



No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053
Fax: +86 (0) 755 2671 0594
Email: ee.shenzhen@sgs.com

Report No.: HR/2018/B000303
Page: 1 of 206

FCC TEST REPORT

Application No: HR/2018/B0003
Applicant: Huawei Technologies Co.,Ltd
Address of Applicant: Administration Buliding Headquarters of Huawei Technologies Co.,Ltd.Bantian,longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
Manufacturer: Huawei Technologies Co.,Ltd
Address of Manufacturer: Administration Buliding Headquarters of Huawei Technologies Co.,Ltd.Bantian,longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
EUT Description: Mobile WiFi
Model No.: HW-01L
Trade Mark: HUAWEI
FCC ID: QISHW-01L
Standards: 47 CFR FCC Part 2, Subpart J
47 CFR Part 15, Subpart C
KDB558074 D01 15.247 Meas Guidance v05
Test Method ANSI C63.4
ANSI C63.10
Date of Receipt: 2018/11/8
Date of Test: 2018/11/8 to 2018/11/29
Date of Issue: 2018/12/11

Test Result:	PASS *
---------------------	---------------

. * In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Derek Yang

Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2018/12/11		Original

Authorized for issue by:				
Tested By		 <hr/> (Mike Hu) /Project Engineer		2018/12/11
				<hr/> Date
Checked By		 <hr/> (David Chen) /Reviewer		2018/12/11
				<hr/> Date



2 Test Summary

Test Item	Test Requirement	Test method	Test Result	Result
AC Power Line Conducted Emission	15.207	ANSI C63.10 2013	Clause 4.2	PASS
Duty Cycle	--	--	Clause 4.3	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10 2013	Clause 4.4	PASS
DTS (6 dB) Bandwidth & 99% Occupied Bandwidth	15.247 (a)(2)	ANSI C63.10 2013	Clause 4.5	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10 2013	Clause 4.6	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.7	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10 2013	Clause 4.8	PASS
Radiated Spurious Emissions	15.247(d) ;15.205/15.209	ANSI C63.10 2013	Clause 4.9	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d) ;15.205/15.209	ANSI C63.10 2013	Clause 4.10	PASS



Contents

1	VERSION.....	2
2	TEST SUMMARY.....	3
3	GENERAL INFORMATION.....	5
3.1	CLIENT INFORMATION.....	5
3.2	TEST LOCATION.....	5
3.3	TEST FACILITY.....	5
3.4	GENERAL DESCRIPTION OF EUT.....	6
3.5	TEST ENVIRONMENT AND MODE.....	7
3.6	DESCRIPTION OF SUPPORT UNITS.....	7
4	TEST RESULTS AND MEASUREMENT DATA.....	8
4.1	ANTENNA REQUIREMENT.....	8
4.2	AC POWER LINE CONDUCTED EMISSIONS.....	9
4.3	DUTY CYCLE.....	13
4.3.1	Test Results.....	13
4.3.2	Test Plots.....	13
4.4	CONDUCTED OUTPUT POWER.....	21
4.4.1	Test Results.....	22
4.5	DTS (6 dB) BANDWIDTH & 99% OCCUPIED BANDWIDTH.....	23
4.5.1	Test Results.....	24
4.5.2	Test plots.....	25
4.6	POWER SPECTRAL DENSITY.....	67
4.6.1	Test Results.....	68
4.6.2	Test plots.....	69
4.7	BAND-EDGE FOR RF CONDUCTED EMISSIONS.....	90
4.7.1	Test plots.....	91
4.8	RF CONDUCTED SPURIOUS EMISSIONS.....	105
4.8.1	Test plots.....	106
4.9	RADIATED SPURIOUS EMISSIONS.....	127
4.9.1	Radiated emission below 1GHz.....	129
4.9.2	Transmitter emission above 1GHz.....	131
4.10	RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY.....	162
4.10.1	ANT1:.....	164
4.10.2	ANT2:.....	172
4.10.3	CDD & MIMO:.....	180
5	MEASUREMENT UNCERTAINTY (95% CONFIDENCE LEVELS, K=2).....	204
6	EQUIPMENT LIST.....	205
7	PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS.....	206



3 General Information

3.1 Client Information

Applicant:	Huawei Technologies Co.,Ltd
Address of Applicant:	Administration Buliding Headquarters of Huawei Technologies Co.,Ltd.Bantian,longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
Manufacturer:	Huawei Technologies Co.,Ltd
Address of Manufacturer:	Administration Buliding Headquarters of Huawei Technologies Co.,Ltd.Bantian,longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
Post code:	518057
Telephone:	+86 (0) 755 2601 2053
Fax:	+86 (0) 755 2671 0594
E-mail:	ee.shenzhen@sgs.com

3.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



3.4 General Description of EUT

EUT Description::	Mobile WiFi
Model No.:	HW-01L
Trade Mark:	HUAWEI
Hardware Version:	CL1SB08M01
Software Version:	8.0.1.31 (H60SP11C736)
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11B (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11G (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11N (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11N (40 MHz channel bandwidth)
Operation Frequency:	2400 MHz -2483.5MHz $f_c = 2407 \text{ MHz} + N * 5 \text{ MHz}$, where: - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth, or 3 to 9 for the 40 MHz channel bandwidth.
Type of Modulation:	IEEE for 802.11B: DSSS IEEE for 802.11G : OFDM IEEE for 802.11N(HT20 and HT20 MIMO) : OFDM IEEE for 802.11N(HT20 and HT40 MIMO) : OFDM
Sample Type:	<input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module
Antenna Type:	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated
Antenna Ports	<input checked="" type="checkbox"/> Ant 1, <input checked="" type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3
Smart System	<input checked="" type="checkbox"/> SISO (for 802.11B/G/N), <input checked="" type="checkbox"/> CDD (for 802.11G): 2 Tx, <input checked="" type="checkbox"/> MIMO (for 802.11N): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11B/G) : Tx & Rx
Antenna Gain:	ANT1: 2.8dBi, ANT2: 3.2dBi
Power Supply	<input type="checkbox"/> AC/DC Adapter; <input checked="" type="checkbox"/> Battery <input type="checkbox"/> PoE;; <input type="checkbox"/> Other:

Operation Frequency of each channel (802.11B/G/N HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		
Operation Frequency of each channel (802.11N HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency		
3	2422MHz	6	2437MHz	9	2452MHz		
4	2427MHz	7	2442MHz				
5	2432MHz	8	2447MHz				



Remark:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency for 802.11B/G/N (HT20)	Frequency for 802.11N (HT40)
The Lowest channel	2412MHz	2422MHz
The Middle channel	2437MHz	2437MHz
The Highest channel	2462MHz	2452MHz

3.5 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	101.30 KPa
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

3.6 Description of Support Units

The EUT has been tested independent unit.

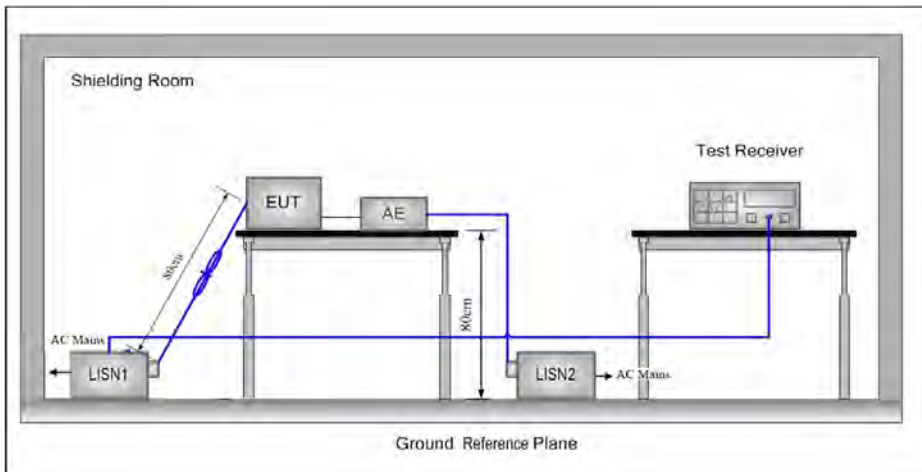


4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
<p>15.203 requirement:</p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(b) (4) requirement:</p> <p>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p>	
<p>The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is ANT1: 2.8dBi, ANT2: 3.2dBi.</p>	

4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 		
Test Setup:			



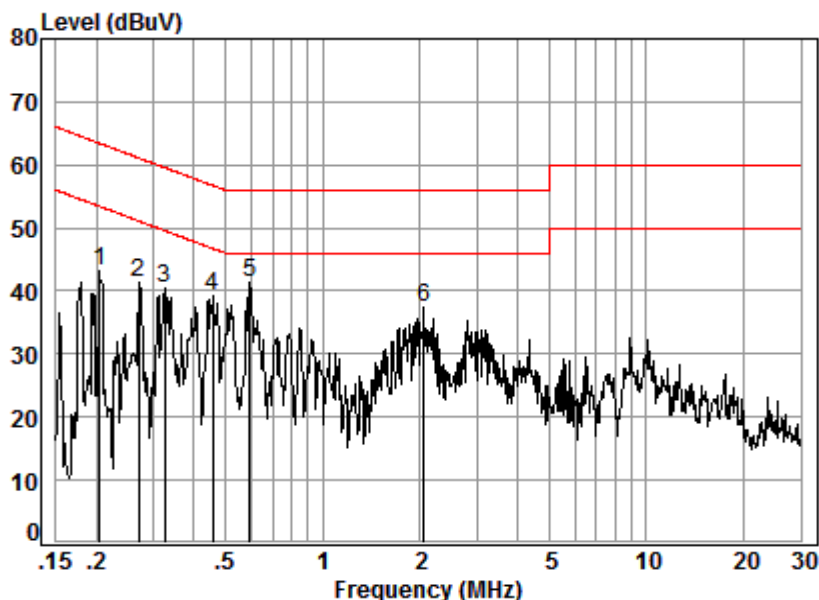
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the 1Mbps of rate of 802.11B at lowest channel is the worst case. Charge + Transmitting mode. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:



Site : Shielding Room

Condition: Line

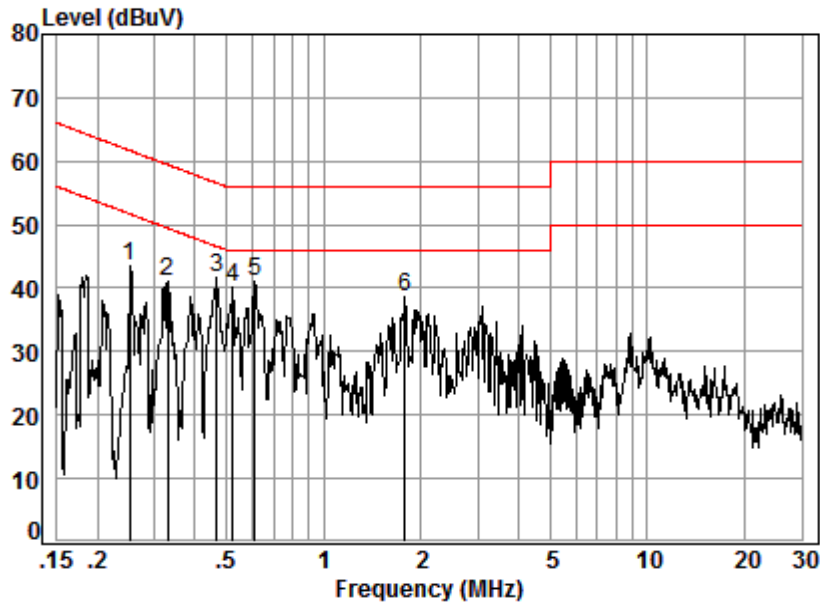
Job No. : B0003

Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20	0.02	9.66	33.45	43.13	53.45	-10.32	Peak
2	0.27	0.03	9.67	31.53	41.23	51.12	-9.89	Peak
3	0.33	0.04	9.67	30.77	40.48	49.57	-9.09	Peak
4	0.46	0.06	9.67	29.64	39.37	46.76	-7.39	Peak
5	0.59	0.07	9.67	31.68	41.42	46.00	-4.58	Peak
6	2.05	0.16	9.72	27.51	37.39	46.00	-8.61	Peak



Neutral Line:



Site : Shielding Room

Condition: Neutral

Job No. : B0003

Test mode: b

	Freq	Cable	LISN	Read	Level	Limit	Over	
	MHz	Loss	Factor	Level	Level	Line	Limit	Remark
		dB	dB	dBuV	dBuV	dBuV	dB	
1	0.25	0.03	9.64	33.70	43.37	51.69	-8.32	Peak
2	0.33	0.04	9.64	31.26	40.94	49.49	-8.55	Peak
3	0.47	0.06	9.64	31.89	41.59	46.54	-4.95	Peak
4	0.52	0.06	9.64	30.51	40.21	46.00	-5.79	Peak
5	0.61	0.07	9.64	31.36	41.07	46.00	-4.93	Peak
6	1.78	0.15	9.69	28.82	38.66	46.00	-7.34	Peak

Remarks:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



4.3 Duty Cycle

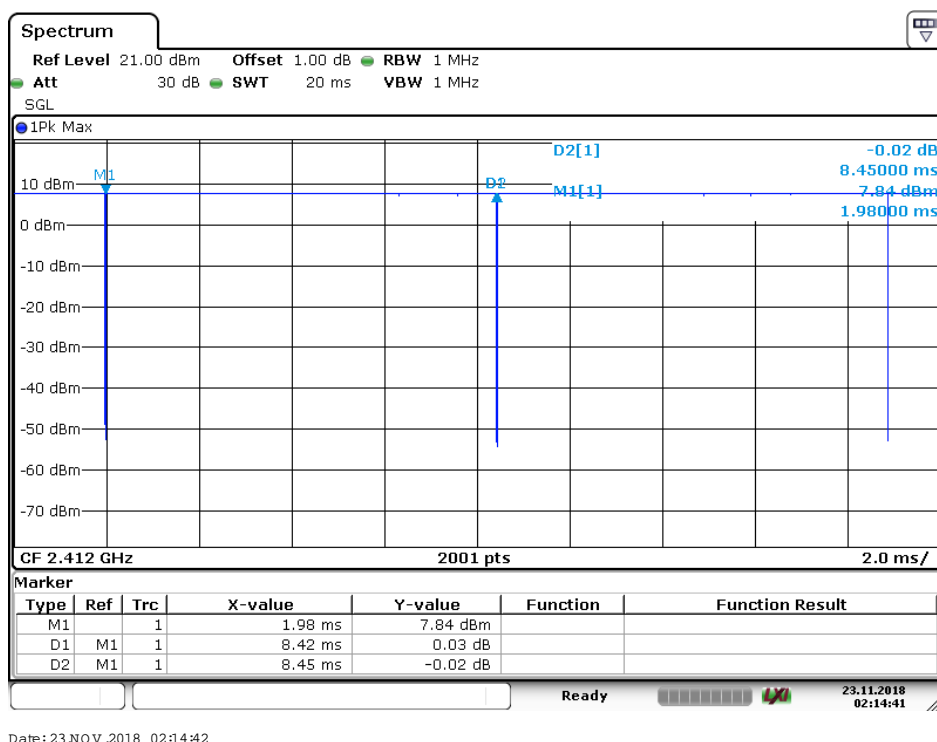
4.3.1 Test Results

Test Mode	TX Freq. [MHz]	Duty cycle [%]
11B	Ant 1: CH1	99.64
11G	Ant 1: CH1	98.73
11G_CDD	Ant 1: CH1	97.67
11N20	Ant 1: CH1	98.25
11N20_MIMO	Ant 1: CH1	97.16
11N40	Ant 1: CH3	90.74
11N40_MIMO	Ant 1: CH3	86.64
11B	Ant 2: CH1	99.64
11G	Ant 2: CH1	98.55
11G_CDD	Ant 2: CH1	98.37
11N20	Ant 2: CH1	98.25
11N20_MIMO	Ant 2: CH1	97.16
11N40	Ant 2: CH3	91.03
11N40_MIMO	Ant 2: CH3	86.82

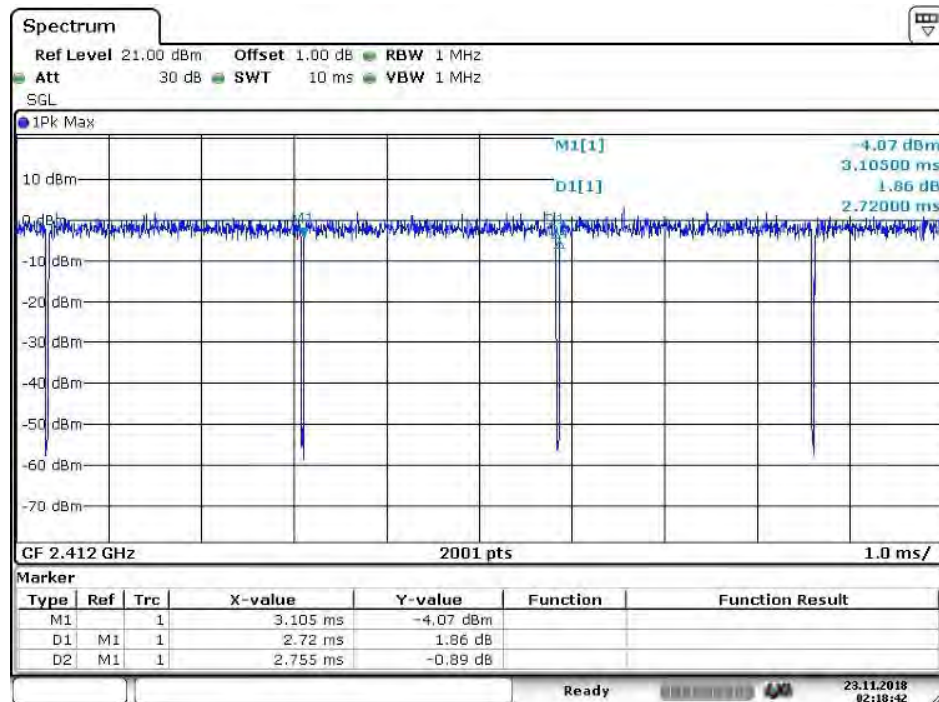
4.3.2 Test Plots

4.3.2.1 ANT1

4.3.2.1.1 11B

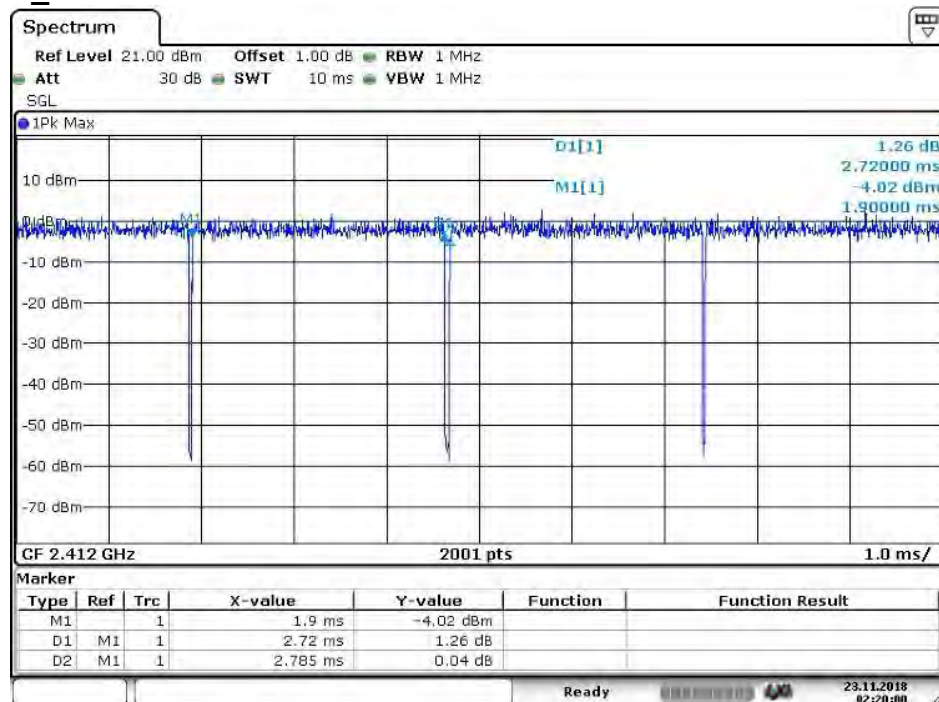


4.3.2.1.2 11G



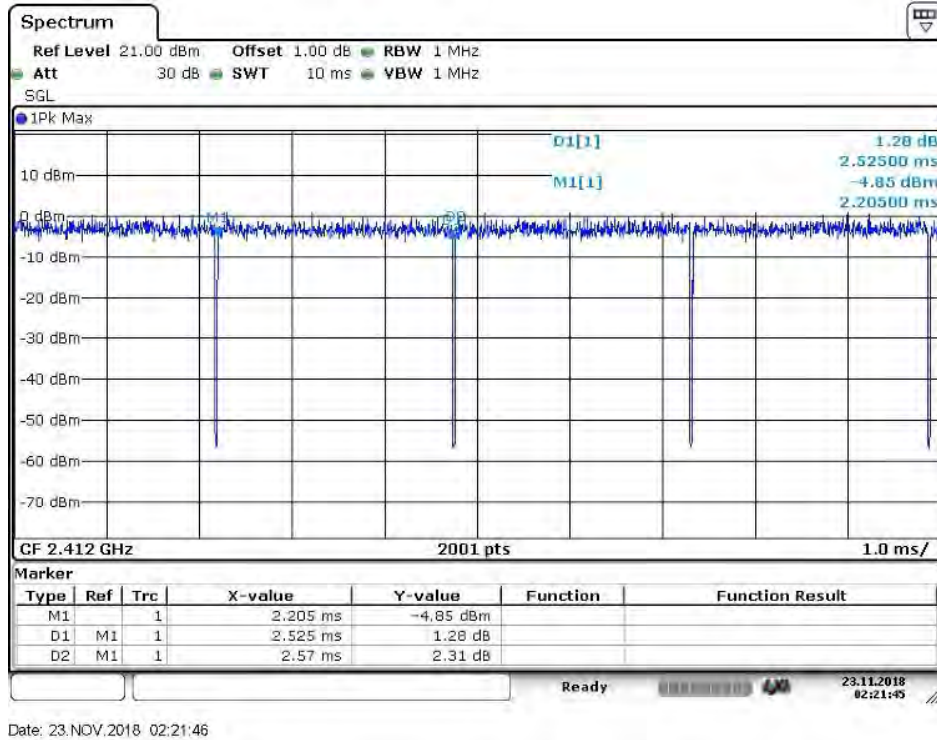
Date: 23.NOV.2018 02:18:43

4.3.2.1.3 11G_CDD

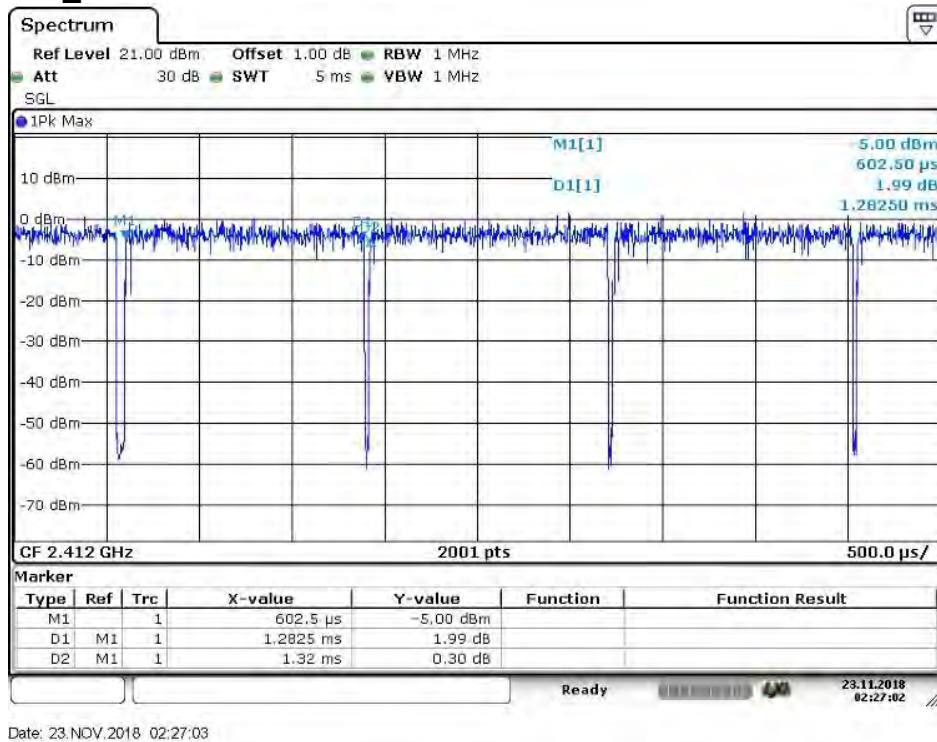


Date: 23.NOV.2018 02:20:00

4.3.2.1.4 11N20

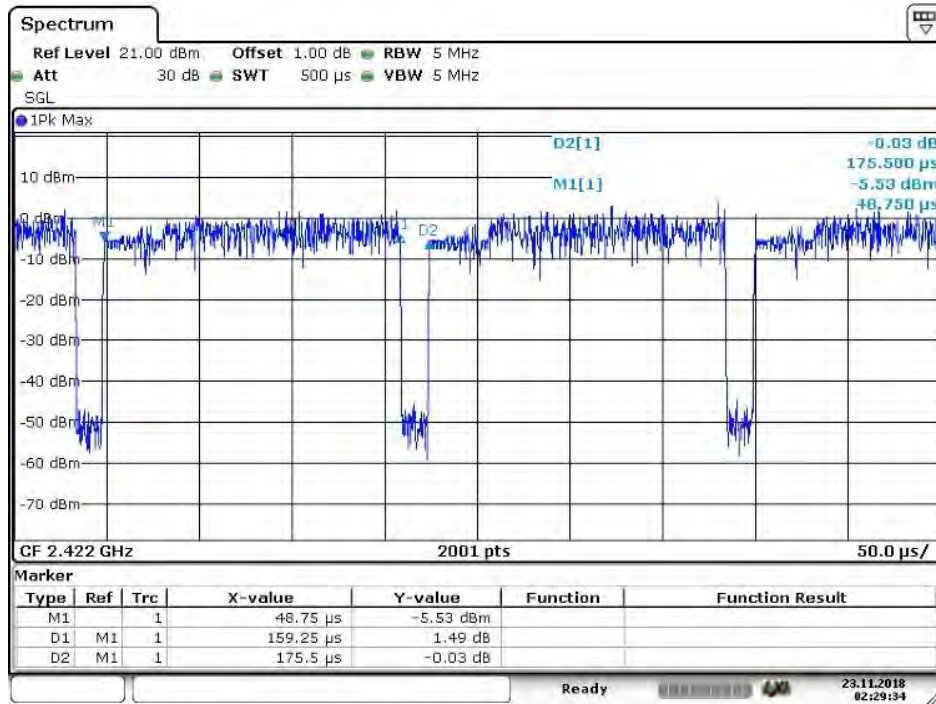


4.3.2.1.5 11N20_MIMO



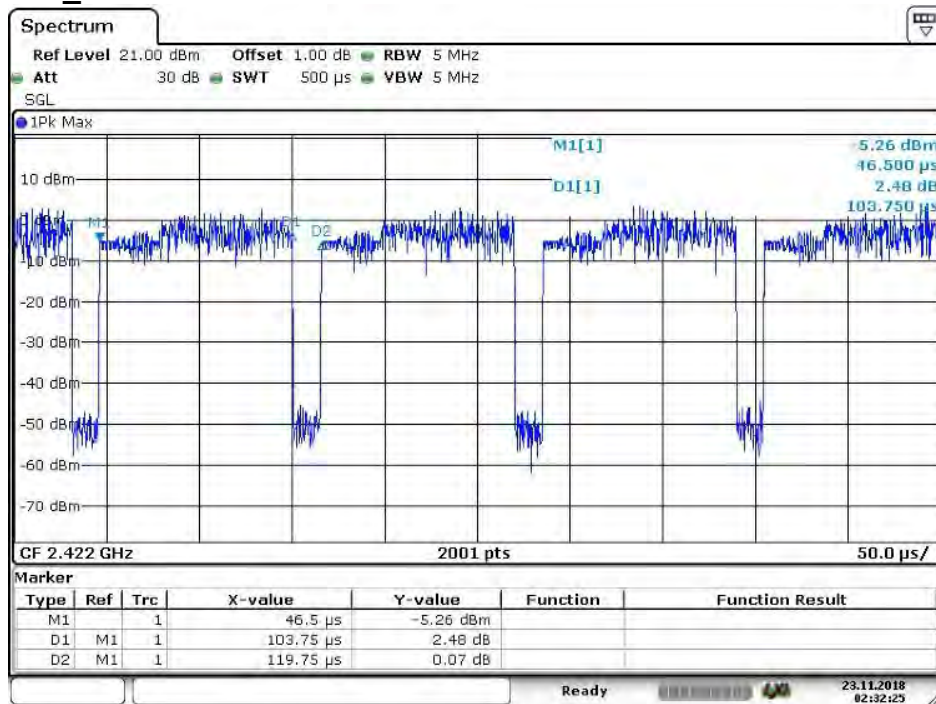


4.3.2.1.6 11N40



Date: 23.NOV.2018 02:28:35

4.3.2.1.7 11N40_MIMO

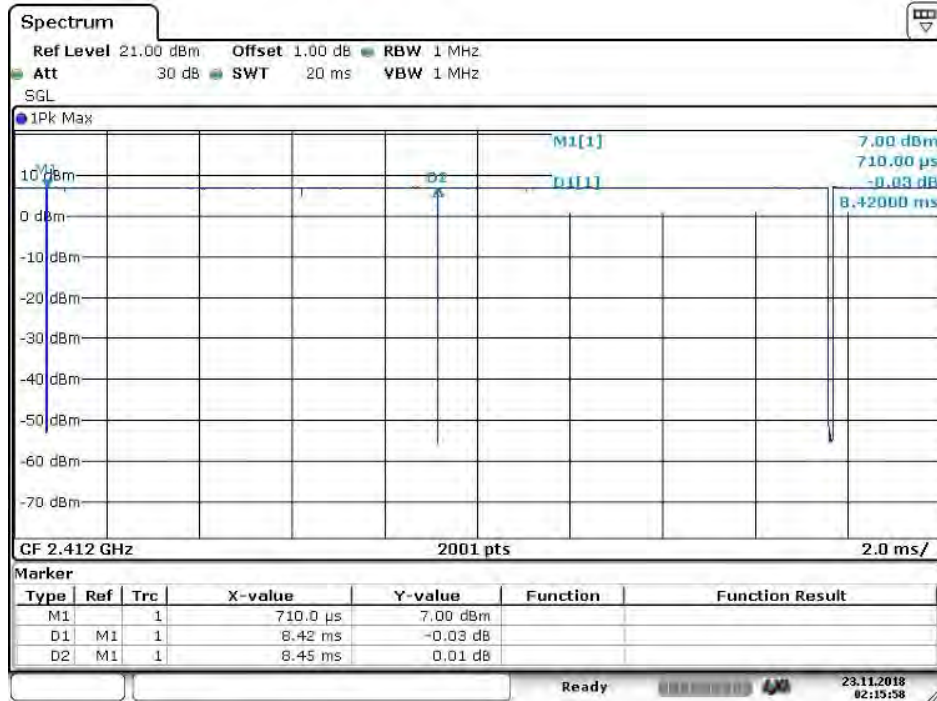


Date: 23.NOV.2018 02:32:25



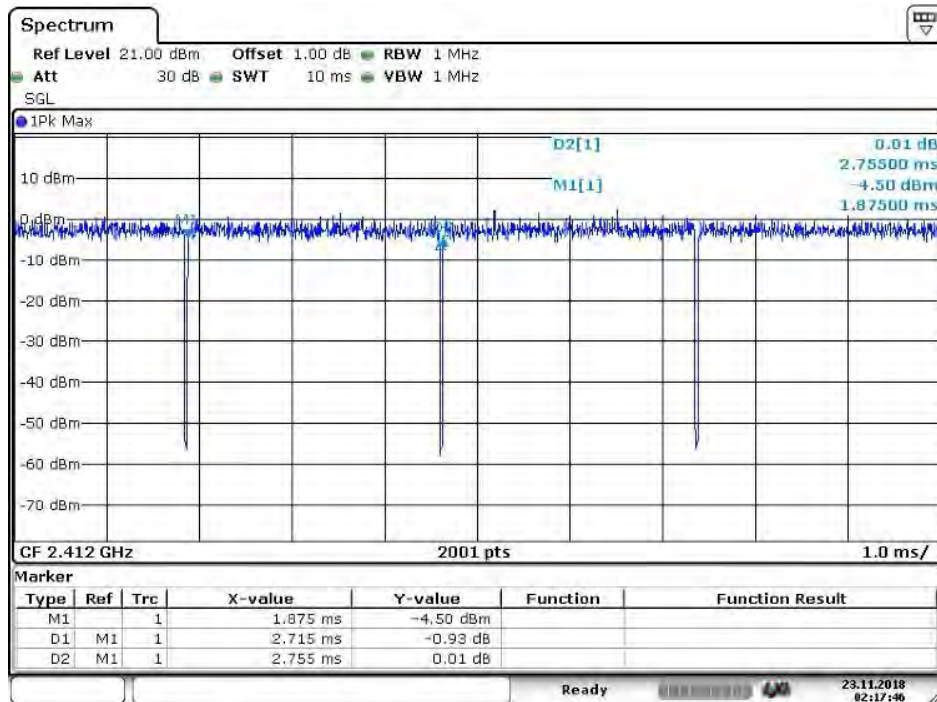
4.3.2.2 ANT2

4.3.2.2.1 11B



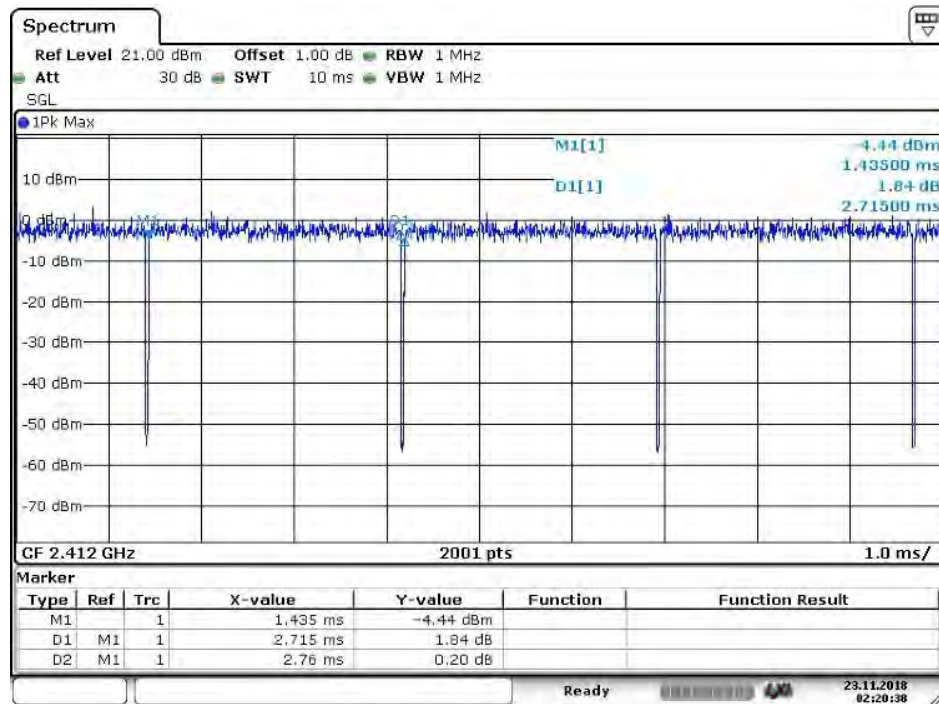
Date: 23.NOV.2018 02:15:58

4.3.2.2.2 11G



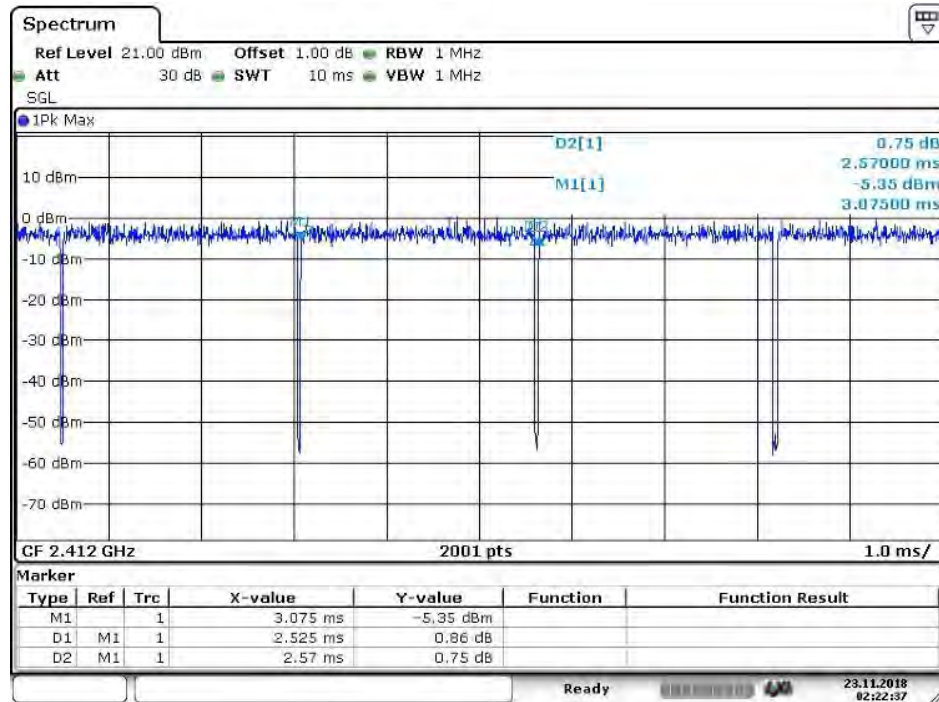
Date: 23.NOV.2018 02:17:46

4.3.2.2.3 11G_CDD



Date: 23.NOV.2018 02:20:39

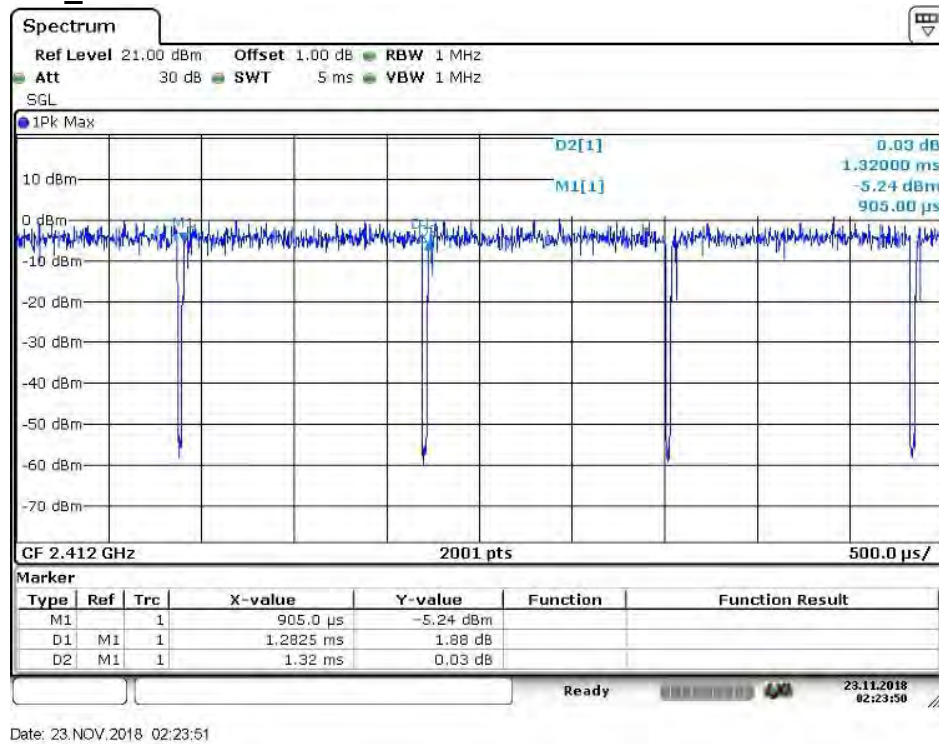
4.3.2.2.4 11N20



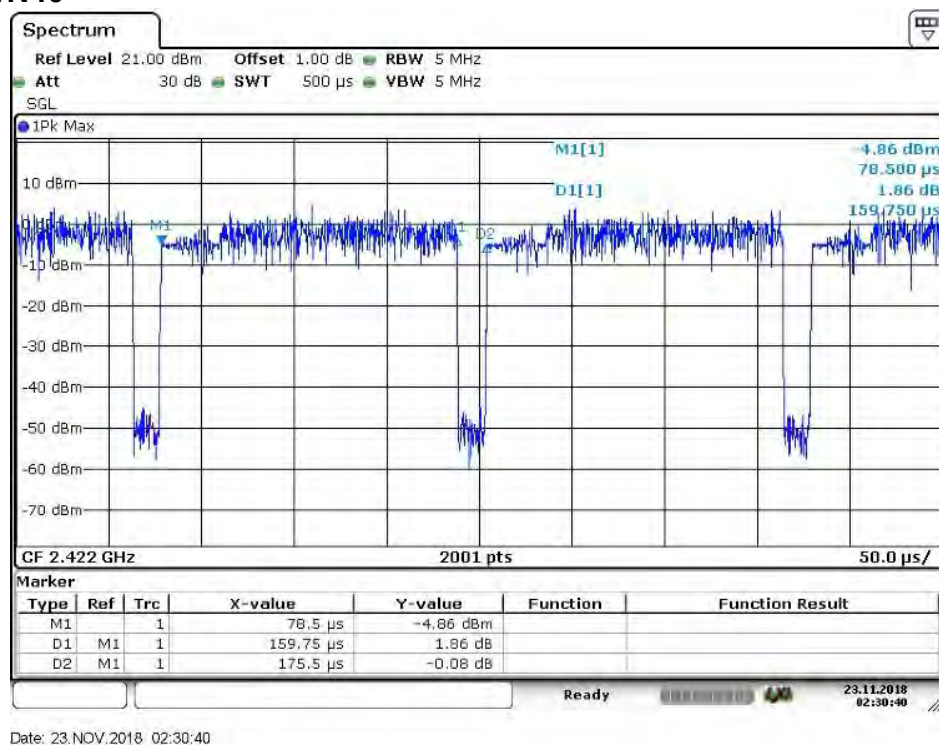
Date: 23.NOV.2018 02:22:37



4.3.2.2.5 11N20_MIMO

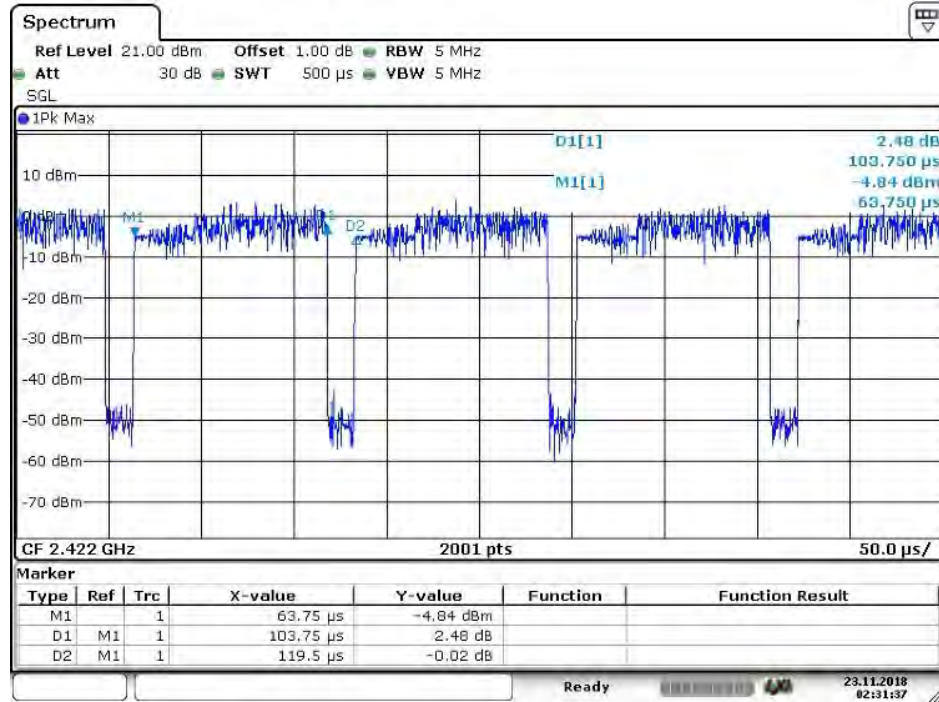


4.3.2.2.6 11N40



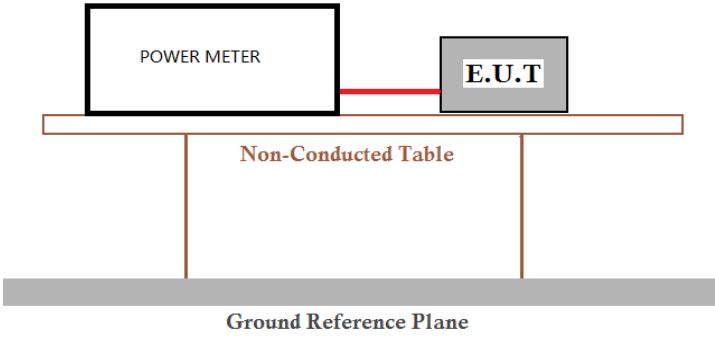


4.3.2.2.7 11N40_MIMO



Date: 23.NOV.2018 02:31:37

4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 :2013 Section 11.9.1.3
Test Setup:	
Test Instruments:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	<p>Through Pre-scan, find the</p> <p>1Mbps of rate is the worst case of 802.11B;</p> <p>6Mbps of rate is the worst case of 802.11G ;</p> <p>6.5Mbps of rate is the worst case of 802.11N(HT20);</p> <p>13Mbps of rate is the worst case of 802.11N(HT20) MIMO;</p> <p>13.5Mbps of rate is the worst case of 802.11N(HT40) ;</p> <p>27Mbps of rate is the worst case of 802.11N(HT40) MIMO.</p>
Limit:	30dBm
Test Results:	Pass



4.4.1 Test Results

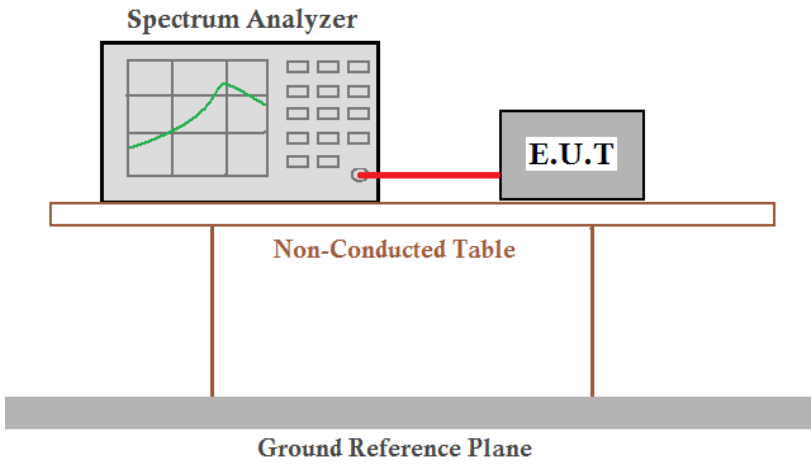
4.4.1.1 Measurement Data of Average Power:

Mode	Test Channel	Average Output Power (dBm)			Result
		ANT1	ANT2	SUM	
802.11B	Lowest	14.03	13.41	---	Report purpose only
	Middle	15.94	16.51	---	Report purpose only
	Highest	13.43	13.18	---	Report purpose only
802.11G	Lowest	7.28	6.75	---	Report purpose only
	Middle	12.42	13.18	---	Report purpose only
	Highest	4.08	3.45	---	Report purpose only
802.11G_CDD	Lowest	6.91	6.82	9.88	Report purpose only
	Middle	12.41	13.25	15.86	Report purpose only
	Highest	3.93	3.49	6.73	Report purpose only
802.11N20	Lowest	6.33	6.06	---	Report purpose only
	Middle	11.51	12.07	---	Report purpose only
	Highest	3.31	2.65	---	Report purpose only
802.11N20_MIMO	Lowest	6.18	6.02	9.11	Report purpose only
	Middle	11.89	11.52	14.72	Report purpose only
	Highest	3.11	3.06	6.10	Report purpose only
802.11N40	Lowest	3.25	3.97	---	Report purpose only
	Middle	7.80	8.14	---	Report purpose only
	Highest	3.58	4.06	---	Report purpose only
802.11N40_MIMO	Lowest	2.23	3.26	5.79	Report purpose only
	Middle	6.32	9.31	11.08	Report purpose only
	Highest	3.12	3.64	6.40	Report purpose only

4.4.1.2 Measurement Data of Peak Power:

Mode	Test Channel	Peak Output Power (dBm)			Limit (dBm)	Result
		ANT1	ANT2	SUM		
802.11B	Lowest	14.03	13.41	---	30.00	Pass
	Middle	15.94	16.53	---	30.00	Pass
	Highest	13.43	13.18	---	30.00	Pass
802.11G	Lowest	7.28	6.75	---	30.00	Pass
	Middle	12.48	13.24	---	30.00	Pass
	Highest	4.08	3.45	---	30.00	Pass
802.11G_CDD	Lowest	7.01	6.89	9.96	30.00	Pass
	Middle	12.51	13.32	15.94	30.00	Pass
	Highest	4.03	3.56	6.81	30.00	Pass
802.11N20	Lowest	6.33	6.06	---	30.00	Pass
	Middle	11.59	12.15	---	30.00	Pass
	Highest	3.31	2.65	---	30.00	Pass
802.11N20_MIMO	Lowest	6.31	6.15	9.24	30.00	Pass
	Middle	12.02	11.65	14.85	30.00	Pass
	Highest	3.24	3.19	6.23	30.00	Pass
802.11N40	Lowest	3.25	3.97	---	30.00	Pass
	Middle	7.18	8.14	---	30.00	Pass
	Highest	3.58	4.06	---	30.00	Pass
802.11N40_MIMO	Lowest	2.85	3.87	6.40	30.00	Pass
	Middle	6.94	9.92	11.69	30.00	Pass
	Highest	3.74	4.25	7.01	30.00	Pass

4.5 DTS (6 dB) Bandwidth & 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10: 2013 Section 11.8.1 Option 1
Test Setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer and an E.U.T. (Equipment Under Test) are connected by a red cable. They are positioned on a Non-Conducted Table, which is supported by two vertical legs. Below the table is a Ground Reference Plane.</p>
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	<p>Through Pre-scan, find the</p> <p>1Mbps of rate is the worst case of 802.11B;</p> <p>6Mbps of rate is the worst case of 802.11G ;</p> <p>6.5Mbps of rate is the worst case of 802.11N(HT20);</p> <p>13Mbps of rate is the worst case of 802.11N(HT20) MIMO;</p> <p>13.5Mbps of rate is the worst case of 802.11N(HT40) ;</p> <p>27Mbps of rate is the worst case of 802.11N(HT40) MIMO.</p>
Limit:	≥ 500 kHz
Test Results:	Pass



4.5.1 Test Results

4.5.1.1 ANT1:

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
802.11B	Lowest	10.70	9.05	≥500	Pass
	Middle	11.45	9.60	≥500	Pass
	Highest	11.48	9.08	≥500	Pass
802.11G	Lowest	16.36	16.36	≥500	Pass
	Middle	16.39	16.36	≥500	Pass
	Highest	16.42	16.36	≥500	Pass
802.11G_CDD	Lowest	16.36	16.24	≥500	Pass
	Middle	16.42	16.36	≥500	Pass
	Highest	16.42	16.39	≥500	Pass
802.11N20	Lowest	17.53	17.32	≥500	Pass
	Middle	17.53	17.38	≥500	Pass
	Highest	17.56	17.59	≥500	Pass
802.11N20_MIMO	Lowest	17.53	17.32	≥500	Pass
	Middle	17.53	17.38	≥500	Pass
	Highest	17.56	17.62	≥500	Pass
802.11N40	Lowest	36.90	35.66	≥500	Pass
	Middle	35.96	36.14	≥500	Pass
	Highest	35.96	36.08	≥500	Pass
802.11N40_MIMO	Lowest	35.90	35.78	≥500	Pass
	Middle	35.90	36.08	≥500	Pass
	Highest	35.90	36.38	≥500	Pass

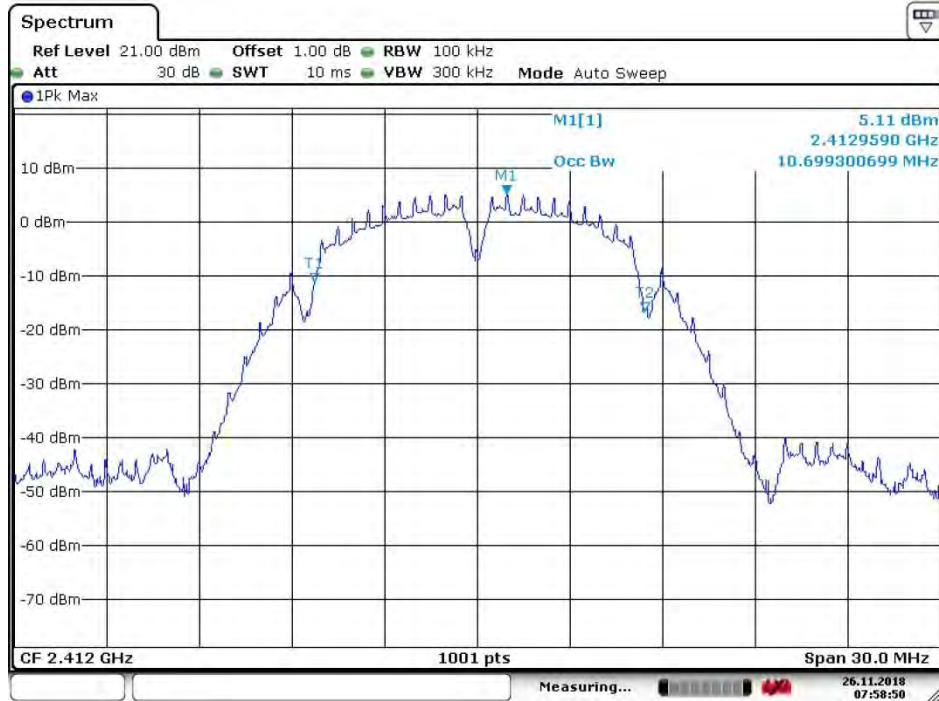
4.5.1.2 ANT2:

Mode	Test Channel	Occupied Bandwidth (MHz)	6dB Emission Bandwidth (MHz)	Limit (kHz)	Result
802.11B	Lowest	11.45	9.05	≥500	Pass
	Middle	11.54	9.05	≥500	Pass
	Highest	11.60	9.08	≥500	Pass
802.11G	Lowest	16.39	16.39	≥500	Pass
	Middle	16.45	16.36	≥500	Pass
	Highest	16.42	16.15	≥500	Pass
802.11G_CDD	Lowest	16.39	16.36	≥500	Pass
	Middle	16.39	16.39	≥500	Pass
	Highest	16.39	16.39	≥500	Pass
802.11N20	Lowest	17.53	17.41	≥500	Pass
	Middle	17.56	17.56	≥500	Pass
	Highest	17.56	17.35	≥500	Pass
802.11N20_MIMO	Lowest	17.53	17.59	≥500	Pass
	Middle	17.56	17.59	≥500	Pass
	Highest	17.56	17.59	≥500	Pass
802.11N40	Lowest	35.96	36.14	≥500	Pass
	Middle	36.02	36.14	≥500	Pass
	Highest	35.96	35.96	≥500	Pass
802.11N40_MIMO	Lowest	35.90	36.38	≥500	Pass
	Middle	36.02	36.44	≥500	Pass
	Highest	35.96	36.02	≥500	Pass

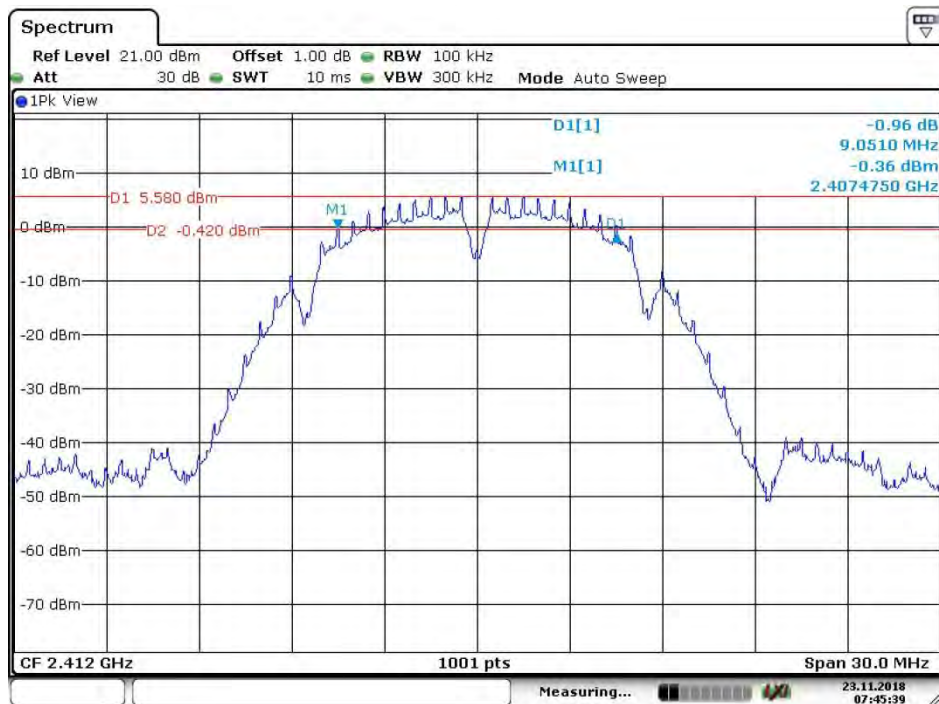
4.5.2 Test plots

4.5.2.1 ANT1:

4.5.2.1.1 802.11B_Lowest Channel

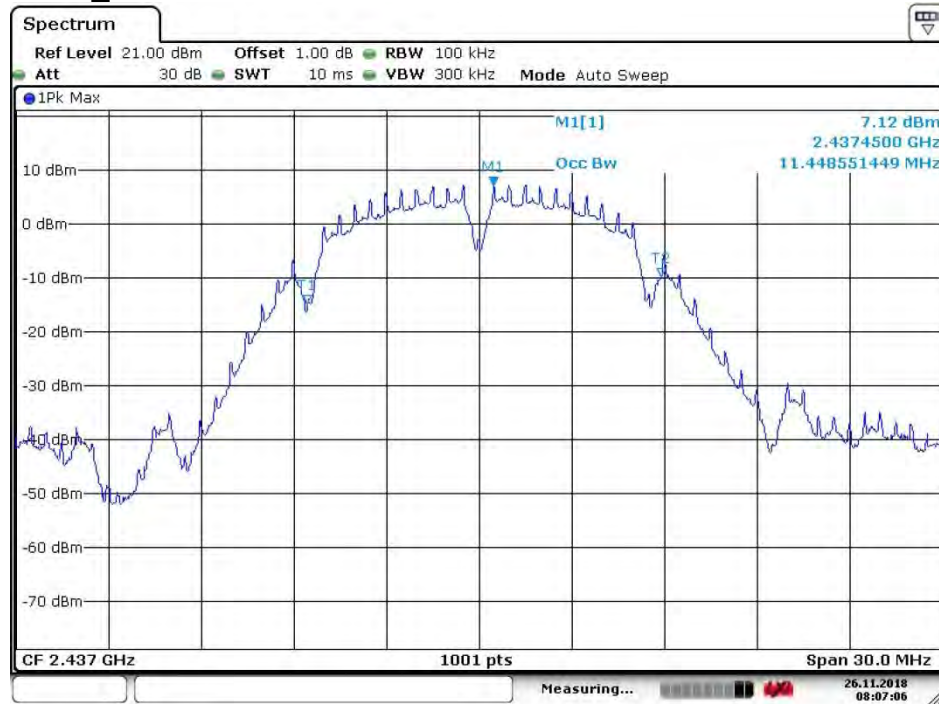


Date: 26.NOV.2018 07:58:51

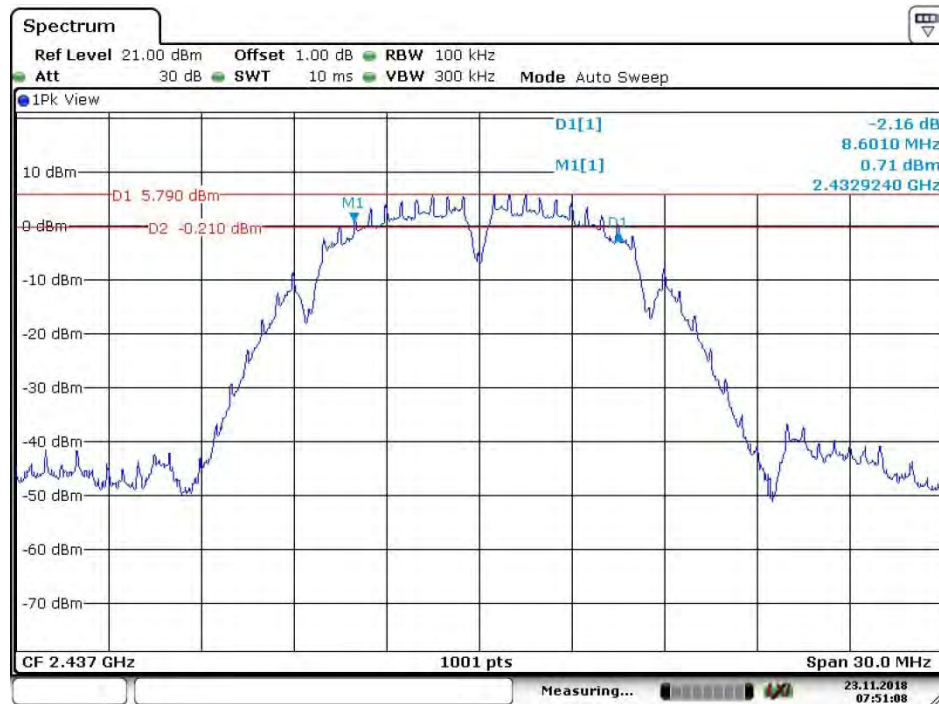


Date: 23.NOV.2018 07:45:39

4.5.2.1.2 802.11B_ Middle Channel

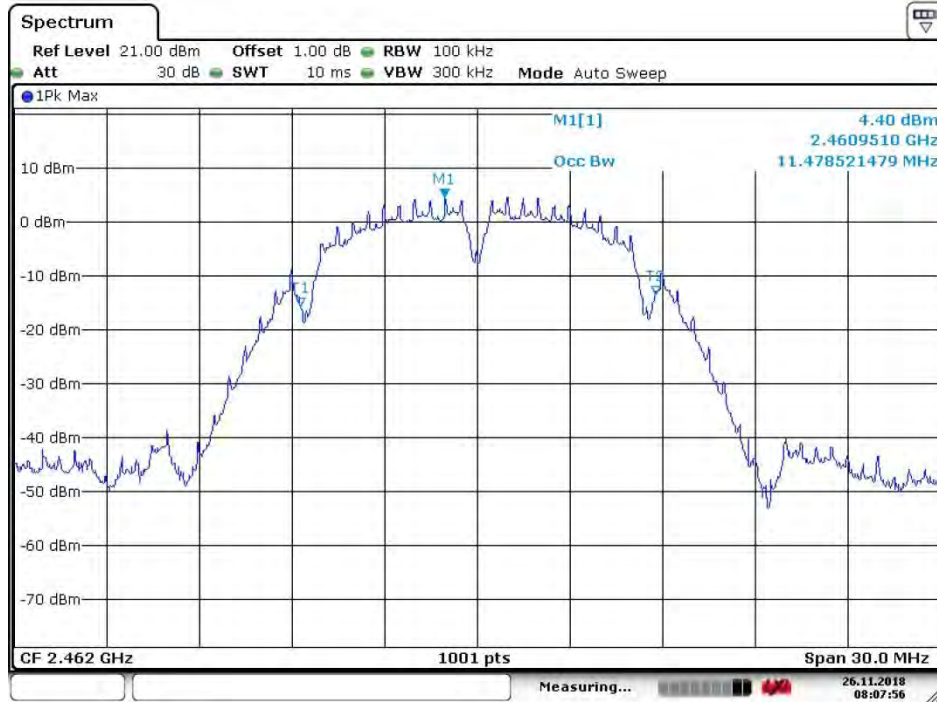


Date: 26.NOV.2018 08:07:07



Date: 23.NOV.2018 07:51:09

4.5.2.1.3 802.11B_ Highest Channel

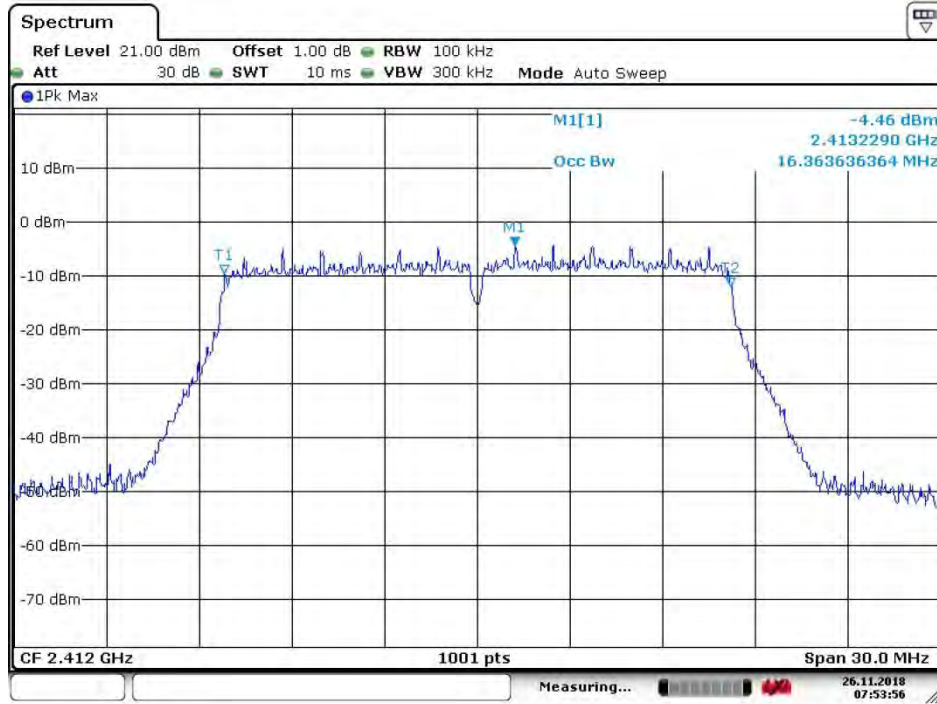


Date: 26.NOV.2018 08:07:57

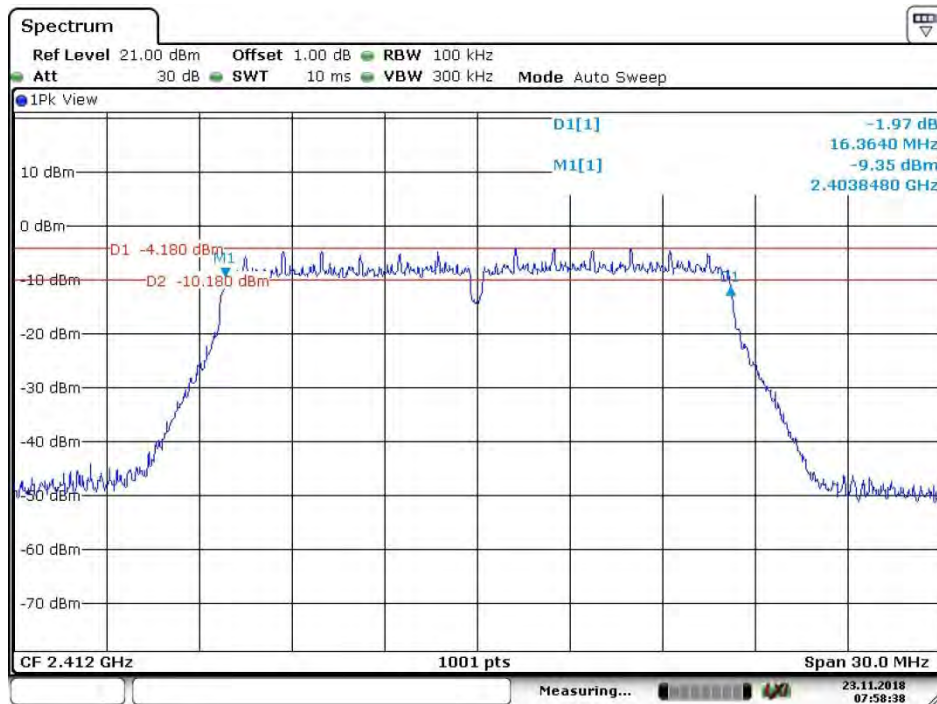


Date: 23.NOV.2018 07:53:12

4.5.2.1.4 802.11G_Lowest Channel

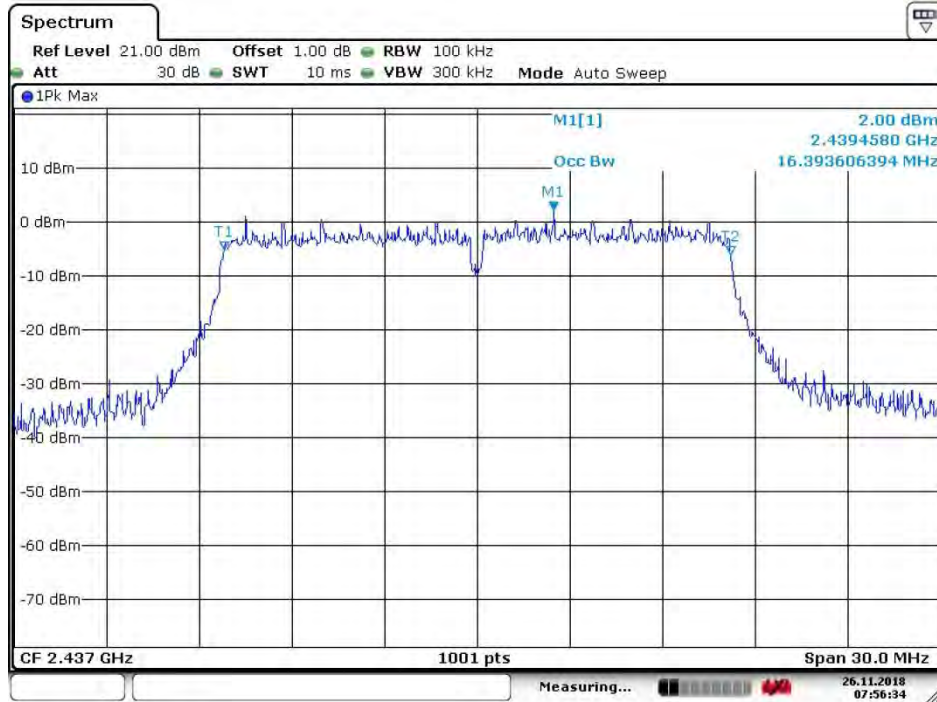


Date: 26.NOV.2018 07:53:57

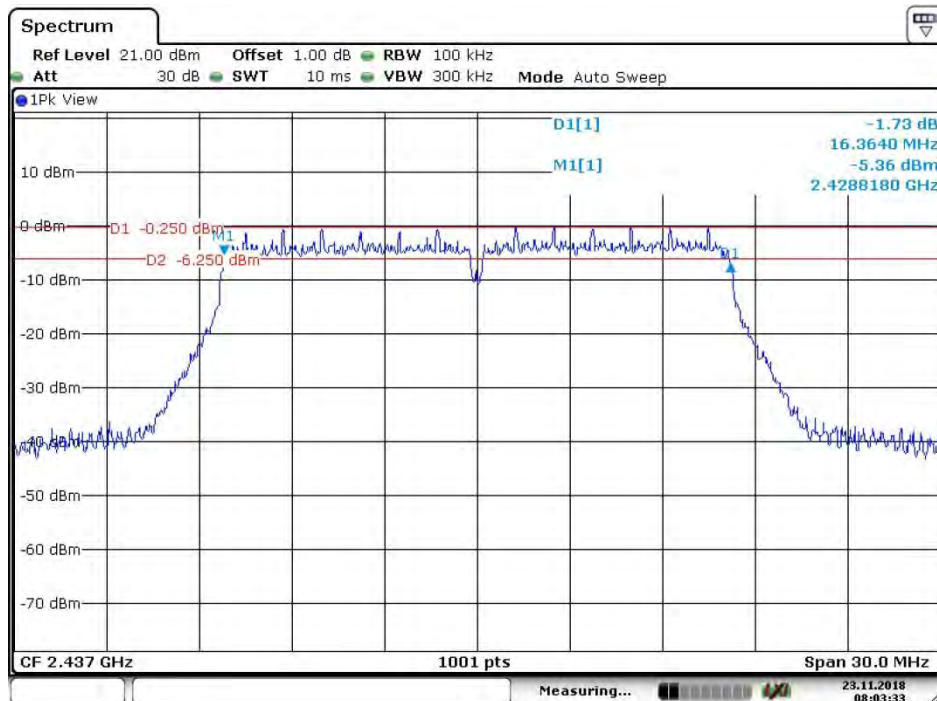


Date: 23.NOV.2018 07:58:38

4.5.2.1.5 802.11G_ Middle Channel

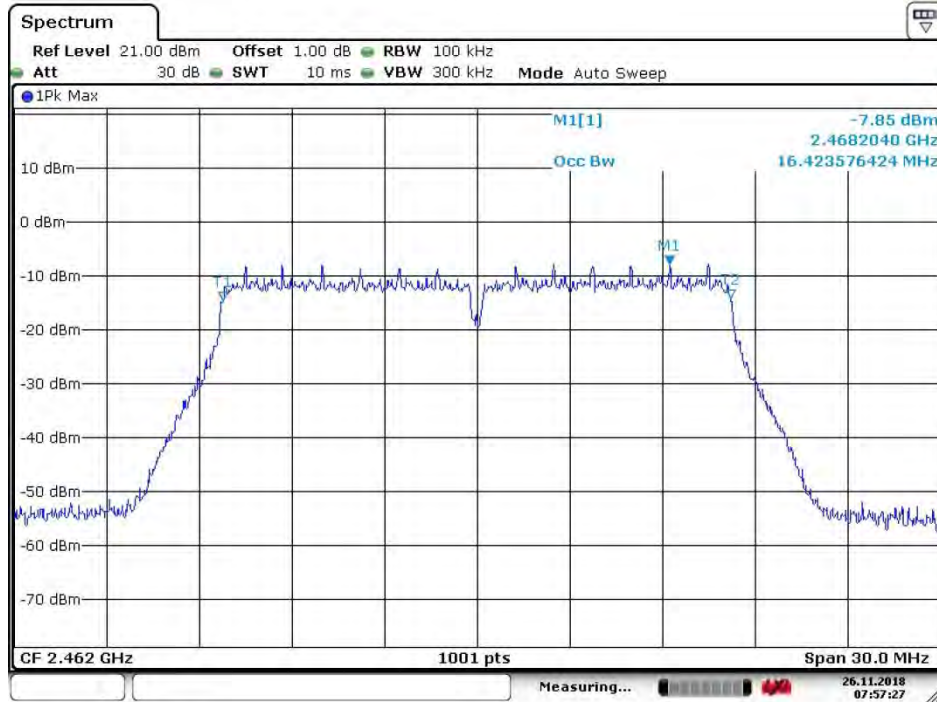


Date: 26.NOV.2018 07:56:34

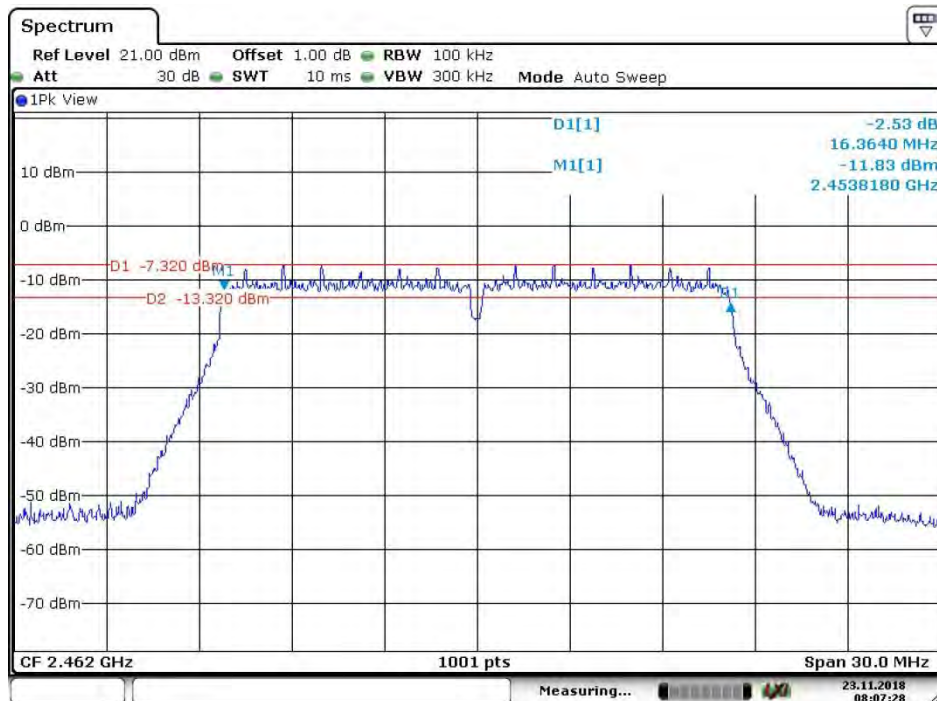


Date: 23.NOV.2018 08:03:33

4.5.2.1.6 802.11G_ Highest Channel

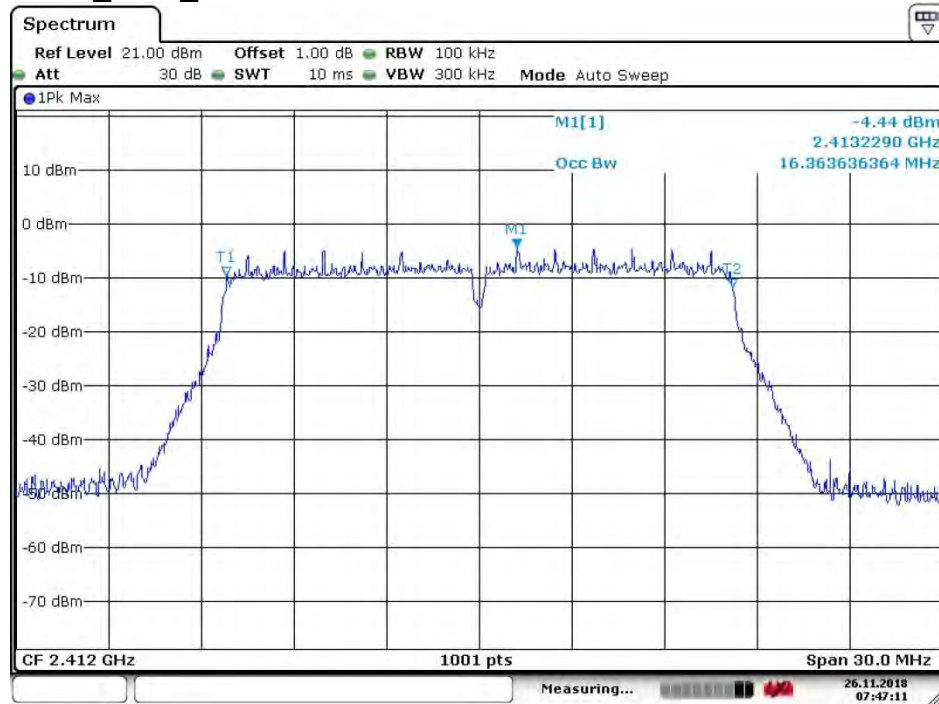


Date: 26.NOV.2018 07:57:28

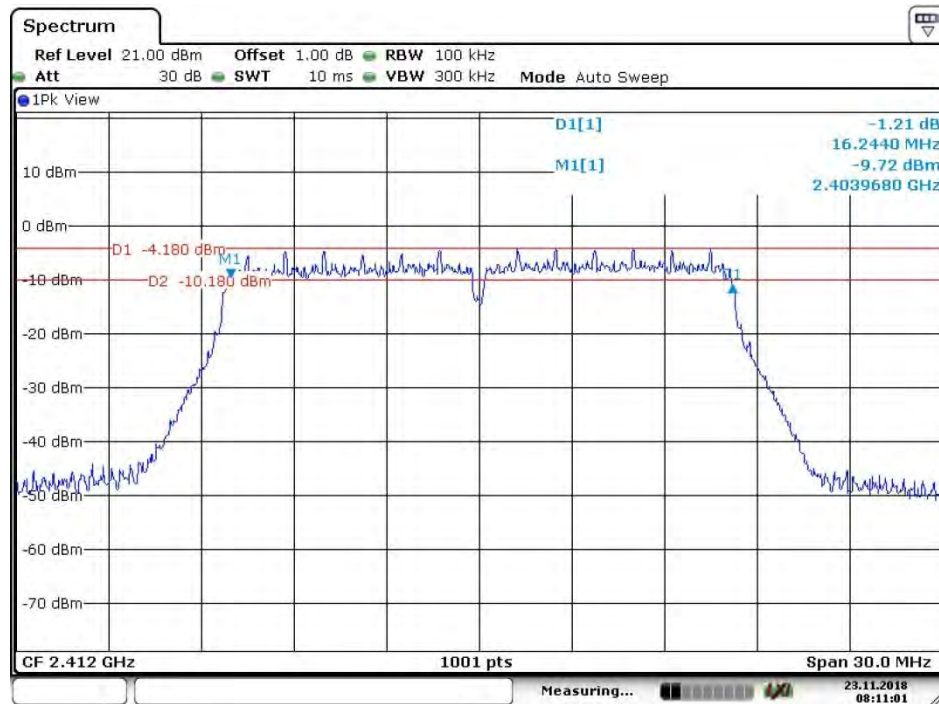


Date: 23.NOV.2018 08:07:29

4.5.2.1.7 802.11G_CDD_Lowest Channel

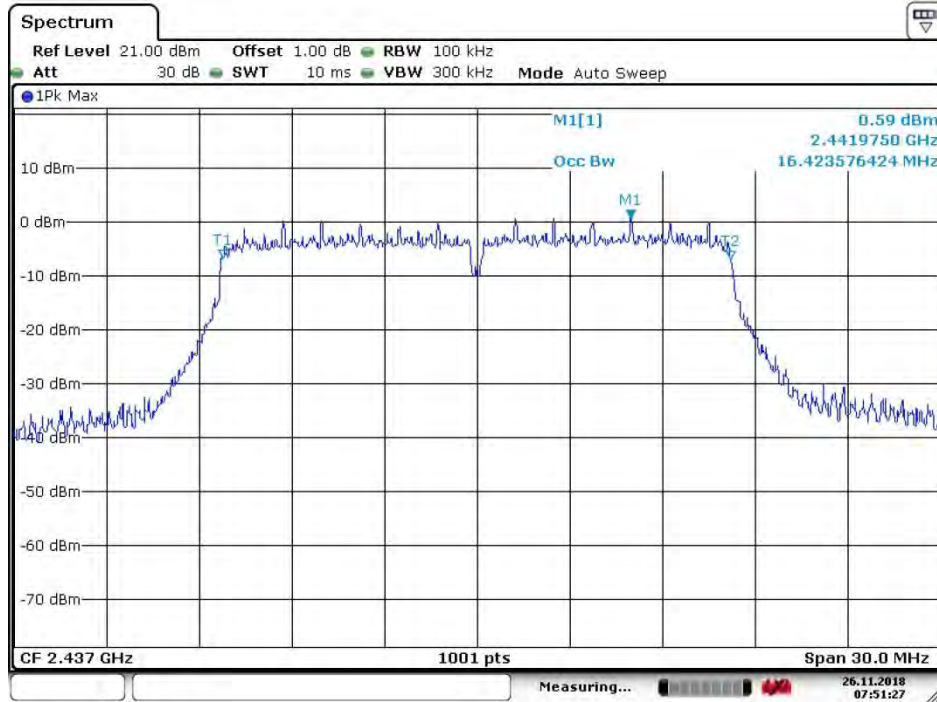


Date: 26.NOV.2018 07:47:11

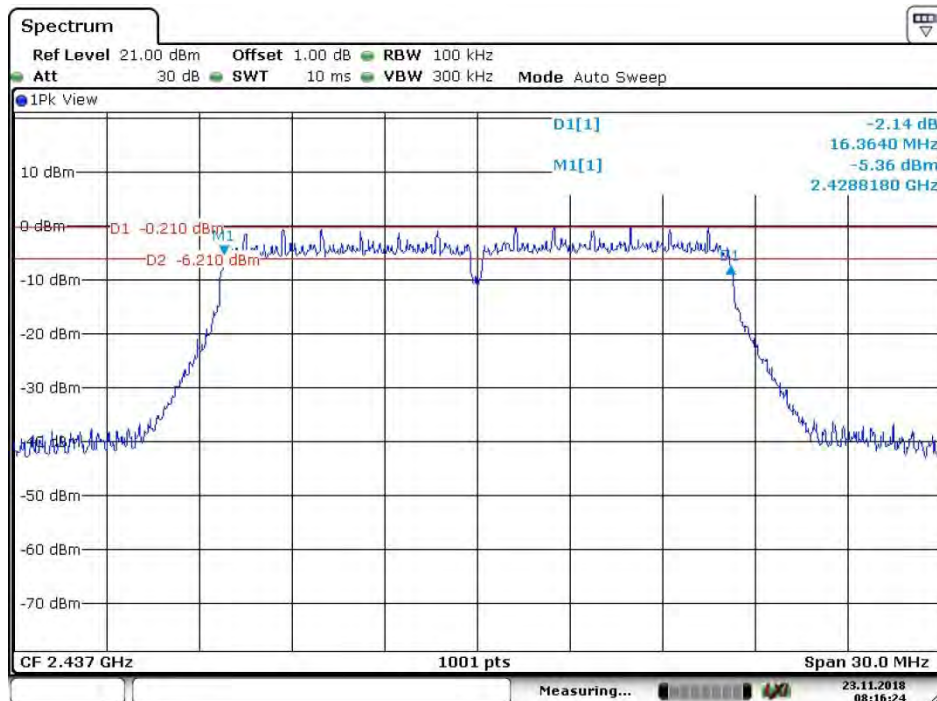


Date: 23.NOV.2018 08:11:01

4.5.2.1.8 802.11G_CDD_ Middle Channel

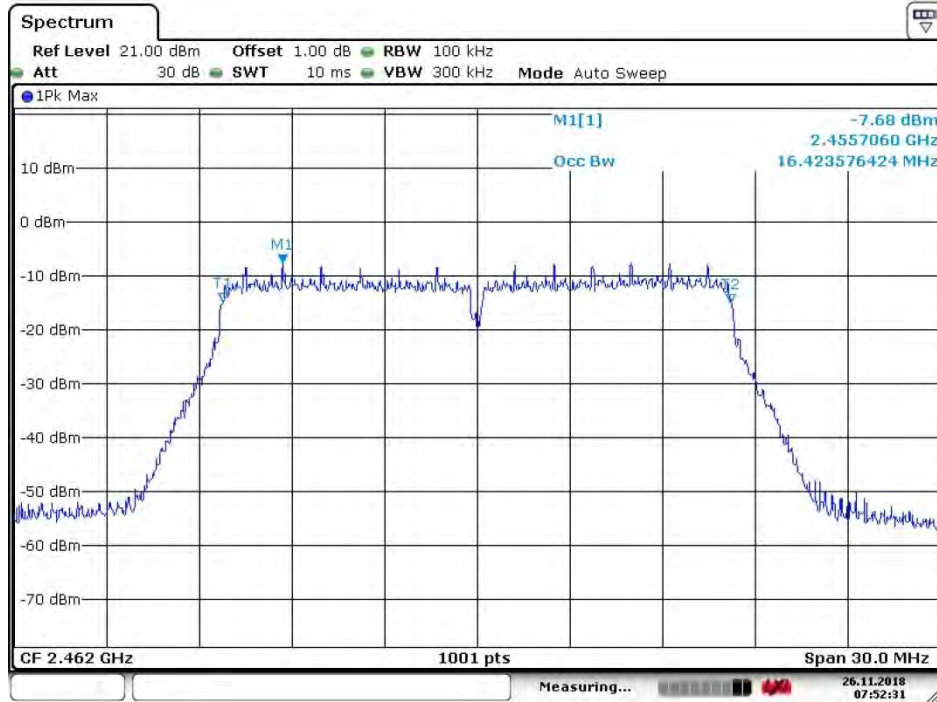


Date: 26.NOV.2018 07:51:28

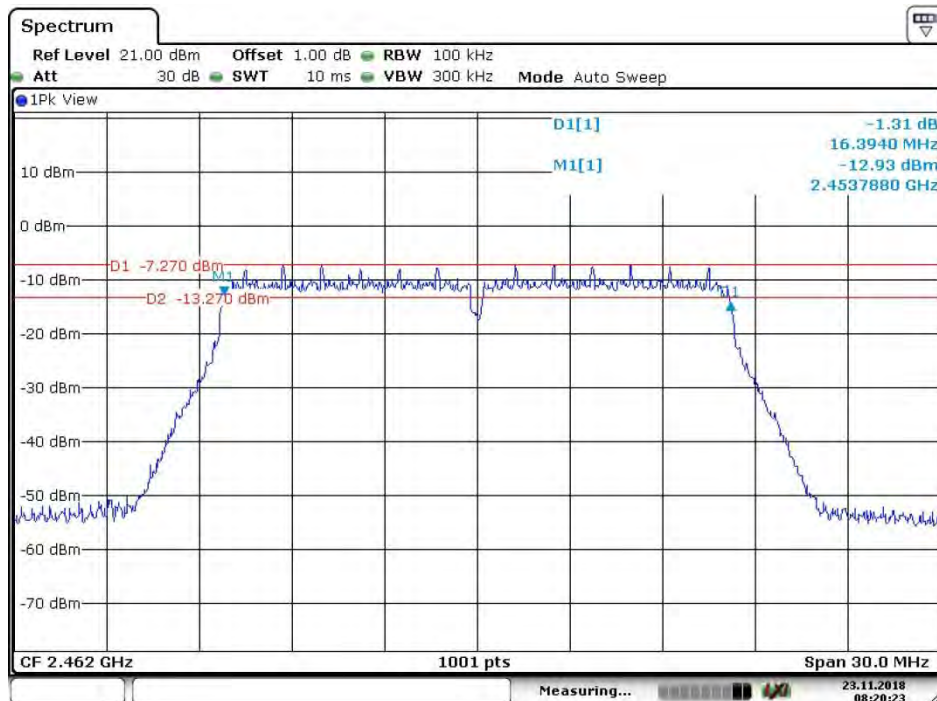


Date: 23.NOV.2018 08:16:25

4.5.2.1.9 802.11G_CDD_Highest Channel

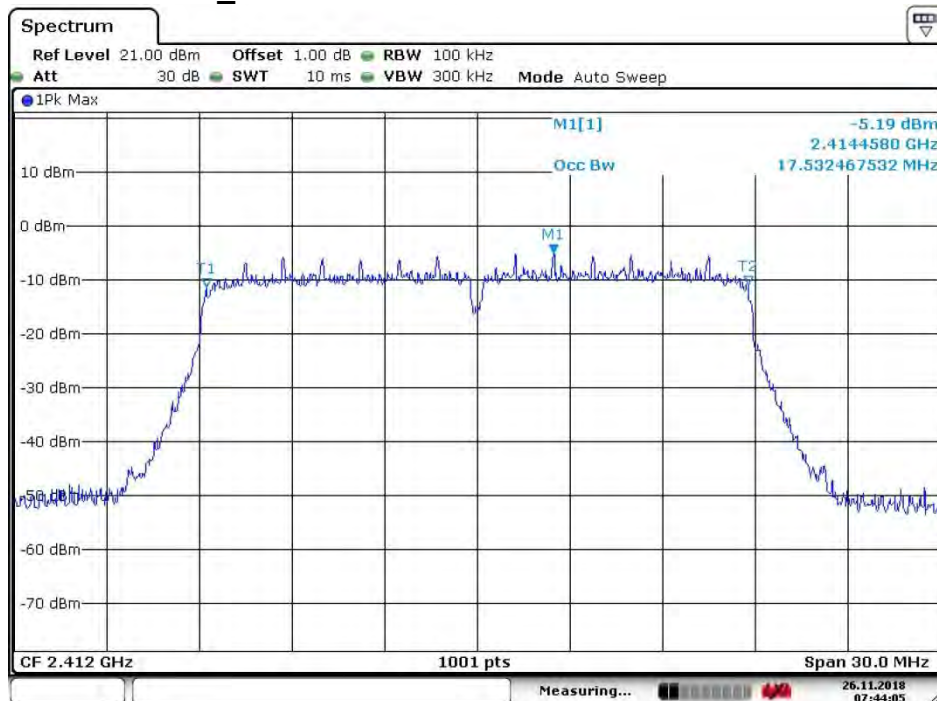


Date: 26.NOV.2018 07:52:32

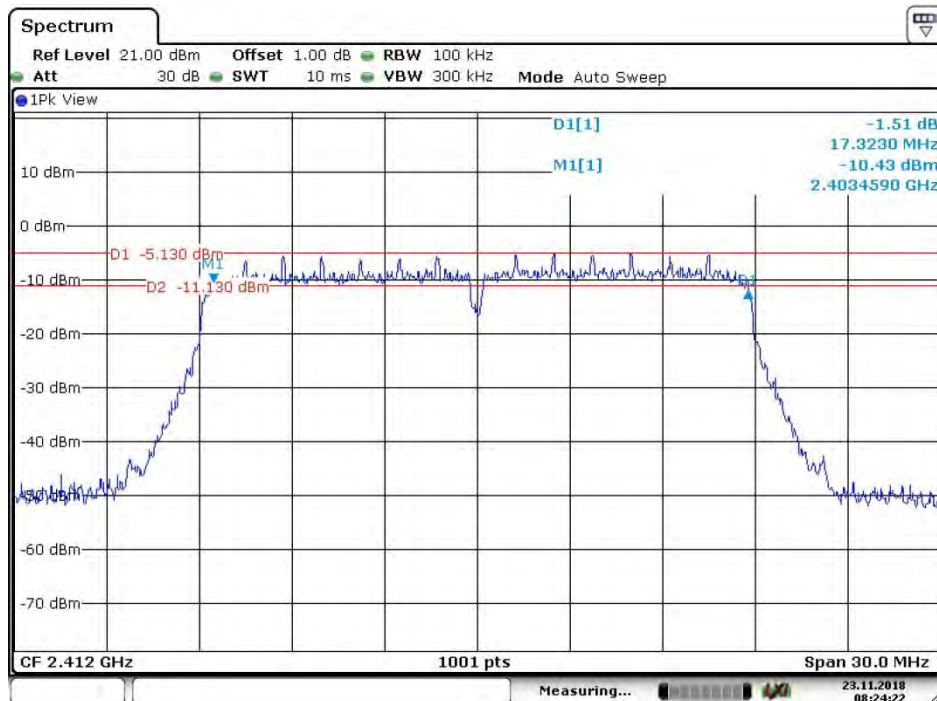


Date: 23.NOV.2018 08:20:23

4.5.2.1.10 802.11N20_Lowest Channel

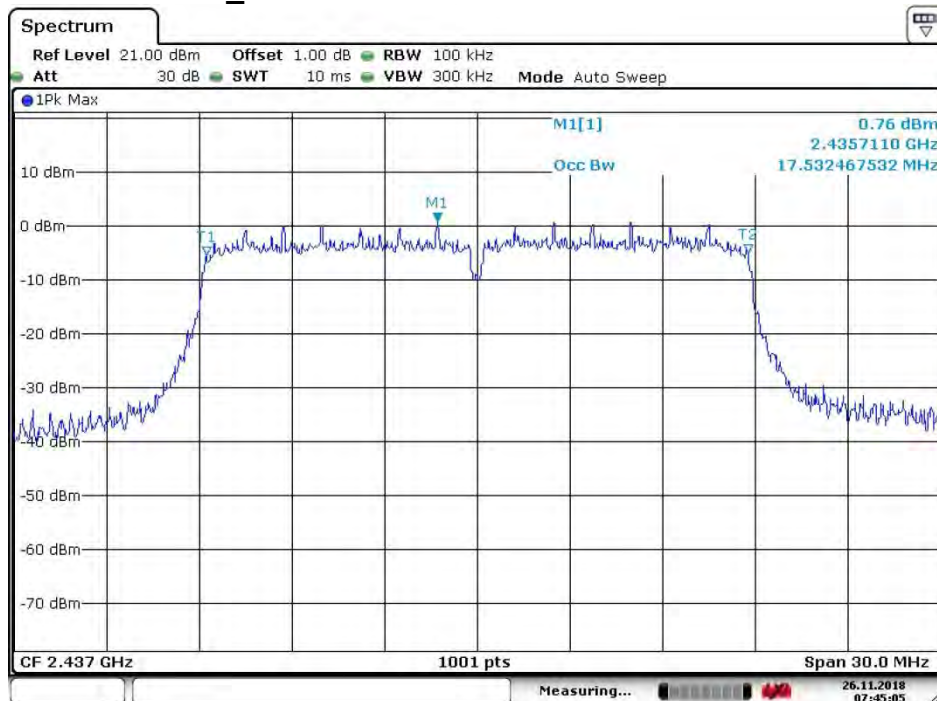


Date: 26.NOV.2018 07:44:06

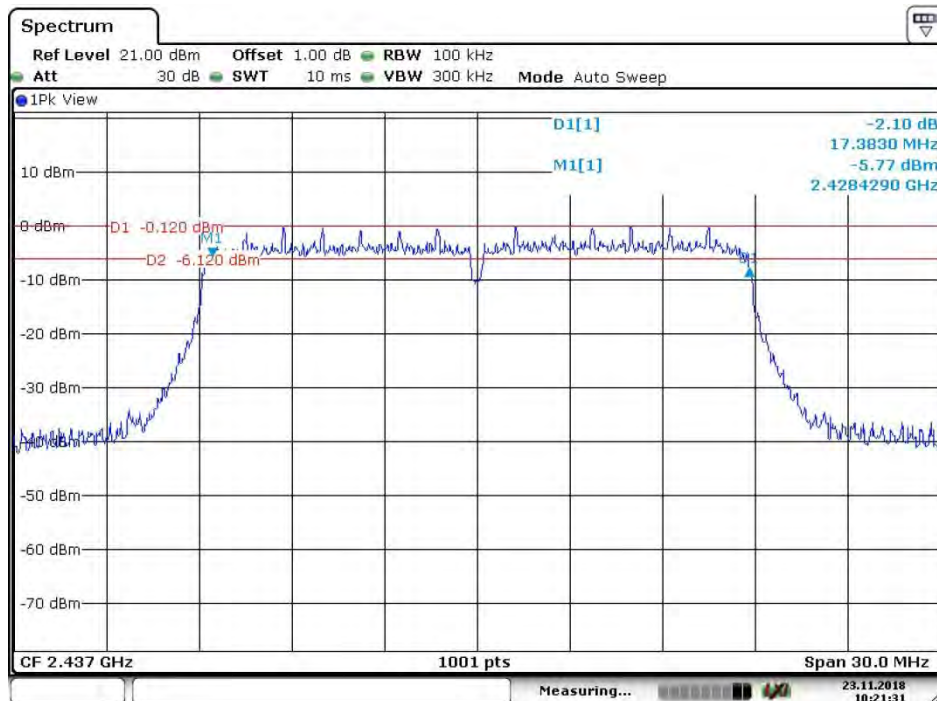


Date: 23.NOV.2018 08:24:22

4.5.2.1.11 802.11 N20_ Middle Channel

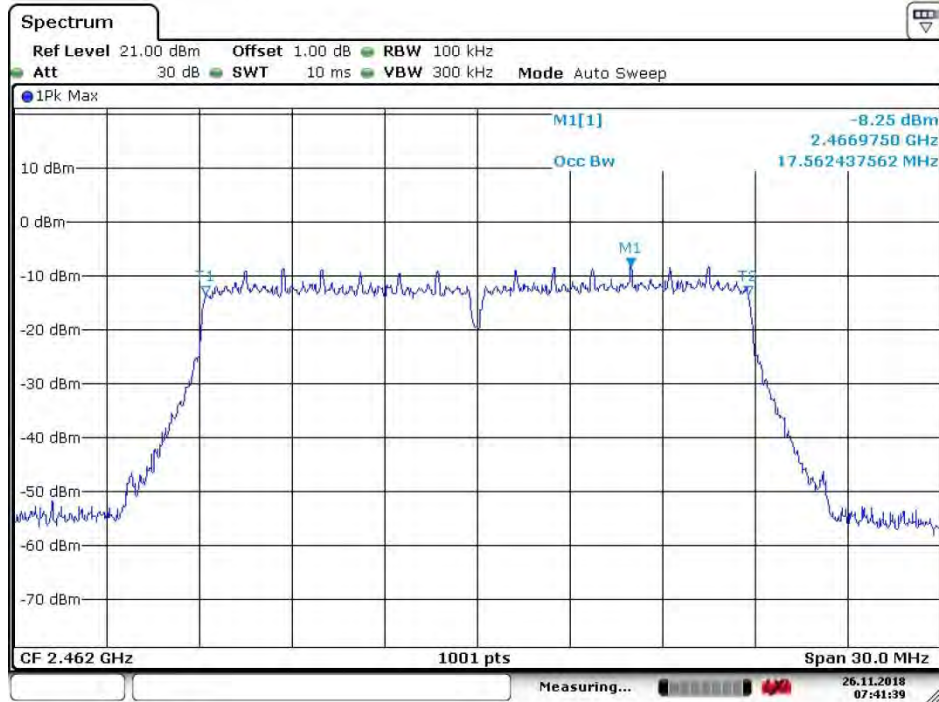


Date: 26.NOV.2018 07:45:05

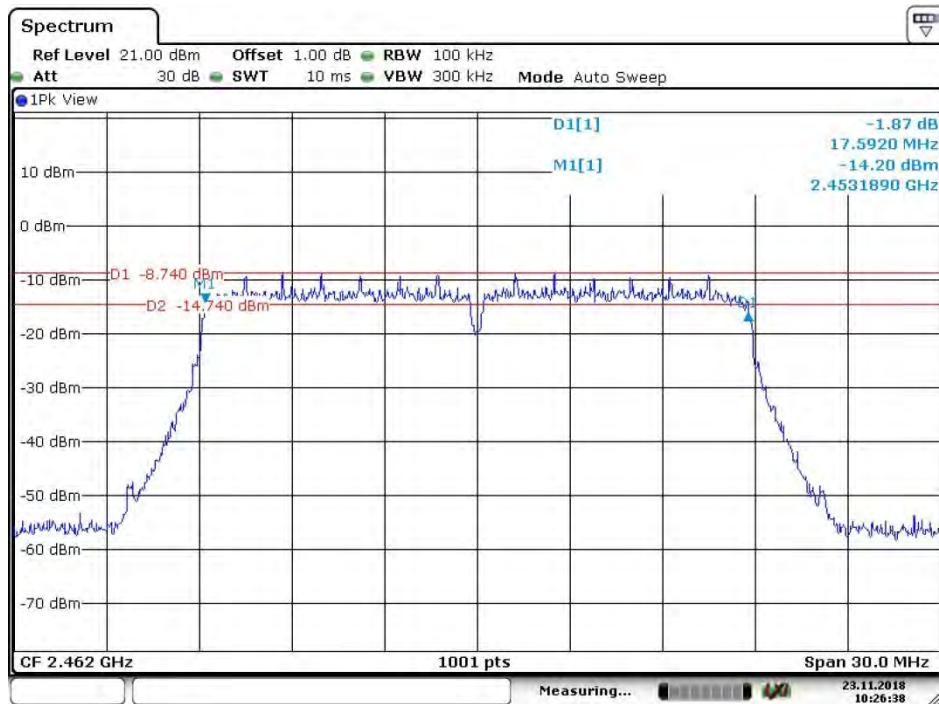


Date: 23.NOV.2018 10:21:31

4.5.2.1.12 802.11 N20_ Highest Channel

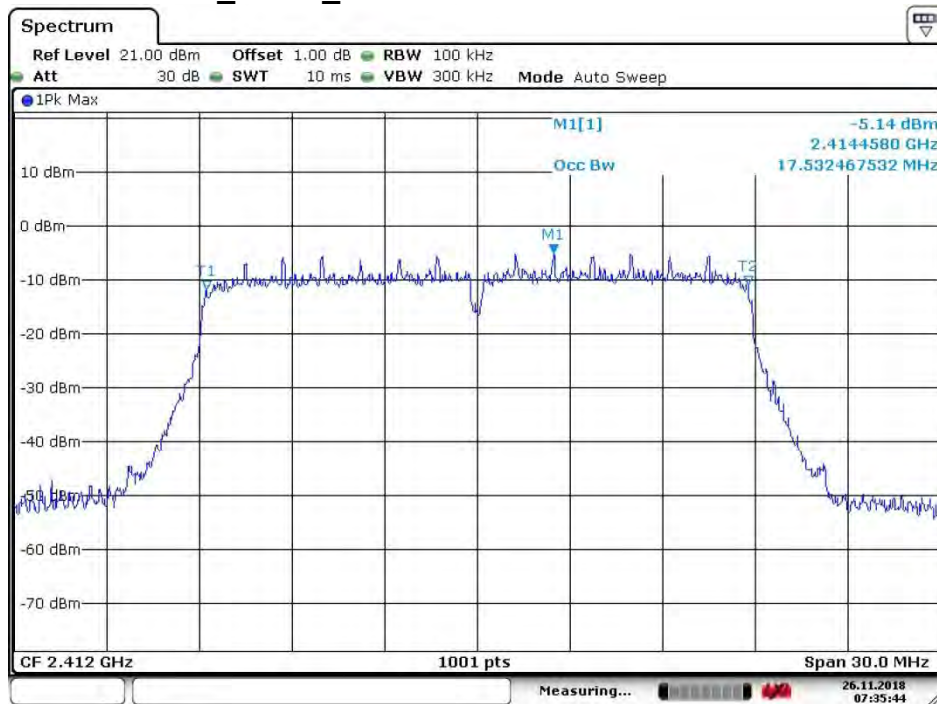


Date: 26.NOV.2018 07:41:40

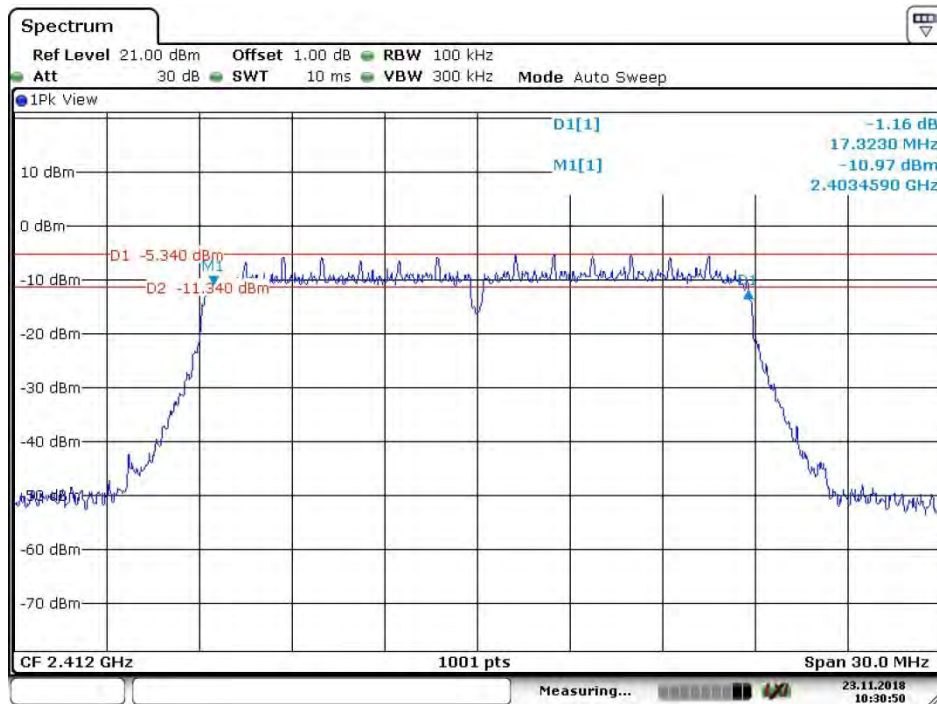


Date: 23.NOV.2018 10:26:38

4.5.2.1.13 802.11N20_MIMO_Lowest Channel

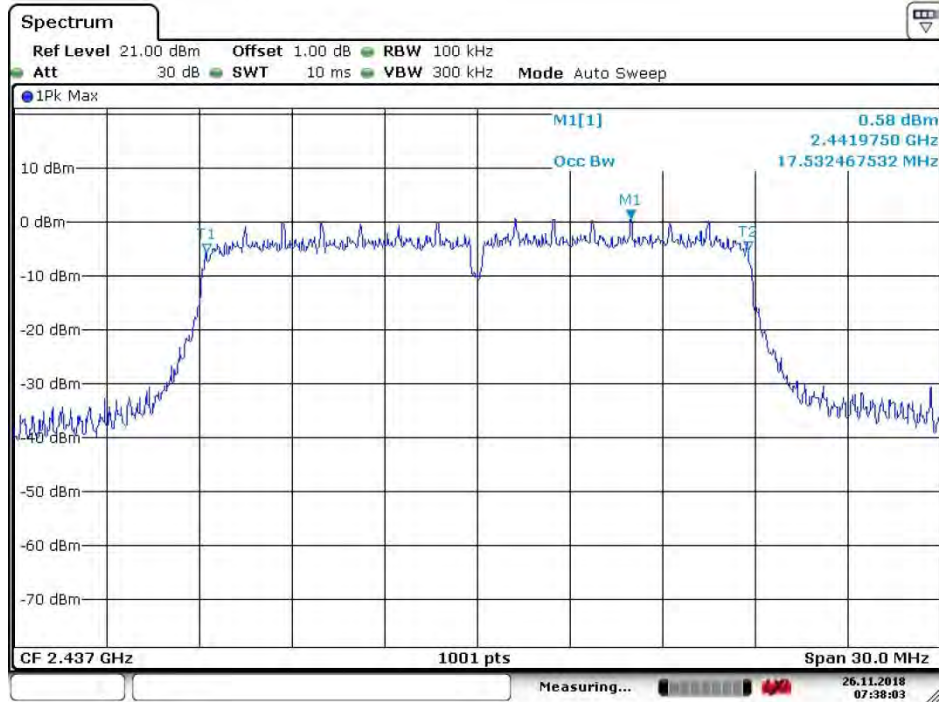


Date: 26.NOV.2018 07:35:45

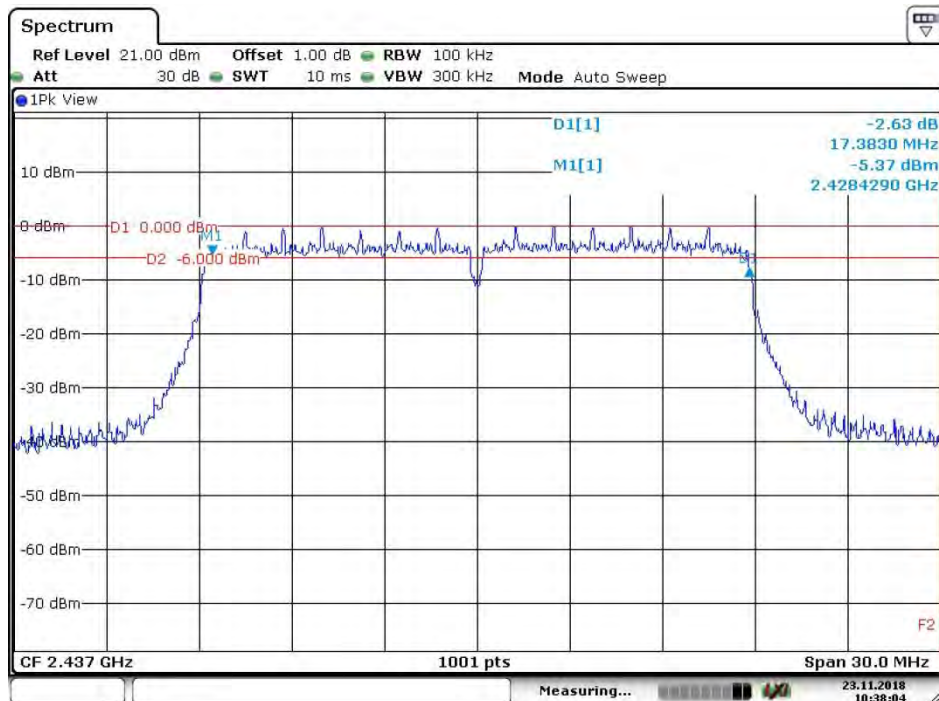


Date: 23.NOV.2018 10:30:51

4.5.2.1.14 802.11 N20_ MIMO_ Middle Channel

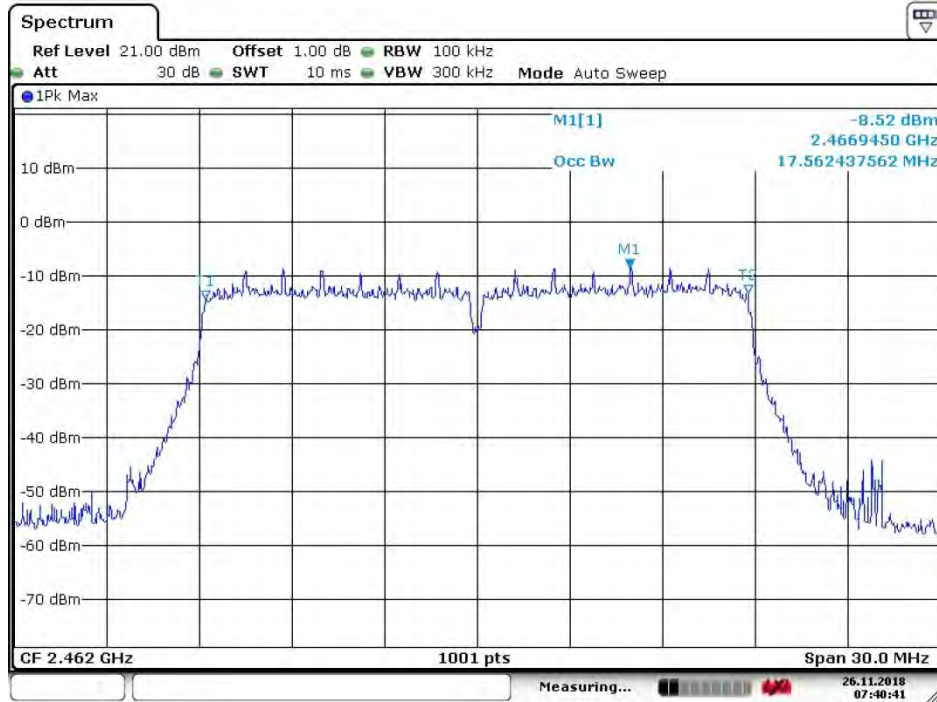


Date: 26.NOV.2018 07:38:04

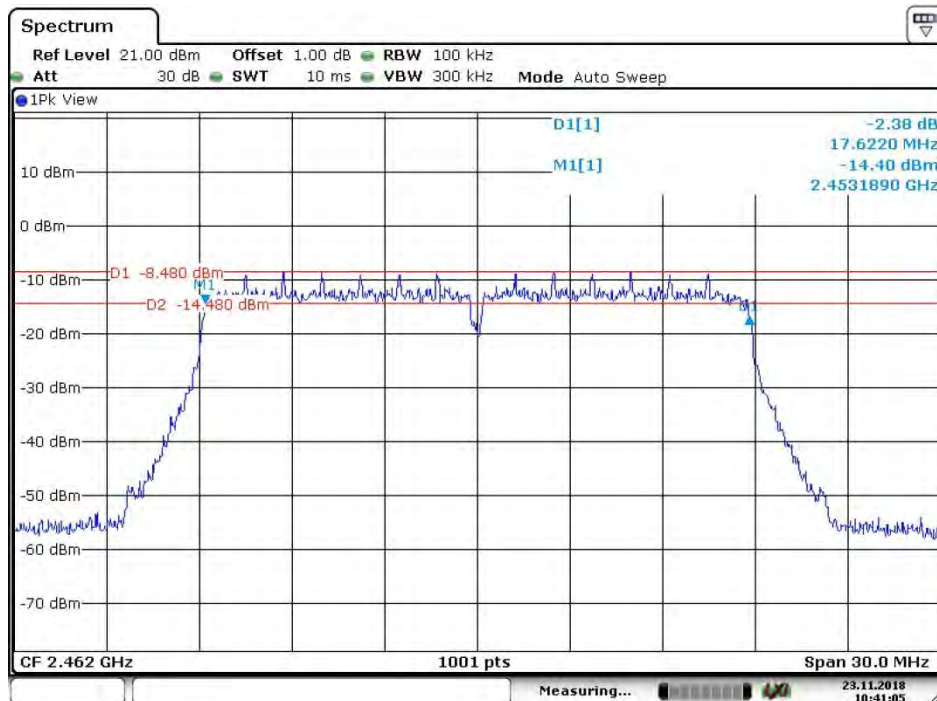


Date: 23.NOV.2018 10:38:05

4.5.2.1.15 802.11 N20_ MIMO_ Highest Channel

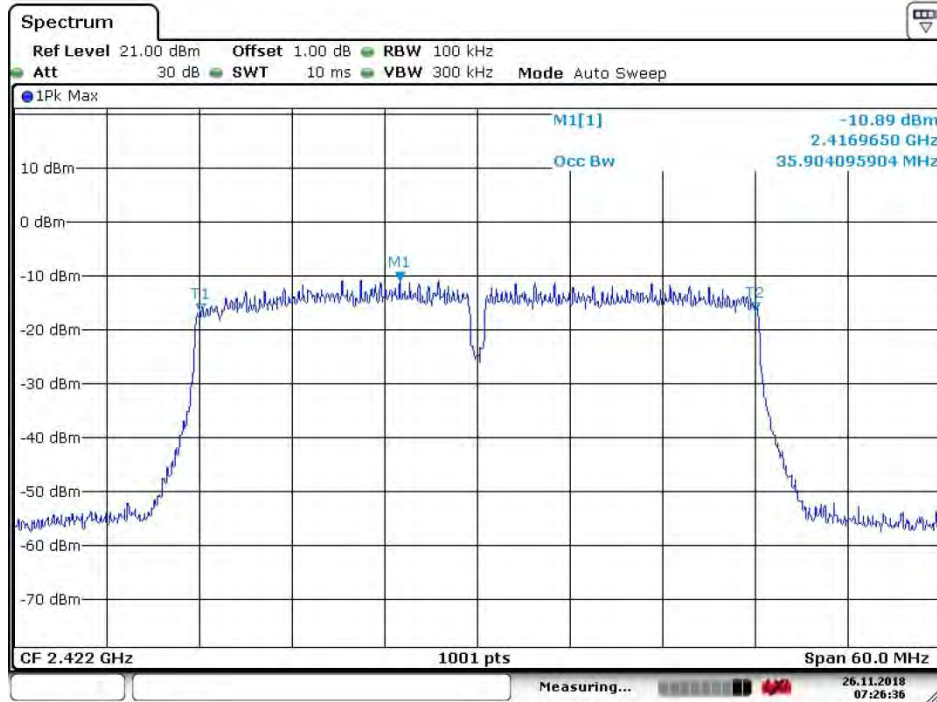


Date: 26.NOV.2018 07:40:42

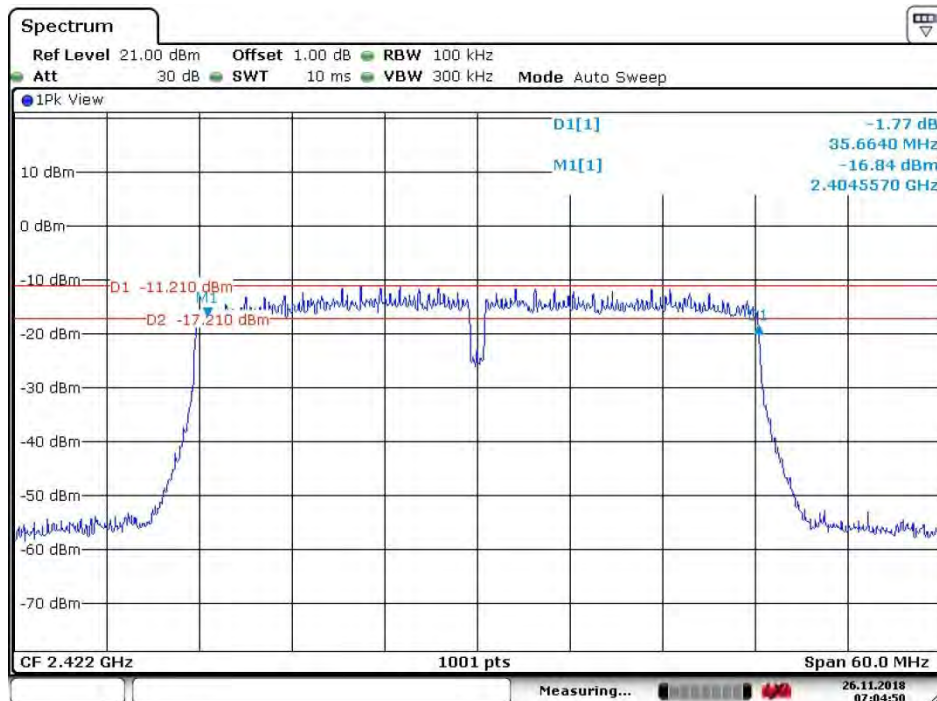


Date: 23.NOV.2018 10:41:05

4.5.2.1.16 802.11N40_Lowest Channel

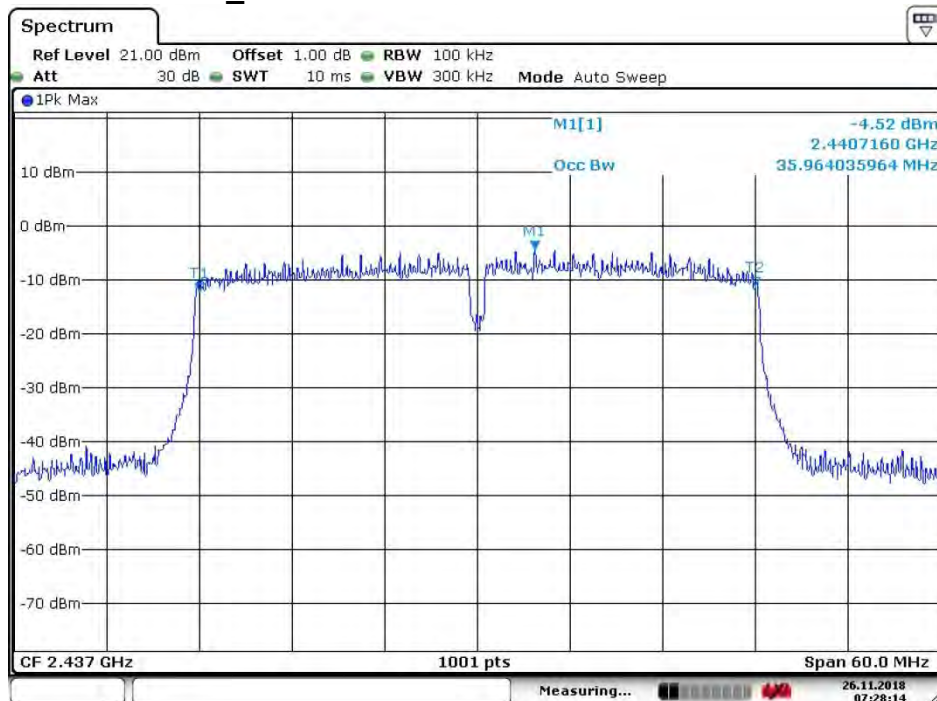


Date: 26.NOV.2018 07:26:36

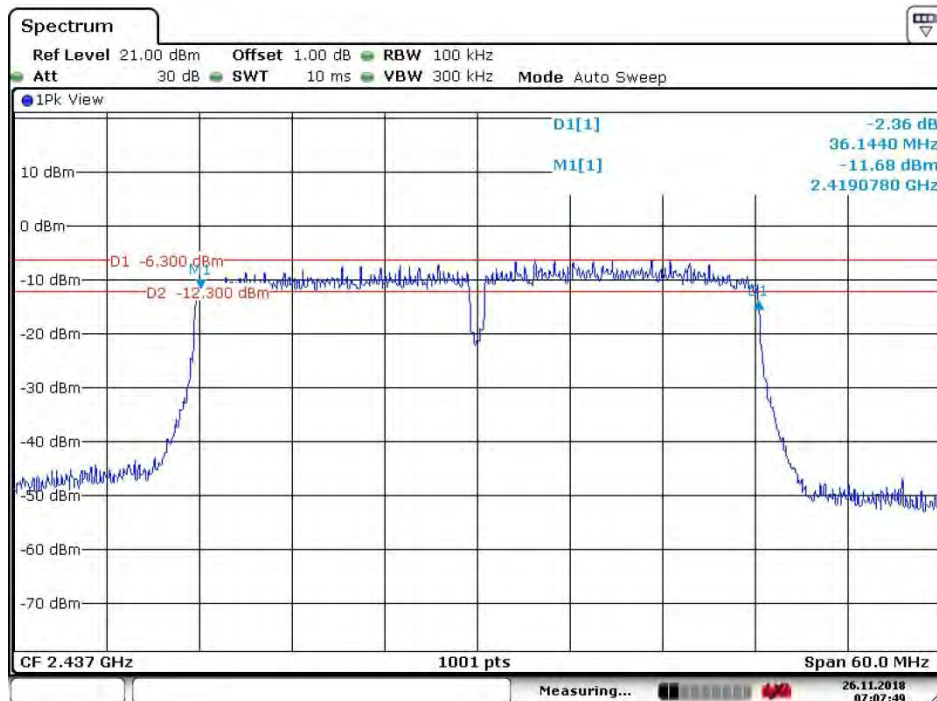


Date: 26.NOV.2018 07:04:50

4.5.2.1.17 802.11 N40_ Middle Channel

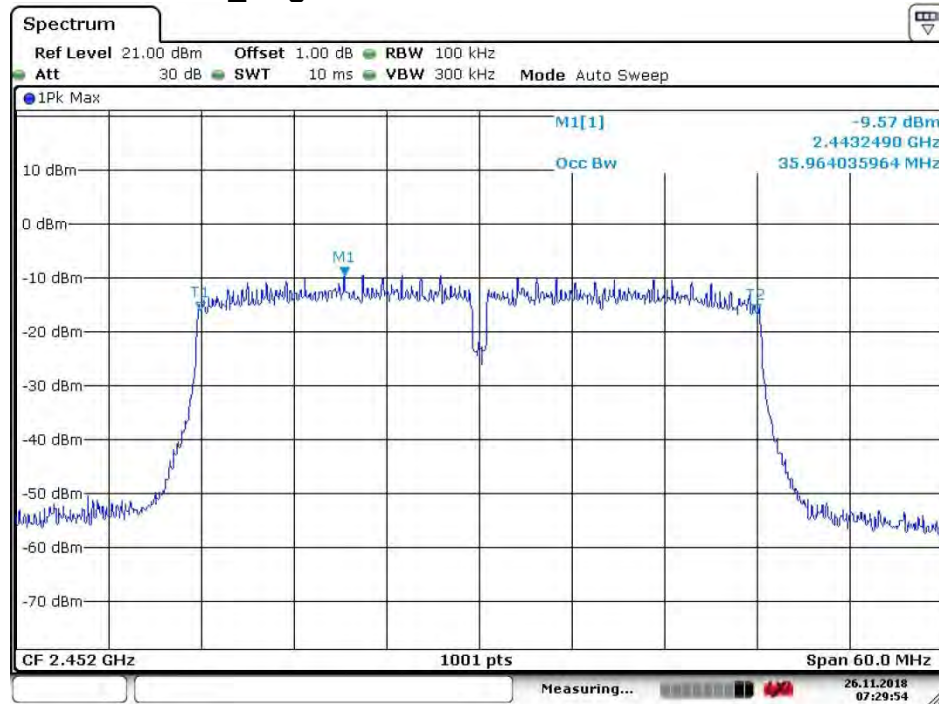


Date: 26.NOV.2018 07:28:14

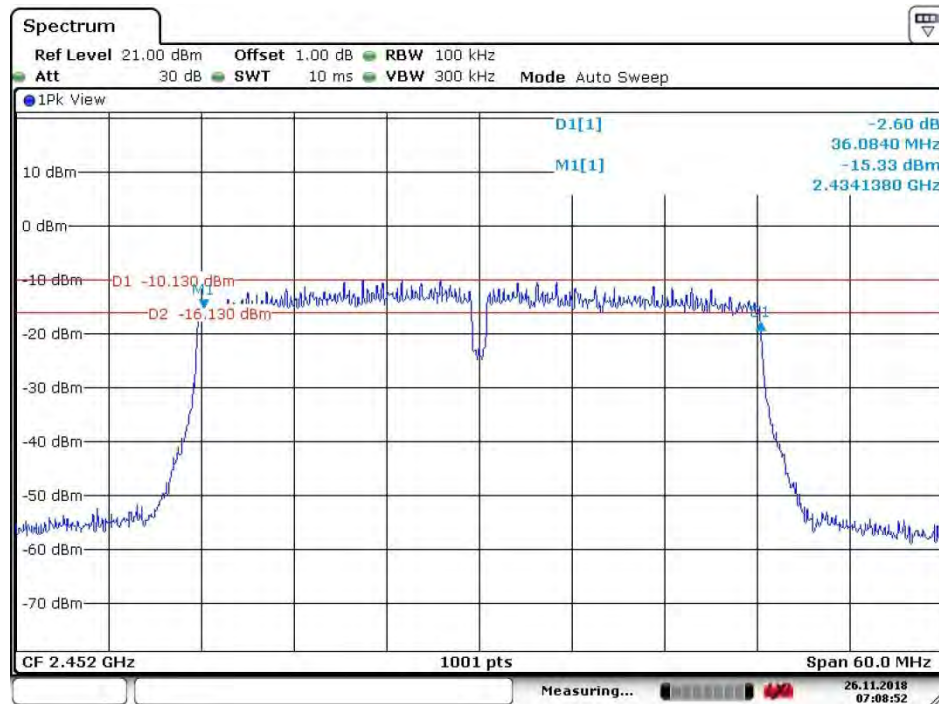


Date: 26.NOV.2018 07:07:49

4.5.2.1.18 802.11 N40_ Highest Channel

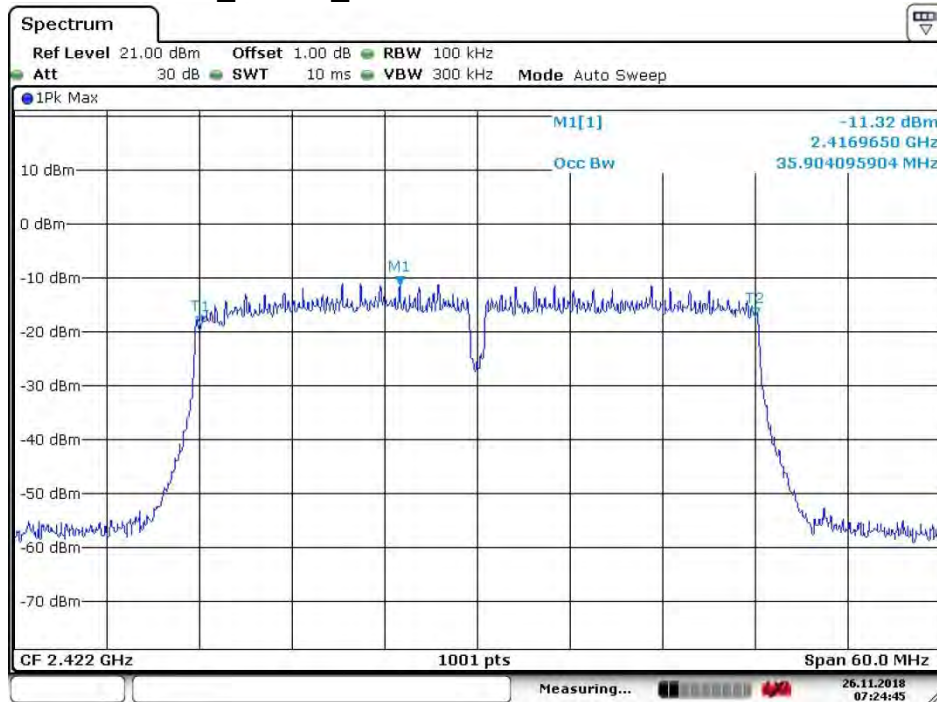


Date: 26.NOV.2018 07:29:55

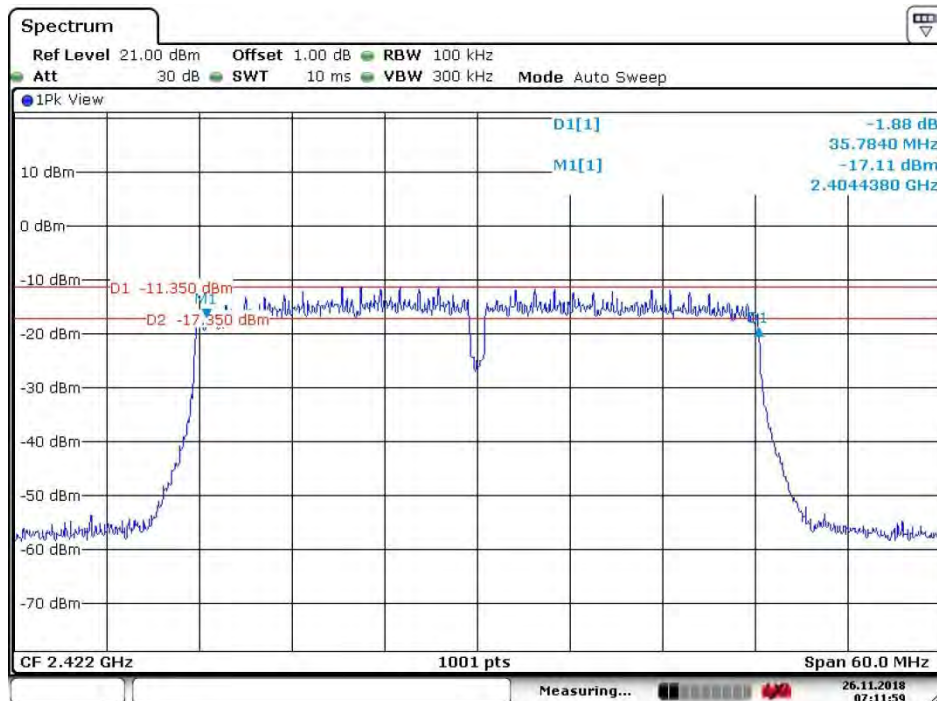


Date: 26.NOV.2018 07:08:52

4.5.2.1.19 802.11N40_ MIMO_Lowest Channel

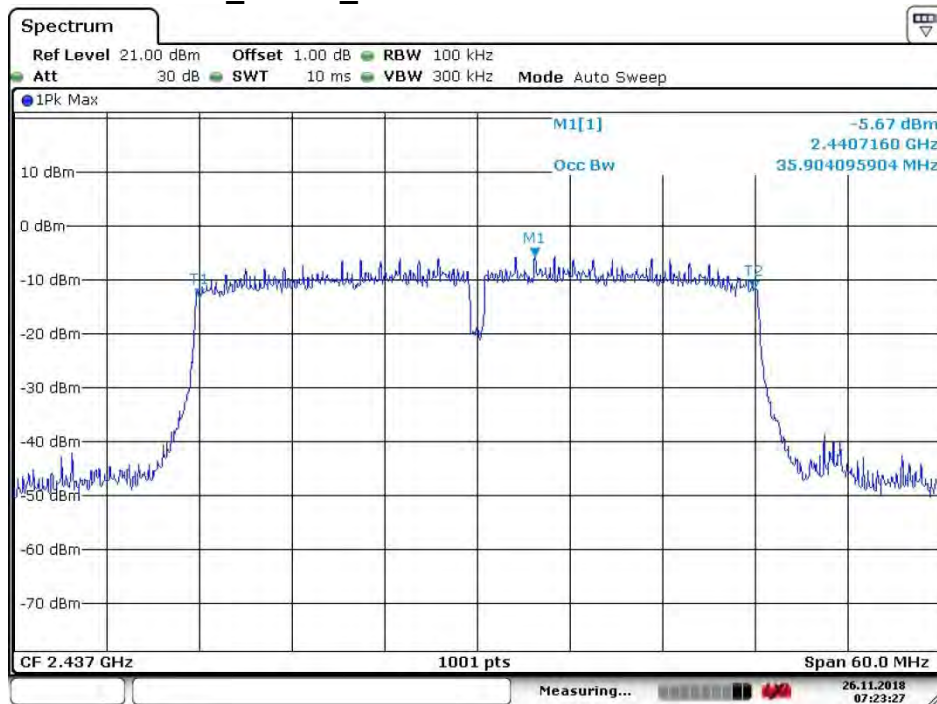


Date: 26.NOV.2018 07:24:45

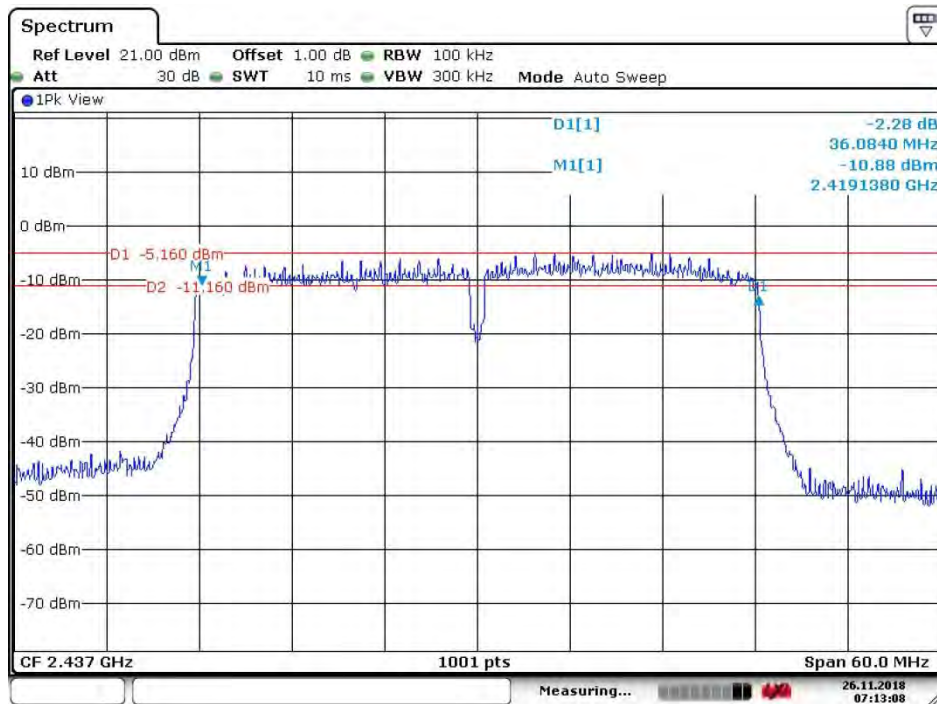


Date: 26.NOV.2018 07:11:59

4.5.2.1.20 802.11 N40_ MIMO_ Middle Channel

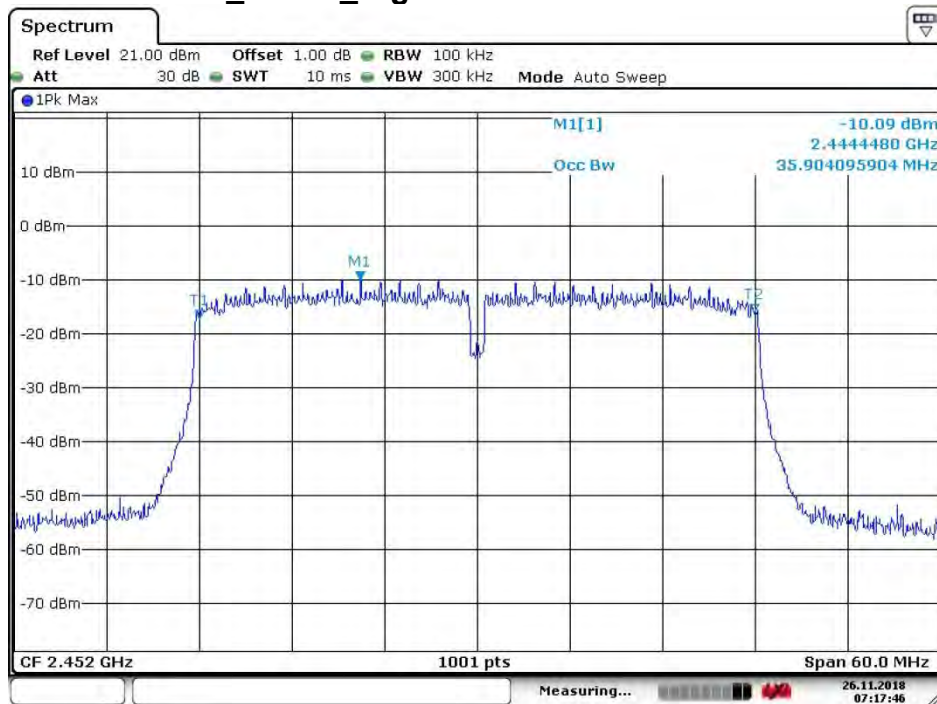


Date: 26.NOV.2018 07:23:27

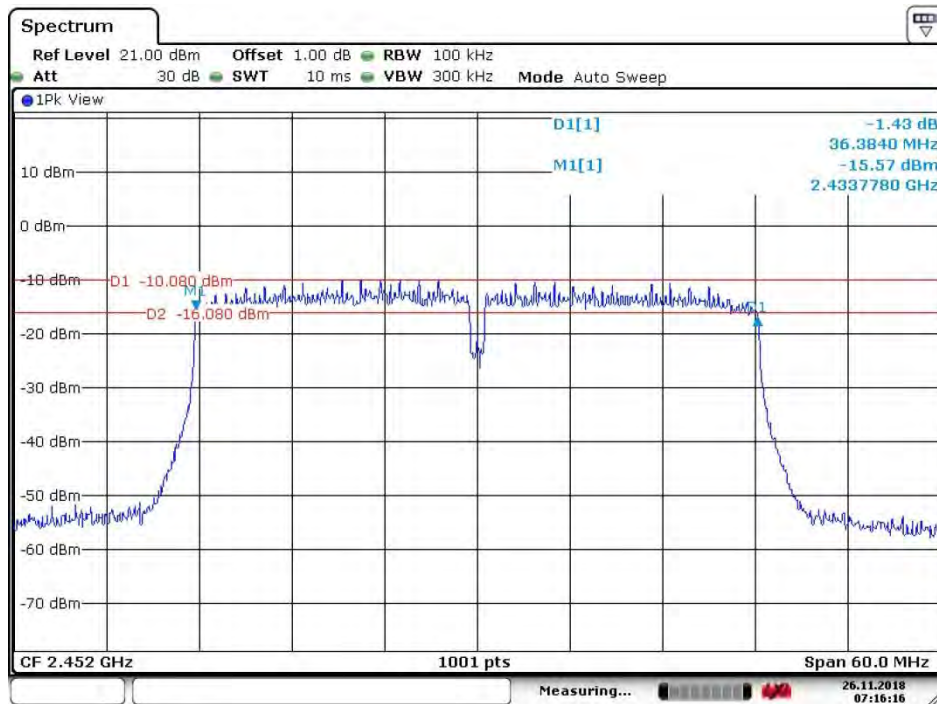


Date: 26.NOV.2018 07:13:09

4.5.2.1.21 802.11 N40_ MIMO_Highest Channel



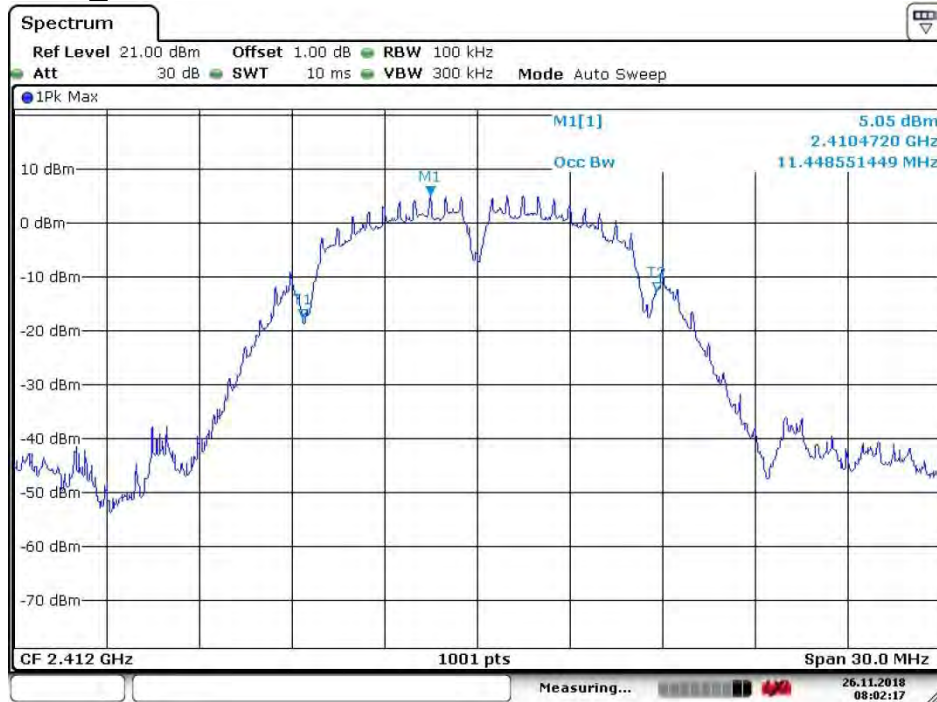
Date: 26.NOV.2018 07:17:47



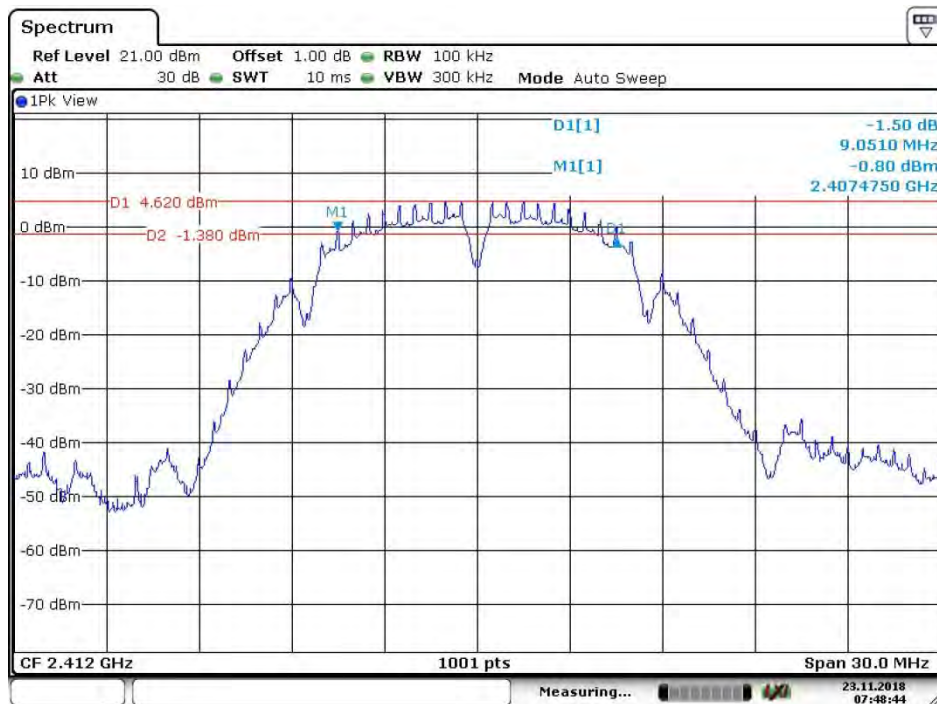
Date: 26.NOV.2018 07:16:16

4.5.2.2 ANT2:

4.5.2.2.1 802.11B_Lowest Channel

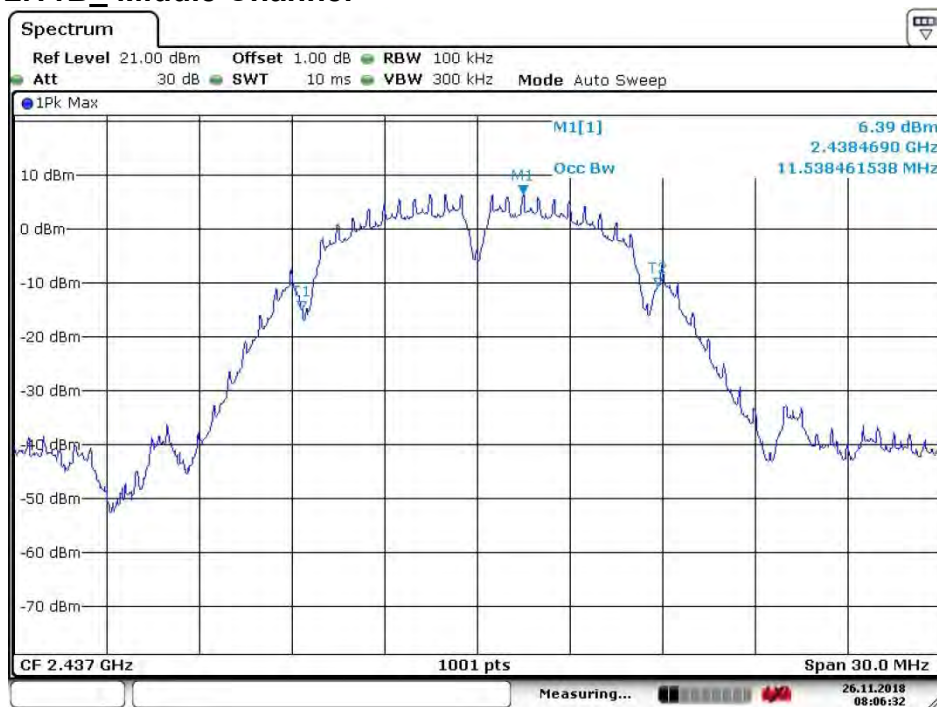


Date: 26.NOV.2018 08:02:17

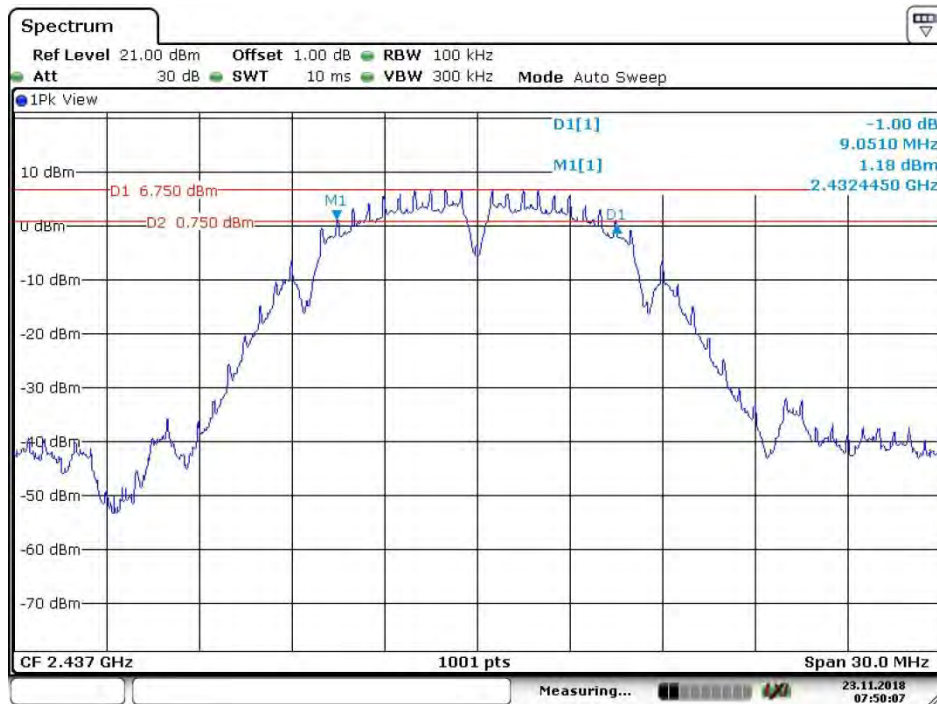


Date: 23.NOV.2018 07:48:44

4.5.2.2.2 802.11B_ Middle Channel

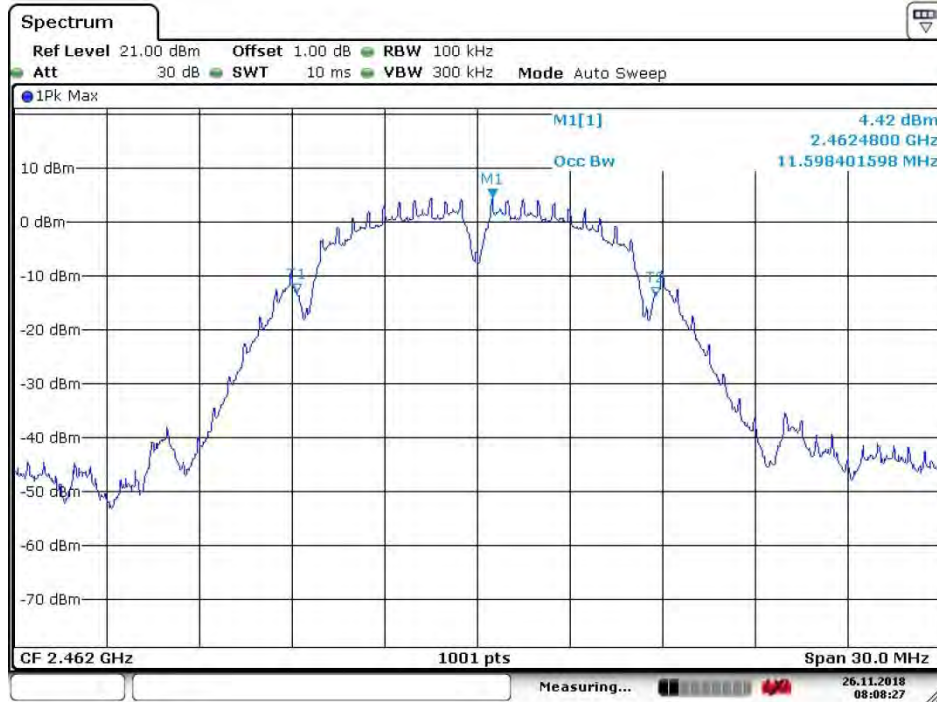


Date: 26.NOV.2018 08:06:32



Date: 23.NOV.2018 07:50:07

4.5.2.2.3 802.11B_ Highest Channel

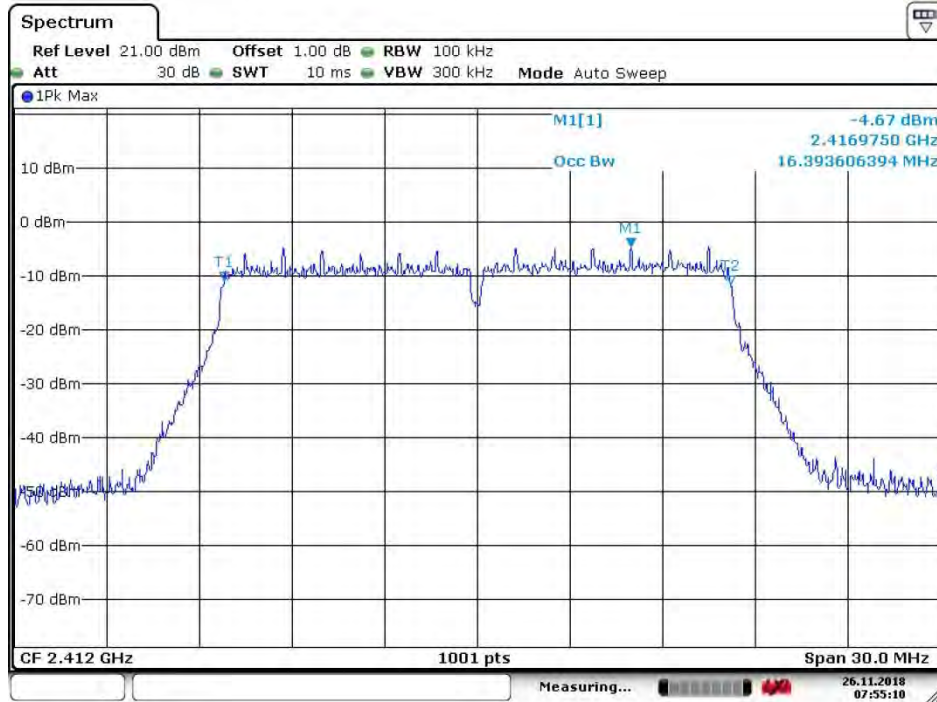


Date: 26.NOV.2018 08:08:28

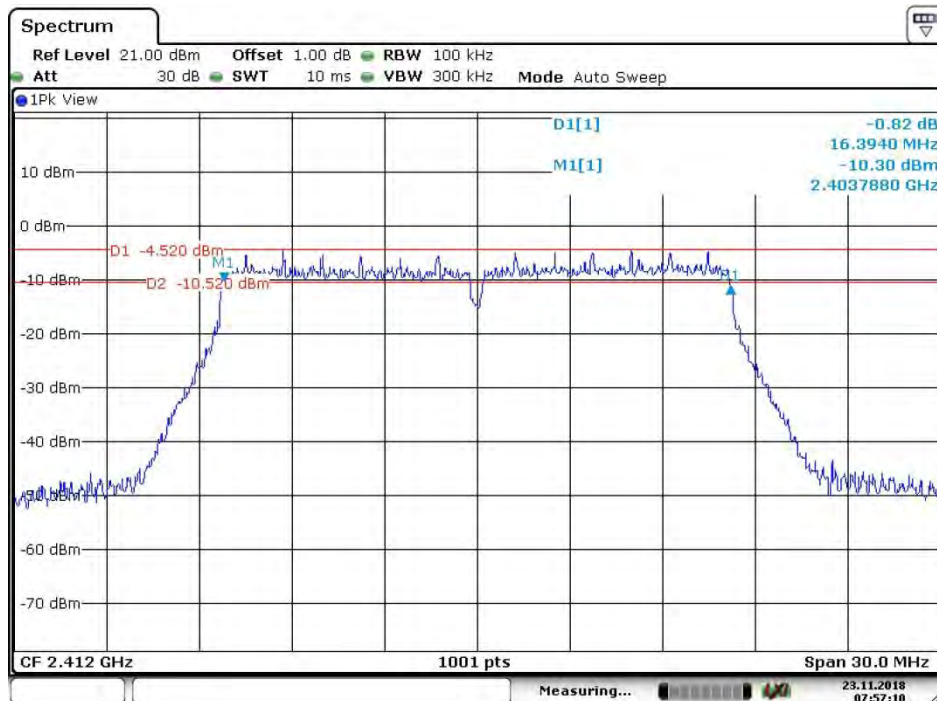


Date: 23.NOV.2018 07:54:28

4.5.2.2.4 802.11G_Lowest Channel

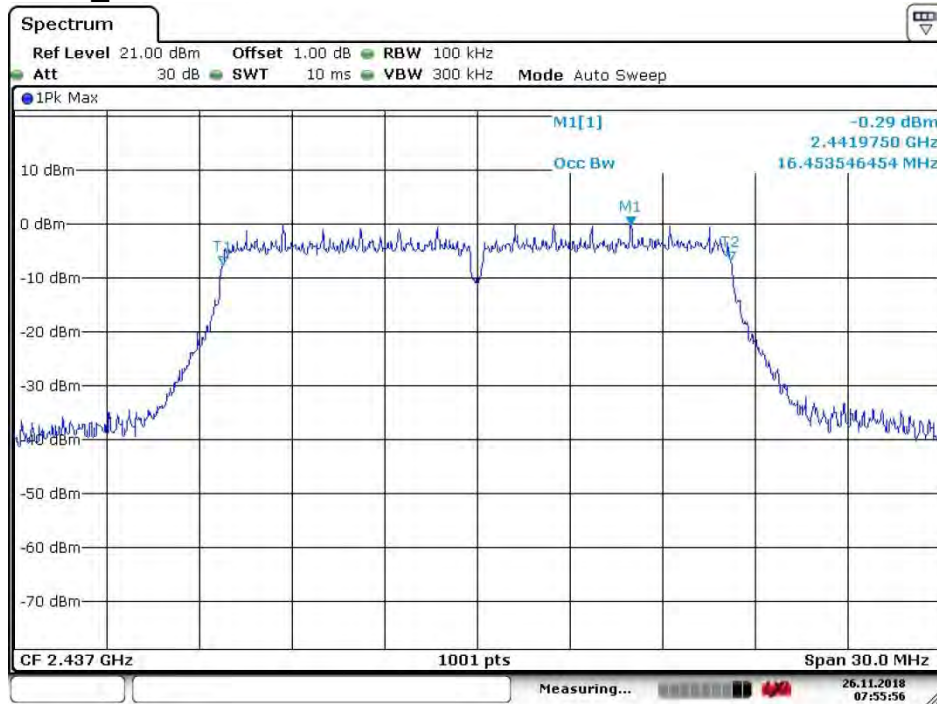


Date: 26.NOV.2018 07:55:11

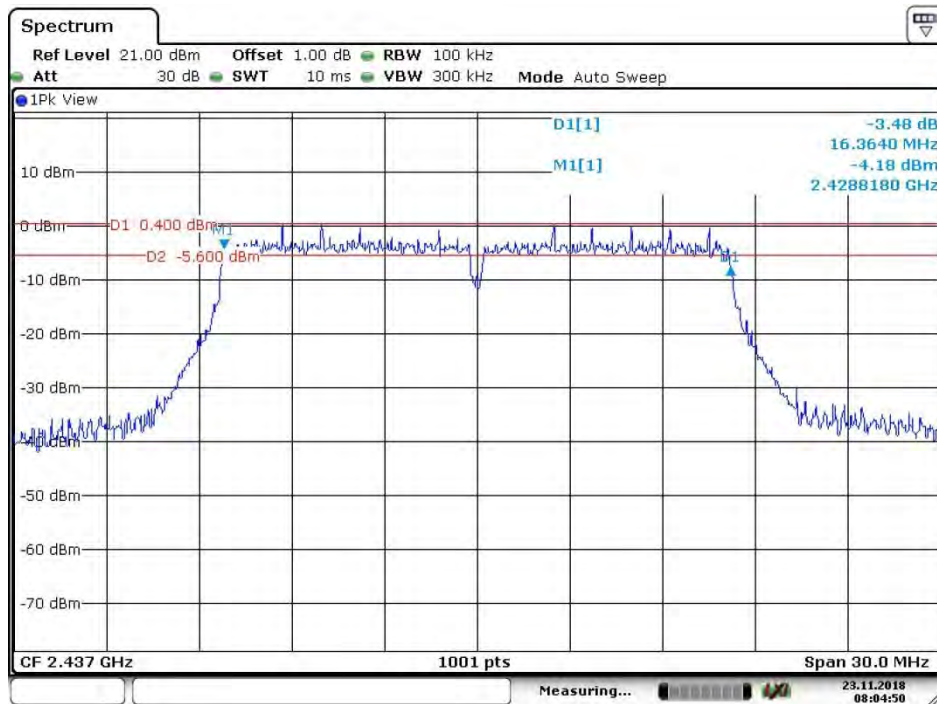


Date: 23.NOV.2018 07:57:11

4.5.2.2.5 802.11G_ Middle Channel

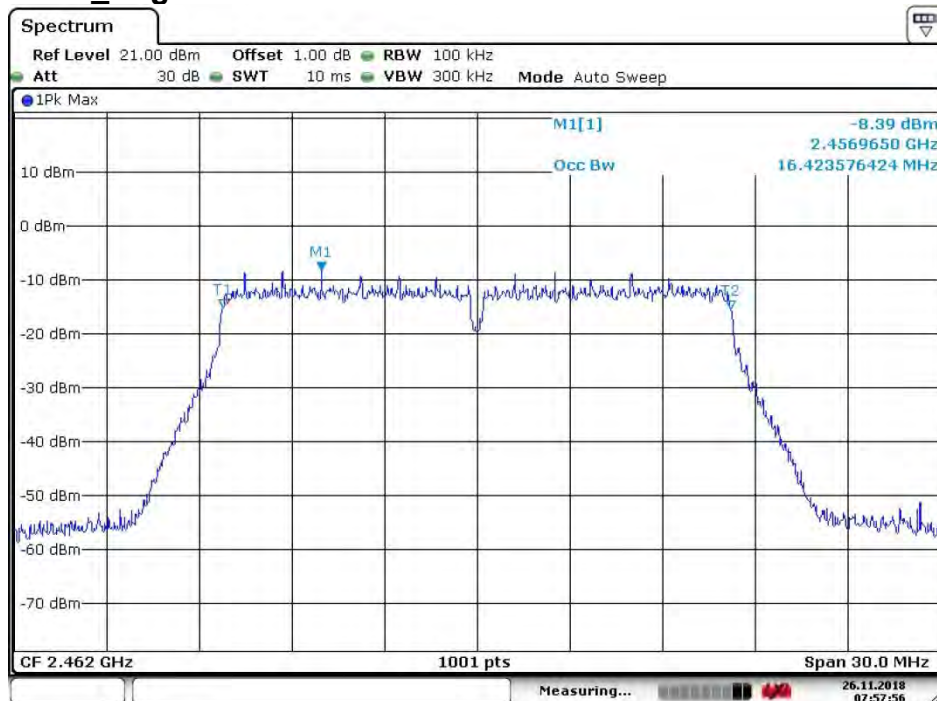


Date: 26.NOV.2018 07:55:56

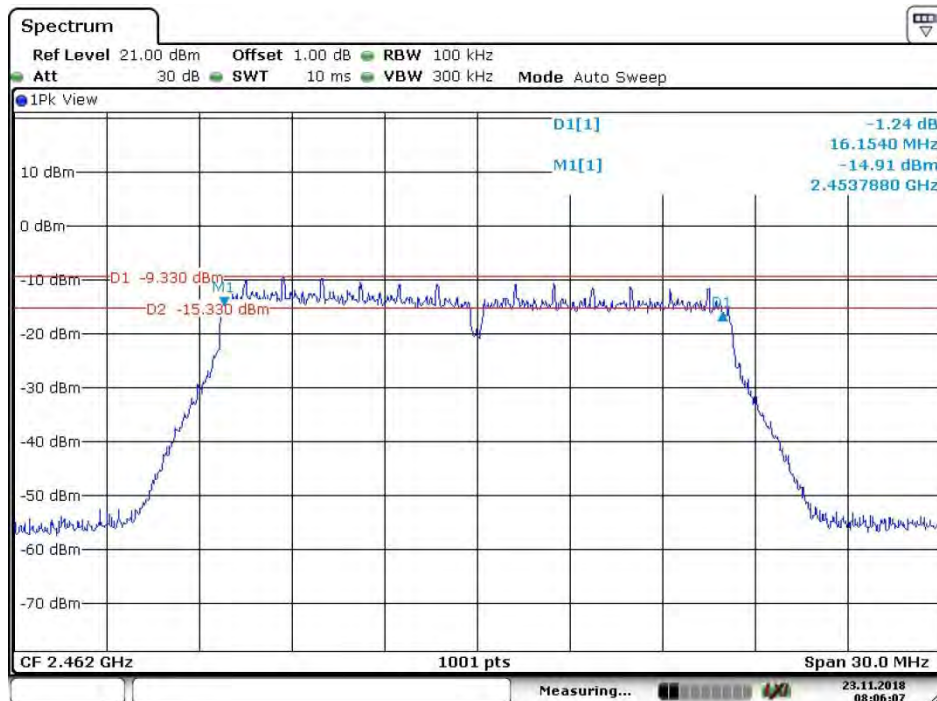


Date: 23.NOV.2018 08:04:50

4.5.2.2.6 802.11G_ Highest Channel

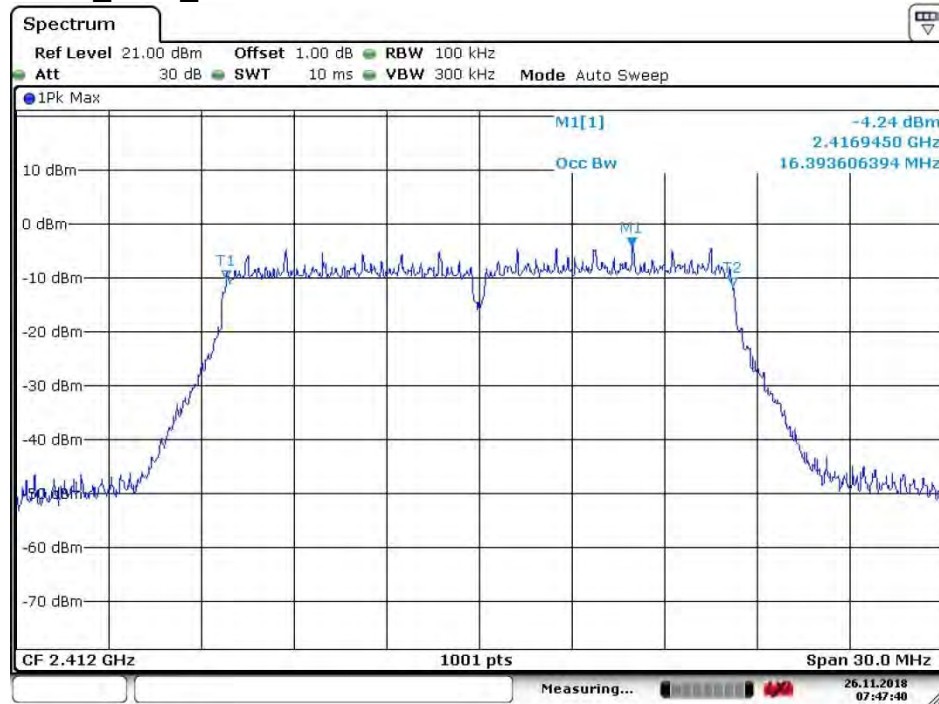


Date: 26.NOV.2018 07:57:56

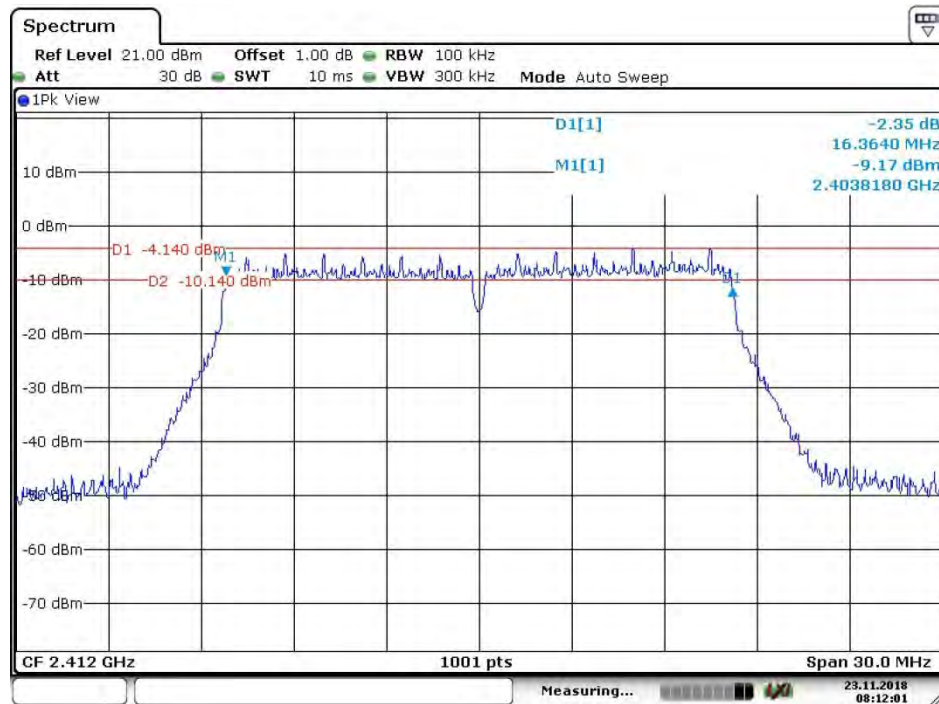


Date: 23.NOV.2018 08:06:07

4.5.2.2.7 802.11G_CDD_Lowest Channel

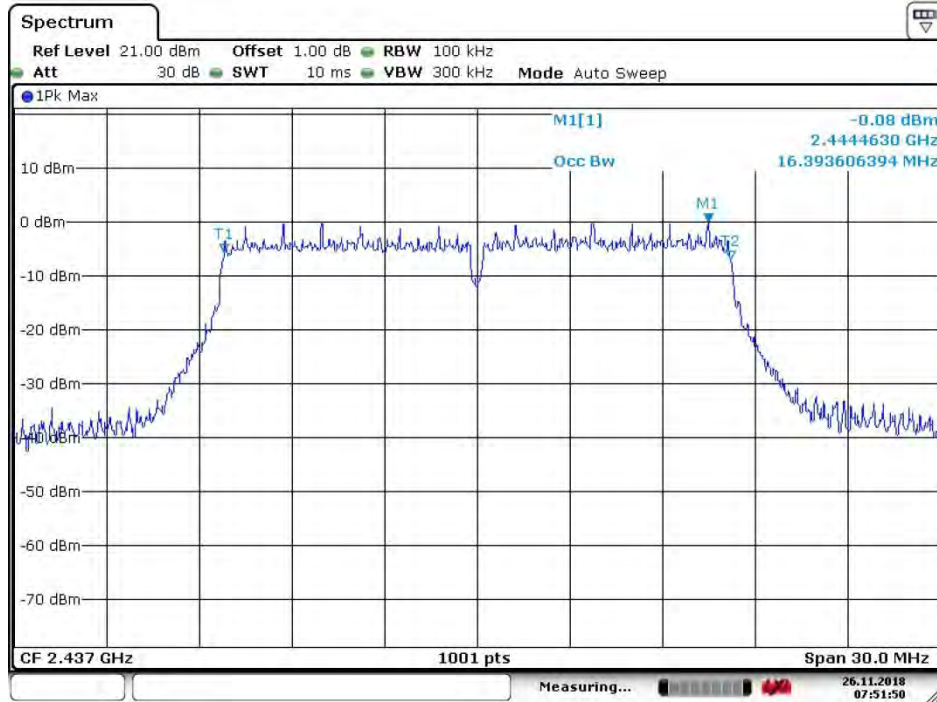


Date: 26.NOV.2018 07:47:40

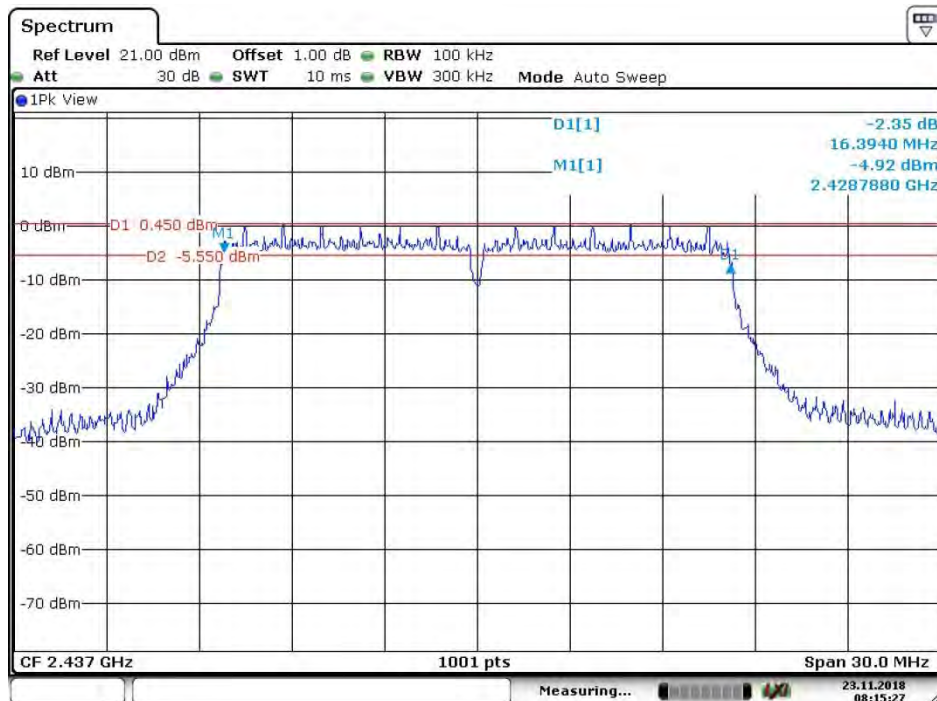


Date: 23.NOV.2018 08:12:01

4.5.2.2.8 802.11G_CDD_ Middle Channel

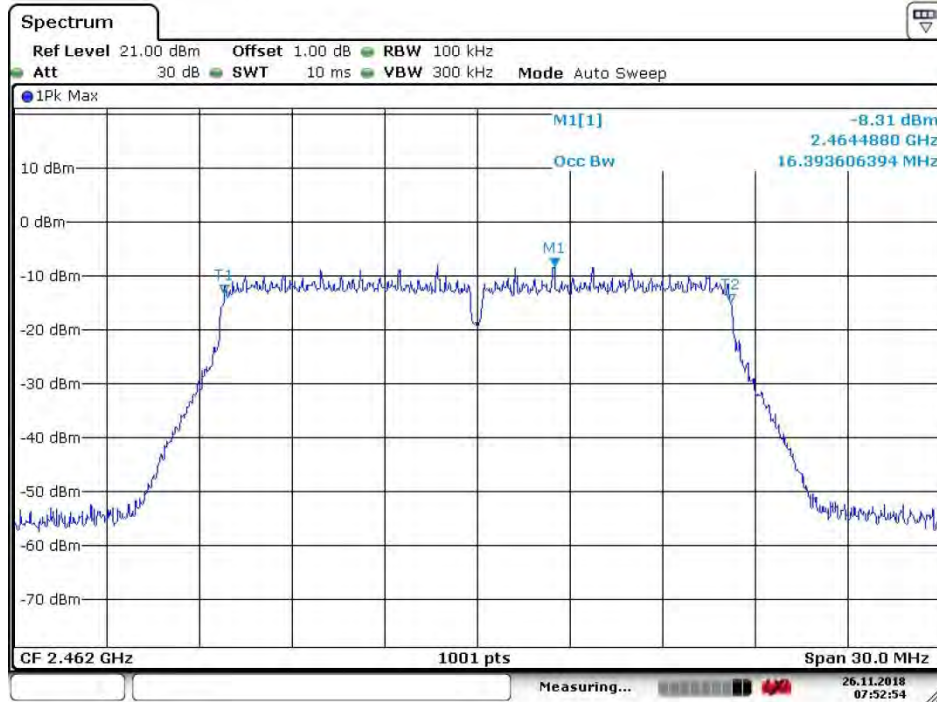


Date: 26.NOV.2018 07:51:50

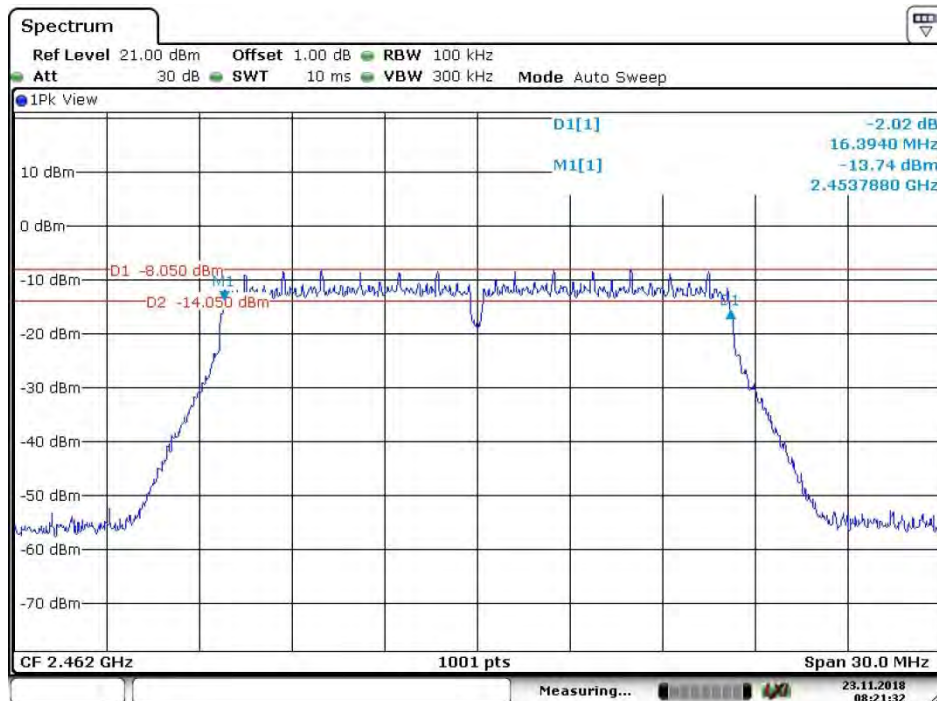


Date: 23.NOV.2018 08:15:27

4.5.2.2.9 802.11G_CDD_Highest Channel

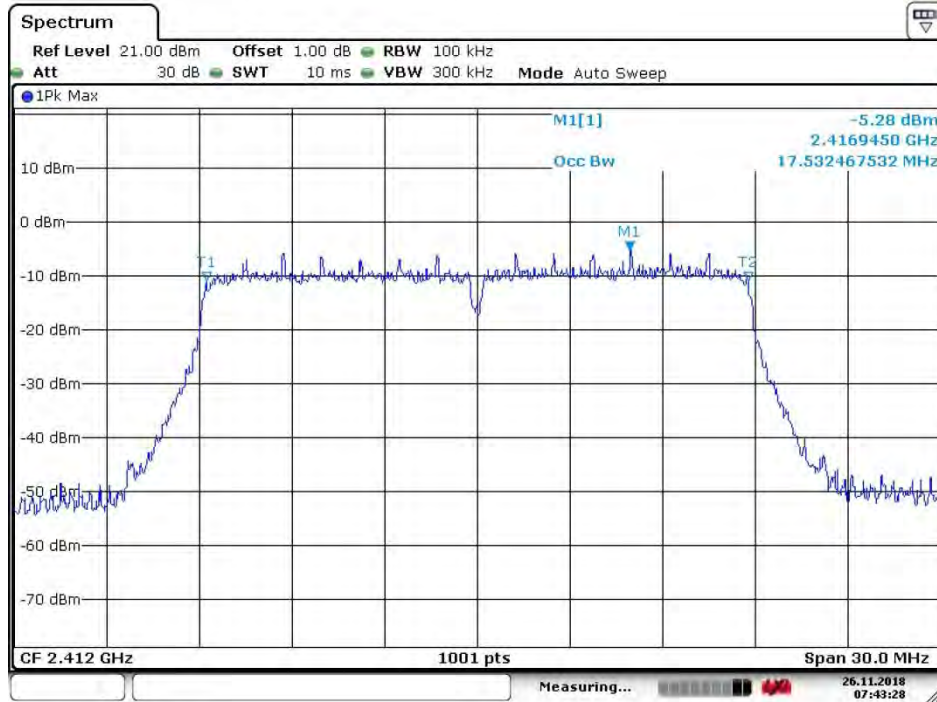


Date: 26.NOV.2018 07:52:55

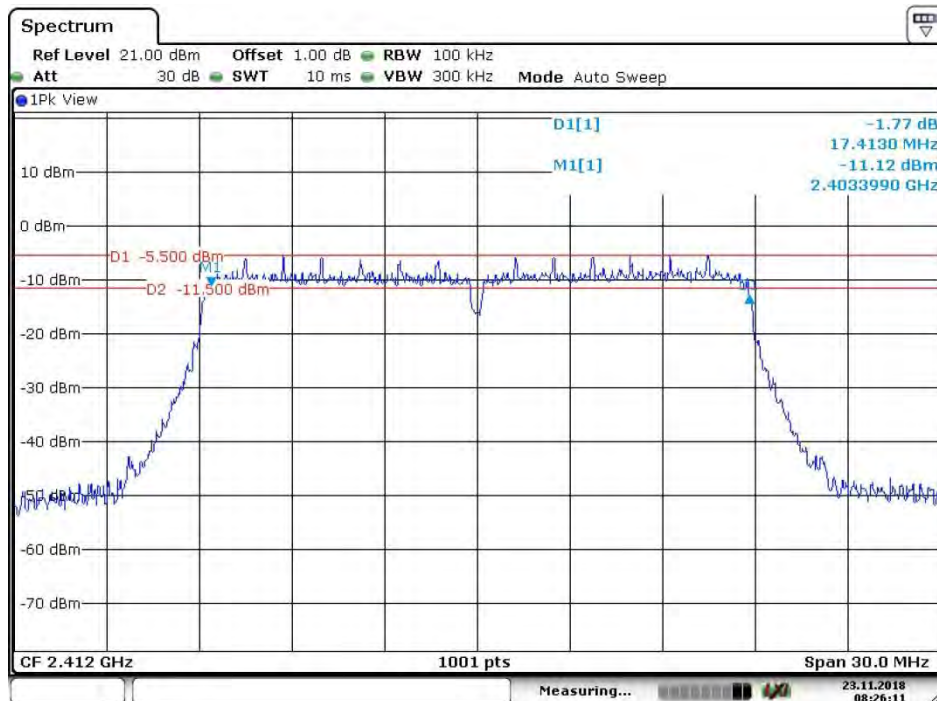


Date: 23.NOV.2018 08:21:32

4.5.2.2.10 802.11N20_Lowest Channel

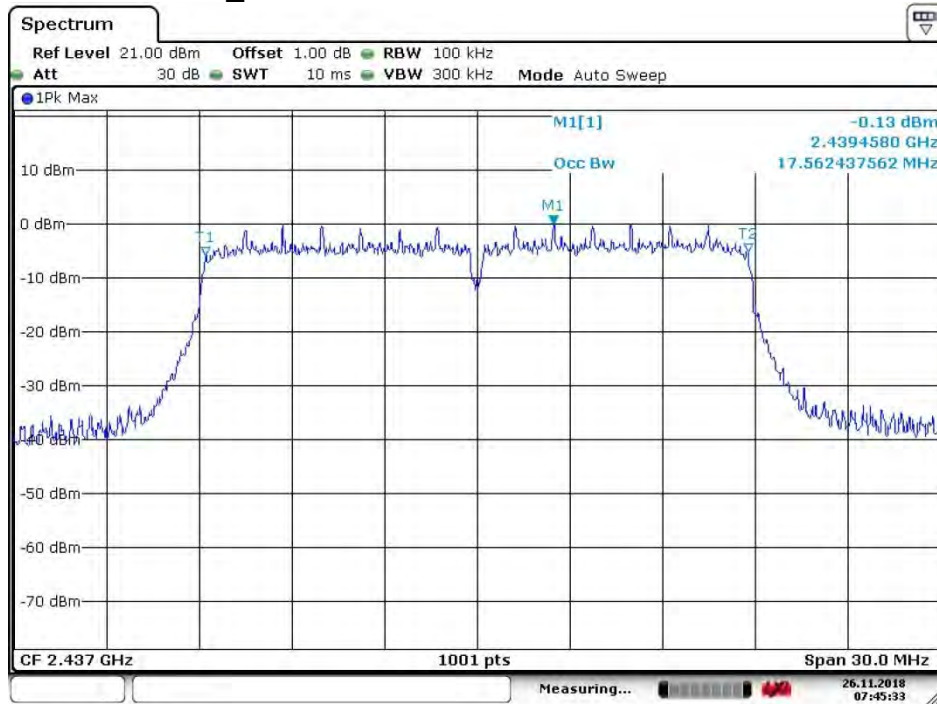


Date: 26.NOV.2018 07:43:28

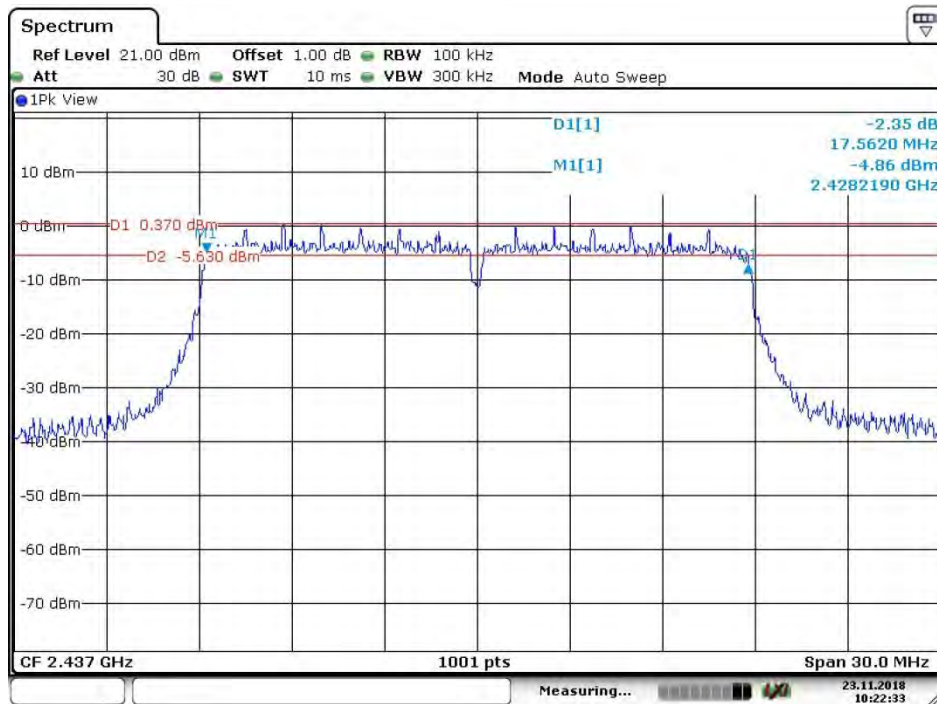


Date: 23.NOV.2018 08:26:11

4.5.2.2.11 802.11 N20_ Middle Channel

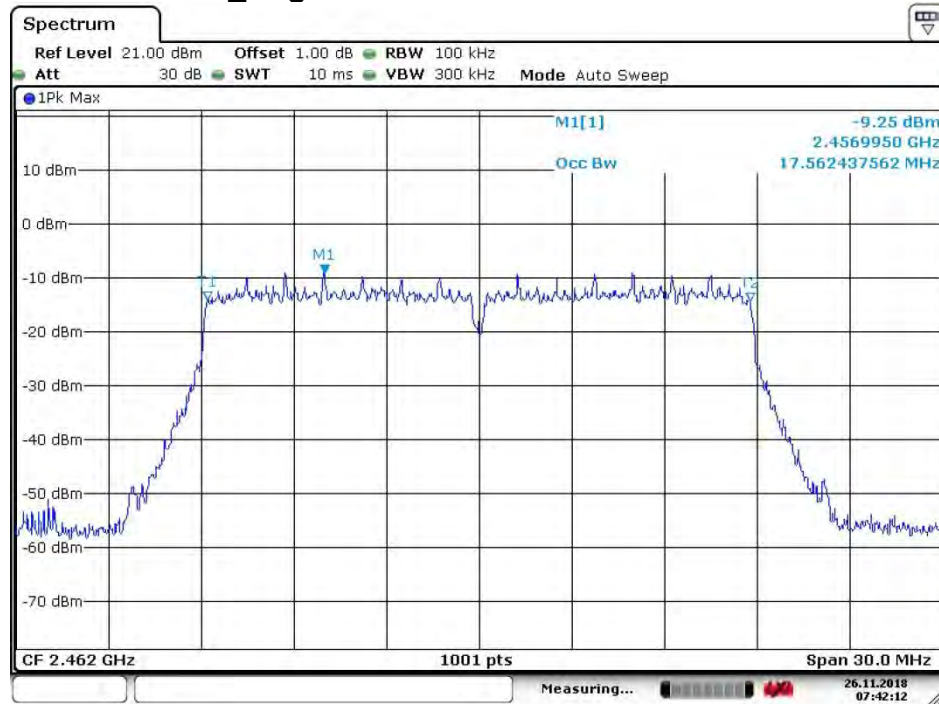


Date: 26.NOV.2018 07:45:34

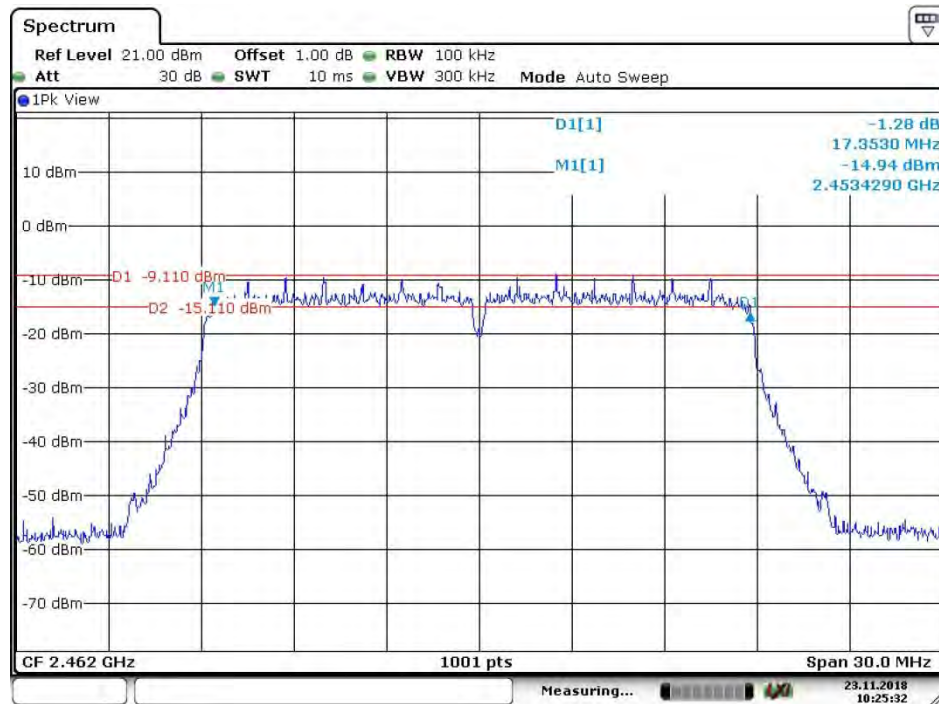


Date: 23.NOV.2018 10:22:34

4.5.2.2.12 802.11 N20_ Highest Channel



Date: 26.NOV.2018 07:42:11



Date: 23.NOV.2018 10:25:32