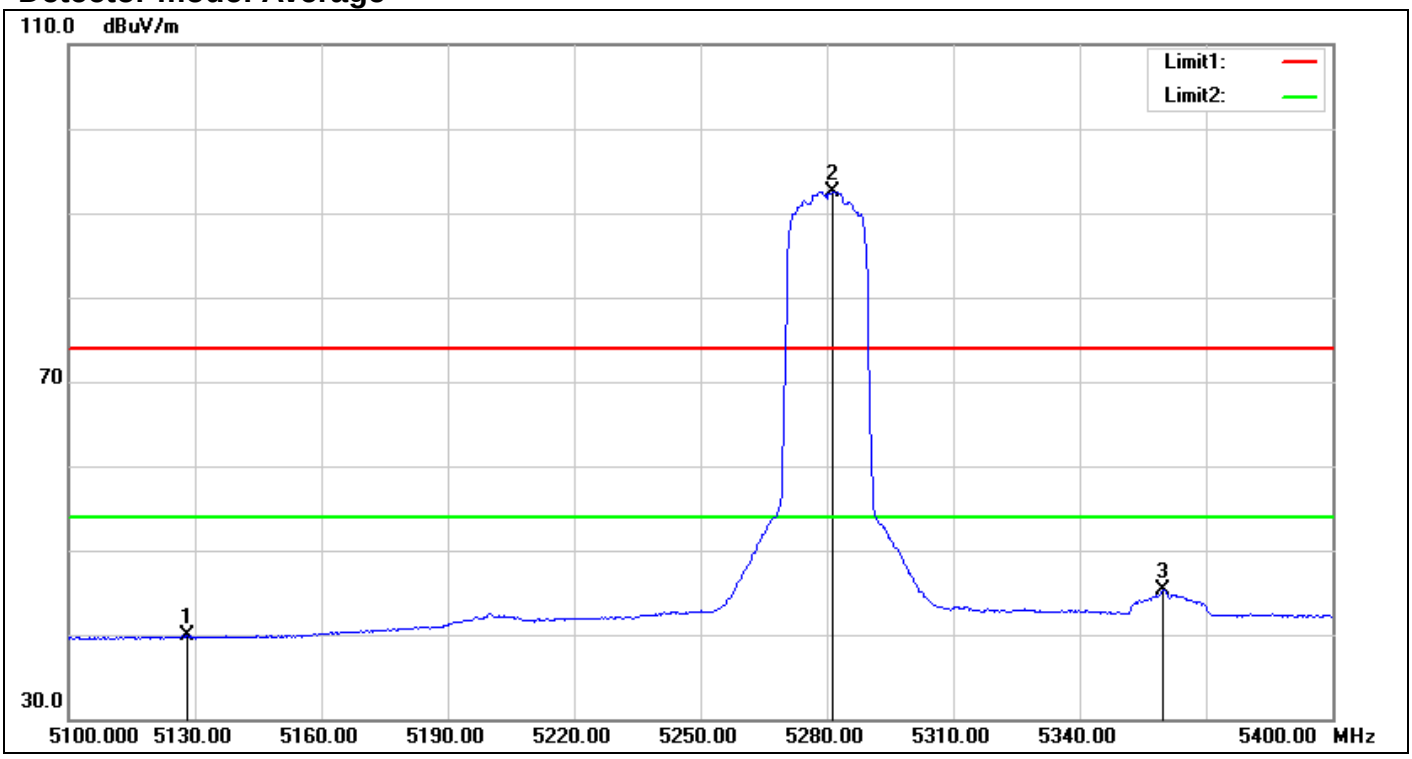
IEEE 802.11n HT20 MHz Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5104.800	51.44	2.73	54.17	74.00	-19.83	peak
2	5281.200	97.61	4.77	102.38	74.00	28.38	peak
3	5359.500	51.90	5.39	57.29	74.00	-16.71	peak

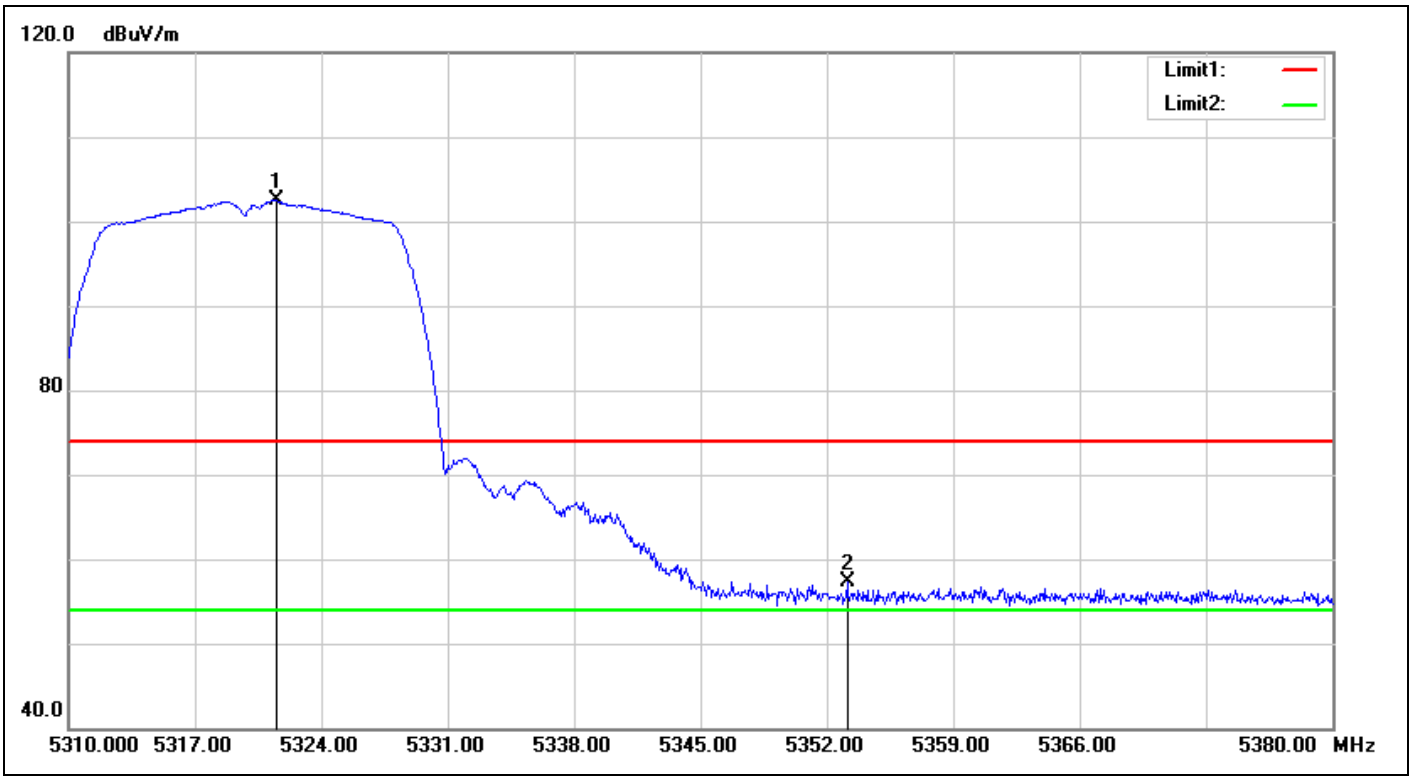
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5128.200	37.05	2.89	39.94	54.00	-14.06	AVG
2	5281.500	87.83	4.77	92.60	54.00	38.60	AVG
3	5359.800	39.83	5.39	45.22	54.00	-8.78	AVG

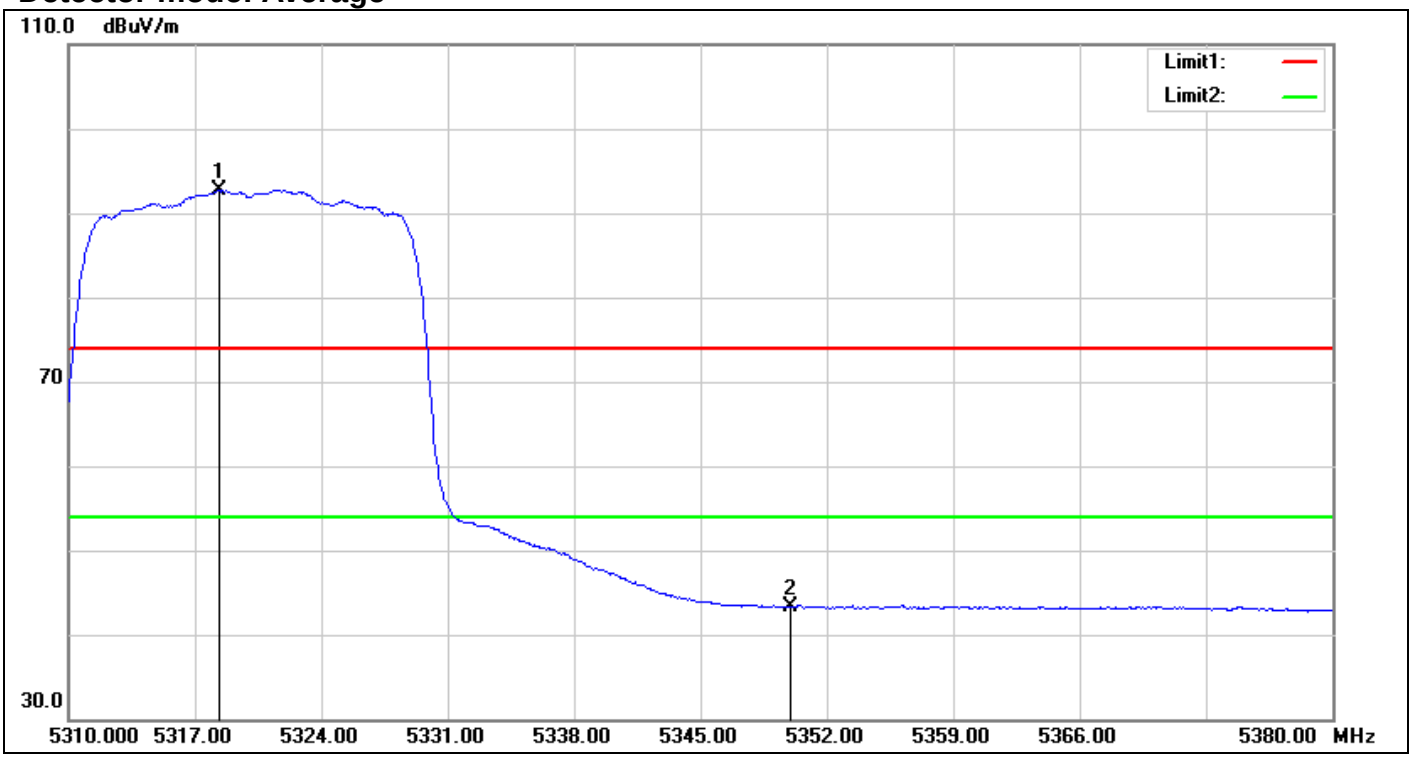
IEEE 802.11n HT20 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5321.480	97.48	5.04	102.52	74.00	28.52	peak
2	5353.120	51.90	5.34	57.24	74.00	-16.76	peak

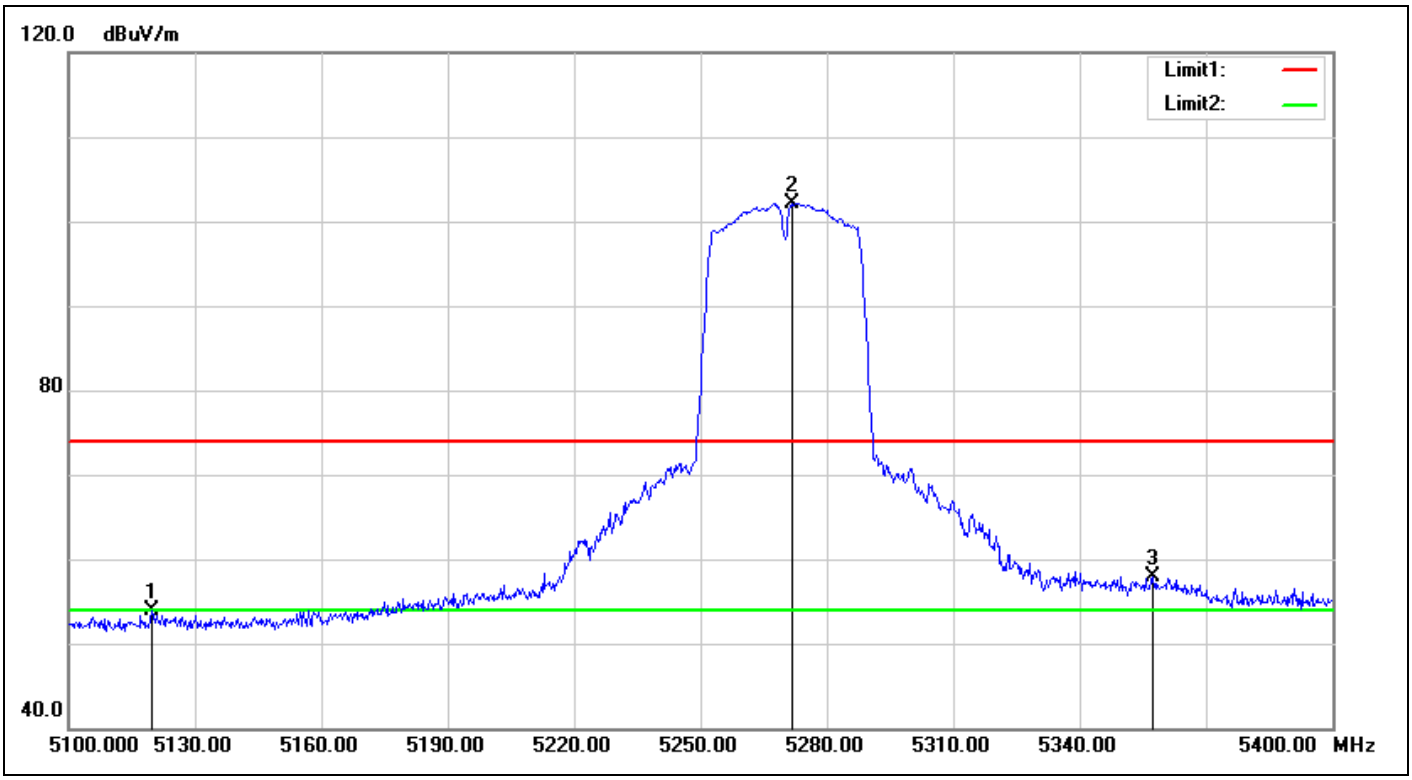
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5318.330	87.71	5.01	92.72	54.00	38.72	AVG
2	5350.000	37.96	5.31	43.27	54.00	-10.73	AVG

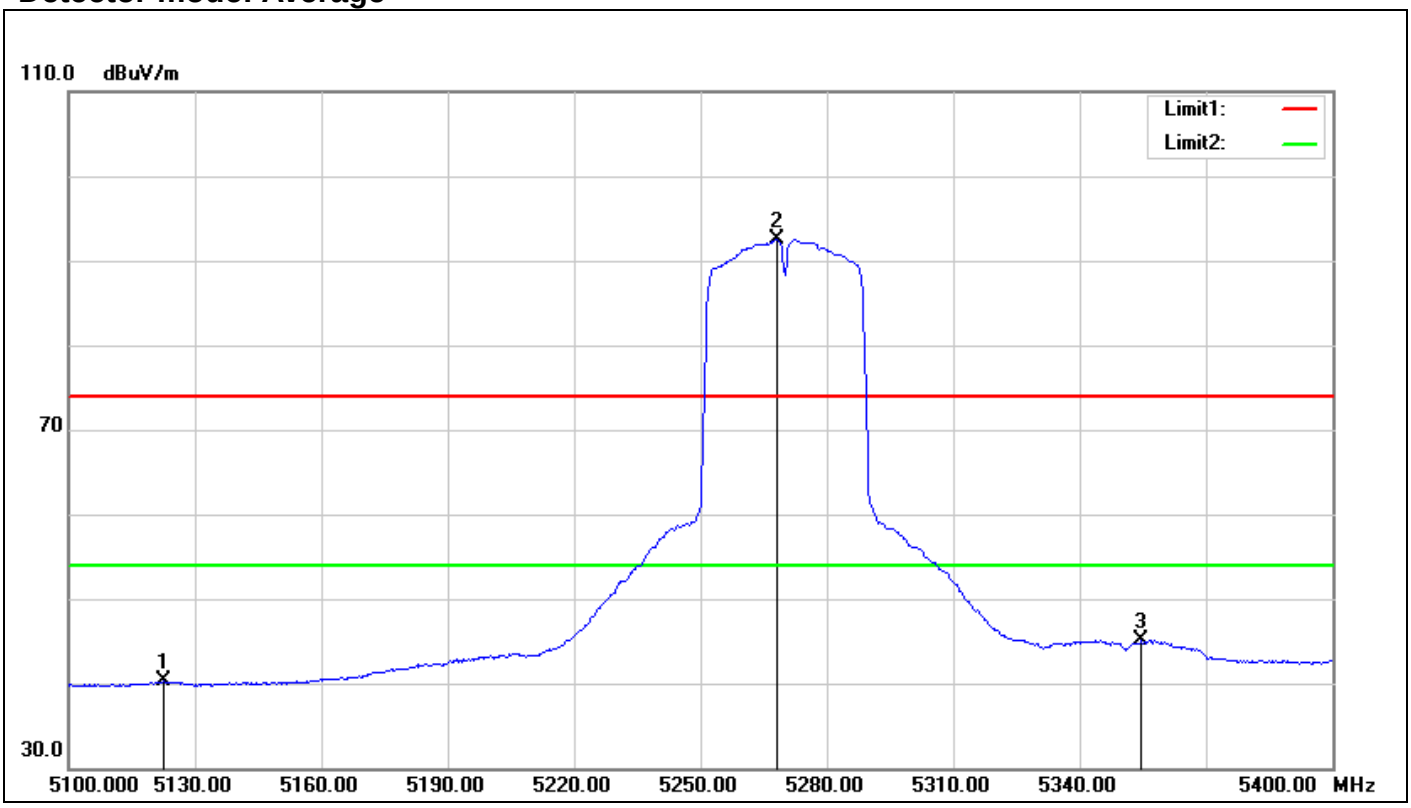
IEEE 802.11n HT40 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5119.800	51.10	2.83	53.93	74.00	-20.07	peak
2	5271.600	97.41	4.73	102.14	74.00	28.14	peak
3	5357.400	52.44	5.37	57.81	74.00	-16.19	peak

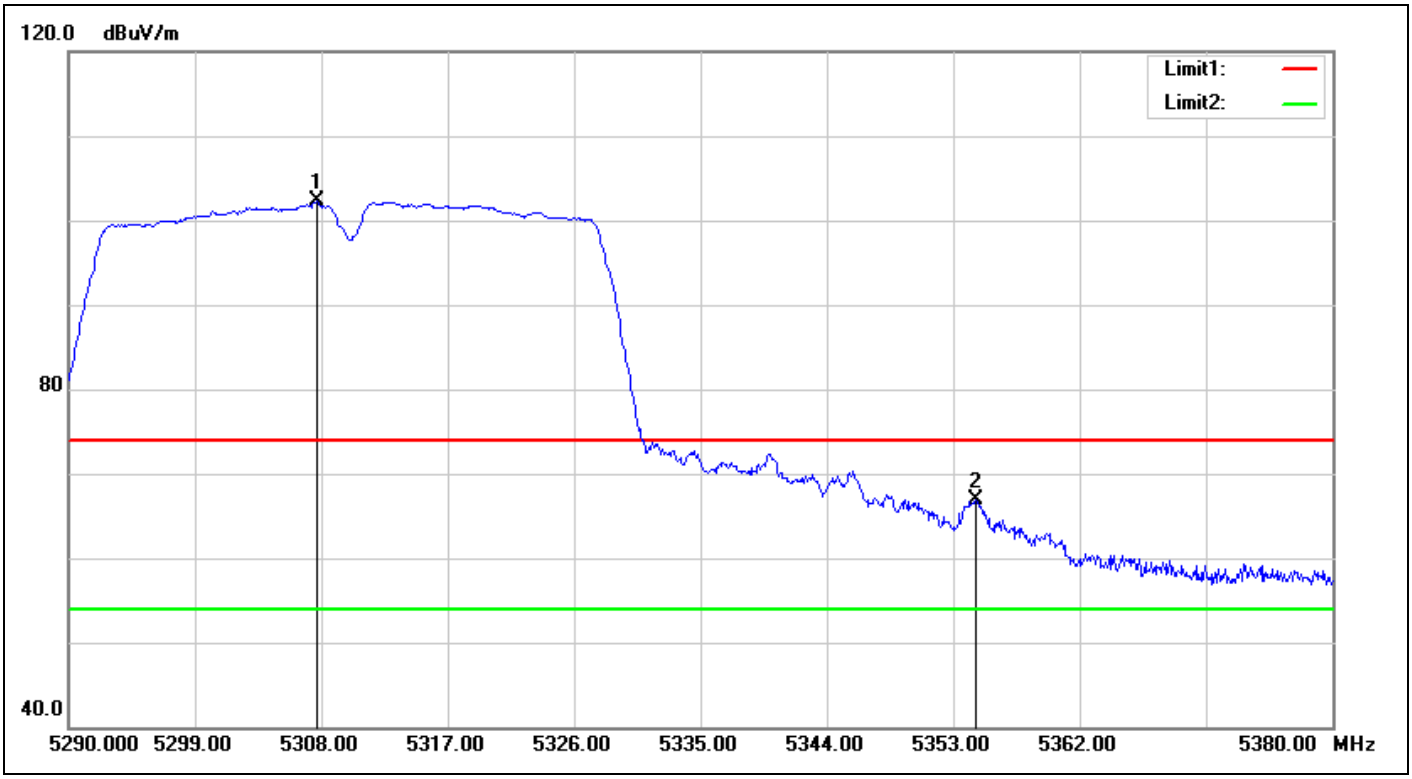
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5122.500	37.36	2.85	40.21	54.00	-13.79	AVG
2	5268.300	87.71	4.72	92.43	54.00	38.43	AVG
3	5354.700	39.68	5.35	45.03	54.00	-8.97	AVG

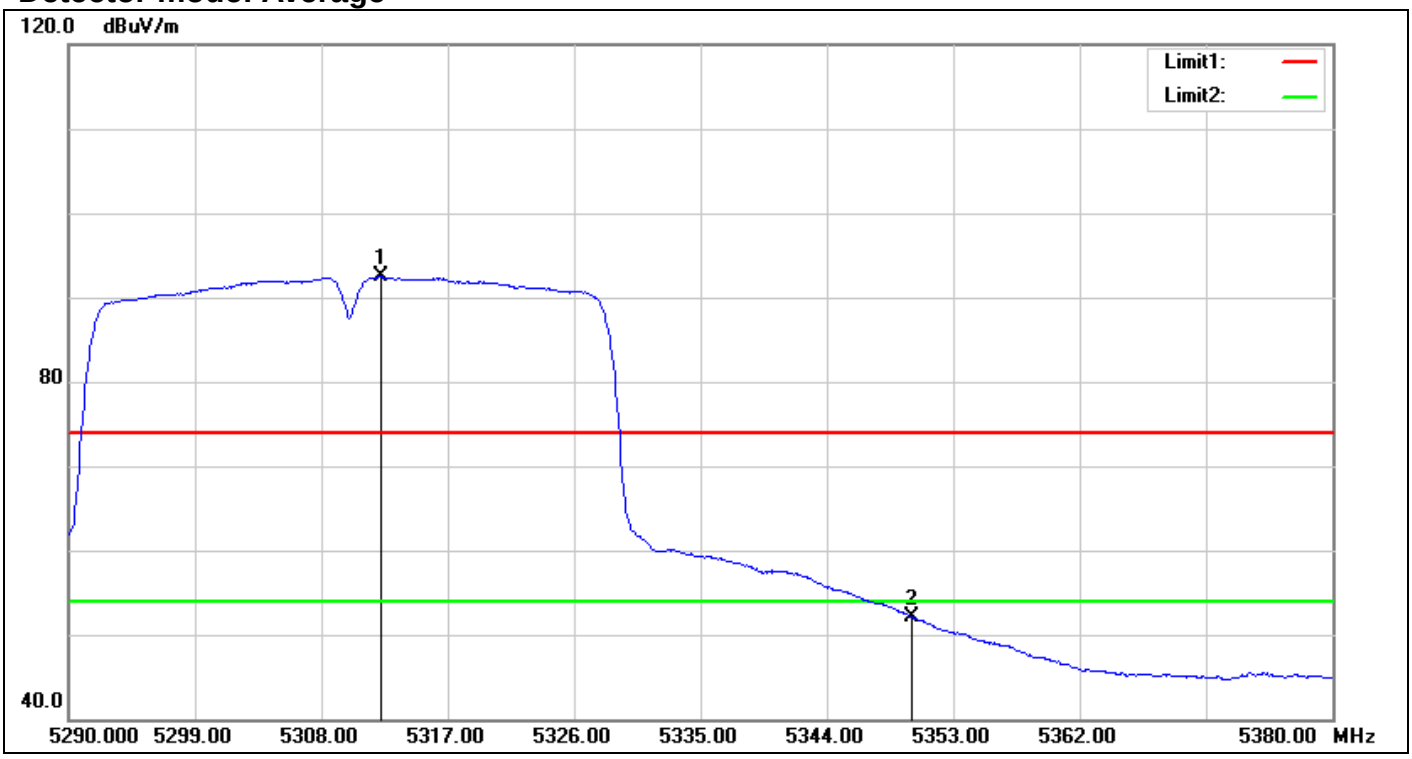
IEEE 802.11n HT40 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5307.640	97.39	4.90	102.29	74.00	28.29	peak
2	5354.620	61.54	5.35	66.89	74.00	-7.11	peak

Detector mode: Average

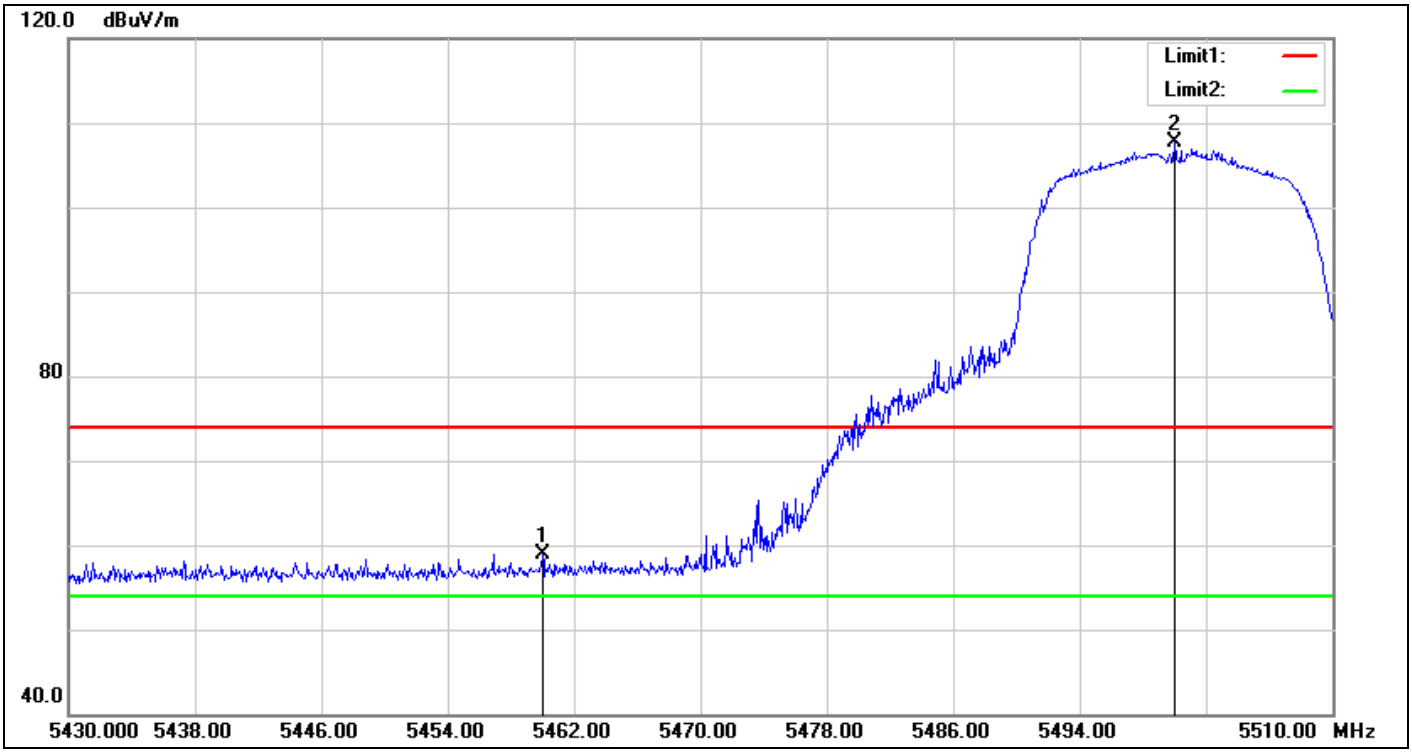


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5312.230	87.52	4.95	92.47	54.00	38.47	AVG
2	5350.000	46.73	5.31	52.04	54.00	-1.96	AVG

U-NII-2C

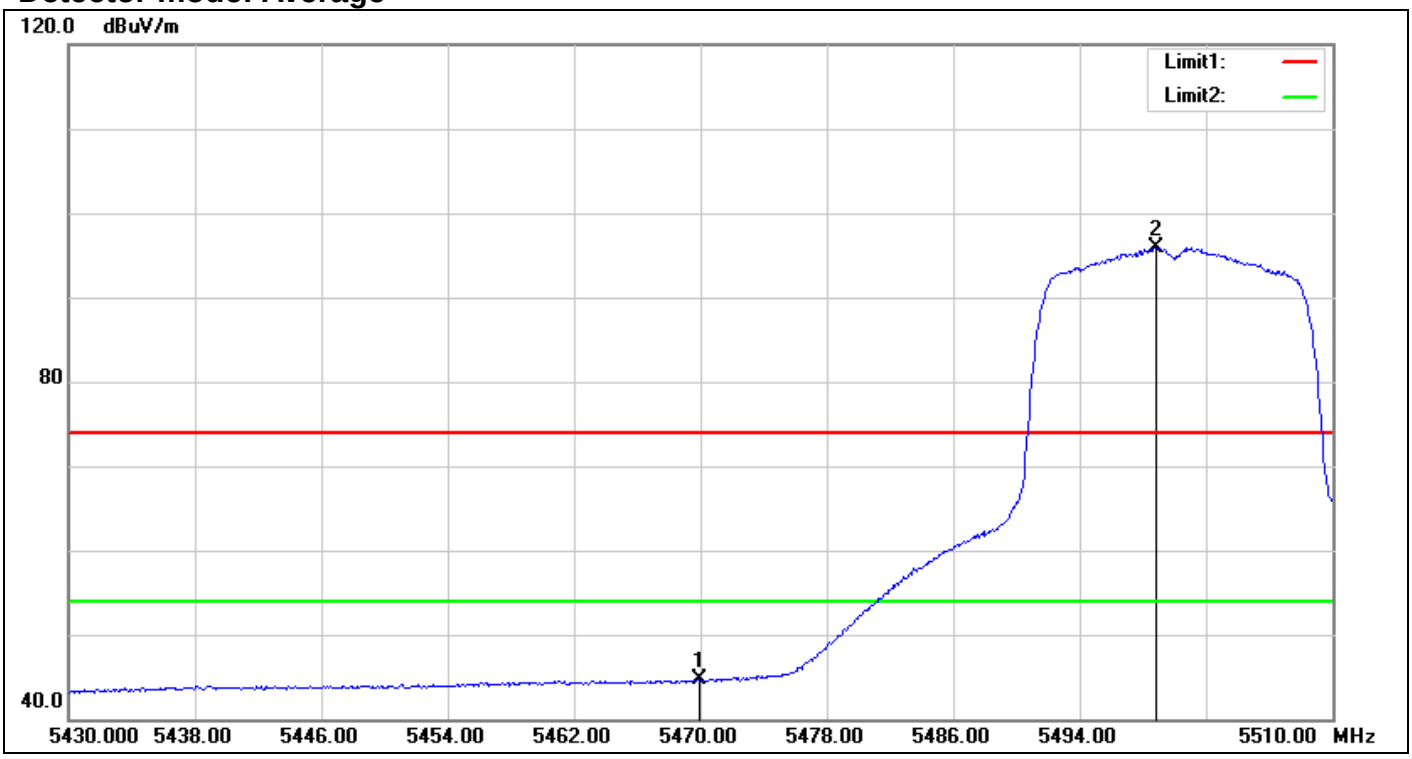
IEEE 802.11a Mode / CH Low

Detector mode: Peak



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5460.000	53.48	5.44	58.92	74.00	-15.08	peak
2	5500.000	102.49	5.25	107.74	74.00	33.74	peak

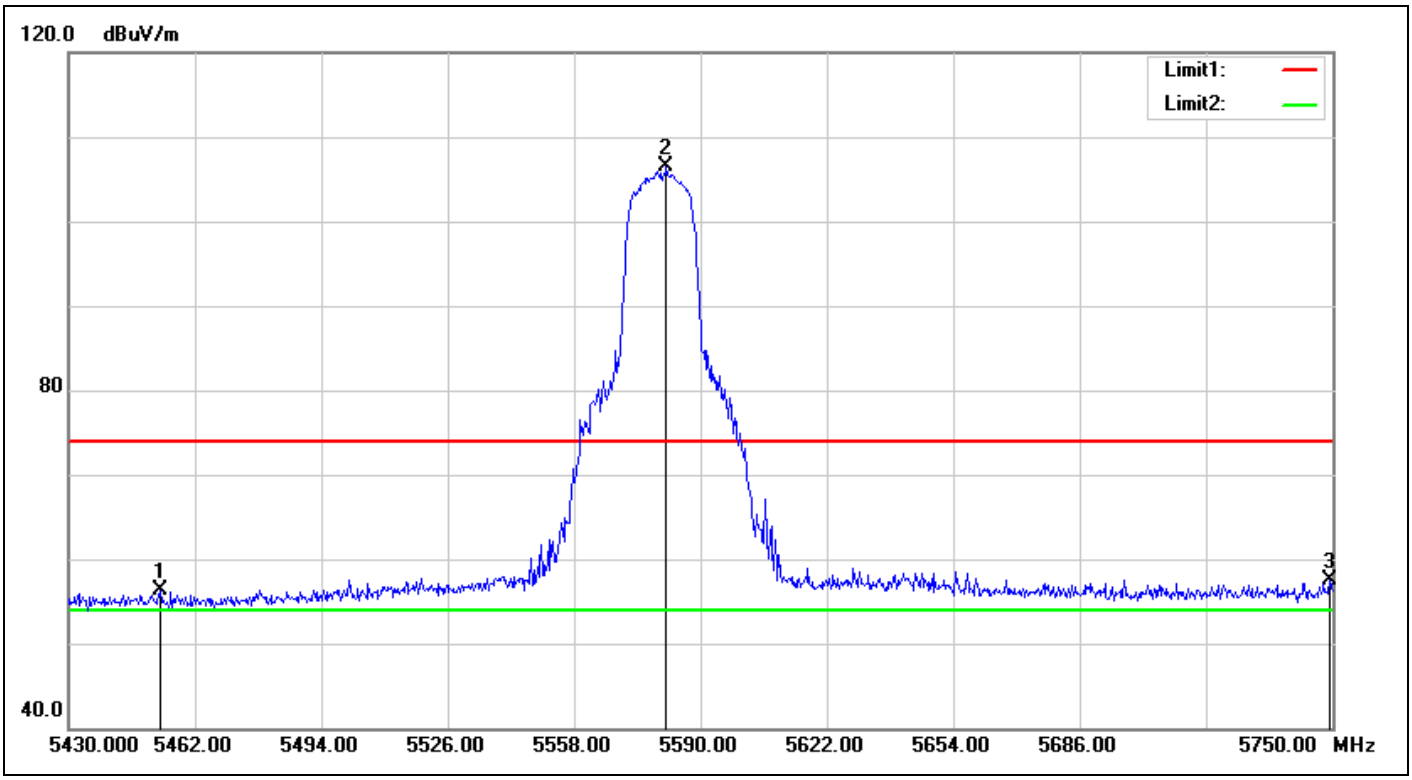
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5469.920	39.33	5.39	44.72	54.00	-9.28	AVG
2	5498.880	90.69	5.26	95.95	54.00	41.95	AVG

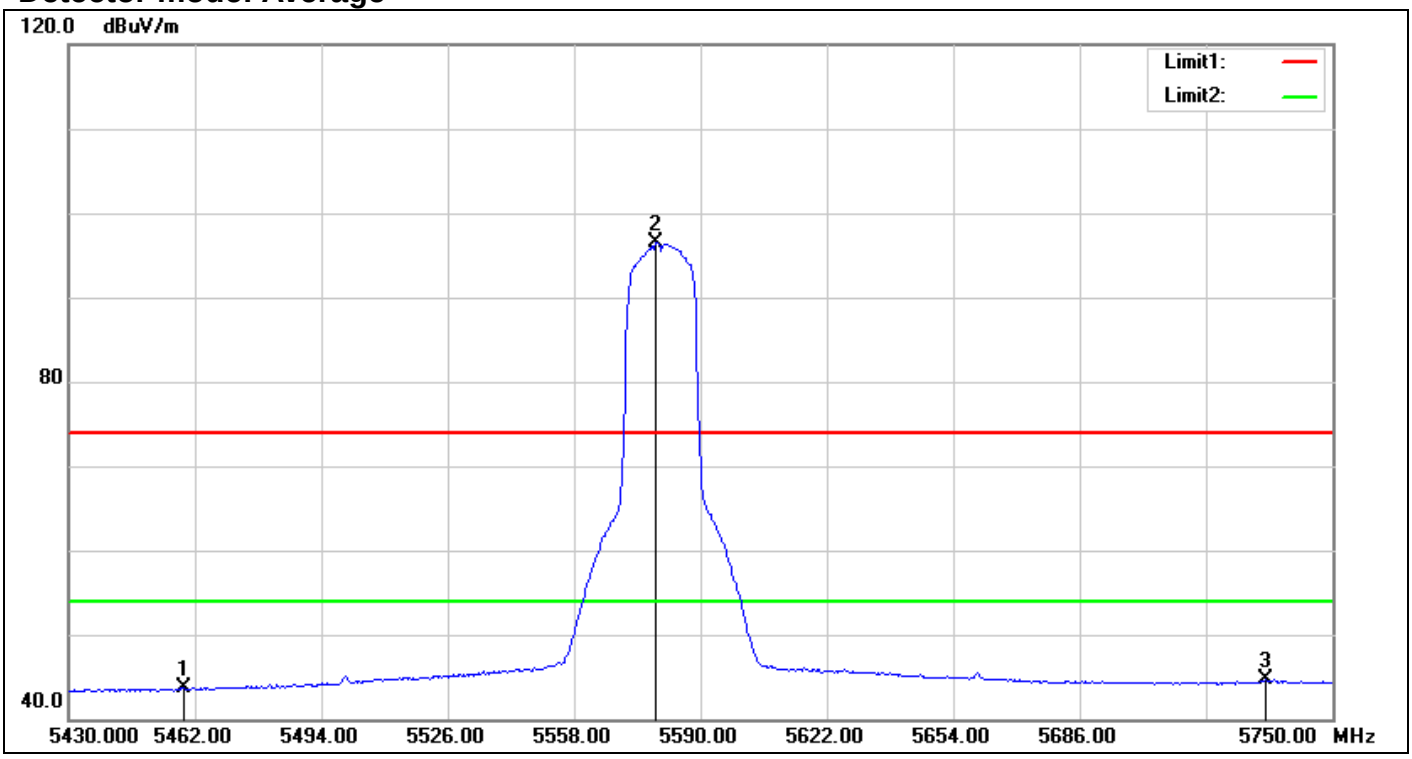
IEEE 802.11a Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5453.360	50.74	5.47	56.21	74.00	-17.79	peak
2	5581.360	100.82	5.60	106.42	74.00	32.42	peak
3	5749.360	51.17	6.31	57.48	74.00	-16.52	peak

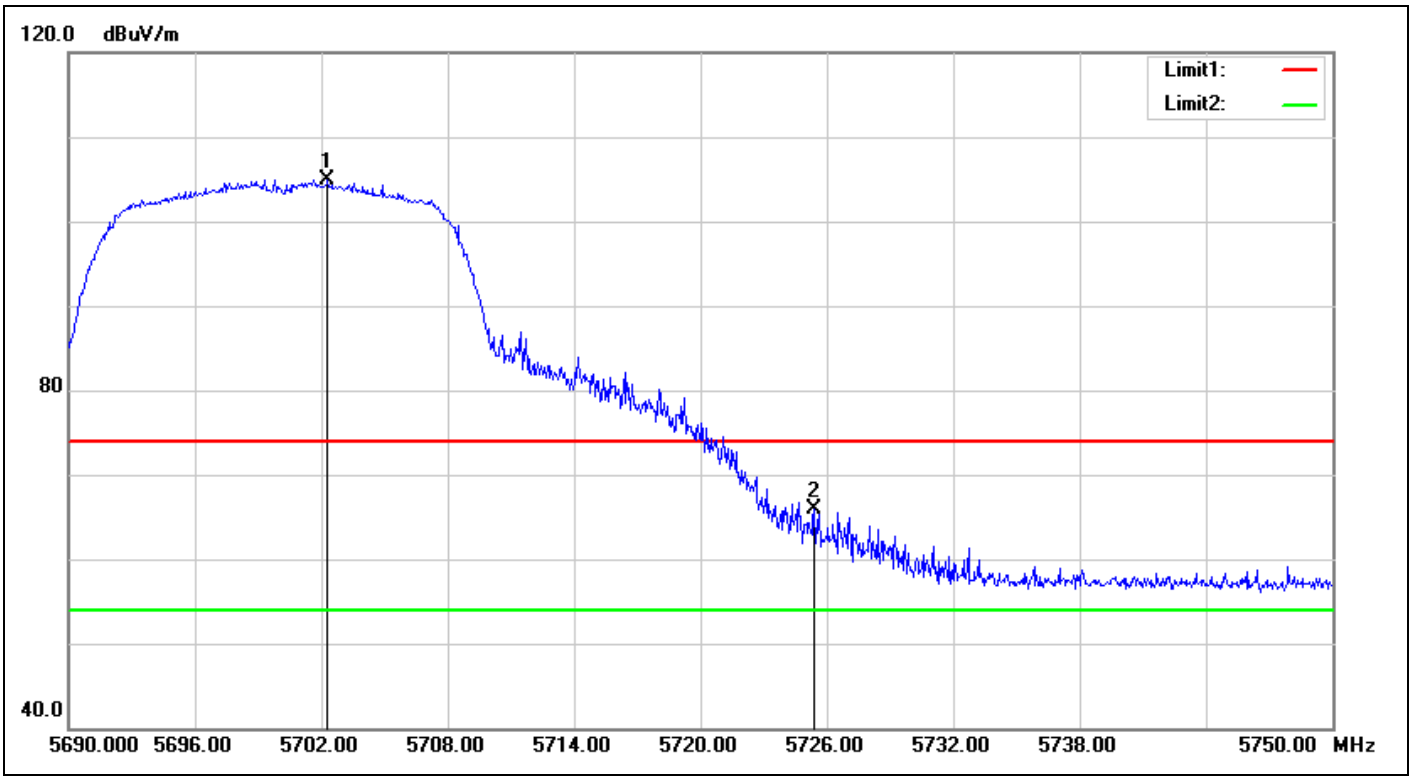
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5459.120	38.32	5.44	43.76	54.00	-10.24	AVG
2	5578.800	90.97	5.59	96.56	54.00	42.56	AVG
3	5733.040	38.38	6.24	44.62	54.00	-9.38	AVG

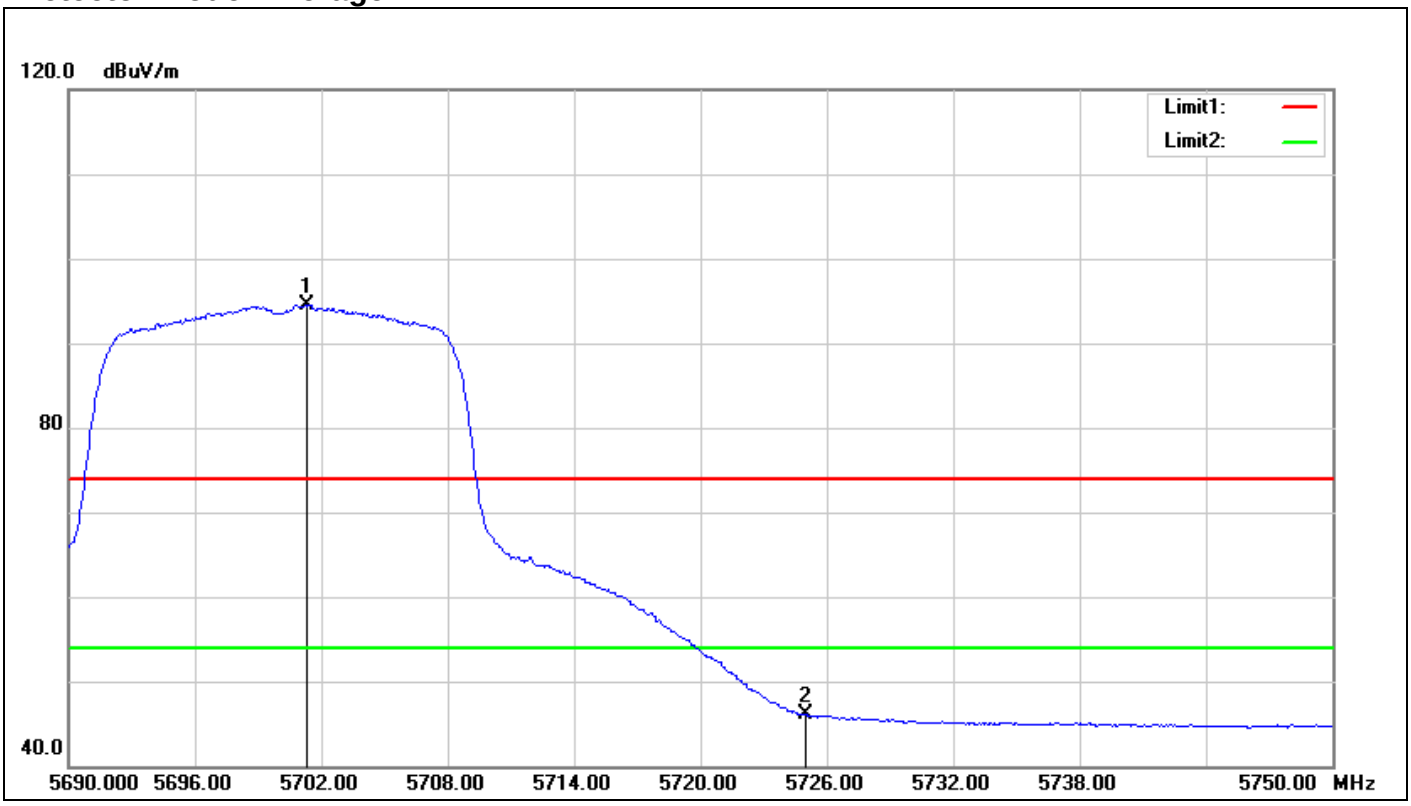
IEEE 802.11a Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5702.300	98.86	6.11	104.97	74.00	30.97	peak
2	5725.400	59.76	6.21	65.97	74.00	-8.03	peak

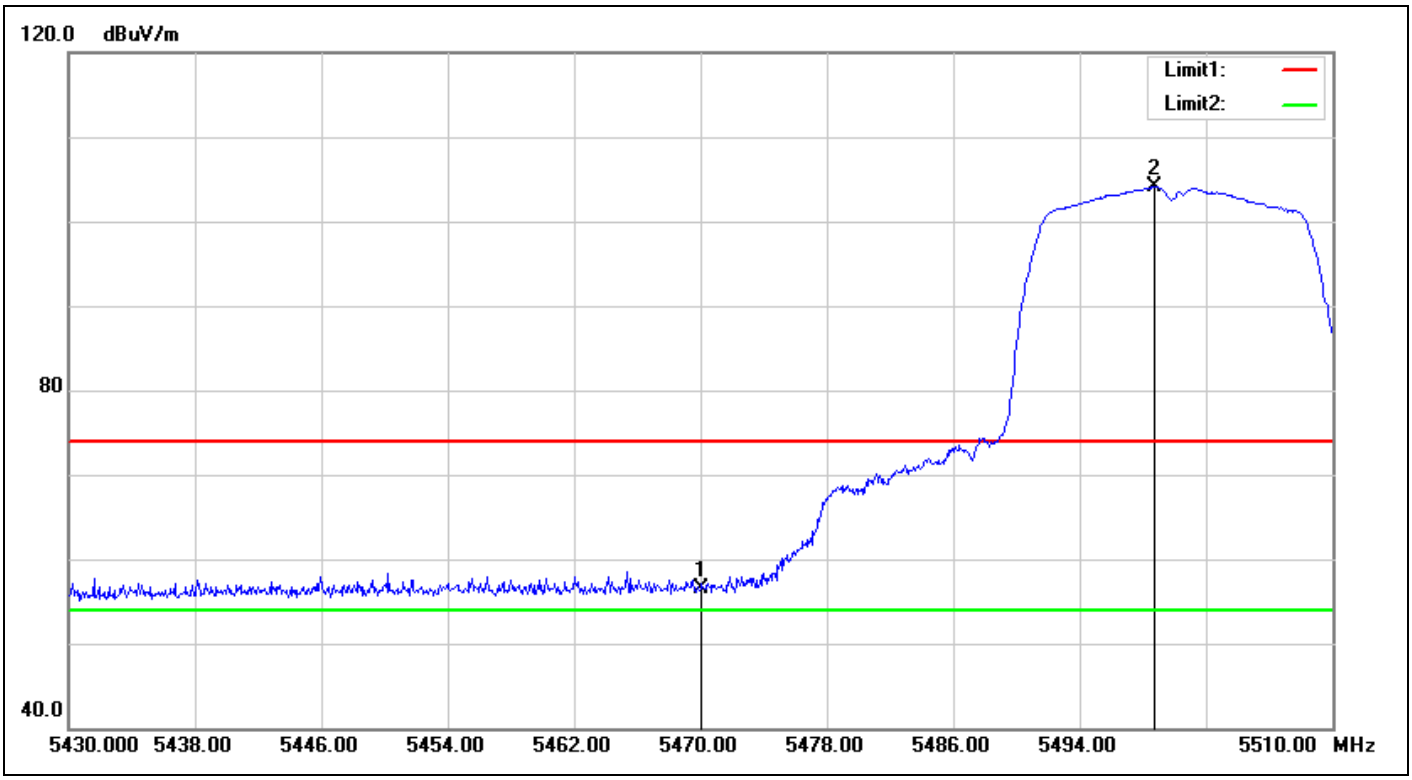
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5701.280	88.43	6.11	94.54	54.00	40.54	AVG
2	5725.000	39.81	6.21	46.02	54.00	-7.98	AVG

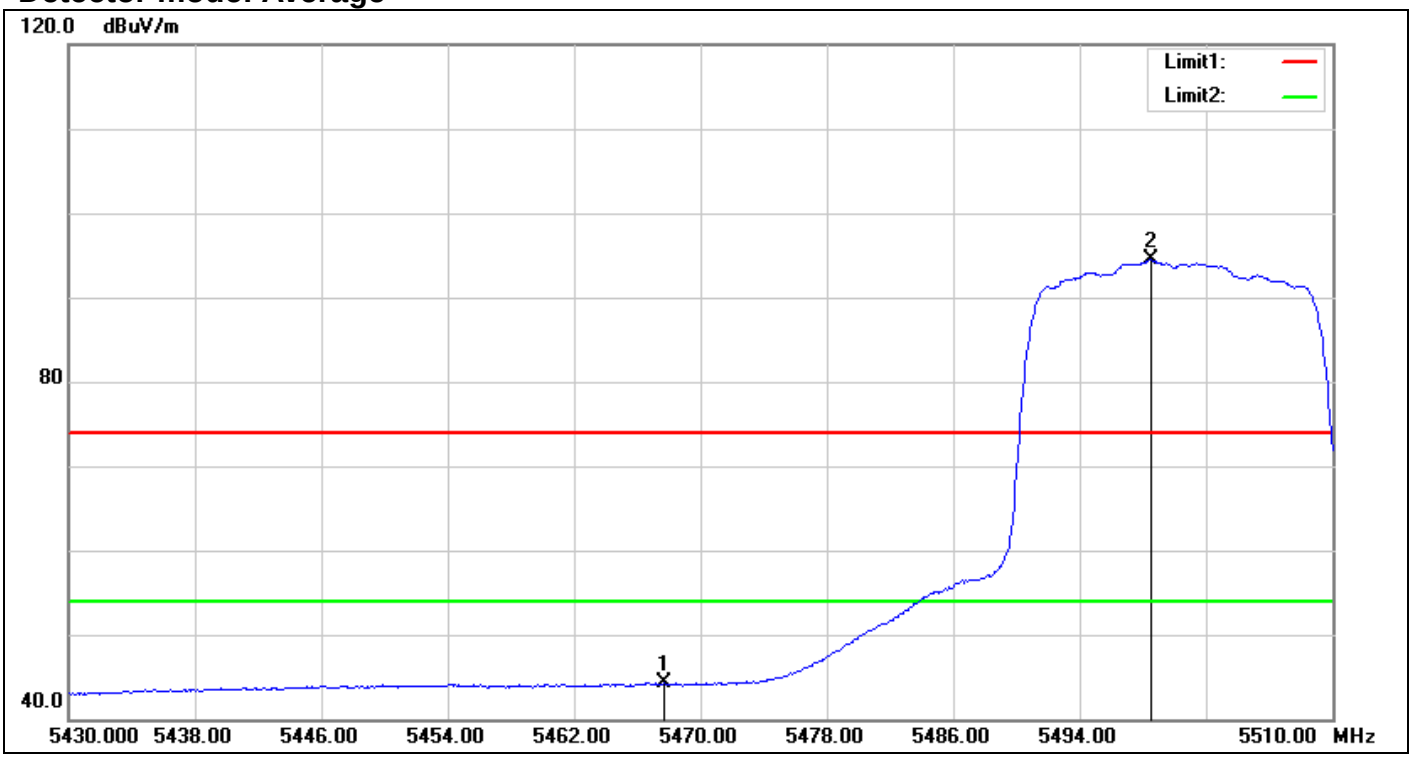
IEEE 802.11n HT20 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5470.000	51.02	5.39	56.41	74.00	-17.59	137		peak
2	5498.720	98.85	5.26	104.11	74.00	30.11	150	203	peak

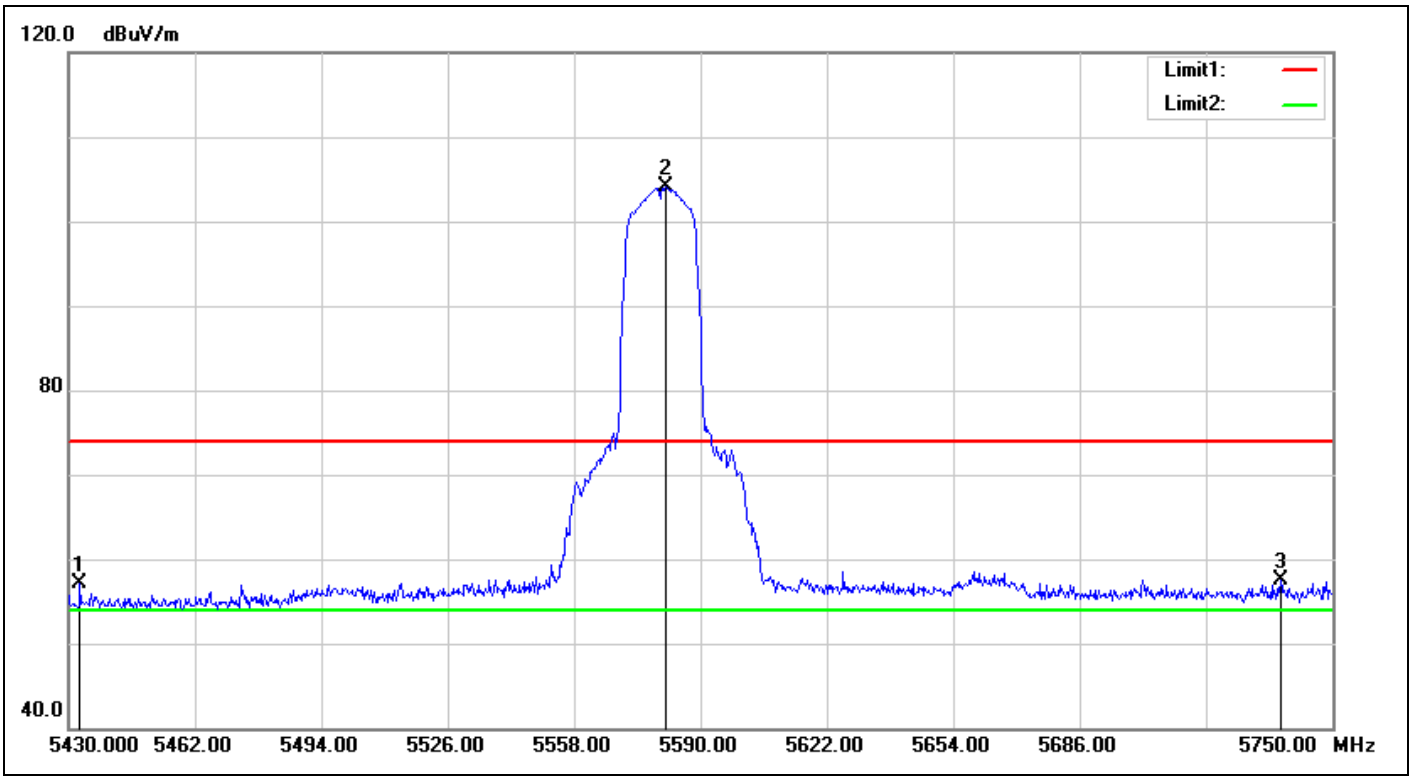
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5467.680	38.87	5.40	44.27	54.00	-9.73	150	137	AVG
2	5498.560	89.19	5.26	94.45	54.00	40.45	150	203	AVG

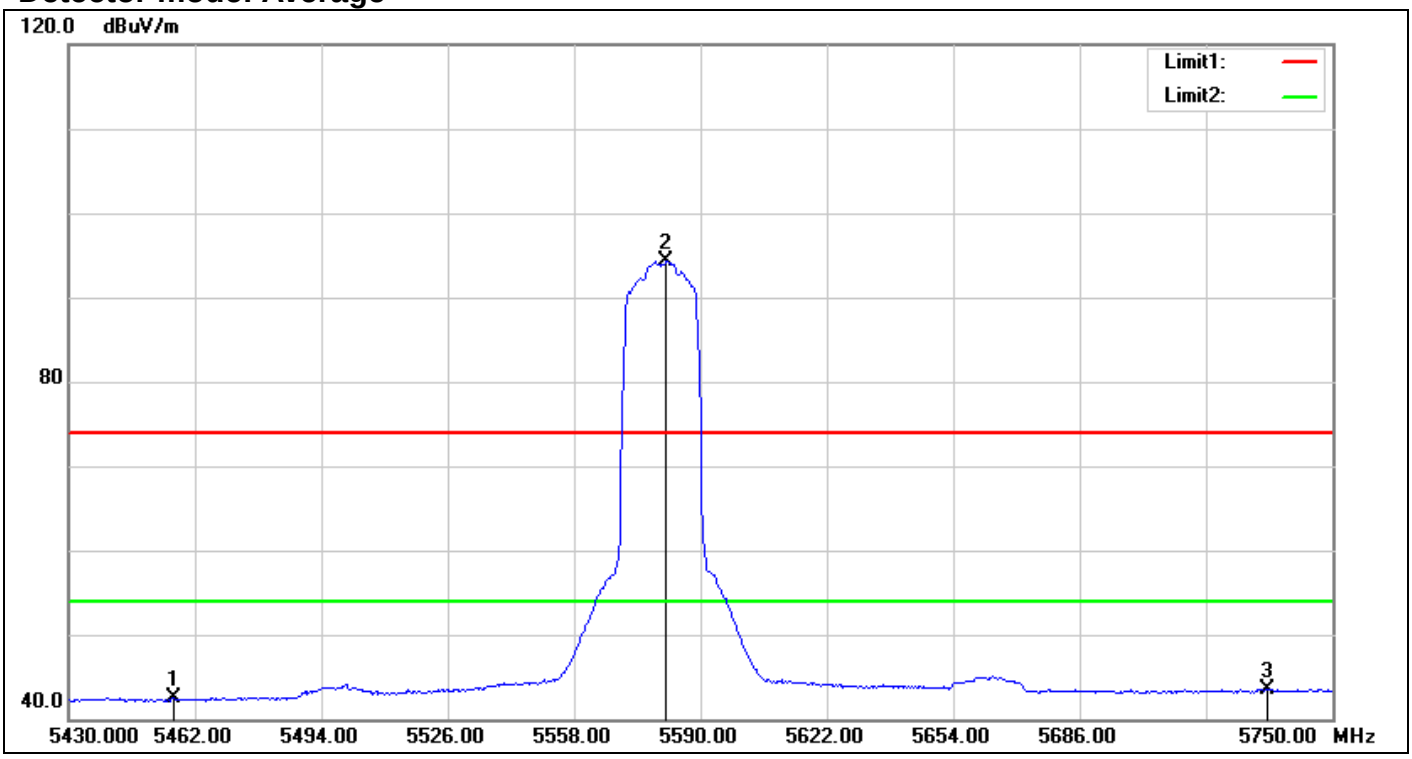
IEEE 802.11n HT20 MHz Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	5432.880	51.45	5.57	57.02	74.00	-16.98	150	23	peak
2	5581.360	98.48	5.60	104.08	74.00	30.08	150	217	peak
3	5736.880	51.22	6.26	57.48	74.00	-16.52	150	357	peak

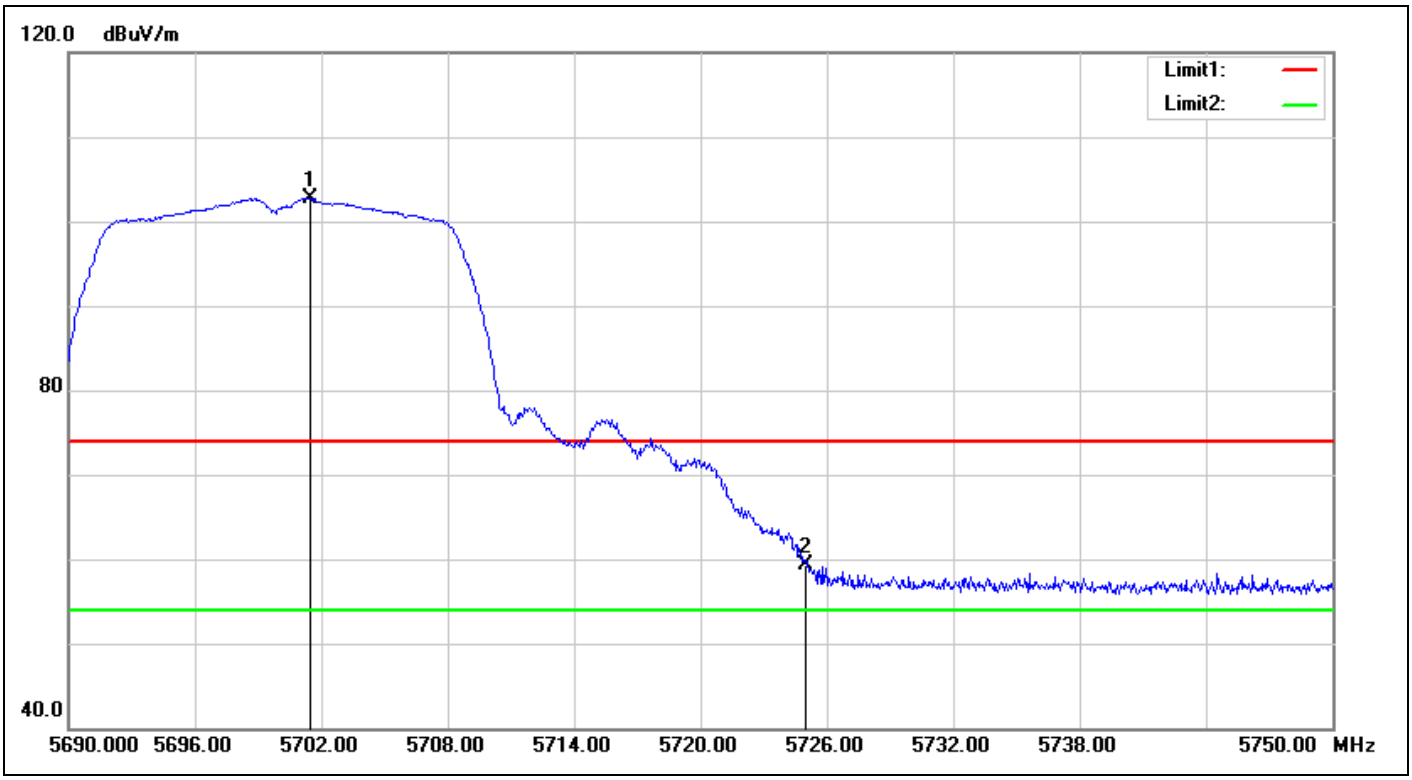
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	5456.560	37.03	5.45	42.48	54.00	-11.52	150	222	AVG
2	5581.360	88.61	5.60	94.21	54.00	40.21	150	217	AVG
3	5733.360	37.28	6.24	43.52	54.00	-10.48	150	357	AVG

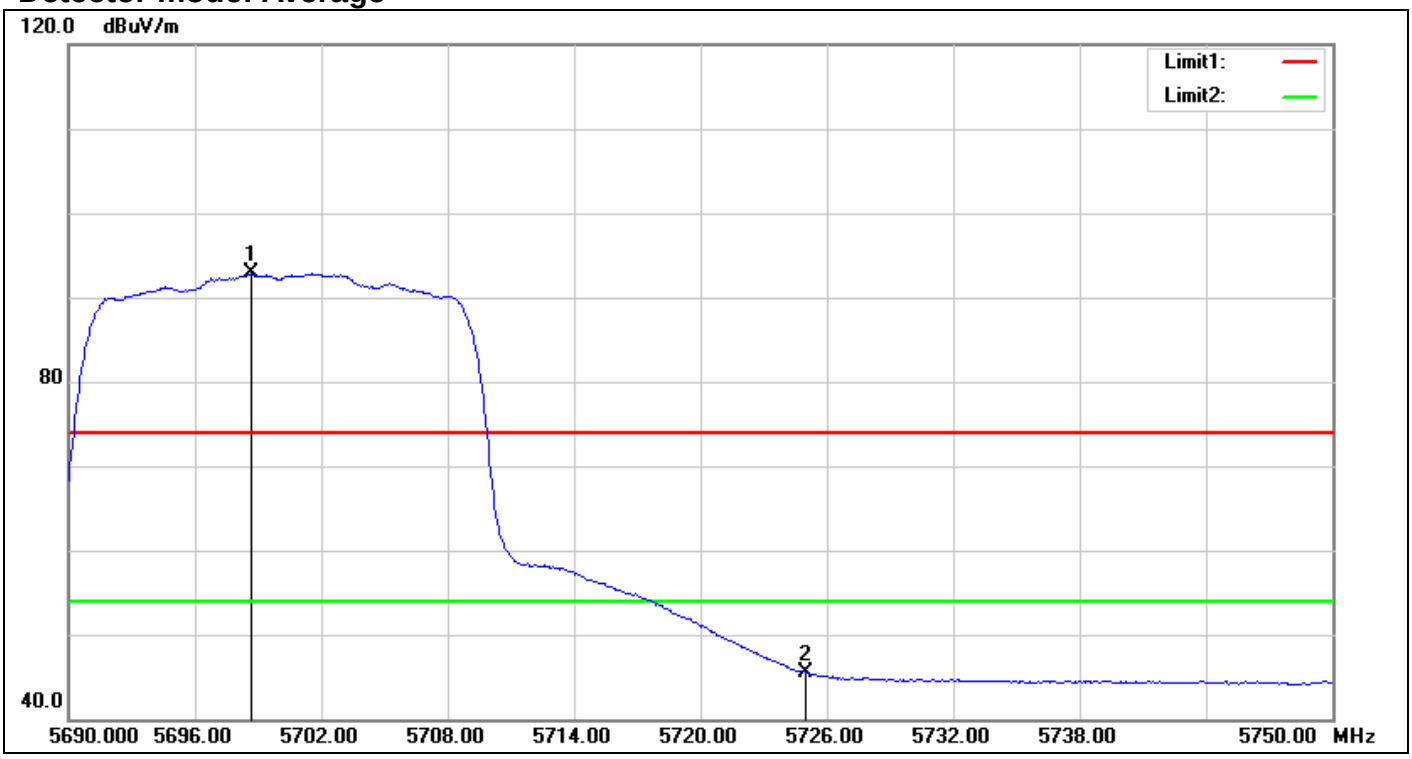
IEEE 802.11n HT20 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5701.460	96.66	6.11	102.77	74.00	28.77	peak
2	5725.000	53.06	6.21	59.27	74.00	-14.73	peak

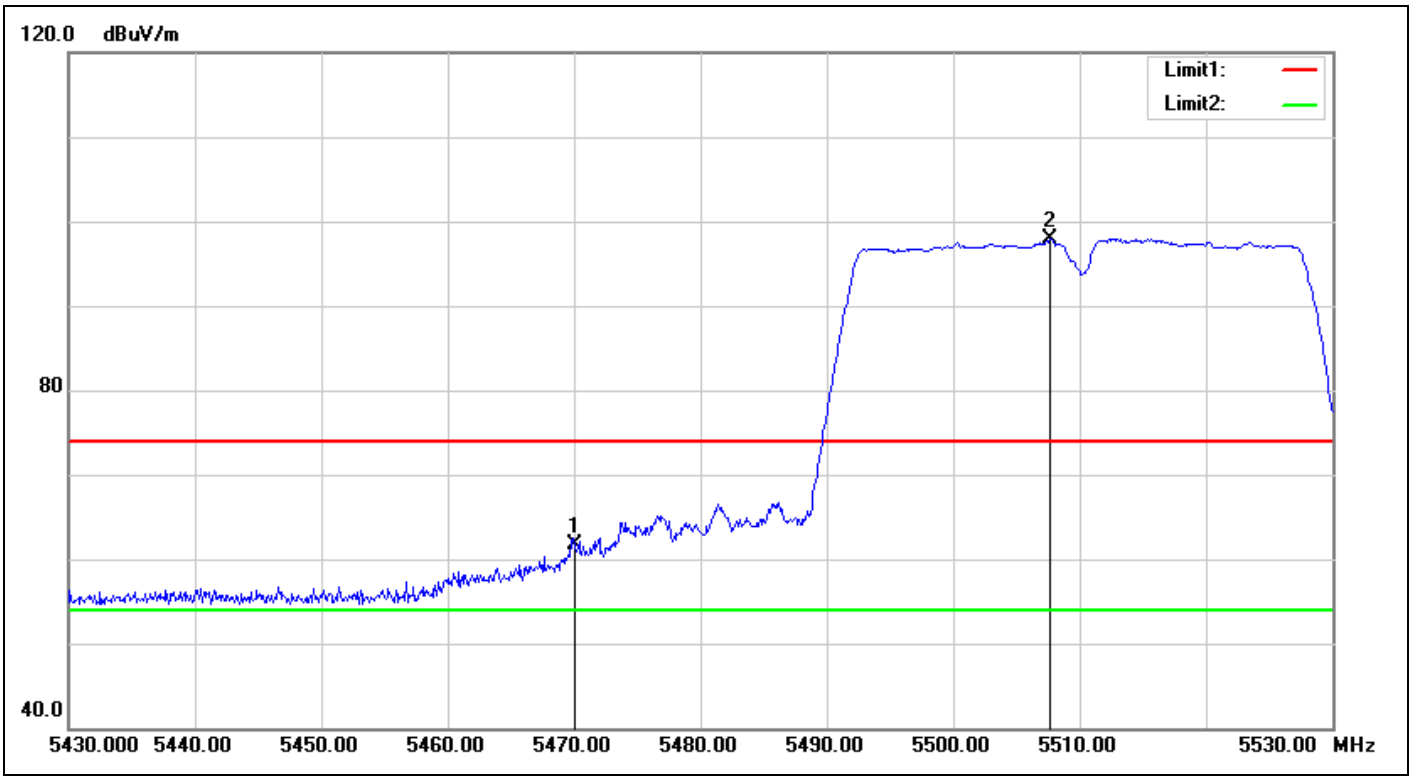
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5698.640	86.72	6.10	92.82	54.00	38.82	AVG
2	5725.000	39.27	6.21	45.48	54.00	-8.52	AVG

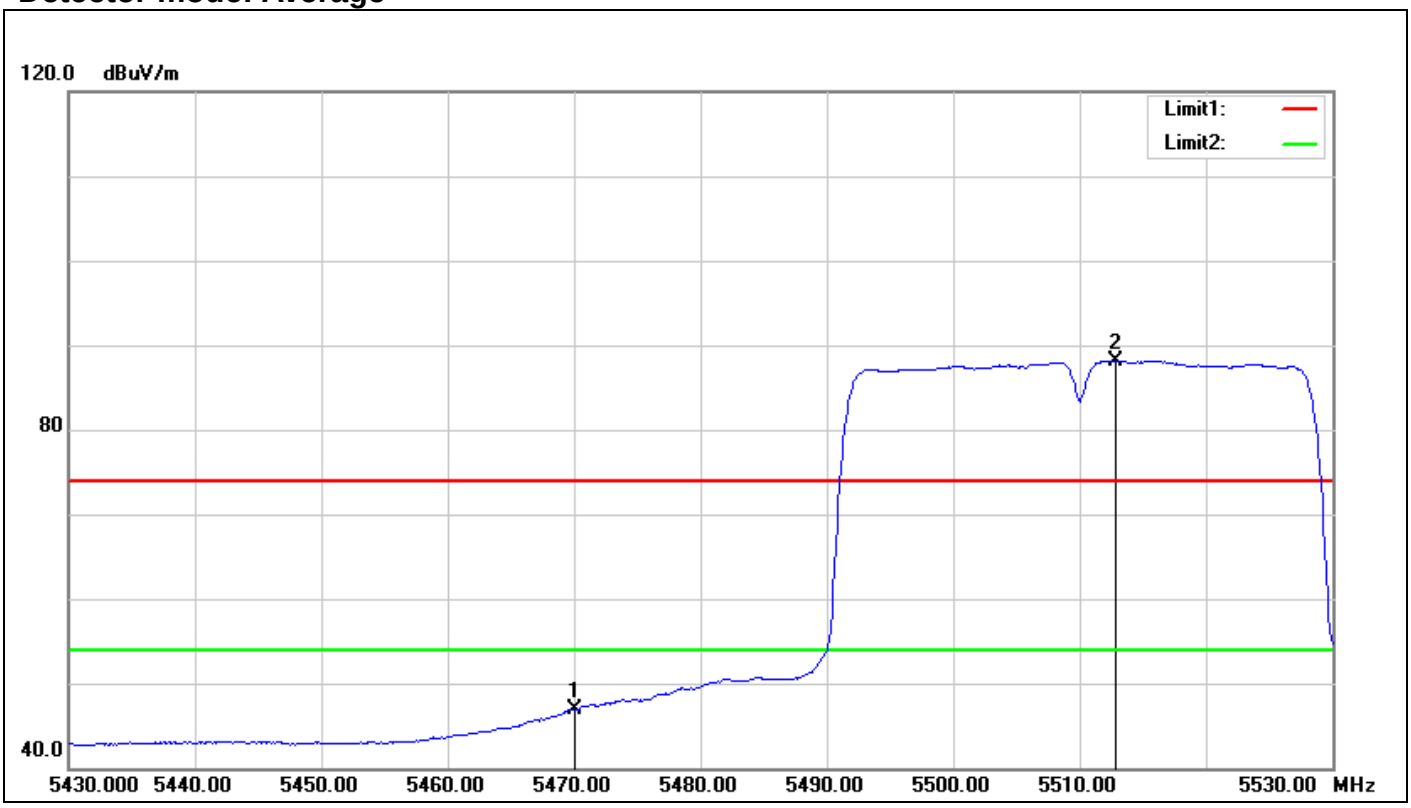
IEEE 802.11n HT40 MHz Mode / CH Low

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5470.000	56.25	5.39	61.64	74.00	-12.36	peak
2	5507.700	92.70	5.28	97.98	74.00	23.98	peak

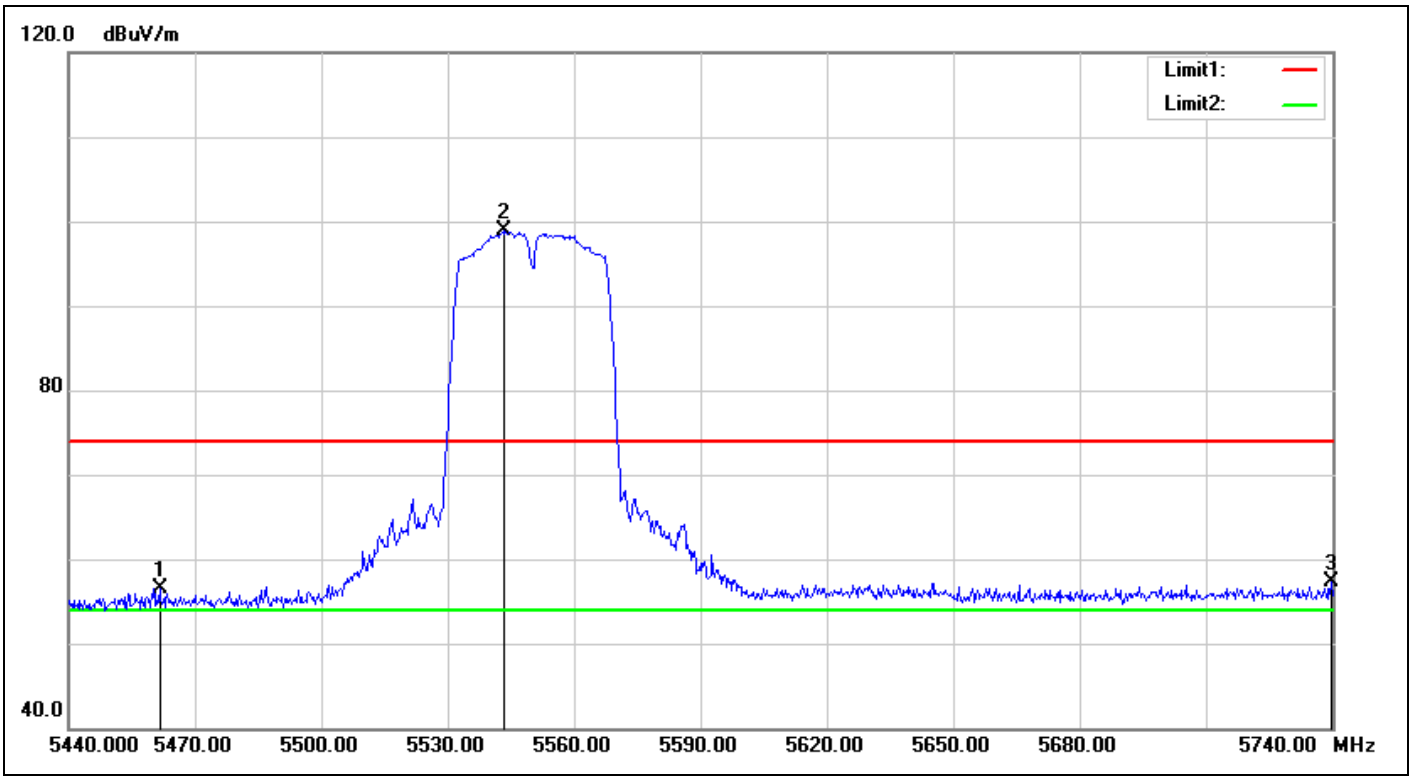
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5470.000	41.52	5.39	46.91	54.00	-7.09	AVG
2	5512.800	82.88	5.30	88.18	54.00	34.18	AVG

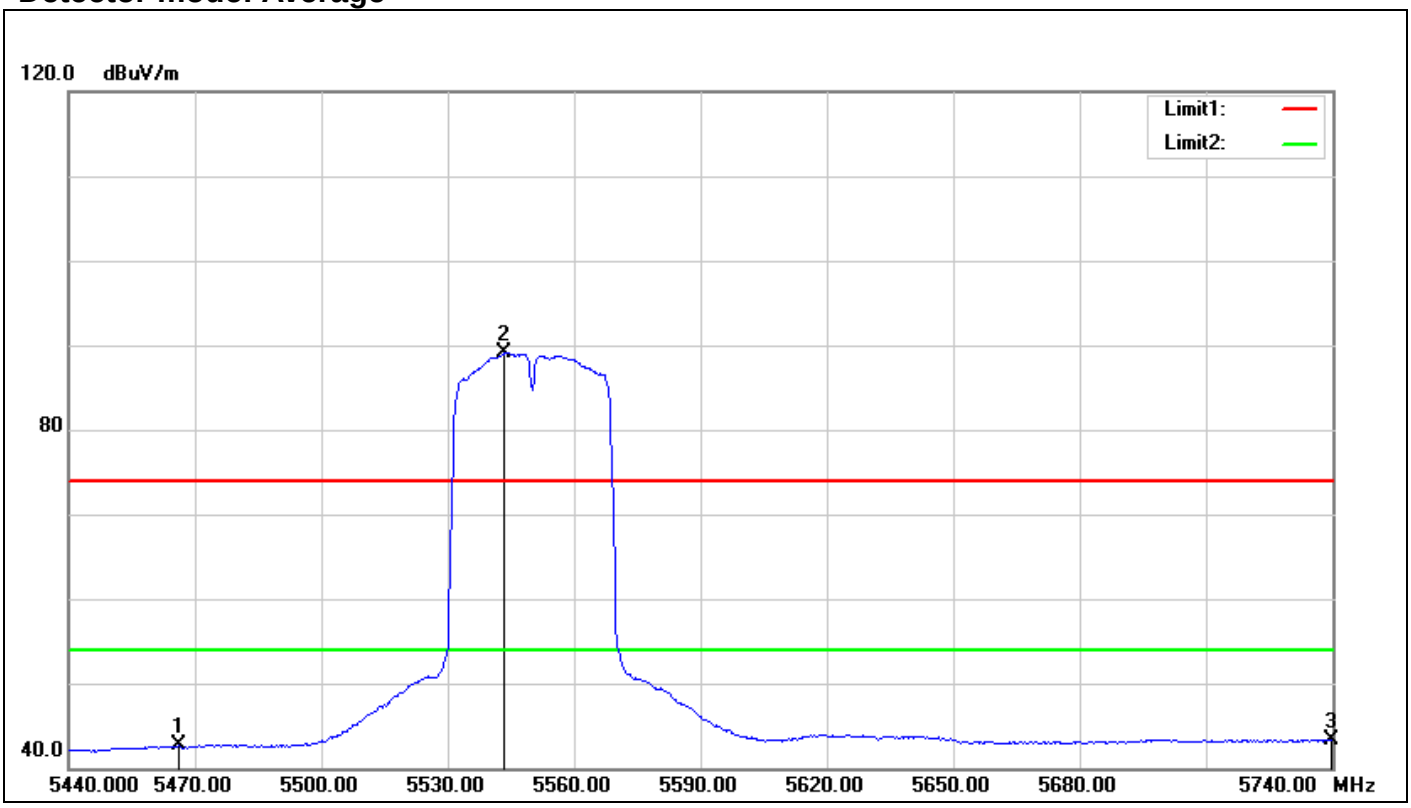
IEEE 802.11n HT40 MHz Mode / CH Mid

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5461.600	51.12	5.43	56.55	74.00	-17.45	peak
2	5543.200	93.38	5.43	98.81	74.00	24.81	peak
3	5739.700	51.07	6.27	57.34	74.00	-16.66	peak

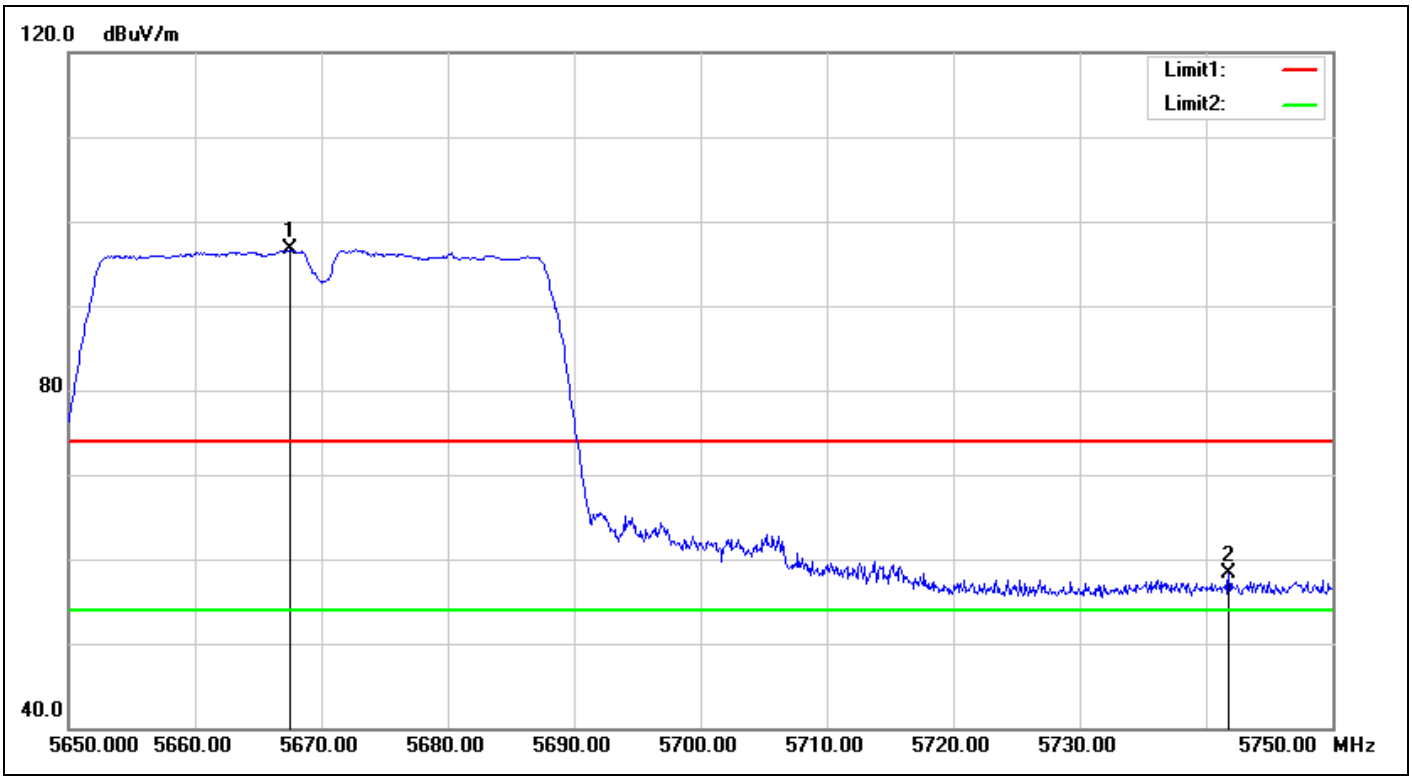
Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5466.100	37.22	5.41	42.63	54.00	-11.37	AVG
2	5543.500	83.67	5.44	89.11	54.00	35.11	AVG
3	5739.700	37.03	6.27	43.30	54.00	-10.70	AVG

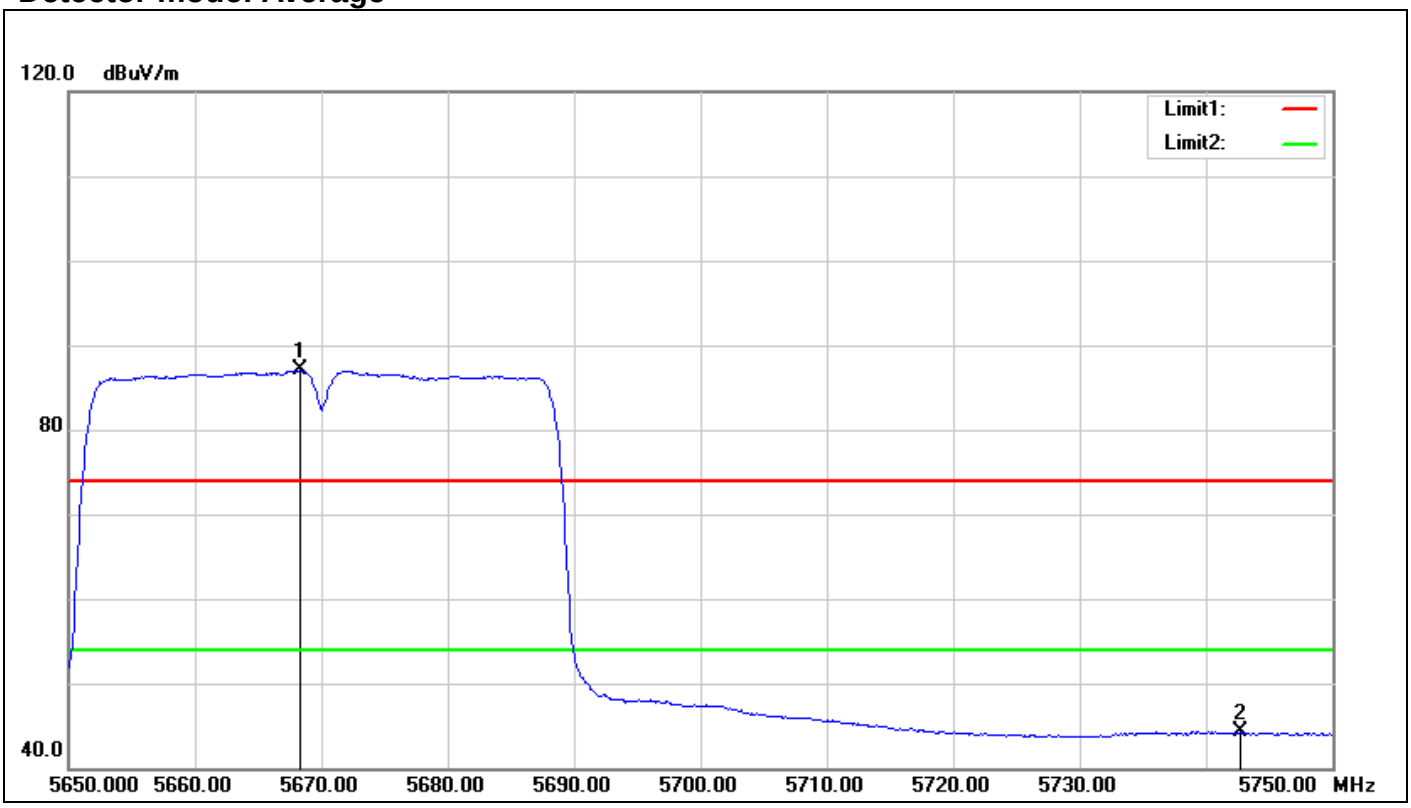
IEEE 802.11n HT40 MHz Mode / CH High

Detector mode: Peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5667.500	90.71	5.96	96.67	74.00	22.67	peak
2	5741.800	52.02	6.28	58.30	74.00	-15.70	peak

Detector mode: Average



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5668.300	81.06	5.97	87.03	54.00	33.03	AVG
2	5742.700	37.96	6.28	44.24	54.00	-9.76	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.

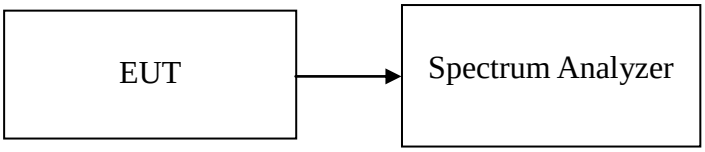
According to RSS-247,

(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)	Result
Low	5180	6.70	11.00	PASS
Mid	5220	6.38	11.00	PASS
High	5240	6.61	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5180	7.03	11.00	PASS
Mid	5220	7.02	11.00	PASS
High	5240	7.04	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5190	6.51	11.00	PASS
High	5230	6.03	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5260	7.16	11.00	PASS
Mid	5280	7.03	11.00	PASS
High	5320	6.99	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5260	7.28	11.00	PASS
Mid	5280	7.25	11.00	PASS
High	5320	6.66	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5270	7.25	11.00	PASS
High	5310	7.02	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5500	7.00	11.00	PASS
Mid	5580	6.71	11.00	PASS
High	5700	6.79	11.00	PASS

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

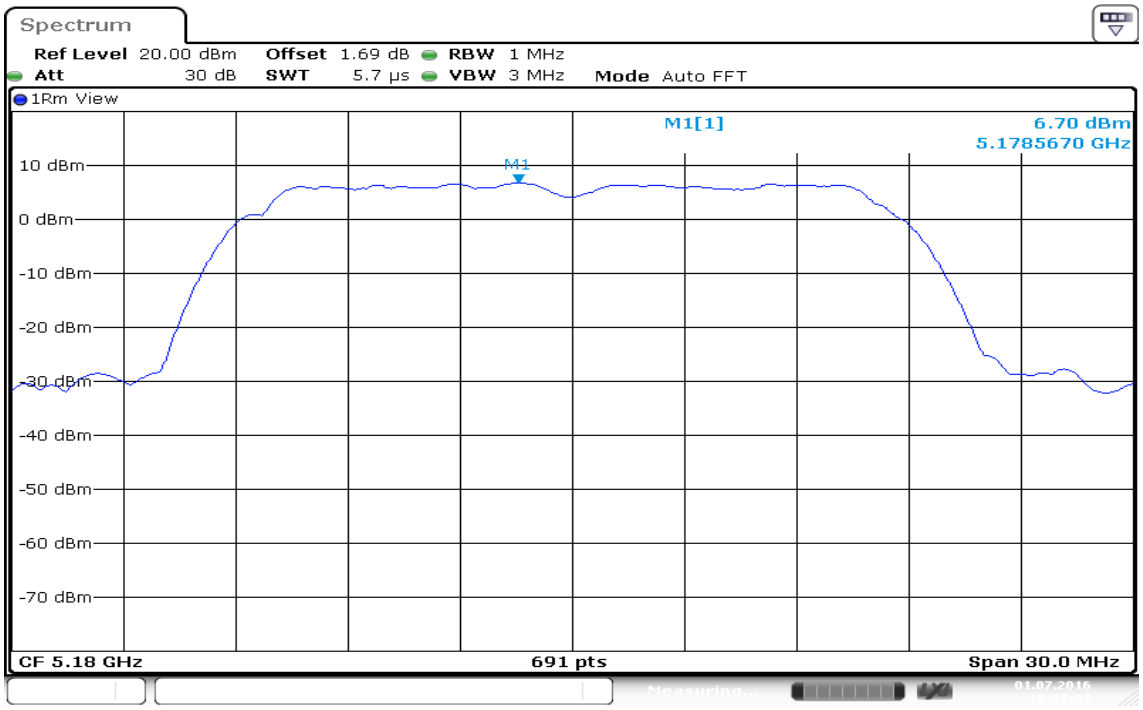
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5500	7.54	11.00	PASS
Mid	5580	7.24	11.00	PASS
High	5700	6.94	11.00	PASS

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

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Result
Low	5510	4.52	11.00	PASS
Mid	5550	5.77	11.00	PASS
High	5670	3.58	11.00	PASS

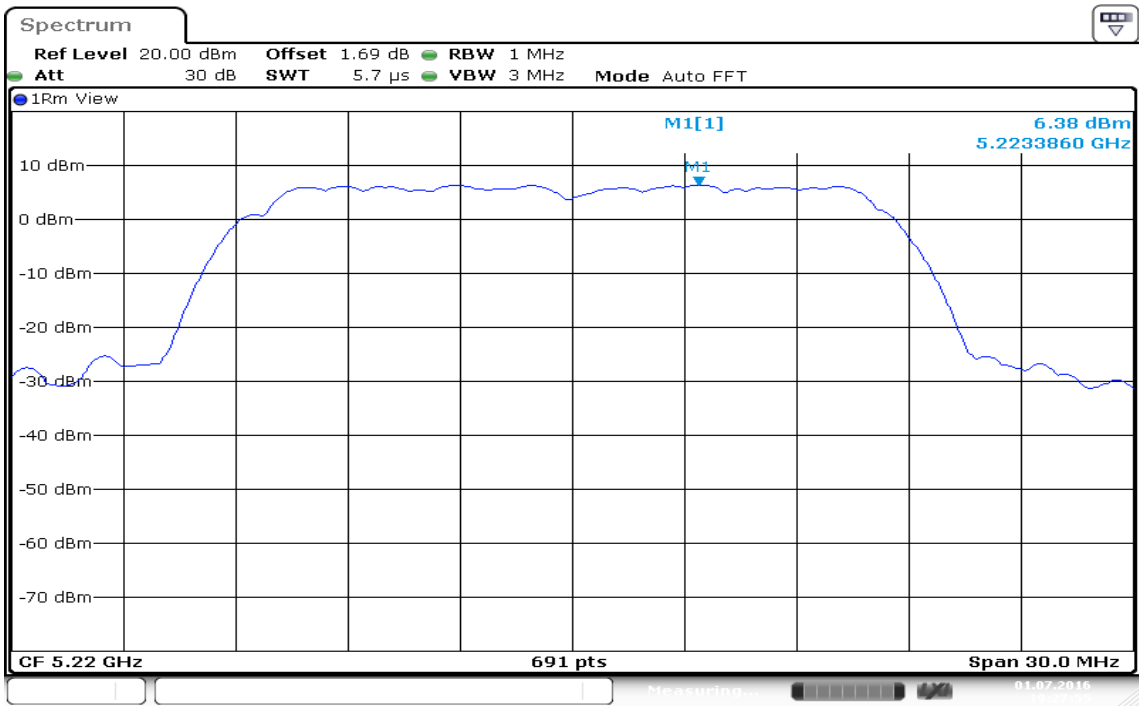
Test Plot
IEEE 802.11a mode / 5180 ~ 5240MHz

CH Low



Date: 1.JUL.2016 19:27:03

CH Mid



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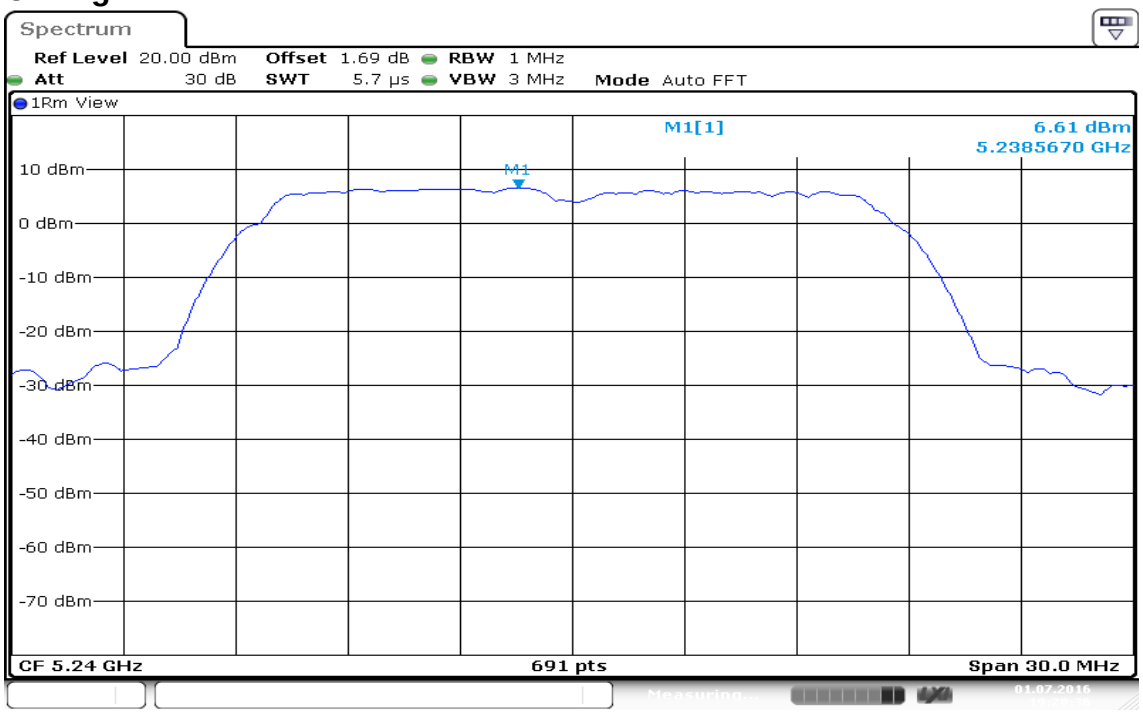
CH High



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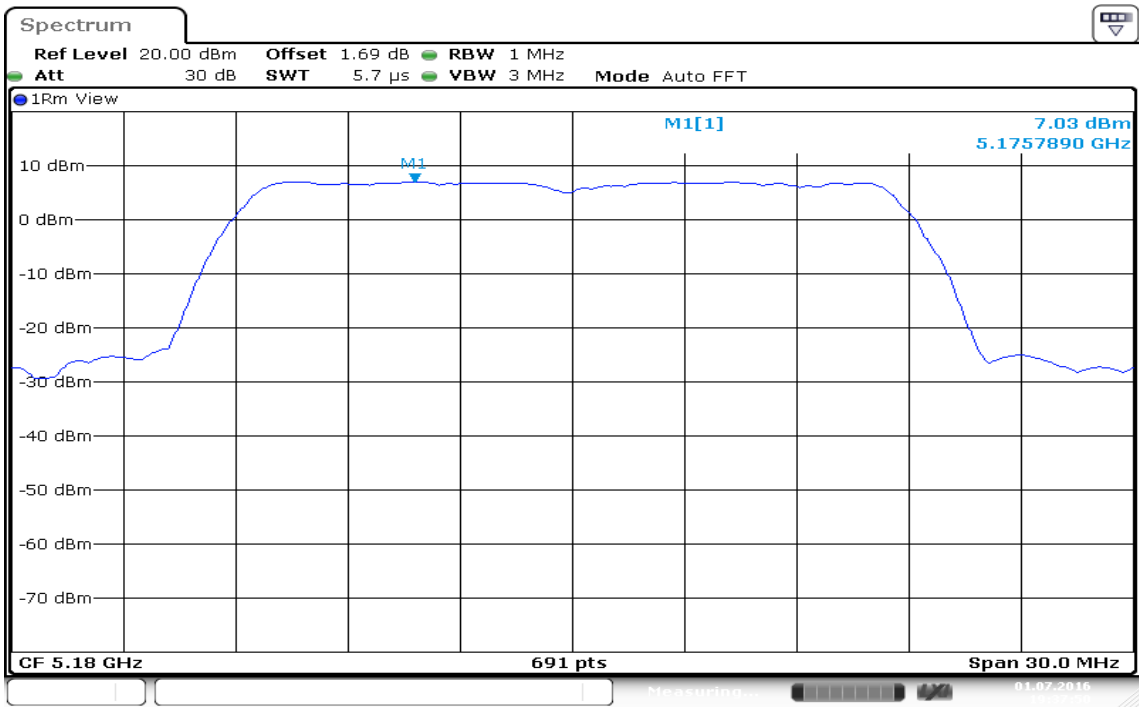
IEEE 802.11n HT 20 MHz mode / 5180 ~ 5240MHz

CH Low



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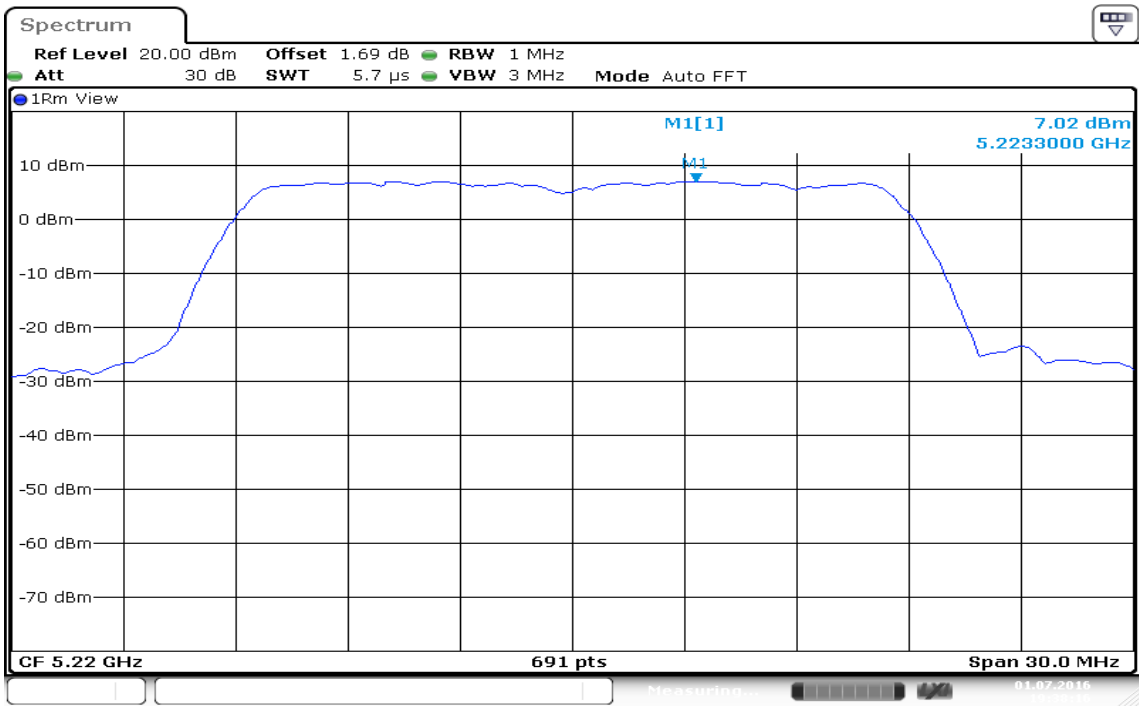
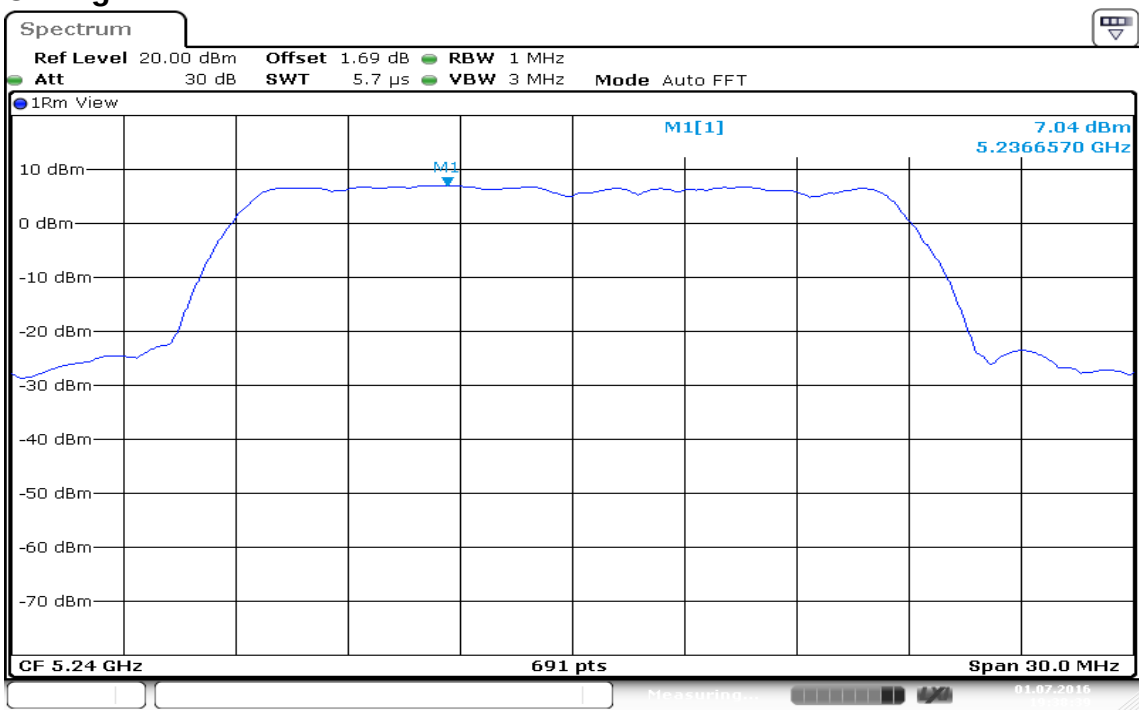
CH Mid



Date: 1.JUL.2016 19:38:16

CH High



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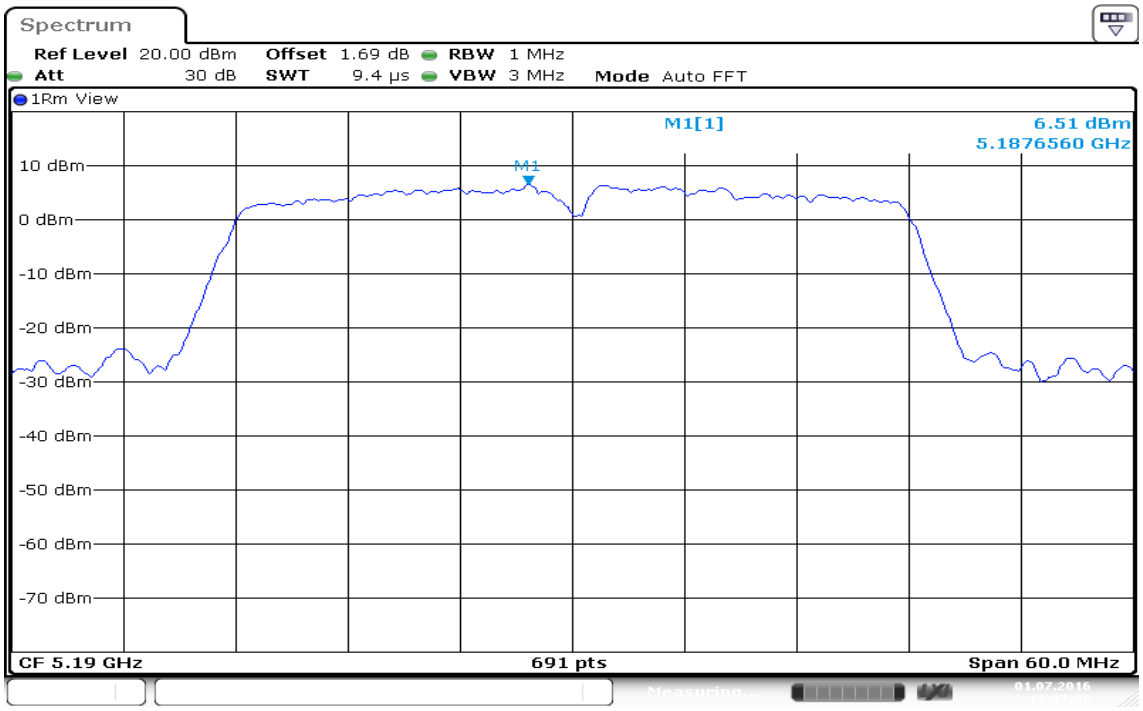
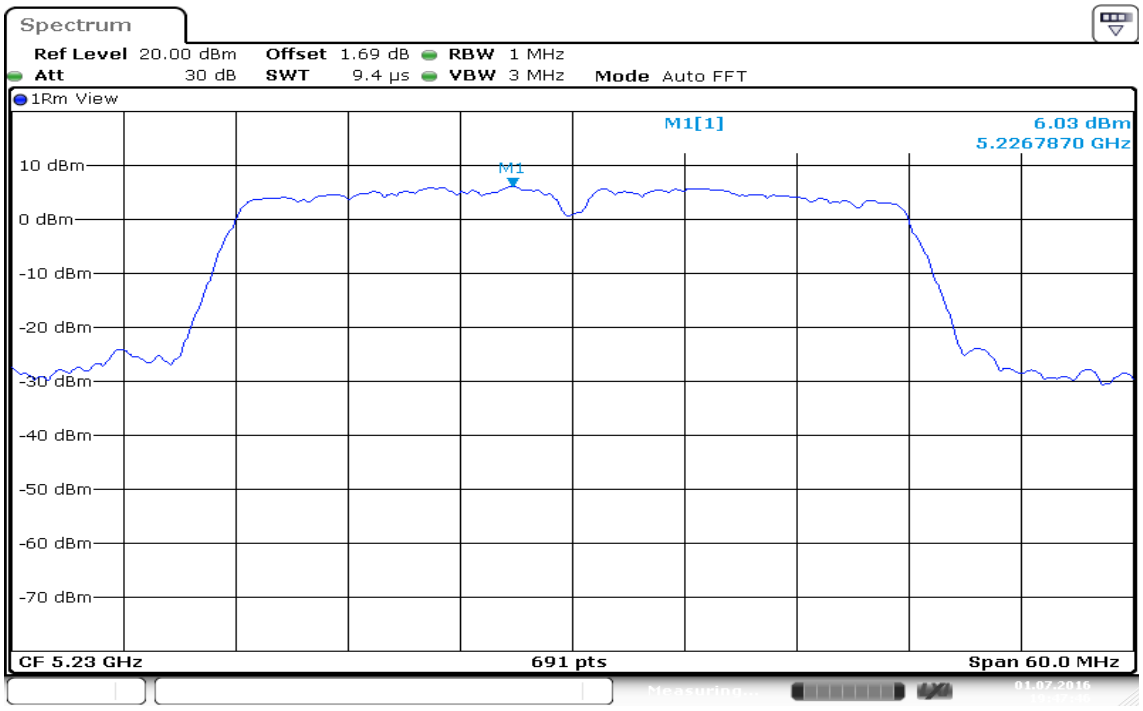
IEEE 802.11n HT 40 MHz mode / 5190 ~ 5230MHz

CH Low



Date: 1.JUL.2016 19:47:06

CH High



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