

TEST REPORT

EUT Description	WLAN and BT, 1x1 PCIe M.2 2230 adapter card
Brand Name	Intel® Wireless-AC 9462
Model Name	9462NGW
FCC ID	PD99462NG
ISED ID	1000M-9462NG
Date of Test Start/End	2017-10-16 / 2017-11-02
Features	802.11ac, Dual Band, 1x1 Wi-Fi + Bluetooth® 5, Diversity Antenna (see section 5)

Applicant	Intel Mobile Communications
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Reference Standards	FCC CFR Title 47 Part 15 C RSS-247 issue 2, RSS-Gen issue 4 (see section 1)
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Test Report identification	170919-02.TR04
Revision Control	Rev. 00 This test report revision replaces any previous test report revision (see section 8)

The test results relate only to the samples tested.
The test report shall not be reproduced in full, without written approval of the laboratory.

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1. Standards, reference documents and applicable test methods

1. FCC 47 CFR part 15 - Subpart C – §15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
2. FCC 47 CFR part 15 - Subpart C – §15.209 Radiated emission limits; general requirements.
3. FCC OET KDB 558074 D01 DTS Meas Guidance v04 – Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.
4. RSS-247 Issue 2 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
5. RSS-Gen Issue 4 – General Requirements for Compliance of Radio Apparatus.
6. ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. General conditions, competences and guarantees

- ✓ Intel Mobile Communications France SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2005 testing laboratory accredited by the American Association for Laboratory Accreditation (A2LA) with the certificate number 3478.01.
- ✓ Intel Mobile Communications France SAS Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number FR0011.
- ✓ Intel Mobile Communications France SAS Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by ISED, with ISED Assigned Code 1000Y.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.

3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	23 °C ±1 °C
Humidity	55 % ± 5 %

4. Test samples

Sample	Control #	Description	Model	Serial #	Date of receipt	Note
#01	170919-02.S19	Module	9462NGW	WFM 3413E87013EF	2017-10-04	Used for conducted tests
	170524-02.S15	Extender Board	PCB00609_01	6092416-442	2017-05-30	
	170000-01.S01	Laptop	Latitude E5470	DPBLMC2	2017-03-28	
#02	170919-02.S13	Module	9462NGW	WFM:3413E870143F	2017-10-04	Used for radiated tests
	170220-02.S03	Extender Board	PCB00609_01	6092416-446	2017-02-20	
	170000-01.S13	Laptop	Latitude E5470	FT6LMC2	2017-05-30	
#03	170919-02.S20	Module	9462NGW	WFM:3413E87013E0	2017-10-04	
	170220-02.S04	Extender Board	PCB00609_01	6092416-493	2017-02-20	
	170801-01.S10	Laptop	Latitude E7470	7KNOXF2	2017-09-13	

5. EUT Features

Brand Name	Intel® Wireless-AC 9462		
Model Name	9462NGW		
FCC ID	PD99462NG		
ISED ID	1000M-9462NG		
Software Version	10.1739.0-06012		
Driver Version	99.0.28.6		
Prototype / Production	Production		
Supported Radios	802.11b/g/n	2.4GHz (2400.0 – 2483.5 MHz)	
	802.11a/n/ac	5.2GHz (5150.0 – 5350.0 MHz)	
		5.6GHz (5470.0 – 5725.0 MHz)	
		5.8GHz (5725.0 – 5850.0 MHz)	
	Bluetooth 5	2.4GHz (2400.0 – 2483.5 MHz)	
Antenna Information	CHAIN A Div1: PIFA antenna. WiFi 2.4GHz & 5GHz and BT CHAIN A Div2: PIFA antenna. WiFi 2.4GHz & 5GHz and BT		
Additional Information			

6. Remarks and comments

N/A

7. Test Verdicts summary

7.1. 802.11 b/g/n 2.4GHz

FCC part	RSS part	Test name	Verdict
15.247 (a) (2)	RSS-247 Clause 5.2 (a)	6dB Bandwidth	P
15.247 (b) (3)	RSS-247 Clause 5.4 (d)	Maximum output power and E.I.R.P	P
15.247 (e)	RSS-247 Clause 5.2 (b)	Power spectral density	P
15.247 (d) 15.209	RSS-247 Clause 5.5 RSS-Gen Clause 8.9	Out-of-band Emission (conducted)	P
15.247 (d) 15.209	RSS-247 Clause 5.5 RSS-Gen Clause 8.9	Out-of-band Emission (radiated)	P

7.2. BLE

FCC part	RSS part	Test name	Verdict
15.247 (a) (2)	RSS-247 Clause 5.2 (a)	6dB Bandwidth	P
15.247 (b) (3)	RSS-247 Clause 5.4 (d)	Maximum output power and E.I.R.P.	P
15.247 (e)	RSS-247 Clause 5.2 (b)	Power spectral density	P
15.247 (d) 15.209	RSS-247 Clause 5.5 RSS-Gen Clause 8.9	Out-of-band Emissions (conducted)	P
15.247 (d) 15.209	RSS-247 Clause 5.5 RSS-Gen Clause 8.9	Out-of-band Emissions (radiated)	P

P: Pass

F: Fail

NM: Not Measured

NA: Not Applicable

8. Document Revision History

Revision #	Date	Modified by	Revision Details
Rev.00	2017-11-02	A.Sayoud	First Issue

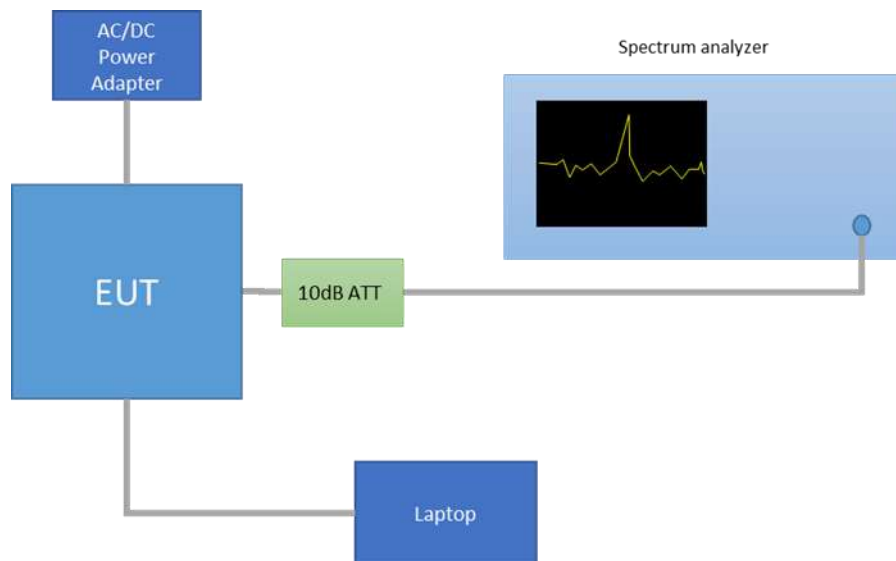
Annex A. Test & System Description

A.1 Measurement System

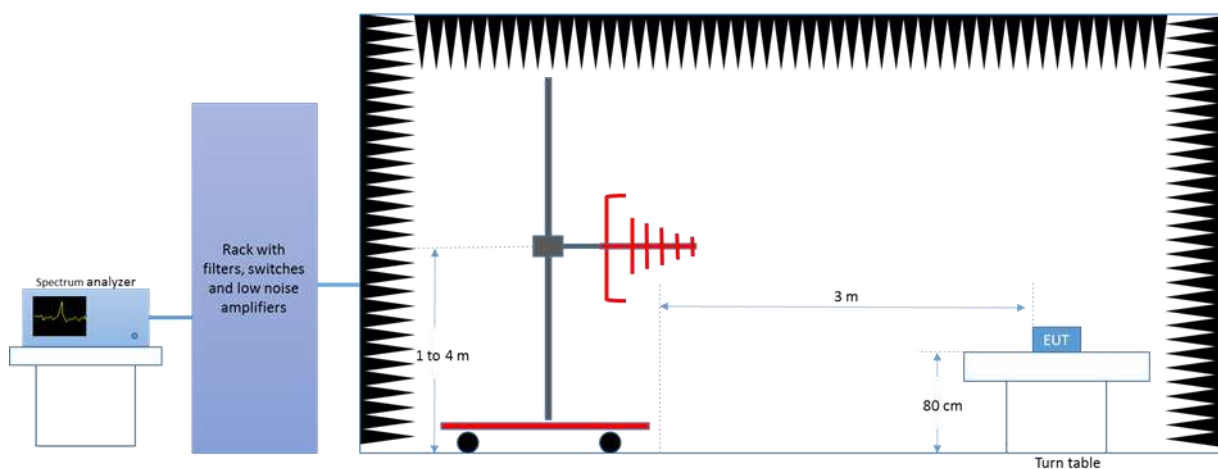
Measurements were performed using the following setups, made in accordance to the general provisions of FCC DTS Measurement KDB 558074 D01 DTS Meas Guidance.

The DUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. The laptop computer was used to configure the EUT to continuously transmit at a specified output power using all different modes and modulation schemes, using the Intel proprietary tool DRTU.

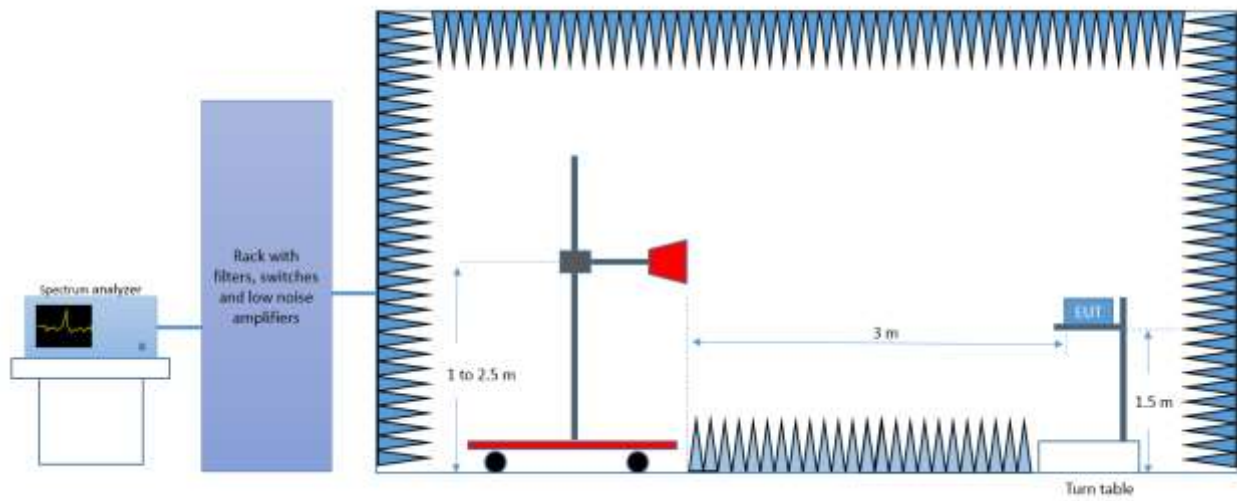
Conducted Setup



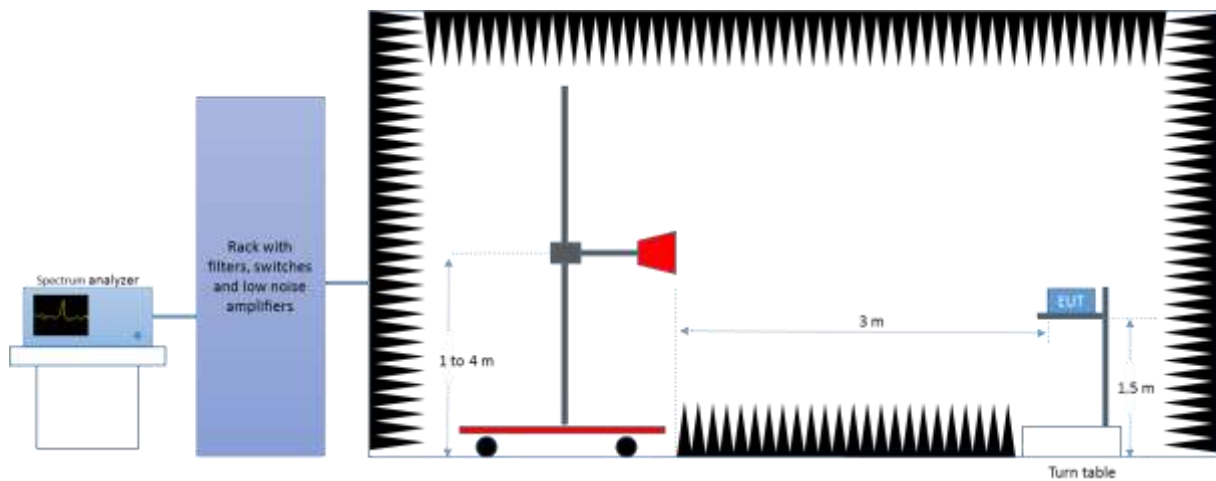
Radiated Setup < 1GHz



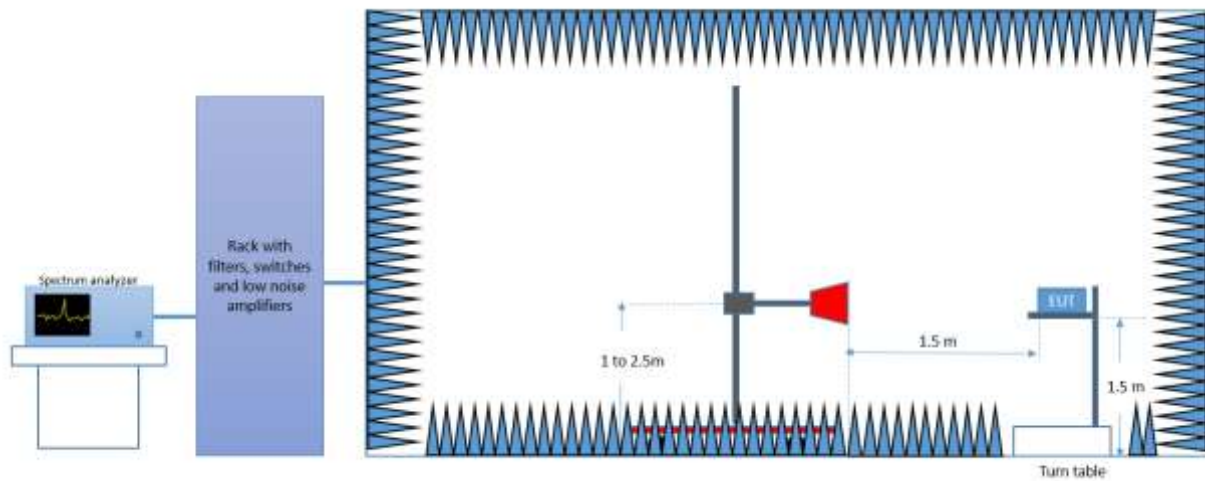
Radiated Setup 1 GHz - 6.4 GHz



Radiated Setup 6.4 GHz - 18 GHz



Radiated Setup > 18 GHz



A.2 Test Equipment List

Conducted Setup

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0316	Spectrum analyzer	FSV30	103309	Rohde & Schwarz	2017-09-22	2019-09-22

Radiated Setup-1

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2016-04-15	2018-04-15
0137	Log antenna 30 MHz – 1 GHz	3142E	00156946	ETS Lindgren	2015-12-11	2017-12-11
0141	Double Ridge Horn Antenna 1 GHz – 18 GHz	3117	00157736	ETS Lindgren	2016-04-13	2018-04-13
0343	PreAmplifier	3117-PA	00201875	ETS Lindgren	N/A	N/A
0135	Semi Anechoic chamber	FACT 3	5720	ETS Lindgren	2016-04-28	2018-04-28
0530	Measurement Software	EMC32	100623	Rohde & Schwarz	N/A	N/A
0296	Power Supply	6673A	MY41000318	Agilent	N/A	N/A
0346	Multimeter	34401A	US36054685	HP	2016-02-04	2018-02-04

N/A: Not Applicable

Radiated Setup-2

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0420	Spectrum analyzer	FSV40	101556	Rohde & Schwarz	2016-04-15	2018-04-15
0138	Horn antenna 1 GHz – 6.4 GHz	3117	00152266	ETS Lindgren	2016-03-14	2018-03-14
0337	Full Anechoic chamber	RFD_FA_100	5996	ETS Lindgren	2016-04-28	2018-04-28
0329	Measurement Software	EMC32	100401	Rohde & Schwarz	N/A	N/A

N/A: Not Applicable

Radiated Setup - shared equipments

ID#	Device	Type/Model	Serial #	Manufacturer	Cal. Date	Cal. Due Date
0617	Power Sensor 50MHz-18GHz (Peak and average)	NRP-Z81	104386	Rohde & Schwarz	2017-05-24	2019-05-24
0618	Power Sensor 50MHz-18GHz (Peak and average)	NRP-Z81	104382	Rohde & Schwarz	2017-05-24	2019-05-24

A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty [\pm dB]
Conducted Power	± 1.0
Conducted Spurious Emission	± 2.9
Radiated tests <1GHz	± 3.8
Radiated tests 1GHz - 40 GHz	± 4.7

Annex B. Test Results DTS

B.1 Test Conditions

For 802.11b/g, 802.11n20 (20 MHz channel bandwidth), 802.11n40 (40MHz channel bandwidth) modes the EUT can transmit at both CHAIN A Div 1 and CHAIN A Div 2 RF outputs individually, but not simultaneously.

For Bluetooth Low Energy mode the EUT can transmit at both CHAIN A Div 1 and CHAIN A Div 2 RF output individually.

The conducted RF output power at each chain was adjusted according to the client's supplied Target values (see following table) using the Intel DRTU tool and measuring the power by using a spectrum analyzer with the channel integration method according to point 9.2.2.2 (Method AVGSA-1) of KDB 558074 D01.

Measured values for adjustment were within +/-0.25 dB from the declared Target values.

2.4GHz DTS & BLE					Conducted Power, Target Value (dBm)	
Mode	BW (MHz)	Data Rate	CH #	Freq. (MHz)	Chain A Div1	Chain A Div2
802.11b	20	1Mbps	1	2412	18.00	18.00
			7	2442	21.00	21.00
			11	2462	19.50	19.50
			12	2467	17.00	16.50
			13	2472	15.00	14.50
802.11g	20	6Mbps	1	2412	16.00	16.00
			7	2442	19.00	19.50
			11	2462	16.50	16.50
			12	2467	13.50	12.50
			13	2472	-5.50	-5.50
802.11n	20	HT0	1	2412	16.00	16.00
			7	2442	19.00	19.00
			11	2462	15.50	15.50
			12	2467	13.00	13.00
			13	2472	-6.00	-5.50
802.11n	40	HT0	3F	2422	14.00	14.00
			7F	2442	15.00	15.00
			9F	2452	13.50	13.50
			10F	2457	10.50	11.00
			11F	2462	2.00	3.00
Bluetooth Low Energy	2	1Mbps	0	2412	8.50	8.00
			19	2440	9.00	8.50
			39	2462	8.50	8.00

The following data rates were selected based on preliminary testing that identified those rates as the worst cases for output power and spurious levels at the band edges:

802.11b → 1Mbps

802.11g → 6Mbps

802.11n20 and 802.11n40 (SISO) → HT0

Alternative channels to the lowest and highest channels per band have been also tested for Band Edge compliance.

B.2 Test Results Tables

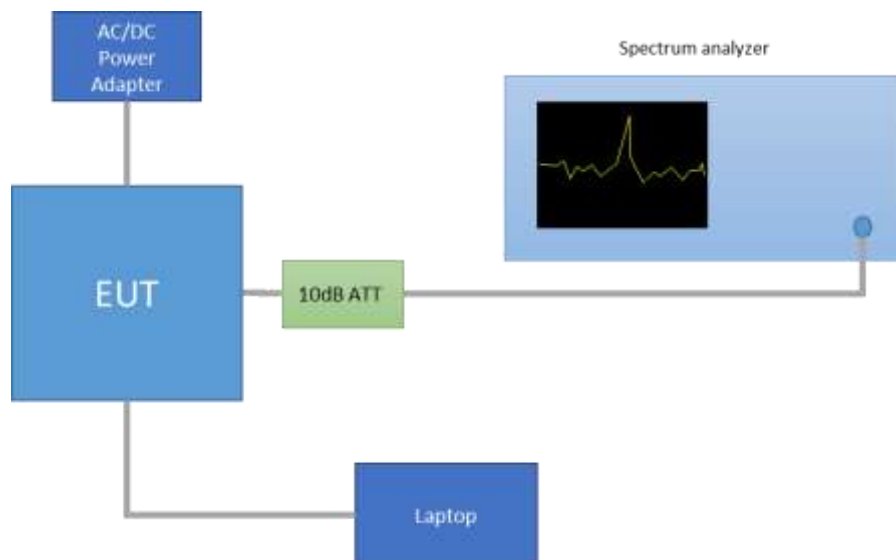
B.2.1 6dB & 99% Bandwidth

Test limits

FCC part	RSS part	Limits
15.247 (a) (2)	RSS-247 Clause 5.2 (a)	Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure

The setup below was used to measure the 6dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables

Mode	Rate	Antenna	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
802.11b	1Mbps	CHAIN A DIV1	1	2412	10.09	13.61
			7	2442	10.10	14.91
			11	2462	10.06	13.87
			12	2467	10.06	13.78
			13	2472	10.11	13.45
		CHAIN A DIV2	1	2412	10.05	13.57
			7	2442	10.10	15.00
			11	2462	10.07	13.85
			12	2467	10.10	13.78
			13	2472	9.82	13.44
802.11g	6Mbps	CHAIN A DIV1	1	2412	16.34	16.79
			7	2442	16.34	20.10
			11	2462	16.34	16.80
			12	2467	16.35	16.79
			13	2472	16.34	16.88
		CHAIN A DIV2	1	2412	16.36	16.80
			7	2442	16.35	20.29
			11	2462	16.34	16.81
			12	2467	16.34	16.78
			13	2472	16.35	16.88
802.11n20	HT0	CHAIN A DIV1	1	2412	17.58	17.90
			7	2442	17.58	19.37
			11	2462	17.57	17.89
			12	2467	17.60	17.89
			13	2472	17.58	17.94
		CHAIN A DIV2	1	2412	17.59	17.89
			7	2442	17.57	-19.19
			11	2462	17.58	17.91
			12	2467	17.59	17.88
			13	2472	17.59	17.95

Mode	Rate	Antenna	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
802.11n40	HT0	CHAIN A DIV1	3F	2422	36.09	36.50
			7F	2442	36.10	36.51
			9F	2452	36.09	36.51
			10F	2457	36.15	36.46
			11F	2462	36.19	36.49
		CHAIN A DIV2	3F	2422	36.10	36.51
			7F	2442	36.09	36.50
			9F	2452	36.12	36.51
			10F	2457	36.19	36.46
			11F	2462	36.09	36.50

Max Value

See Section B.3.1 and Section B.3.2 for the screenshot results.

B.2.2 Maximum Output Power and antenna gain

Test limits

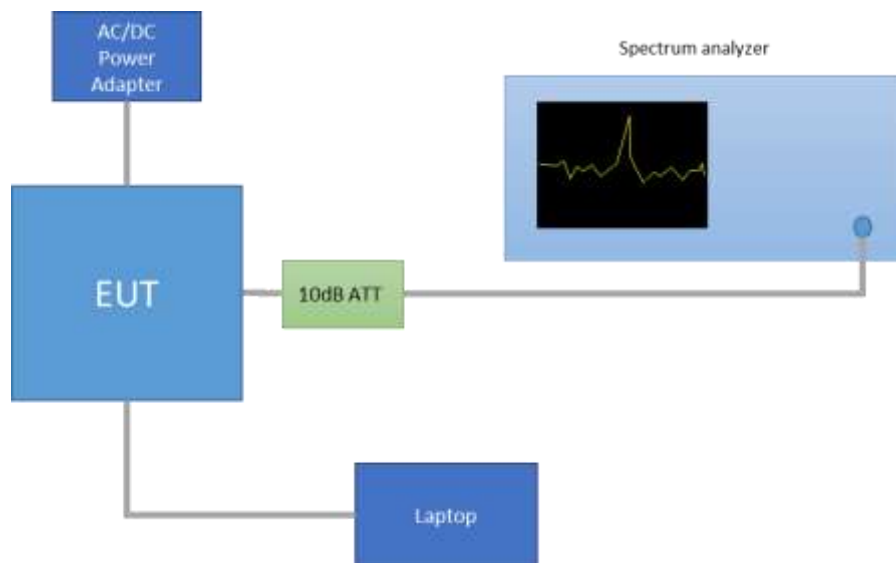
	Limits
FCC Part 15.247 (b) (3)	<p>(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:</p> <p>(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level.</p> <p>(4) 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.</p>
RSS-247 Clause 5.4 (d)	<p>For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).</p> <p>As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.</p>

Test procedure

The Maximum Peak Conducted Output Power was measured using the channel integration method as authorized in chapter 2.0 “*Power limits, definitions and device configuration*” of FCC KDB 558074 D01.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power. The declared maximum antenna gain is 3.24dBi.

The setup below was used to measure the maximum conducted output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables

Maximum peak conducted output power

Mode	Rate	CH	Freq [MHz]	Antenna	Measured Conducted Output power [dBm]	EIRP [dBm]	EIRP [mW]	Conducted power [mW]
802.11b	1Mbps	1	2412	CHAIN A DIV1	21.09	24.33	271.02	128.53
				CHAIN A DIV2	20.84	24.08	255.86	121.34
		7	2442	CHAIN A DIV1	23.78	27.02	503.50	238.78
				CHAIN A DIV2	23.98	27.22	527.23	250.03
		11	2462	CHAIN A DIV1	22.50	25.74	374.97	177.83
				CHAIN A DIV2	22.60	25.84	383.71	181.97
		12	2467	CHAIN A DIV1	20.10	23.34	215.77	102.33
				CHAIN A DIV2	19.53	22.77	189.23	89.74
		13	2472	CHAIN A DIV1	17.80	21.04	127.06	60.26
				CHAIN A DIV2	17.51	20.75	118.85	56.36
802.11g	6Mbps	1	2412	CHAIN A DIV1	24.68	27.92	619.44	293.76
				CHAIN A DIV2	24.59	27.83	606.74	287.74
		7	2442	CHAIN A DIV1	27.99	31.23	1327.39	629.51
				CHAIN A DIV2	28.06	31.30	1348.96	639.73
		11	2462	CHAIN A DIV1	24.89	28.13	650.13	308.32
				CHAIN A DIV2	25.07	28.31	677.64	321.37
		12	2467	CHAIN A DIV1	21.78	25.02	317.69	150.66
				CHAIN A DIV2	21.19	24.43	277.33	131.52
		13	2472	CHAIN A DIV1	3.16	6.40	4.37	2.07
				CHAIN A DIV2	3.16	6.40	4.37	2.07
802.11n20	HT0	1	2412	CHAIN A DIV1	24.23	27.47	558.47	264.85
				CHAIN A DIV2	24.23	27.47	558.47	264.85
		7	2442	CHAIN A DIV1	27.61	30.85	1216.19	576.77
				CHAIN A DIV2	27.80	31.04	1270.57	602.56
		11	2462	CHAIN A DIV1	24.04	27.28	534.56	253.51
				CHAIN A DIV2	24.27	27.51	563.64	267.30
		12	2467	CHAIN A DIV1	21.72	24.96	313.33	148.59
				CHAIN A DIV2	21.46	24.70	295.12	139.96
		13	2472	CHAIN A DIV1	2.80	6.04	4.02	1.91
				CHAIN A DIV2	2.86	6.10	4.07	1.93

Max Value

Min Value

Mode	Rate	CH	Freq [MHz]	Antenna	Measured Conducted Output power [dBm]	EIRP [dBm]	EIRP [mW]	Conducted power [mW]
802.11n40	HT0	3F	2422	CHAIN A DIV1	22.70	25.94	392.64	186.21
				CHAIN A DIV2	22.72	25.96	394.46	187.07
		7F	2442	CHAIN A DIV1	23.56	26.80	478.63	226.99
				CHAIN A DIV2	23.58	26.82	480.84	228.03
		9F	2452	CHAIN A DIV1	22.31	25.55	358.92	170.22
				CHAIN A DIV2	22.31	25.55	358.92	170.22
		10F	2457	CHAIN A DIV1	18.91	22.15	164.06	77.80
				CHAIN A DIV2	19.28	22.52	178.65	84.72
		11F	2462	CHAIN A DIV1	10.43	13.67	23.28	11.04
				CHAIN A DIV2	11.39	14.63	29.04	13.77

Max Value

Min Value

Maximum (Average) conducted output power*

Mode	Rate	CH	Freq [MHz]	Antenna	Measured average conducted power [dBm]	Maximum** (average) conducted output power [dBm]	EIRP [dBm]	Average Output Power [mW]
802.11b	1Mbps	1	2412	CHAIN A DIV1	18.11	18.11	21.35	64.71
				CHAIN A DIV2	17.88	17.88	21.12	61.38
		7	2442	CHAIN A DIV1	20.75	20.75	23.99	118.85
				CHAIN A DIV2	20.97	20.97	24.21	125.03
		11	2462	CHAIN A DIV1	19.48	19.48	22.72	88.72
				CHAIN A DIV2	19.56	19.56	22.80	90.36
		12	2467	CHAIN A DIV1	17.07	17.07	20.31	50.93
				CHAIN A DIV2	16.50	16.50	19.74	44.67
		13	2472	CHAIN A DIV1	14.77	14.77	18.01	29.99
				CHAIN A DIV2	14.48	14.48	17.72	28.05
802.11g	6Mbps	1	2412	CHAIN A DIV1	16.21	16.21	19.45	41.78
				CHAIN A DIV2	16.11	16.11	19.35	40.83
		7	2442	CHAIN A DIV1	19.21	19.21	22.45	83.37
				CHAIN A DIV2	19.32	19.32	22.56	85.51
		11	2462	CHAIN A DIV1	16.37	16.37	19.61	43.35
				CHAIN A DIV2	16.54	16.54	19.78	45.08
		12	2467	CHAIN A DIV1	13.25	13.25	16.49	21.13
				CHAIN A DIV2	12.71	12.71	15.95	18.66
		13	2472	CHAIN A DIV1	-5.40	-5.40	-2.16	0.29
				CHAIN A DIV2	-5.39	-5.39	-2.15	0.29
802.11n20	HT0	1	2412	CHAIN A DIV1	15.80	15.80	19.04	38.02
				CHAIN A DIV2	15.75	15.75	18.99	37.58
		7	2442	CHAIN A DIV1	18.89	18.89	22.13	77.45
				CHAIN A DIV2	19.10	19.10	22.34	81.28
		11	2462	CHAIN A DIV1	15.50	15.50	18.74	35.48
				CHAIN A DIV2	15.72	15.72	18.96	37.33
		12	2467	CHAIN A DIV1	13.17	13.17	16.41	20.75
				CHAIN A DIV2	12.92	12.92	16.16	19.59
		13	2472	CHAIN A DIV1	-5.75	-5.75	-2.51	0.27
				CHAIN A DIV2	-5.72	-5.72	-2.48	0.27

Mode	Rate	CH	Freq [MHz]	Antenna	Measured average conducted power [dBm]	Maximum** (average) conducted output power [dBm]	EIRP [dBm]	Average Output Power [mW]
802.11n40	HT0	3F	2422	CHAIN A DIV1	13.92	14.08	17.32	25.60
				CHAIN A DIV2	13.92	14.08	17.32	25.60
		7F	2442	CHAIN A DIV1	14.77	14.93	18.17	31.13
				CHAIN A DIV2	14.74	14.90	18.14	30.92
		9F	2452	CHAIN A DIV1	13.53	13.69	16.93	23.40
				CHAIN A DIV2	13.52	13.68	16.92	23.35
		10F	2457	CHAIN A DIV1	10.69	10.85	14.09	12.17
				CHAIN A DIV2	10.40	10.56	13.80	11.38
		11F	2462	CHAIN A DIV1	2.89	3.05	6.29	2.02
				CHAIN A DIV2	1.94	2.10	5.34	1.62

* Maximum (average) conducted output power are shown for indicative purpose only.

** Duty cycle compensated

See Section B.3.3 for the screenshot results.

B.2.3 Power Spectral Density

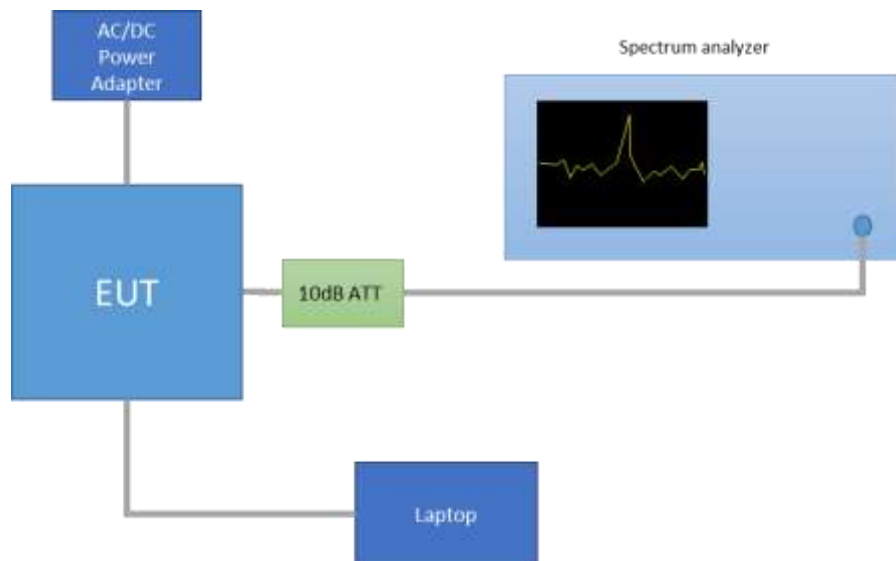
Test limits

FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (b)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test procedure

The peak power spectral density level in the fundamental emission was measured using the *Method PKPSD (peak PSD)* according to point 10.2 of KDB 558074 D01 DTS Meas Guidance. This method was used for 802.11b, 802.11g, 802.11n20 and 802.11n40 modes.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables

Mode	Rate	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11b	1Mbps	1	2412	CHAIN A DIV1	-4.47
				CHAIN A DIV2	-4.71
		7	2442	CHAIN A DIV1	-2.06
				CHAIN A DIV2	-1.86
		11	2462	CHAIN A DIV1	-3.22
				CHAIN A DIV2	-3.09
		12	2467	CHAIN A DIV1	-5.59
				CHAIN A DIV2	-6.15
802.11g	6Mbps	1	2412	CHAIN A DIV1	-8.13
				CHAIN A DIV2	-8.20
		7	2442	CHAIN A DIV1	-4.96
				CHAIN A DIV2	-4.90
		11	2462	CHAIN A DIV1	-8.21
				CHAIN A DIV2	-8.09
		12	2467	CHAIN A DIV1	-11.24
				CHAIN A DIV2	-11.67
802.11n20	HT0	1	2412	CHAIN A DIV1	-8.13
				CHAIN A DIV2	-8.16
		7	2442	CHAIN A DIV1	-4.97
				CHAIN A DIV2	-4.97
		11	2462	CHAIN A DIV1	-8.29
				CHAIN A DIV2	-8.33
		12	2467	CHAIN A DIV1	-10.93
				CHAIN A DIV2	-10.89
802.11n40	HT0	3F	2422	CHAIN A DIV1	-13.37
				CHAIN A DIV2	-13.03
		7F	2442	CHAIN A DIV1	-11.63
				CHAIN A DIV2	-12.61
		9F	2452	CHAIN A DIV1	-13.88
				CHAIN A DIV2	-12.91
		10F	2457	CHAIN A DIV1	-16.52
				CHAIN A DIV2	-16.14
		11F	2462	CHAIN A DIV1	-23.62
				CHAIN A DIV2	-25.57

Max Value

See Section B.3.4 for the screenshot results

B.2.4 Out-of-band emission (conducted)

Test Limits

FCC part	RSS part	Limits																				
15.247 (d)	RSS-247 Clause 5.5	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.																				
15.209	RSS-Gen Clause 8.9	<p>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):</p> <table><tr><th>Freq Range (MHz)</th><th>Field Strength (μV/m)</th><th>Field Strength (dBμV/m)</th><th>Meas. Distance (m)</th></tr><tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr><tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr><tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>54</td><td>3</td></tr></table> <p>The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</p> <p>For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</p>	Freq Range (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Meas. Distance (m)	30-88	100	40	3	88-216	150	43.5	3	216-960	200	46	3	Above 960	500	54	3
Freq Range (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Meas. Distance (m)																			
30-88	100	40	3																			
88-216	150	43.5	3																			
216-960	200	46	3																			
Above 960	500	54	3																			

Test procedure

The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

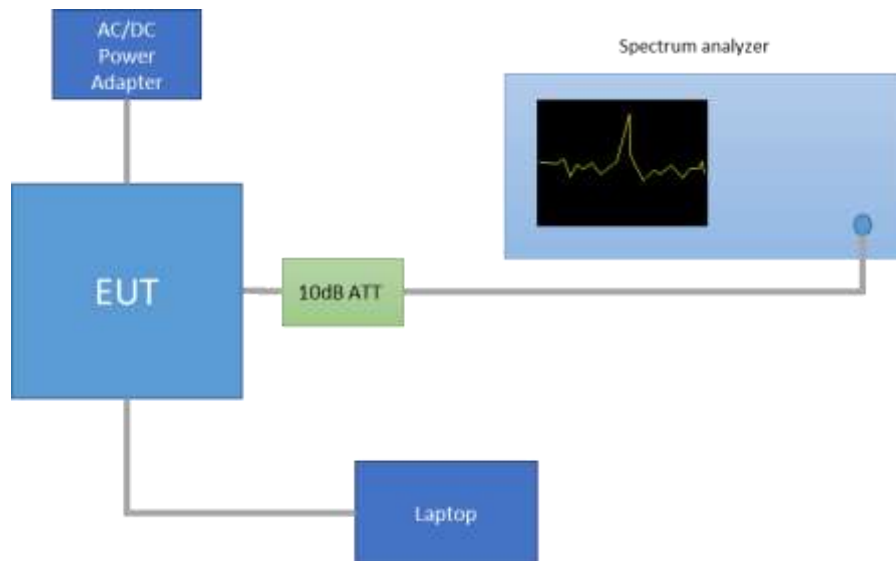
The Band Edge High, was measured using the method according to point 13.3 (Integration Method) of KDB 558074 D01 DTS Meas Guidance v04.

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph. The declared maximum antenna gain is 3.24dBi.

For Band Edge measurements falling in restricted bands, the following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBμV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
Above 960	3	500	54.0	-41.2

The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Note: these PSD_{Peak} values are shown just as a reference for the compliance of the Out-of-band Measurements. Thus the RBW used for these measurements was 100kHz.

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11b	1Mbps	98.71%	1	2412	CHAIN A DIV1	8.90
					CHAIN A DIV2	8.68
			7	2437	CHAIN A DIV1	11.45
					CHAIN A DIV2	11.62
			11	2462	CHAIN A DIV1	10.20
					CHAIN A DIV2	10.30
			12	2467	CHAIN A DIV1	7.73
					CHAIN A DIV2	7.16
			13	2472	CHAIN A DIV1	5.54
					CHAIN A DIV2	5.19

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11g	6Mbps	98.35%	1	2412	CHAIN A DIV1	5.02
					CHAIN A DIV2	4.98
			6	2437	CHAIN A DIV1	8.52
					CHAIN A DIV2	8.68
			11	2462	CHAIN A DIV1	4.71
					CHAIN A DIV2	4.95
			12	2467	CHAIN A DIV1	2.39
					CHAIN A DIV2	2.11
			13	2472	CHAIN A DIV1	-16.51
					CHAIN A DIV2	-16.42
802.11n20	HT0	98.29%	1	2412	CHAIN A DIV1	5.02
					CHAIN A DIV2	4.98
			7	2442	CHAIN A DIV1	8.52
					CHAIN A DIV2	8.68
			11	2462	CHAIN A DIV1	4.71
					CHAIN A DIV2	4.95
			12	2467	CHAIN A DIV1	2.39
					CHAIN A DIV2	2.11
			13	2472	CHAIN A DIV1	-16.51
					CHAIN A DIV2	-16.42

Mode	Rate	Measured Duty Cycle [%]	Channel	Frequency [MHz]	Antenna	PSD Peak [dBm]
802.11n40	HT0	96.33	3F	2422	CHAIN A DIV1	0.15
					CHAIN A DIV2	0.17
			7F	2442	CHAIN A DIV1	0.88
					CHAIN A DIV2	0.97
			9F	2452	CHAIN A DIV1	-0.32
					CHAIN A DIV2	-0.30
			10F	2457	CHAIN A DIV1	-3.35
					CHAIN A DIV2	-3.68
			11F	2462	CHAIN A DIV1	-11.22
					CHAIN A DIV2	-12.10

See Section B.3.5, Section B.3.6 and Section B.3.7 for the screenshot results.

B.2.5 Radiated spurious emission

Standard references

FCC part	RSS part	Limits			
15.247 (d) 15.209	RSS-247 Clause 5.5 RSS-Gen Clause 8.9	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):			
		Freq Range (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Meas. Distance (m)
		30-88	100	40	3
		88-216	150	43.5	3
		216-960	200	46	3
		Above 960	500	54	3
		The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function corresponding to 20 dB above the indicated values in the table.			

Test procedure

The setups below were used to measure the radiated spurious emissions.

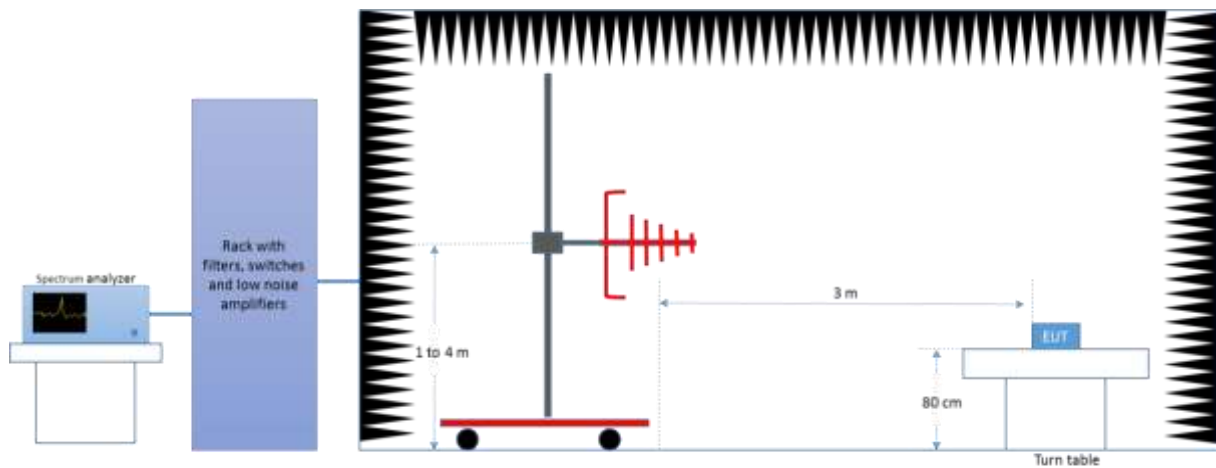
Depending of the frequency range and bands being tested, different antennas and filters were used.

The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

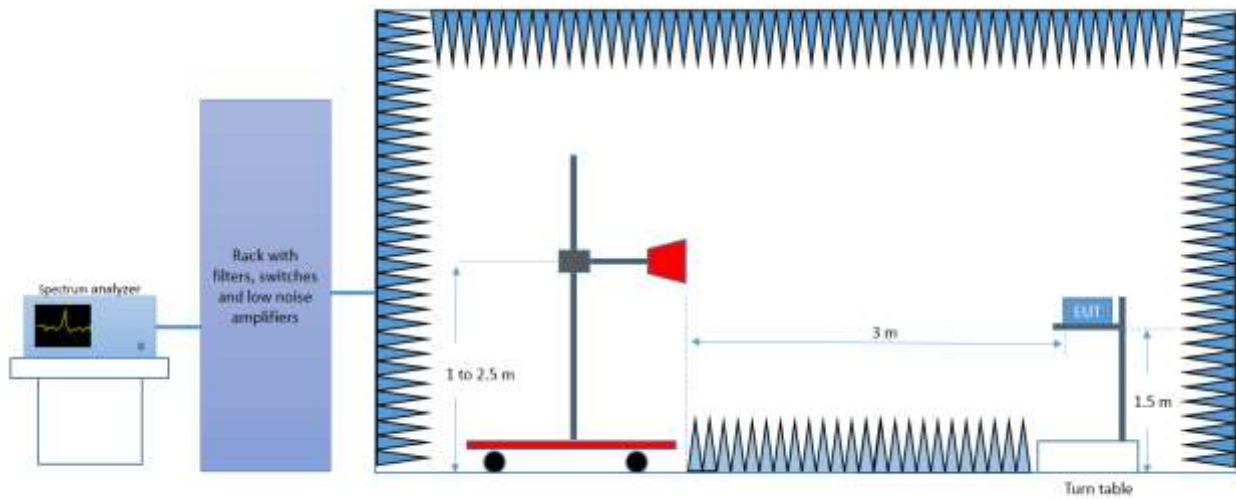
The radiated spurious emissions were measured on the worst case configuration selected from the chapter B.2.2 and using the lowest, middle and highest channels.

For technologies 802.n20, 802.n40 the worst case in terms of spurious emissions found among the low, mid and high channels were tested on chain A and B separately is used to perform the test in MIMO mode (Chain A+B).

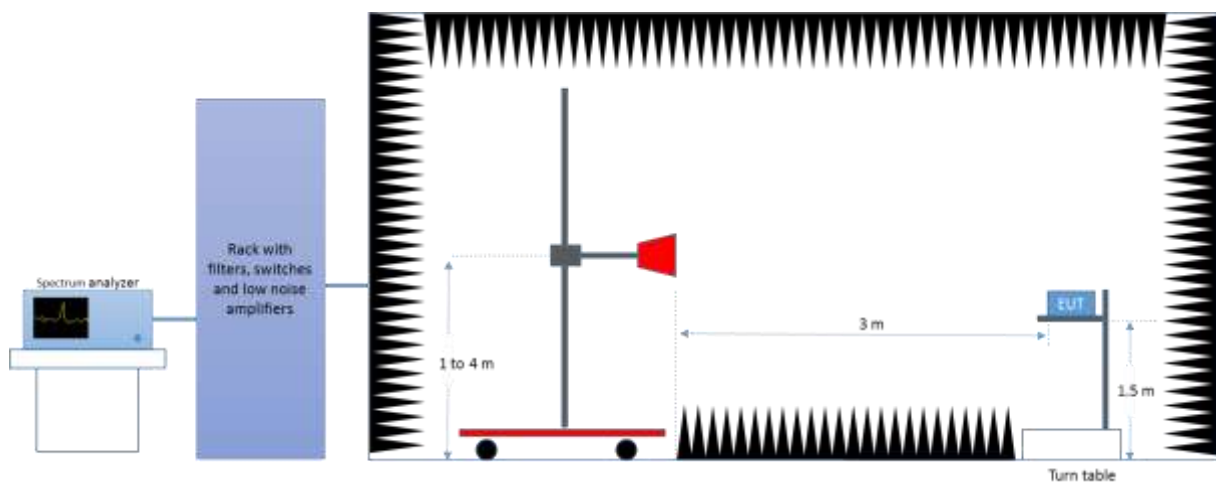
Radiated Setup < 1GHz



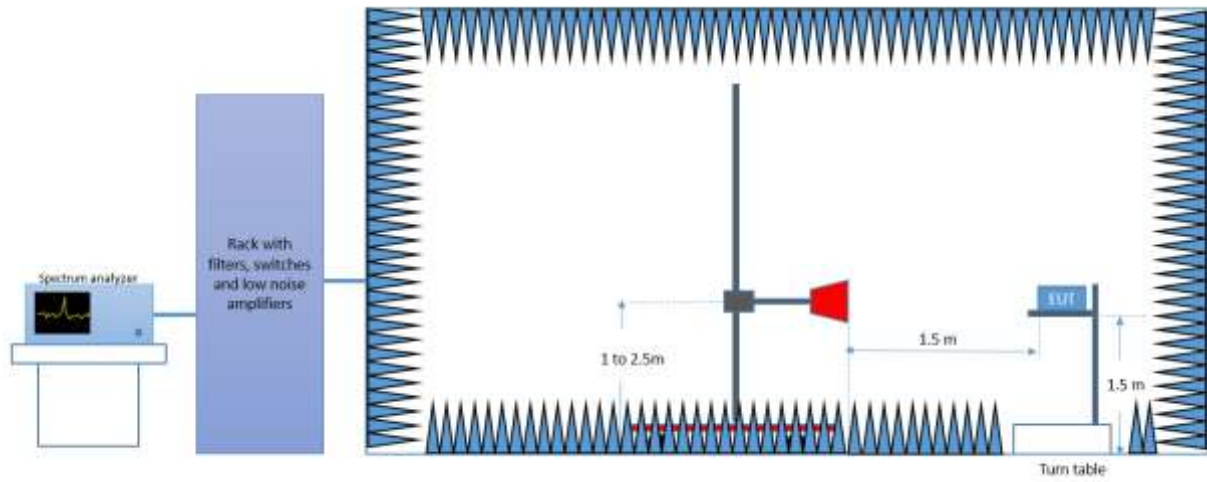
Radiated Setup 1 GHz – 6.4 GHz



Radiated Setup 6.4 GHz - 18 GHz



Radiated Setup > 18GHz



Sample Calculation

The field strength is deduced from the radiated measurement using the following equation:

$$E = 126.8 - 20\log(\lambda) + P - G$$

where

E is the field strength of the emission at the measurement distance, in dBμV/m

P is the power measured at the output of the test antenna, in dBm

λ is the wavelength of the emission under investigation $[300/f_{MHz}]$, in m

G is the gain of the test antenna, in dBi

NOTE – The measured power *P* includes all applicable instrument correction factors up to the connection to the test Antenna e.g. cable losses, amplifier gains.

For field strength measurements made at other than the distance at which the applicable limit is specified, the field strength of the emission at the distance specified by the limit is deduced as follows:

$$E_{SpecLimit} = E_{Meas} + 20\log(D_{Meas}/D_{SpecLimit})$$

where

E_{SpecLimit} is the field strength of the emission at the distance specified by the limit, in dBμV/m

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

D_{Meas} is the measurement distance, in m

D_{SpecLimit} is the distance specified by the limit, in m

Test Results

30 MHz – 26.5 GHz, 802.11b, 1Mbps, CHAIN A Div1

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
79.1	27.7	---	40.0	12.3
96.0	21.2	---	43.5	22.3
120.0	23.8	---	43.5	19.7
216.0	31.6	---	43.5	11.9
312.0	32.1	---	46.0	13.9
437.6	33.5	---	46.0	12.5
500.1	34.4	---	46.0	11.6
7234.7	---	46.5	54.0	7.5
7234.7	52.7	---	74.0	21.3
17741.4	---	46.1	54.0	7.9
17741.9	59.5	---	74.0	14.5

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
96.0	22.3	---	43.5	21.2
120.0	23.0	---	43.5	20.5
190.8	25.4	---	43.5	18.1
216.0	31.3	---	43.5	12.2
312.0	31.8	---	46.0	14.2
437.6	33.4	---	46.0	12.6
500.0	33.8	---	46.0	12.2
7328.5	---	41.8	54.0	12.2
7329.9	49.2	---	74.0	24.8
9767.4	47.7	---	74.0	26.3
9767.9	---	41.8	54.0	12.2

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
58.9	30.0	---	40.0	10.0
79.1	26.0	---	40.0	14.0
96.0	21.1	---	43.5	22.4
216.0	30.9	---	43.5	12.6
437.6	33.2	---	46.0	12.8
500.0	33.0	---	46.0	13.0
7383.6	50.2	---	74.0	23.8
7387.9	---	43.5	54.0	10.5
9847.6	51.3	---	74.0	22.7
9848.1	---	46.9	54.0	7.1

30 MHz – 26.5 GHz, 802.11b, 1Mbps, CHAIN A Div2

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
96.0	22.9	---	43.5	20.6
120.0	22.8	---	43.5	20.7
168.0	23.2	---	43.5	20.3
216.0	31.2	---	43.5	12.3
312.0	33.4	---	46.0	12.6
437.6	34.6	---	46.0	11.4
624.0	36.2	---	46.0	9.8
7234.2	---	48.4	54.0	5.6
7237.6	52.8	---	74.0	21.2
17996.6	---	46.8	54.0	7.2
17998.6	57.1	---	74.0	16.9

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
95.9	23.3	---	43.5	20.2
120.0	22.5	---	43.5	21.0
216.0	31.2	---	43.5	12.3
224.6	28.9	---	46.0	17.1
312.0	33.5	---	46.0	12.5
437.6	34.3	---	46.0	11.7
500.0	34.3	---	46.0	11.7
7327.0	---	44.6	54.0	9.4
7327.0	50.9	---	74.0	23.1
9767.9	---	39.9	54.0	14.1
9767.9	48.0	---	74.0	26.0

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
44.3	29.8	---	40.0	10.2
62.5	27.2	---	40.0	12.9
71.9	25.8	---	40.0	14.2
216.0	31.8	---	43.5	11.7
497.1	34.7	---	46.0	11.3
820.6	40.4	---	46.0	5.6
7383.6	49.2	---	74.0	24.8
7387.9	---	42.0	54.0	12.0
9847.6	---	40.1	54.0	13.9
9847.6	47.9	---	74.0	26.1

30 MHz – 26.5 GHz, 802.11g, 6Mbps, CHAIN A Div1

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
58.9	28.6	---	40.0	11.4
62.5	25.9	---	40.0	14.1
108.1	21.9	---	43.5	21.6
216.0	29.9	---	43.5	13.6
312.0	33.0	---	46.0	13.0
763.9	38.2	---	46.0	7.9
7230.4	---	41.3	54.0	12.7
7251.6	51.3	---	74.0	22.7
12704.6	---	40.0	54.0	14.0
12708.0	52.1	---	74.0	21.9

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
44.5	28.2	---	40.0	11.9
62.5	24.2	---	40.0	15.8
96.0	21.6	---	43.5	21.9
216.0	30.1	---	43.5	13.4
312.0	33.6	---	46.0	12.4
821.9	39.8	---	46.0	6.2
7324.1	49.0	---	74.0	25.0
7327.5	---	39.6	54.0	14.4
9767.9	---	38.7	54.0	15.4
9772.2	47.9	---	74.0	26.1

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.2	29.7	---	40.0	10.3
72.8	25.7	---	40.0	14.4
216.0	30.3	---	43.5	13.2
224.6	26.1	---	46.0	19.9
437.6	32.5	---	46.0	13.5
828.1	40.4	---	46.0	5.6
7384.6	---	41.3	54.0	12.7
7385.0	50.3	---	74.0	23.7
9847.6	---	39.7	54.0	14.3
9848.1	48.0	---	74.0	26.0

30 MHz – 26.5 GHz, 802.11g, 6Mbps, CHAIN A Div2

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
62.4	27.1	---	40.0	12.9
95.9	22.1	---	43.5	21.4
216.0	30.4	---	43.5	13.1
437.6	32.8	---	46.0	13.2
627.6	35.5	---	46.0	10.5
839.6	41.1	---	46.0	4.9
7232.3	54.0	---	74.0	20.0
7232.8	---	42.7	54.0	11.3
17821.7	58.3	---	74.0	15.8
17827.0	---	46.5	54.0	7.5

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.4	29.3	---	40.0	10.7
64.9	29.9	---	40.0	10.1
96.0	22.3	---	43.5	21.2
216.0	30.7	---	43.5	12.8
500.0	33.4	---	46.0	12.6
826.2	40.2	---	46.0	5.8
7327.0	---	40.9	54.0	13.1
7327.5	51.1	---	74.0	22.9
17724.0	57.9	---	74.0	16.1
17725.0	---	45.8	54.0	8.2

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
65.0	27.8	---	40.0	12.2
95.9	22.1	---	43.5	21.4
216.0	29.8	---	43.5	13.7
312.0	33.2	---	46.0	12.8
625.6	37.0	---	46.0	9.0
824.8	39.8	---	46.0	6.2
7372.5	48.5	---	74.0	25.5
7384.1	---	38.8	54.0	15.2
13103.4	---	39.3	54.0	14.7
13122.7	51.3	---	74.0	22.7

30 MHz – 26.5 GHz, 802.11n20, HT0, CHAIN A Div1

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
58.9	30.3	---	40.0	9.7
65.6	30.8	---	40.0	9.2
96.0	21.9	---	43.5	21.6
216.0	31.0	---	43.5	12.5
603.3	35.7	---	46.0	10.3
822.5	40.5	---	46.0	5.5
7231.8	---	40.6	54.0	13.4
7233.3	49.9	---	74.0	24.1
16395.3	---	44.5	54.0	9.5
16405.5	56.5	---	74.0	17.5

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.9	28.5	---	40.0	11.5
64.7	28.8	---	40.0	11.2
95.9	22.8	---	43.5	20.7
216.0	30.1	---	43.5	13.4
500.0	34.9	---	46.0	11.2
821.4	40.3	---	46.0	5.7
7322.2	---	39.2	54.0	14.8
7332.4	49.0	---	74.0	25.0
9767.9	---	38.2	54.0	15.8
9767.9	47.5	---	74.0	26.5

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
71.9	27.8	---	40.0	12.3
216.0	31.6	---	43.5	11.9
388.3	35.4	---	46.0	10.7
500.1	35.2	---	46.0	10.8
696.0	37.2	---	46.0	8.8
831.0	39.7	---	46.0	6.3
7380.2	---	40.3	54.0	13.7
7385.0	49.5	---	74.0	24.6
9847.6	48.3	---	74.0	25.7
9848.1	---	40.2	54.0	13.8

30 MHz – 26.5 GHz, 802.11n20, HT0, CHAIN A Div2

Radiated Spurious – CH1

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
58.7	28.5	---	40.0	11.6
65.1	27.5	---	40.0	12.5
216.0	30.3	---	43.5	13.2
224.6	27.8	---	46.0	18.2
500.0	33.9	---	46.0	12.1
829.6	40.0	---	46.0	6.0
7222.2	52.8	---	74.0	21.2
7229.9	---	43.2	54.0	10.8
11099.0	50.5	---	74.0	23.5
11101.9	---	37.7	54.0	16.3

Radiated Spurious – CH7

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
62.5	20.3	---	40.0	19.7
72.3	26.0	---	40.0	14.0
112.3	22.8	---	43.5	20.7
216.0	31.0	---	43.5	12.5
500.1	36.0	---	46.0	10.0
825.8	40.4	---	46.0	5.6
7326.1	---	40.8	54.0	13.2
7328.0	50.4	---	74.0	23.6
14066.6	50.6	---	74.0	23.4
14075.3	---	39.7	54.0	14.3

Radiated Spurious – CH11

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.1	29.7	---	40.0	10.3
95.9	22.3	---	43.5	21.2
216.0	31.2	---	43.5	12.3
500.1	34.7	---	46.0	11.3
659.4	34.7	---	46.0	11.3
818.2	39.7	---	46.0	6.3
7379.2	49.5	---	74.0	24.5
7383.6	---	39.1	54.0	14.9
11509.8	49.7	---	74.0	24.4
11510.8	---	37.7	54.0	16.3

30 MHz – 26.5 GHz, 802.11n40, HT0, CHAIN A Div1

Radiated Spurious – CH3F

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.3	31.4	---	40.0	8.6
65.3	26.9	---	40.0	13.1
95.9	21.6	---	43.5	21.9
216.0	31.1	---	43.5	12.4
500.0	34.1	---	46.0	11.9
826.6	40.5	---	46.0	5.6
7255.0	49.5	---	74.0	24.5
7261.3	---	39.7	54.0	14.3
13670.3	---	38.7	54.0	15.3
13679.0	50.5	---	74.0	23.5

Radiated Spurious – CH6F

Frequency	MaxPeak	Avg	Limit	Margin
59.3	32.1	---	40.0	7.9
95.9	21.4	---	43.5	22.1
216.0	30.2	---	43.5	13.3
497.2	34.3	---	46.0	11.7
671.9	35.2	---	46.0	10.8
825.9	40.8	---	46.0	5.2
7303.8	---	37.9	54.0	16.1
7336.2	47.8	---	74.0	26.2
17723.1	---	45.9	54.0	8.1
17723.1	57.8	---	74.0	16.2

Radiated Spurious – CH9F

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
59.3	29.7	---	40.0	10.4
65.7	28.6	---	40.0	11.4
206.8	26.2	---	43.5	17.3
216.0	31.0	---	43.5	12.5
500.1	33.8	---	46.0	12.2
817.7	40.3	---	46.0	5.7
7376.8	---	44.8	54.0	9.2
7384.1	54.5	---	74.0	19.5
9805.1	47.9	---	74.0	26.1
9808.0	---	39.8	54.0	14.2

30 MHz – 26.5 GHz, 802.11n40, HT0, CHAIN A Div2

Radiated Spurious – CH3F

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
65.3	33.7	---	40.0	6.3
72.8	27.0	---	40.0	13.0
112.3	22.2	---	43.5	21.3
216.0	30.2	---	43.5	13.3
505.6	34.3	---	46.0	11.7
824.6	40.7	---	46.0	5.4
7256.0	50.1	---	74.0	23.9
7257.9	---	40.3	54.0	13.7
15431.1	53.6	---	74.0	20.4
15433.0	---	41.0	54.0	13.0

Radiated Spurious – CH6F

Frequency	MaxPeak	Avg	Limit	Margin
60.2	31.4	---	40.0	8.6
65.5	26.6	---	40.0	13.4
112.3	22.6	---	43.5	20.9
216.0	30.2	---	43.5	13.3
619.9	36.4	---	46.0	9.6
827.1	40.3	---	46.0	5.7
7320.3	49.5	---	74.0	24.5
7320.8	---	38.7	54.0	15.3
14899.9	52.1	---	74.0	21.9
14900.4	---	39.3	54.0	14.7

Radiated Spurious – CH9F

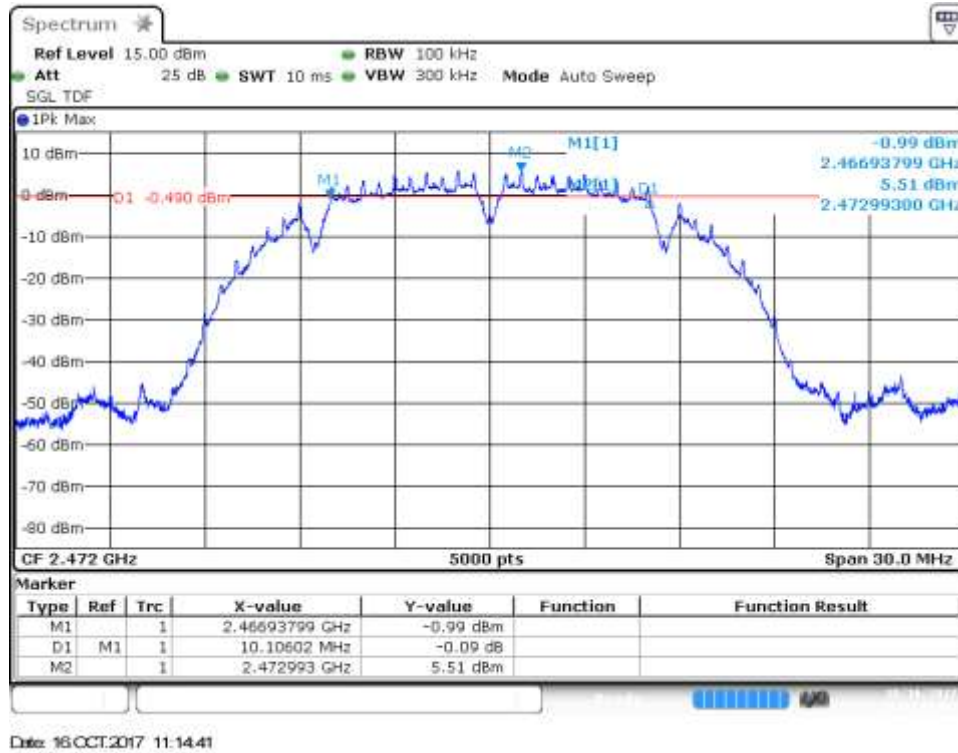
Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
58.7	28.2	---	40.0	11.8
65.5	26.6	---	40.0	13.4
216.0	31.5	---	43.5	12.0
312.0	33.7	---	46.0	12.3
500.1	33.3	---	46.0	12.7
826.3	40.1	---	46.0	5.9
7348.3	---	38.8	54.0	15.2
7348.3	47.7	---	74.0	26.3
9808.0	---	39.4	54.0	14.6
9808.5	47.2	---	74.0	26.8

B.3 Test Results Screenshots

B.3.1 6dB Bandwidth

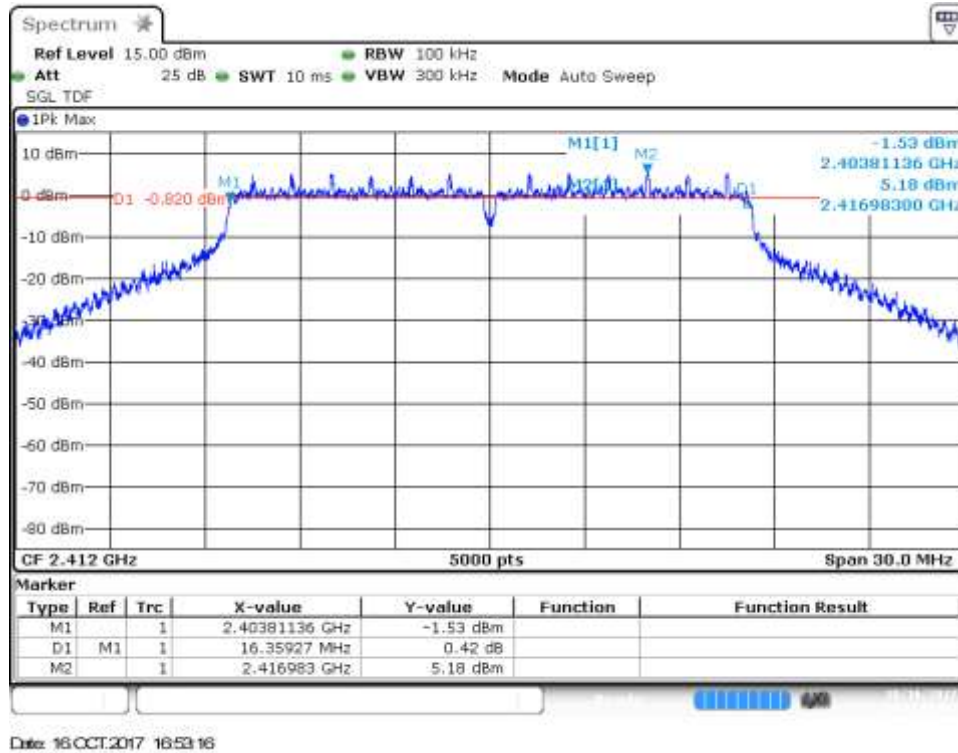
CHAIN A DIV2, 802.11b, 1Mbps

Channel 13



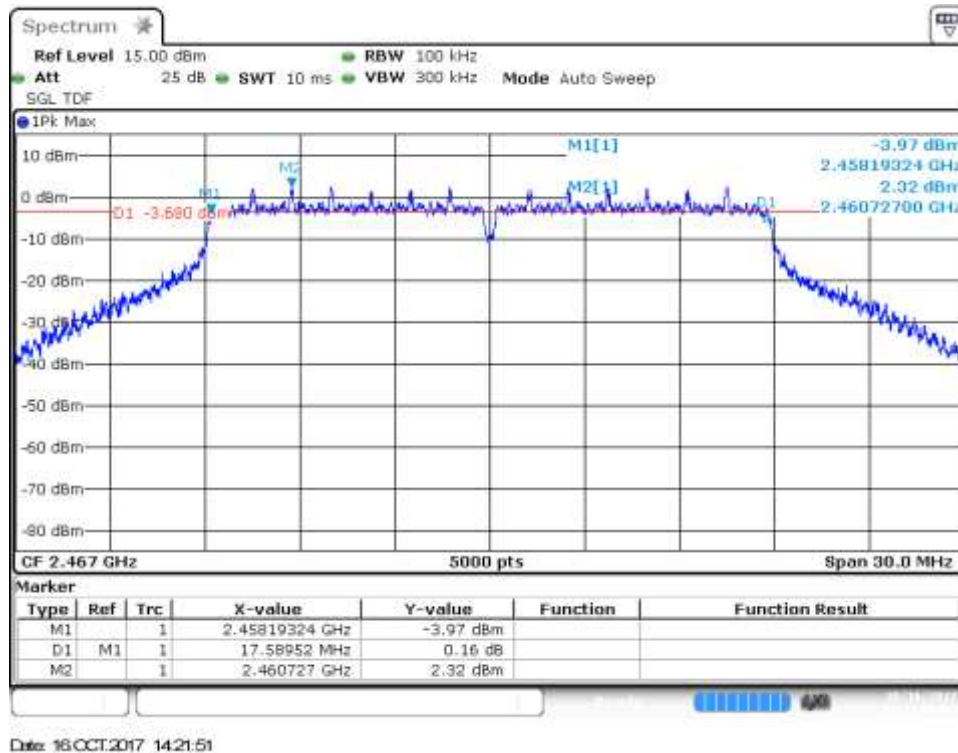
CHAIN A DIV2, 802.11g, 6Mbps

Channel 1



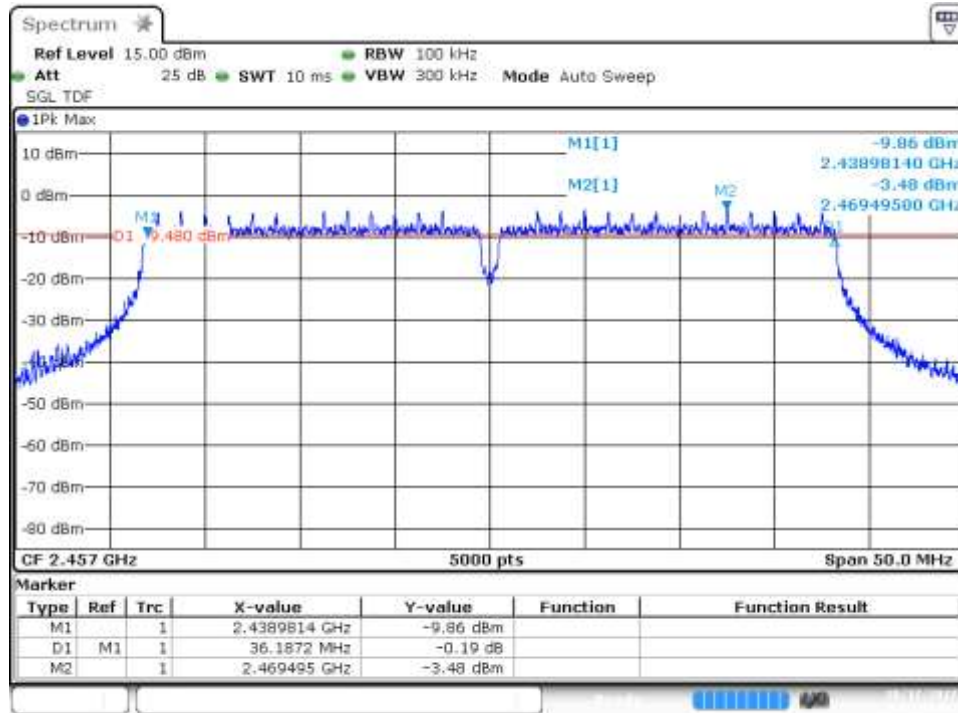
CHAIN A DIV1, 802.11n20, HT0

Channel 12



CHAIN A DIV2, 802.11n40, HT0

Channel 10F

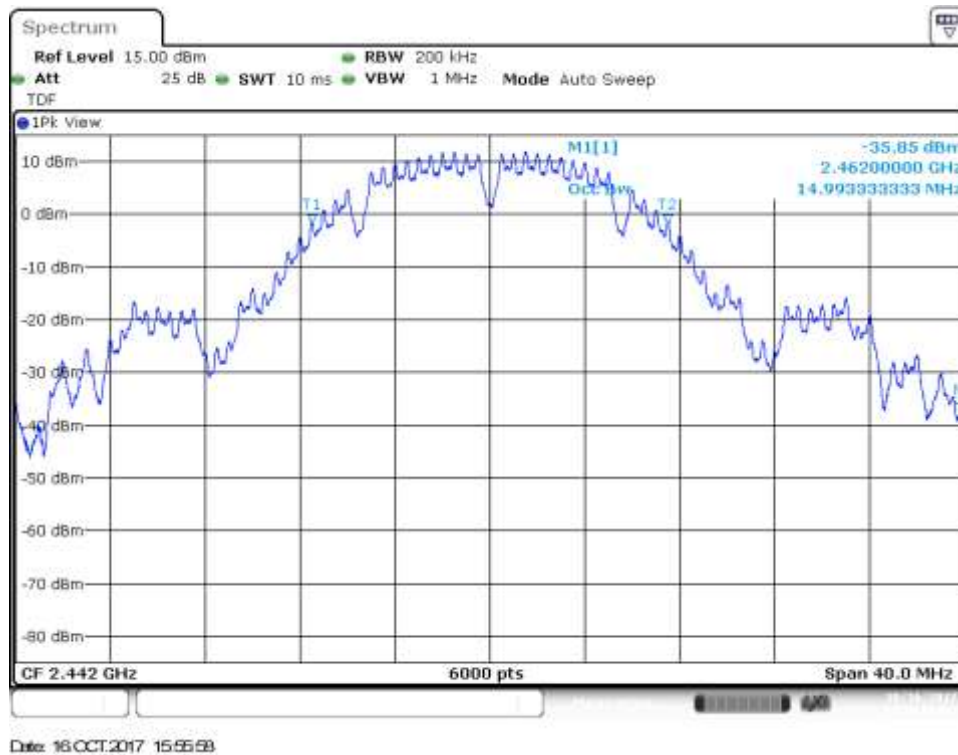


Date: 17.OCT.2017 10:19:43

B.3.2 99% Bandwidth

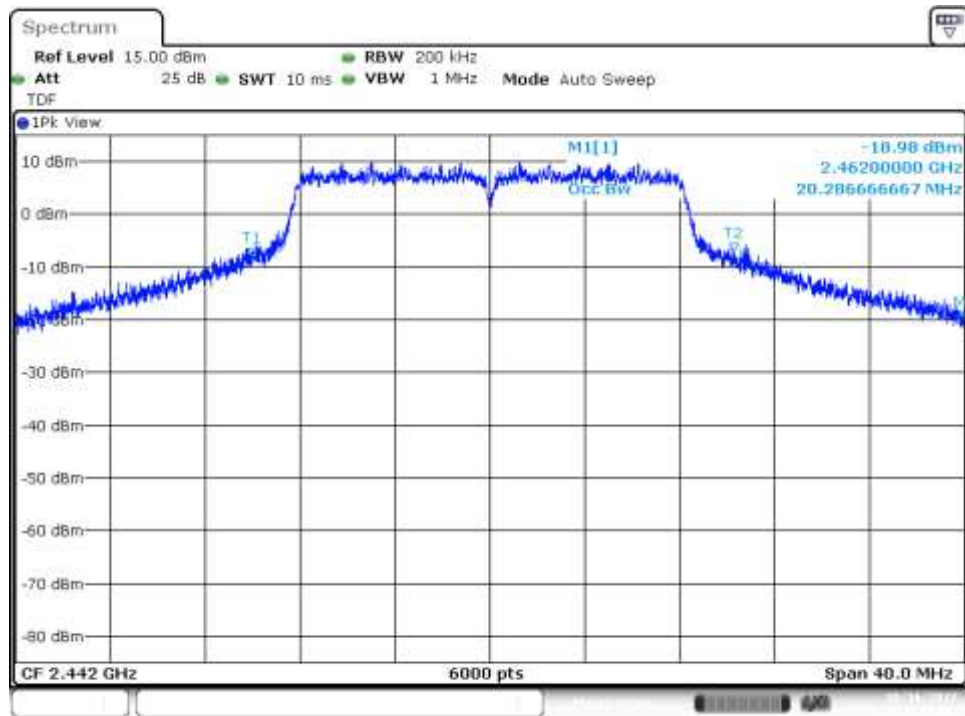
CHAIN A DIV2, 802.11b, 1Mbps

Channel 7



CHAIN A DIV2, 802.11g, 6Mbps

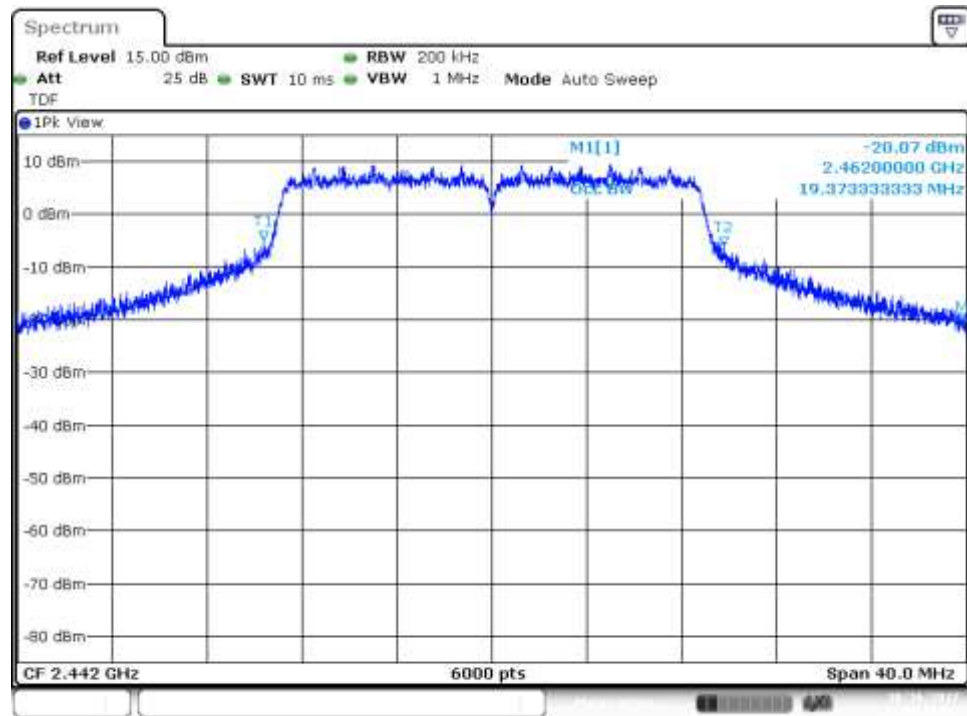
Channel 7



Date: 16 OCT 2017 17:25:16

CHAIN A DIV1, 802.11n20, HT0

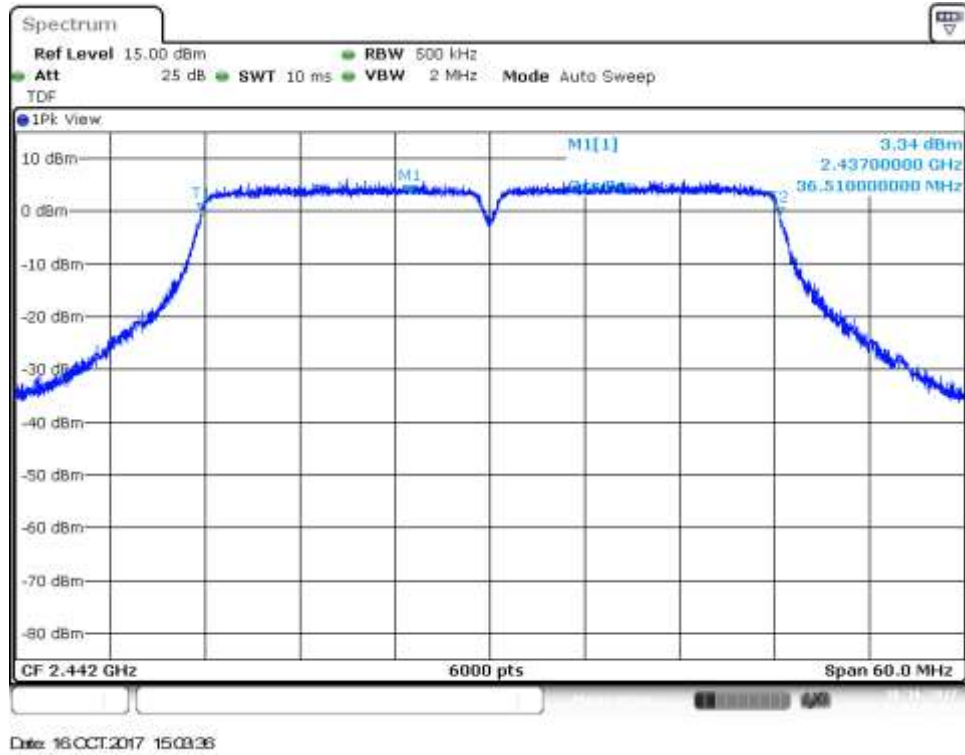
Channel 7



Date: 16 OCT 2017 12:09:38

CHAIN A DIV1, 802.11n40, HT0

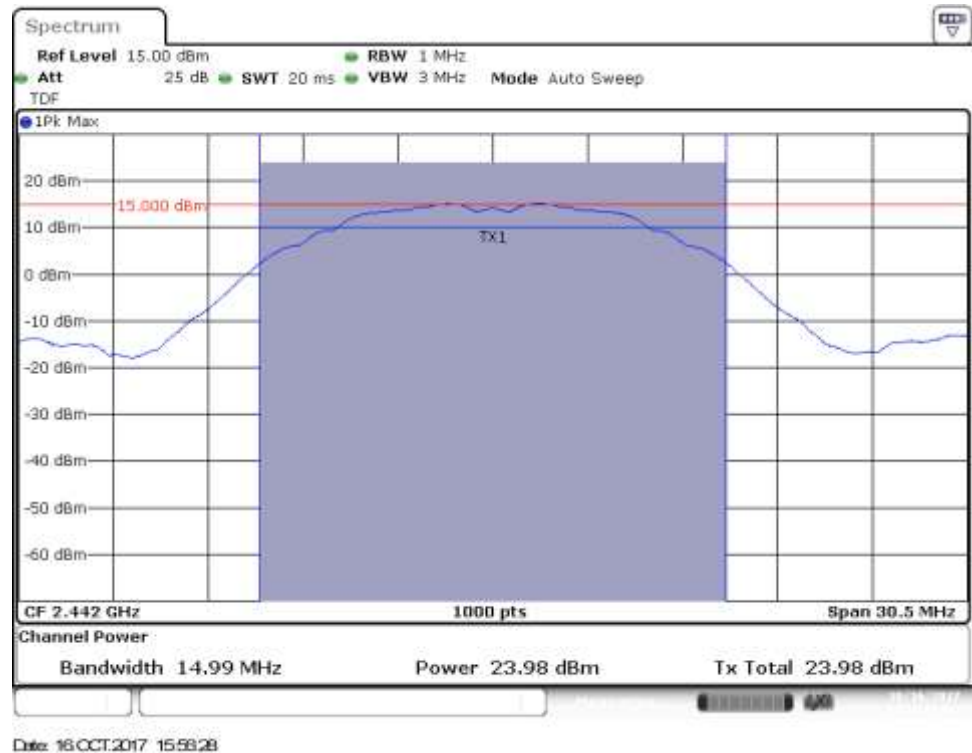
Channel 7F



B.3.3 Maximum output power and antenna gain

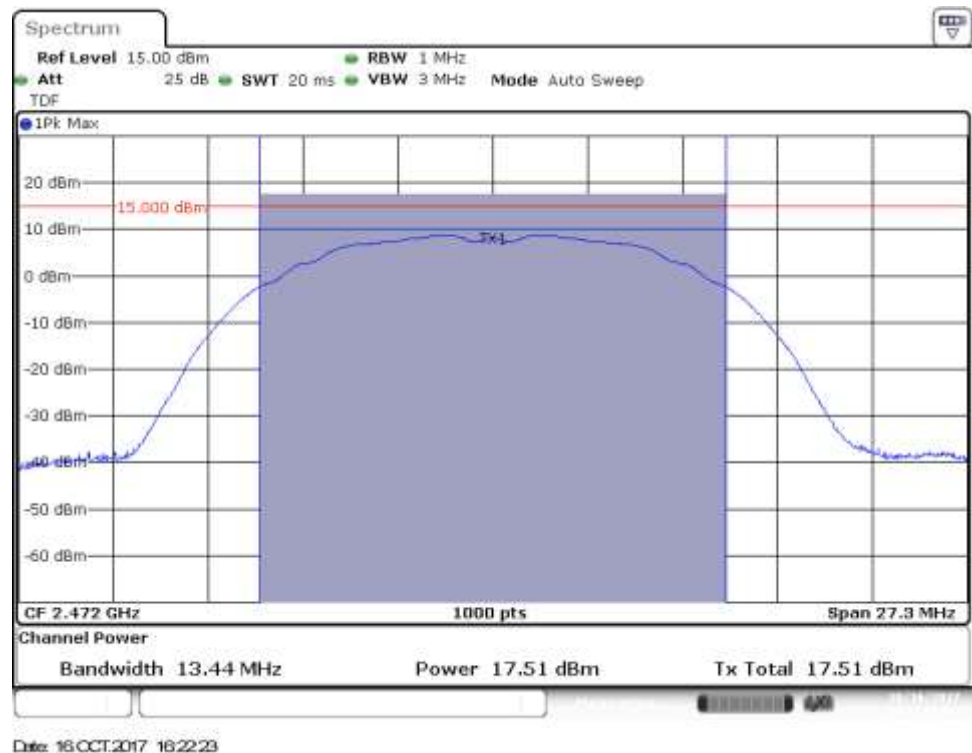
CHAIN A DIV2, 802.11b, 1Mbps

Channel 7



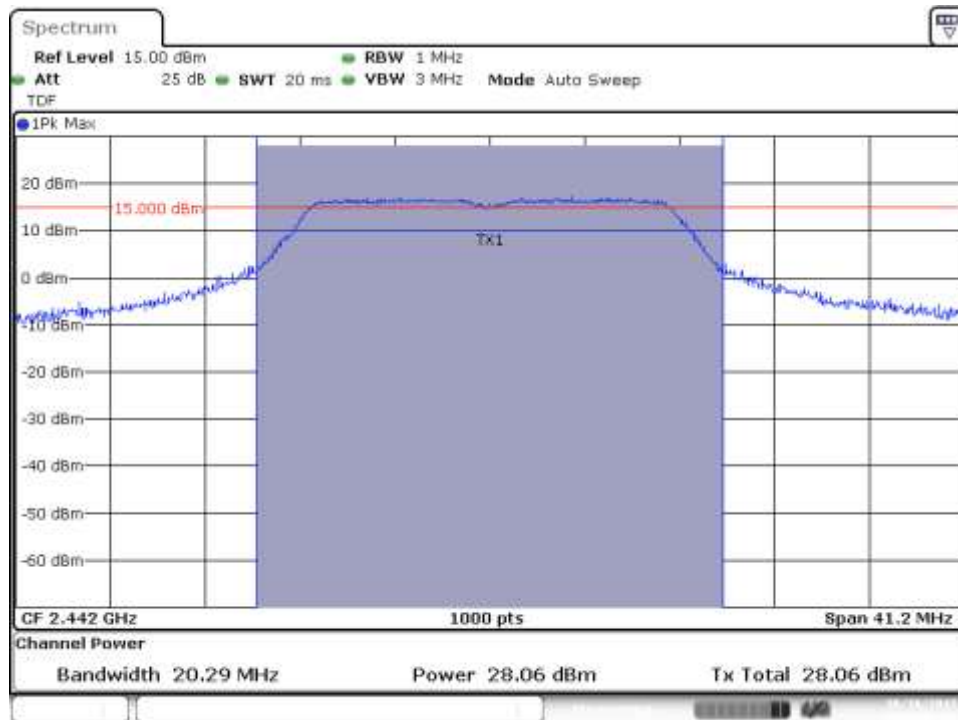
CHAIN A DIV2, 802.11b, 1Mbps

Channel 13



CHAIN A DIV2, 802.11g, 6Mbps

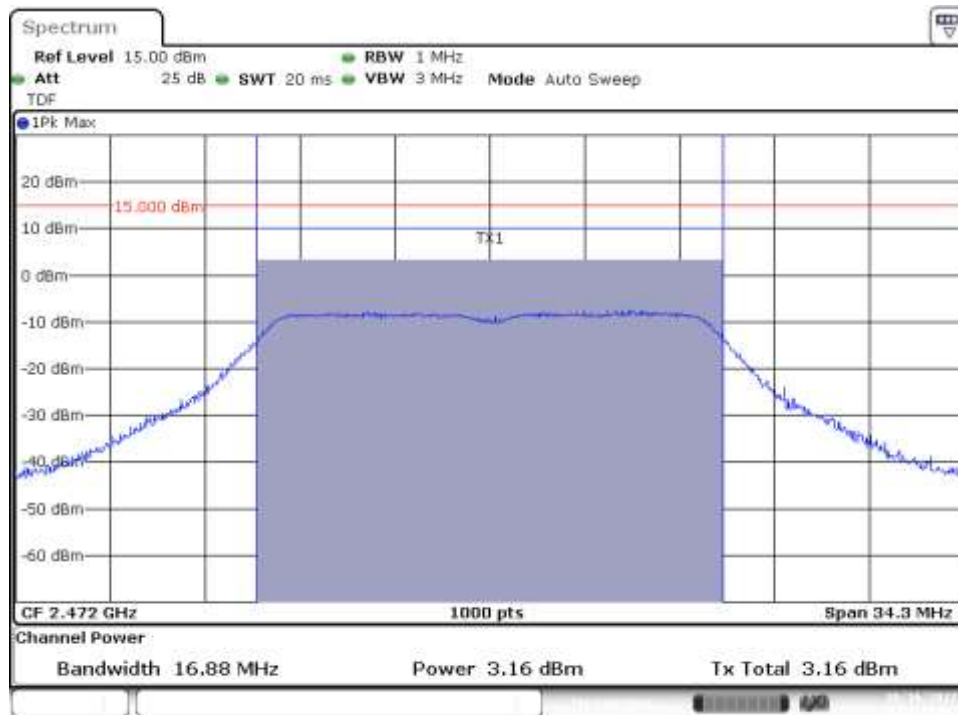
Channel 7



Date: 16 OCT 2017 17:25:46

CHAIN A DIV1, 802.11g, 6Mbps

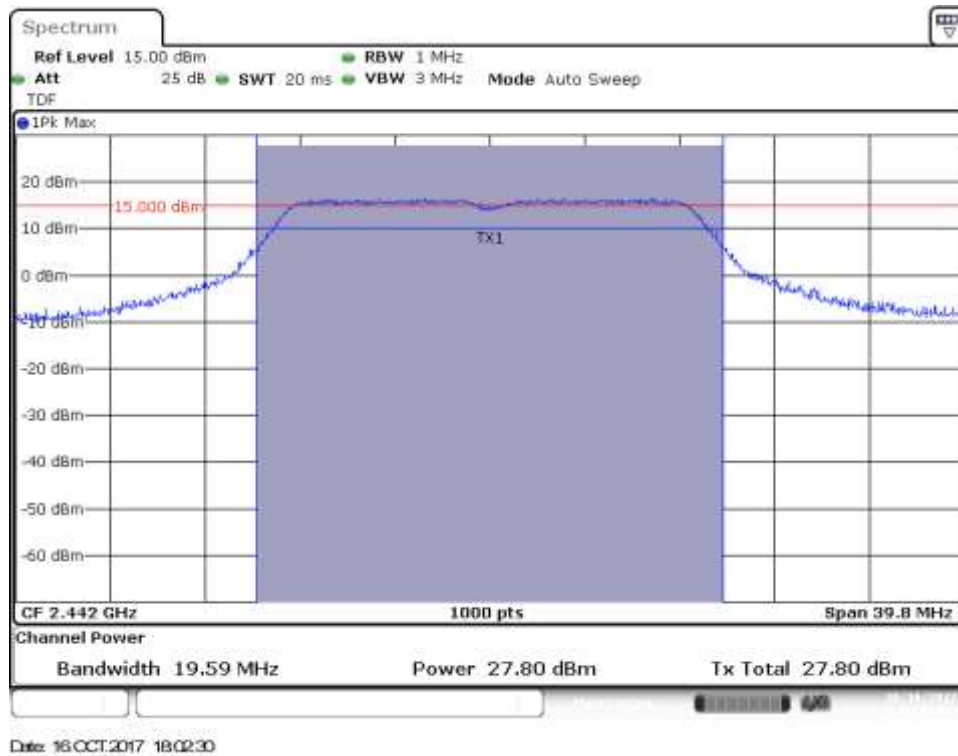
Channel 13



Date: 16 OCT 2017 11:52:32

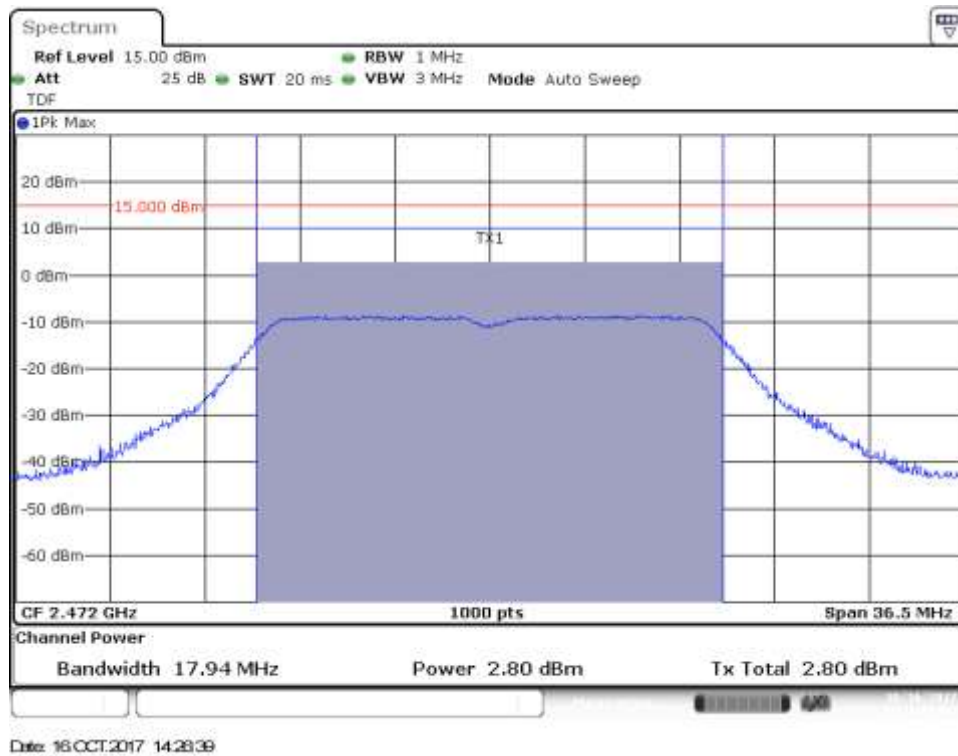
CHAIN A DIV2, 802.11n20, HT0

Channel 7



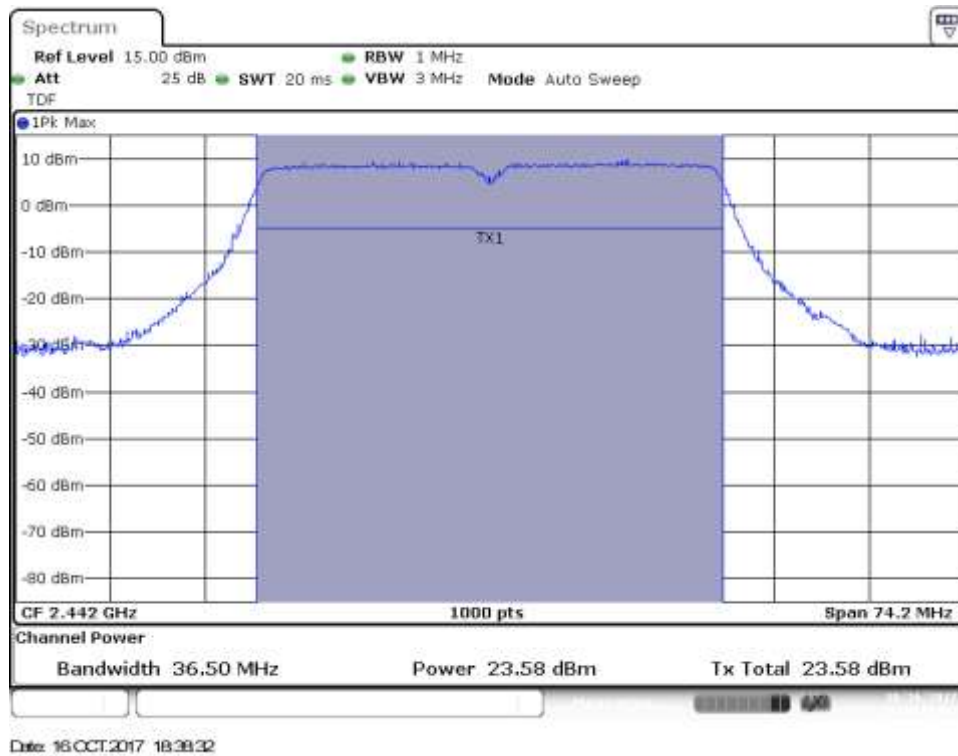
CHAIN A DIV1, 802.11n20, HT0

Channel 13



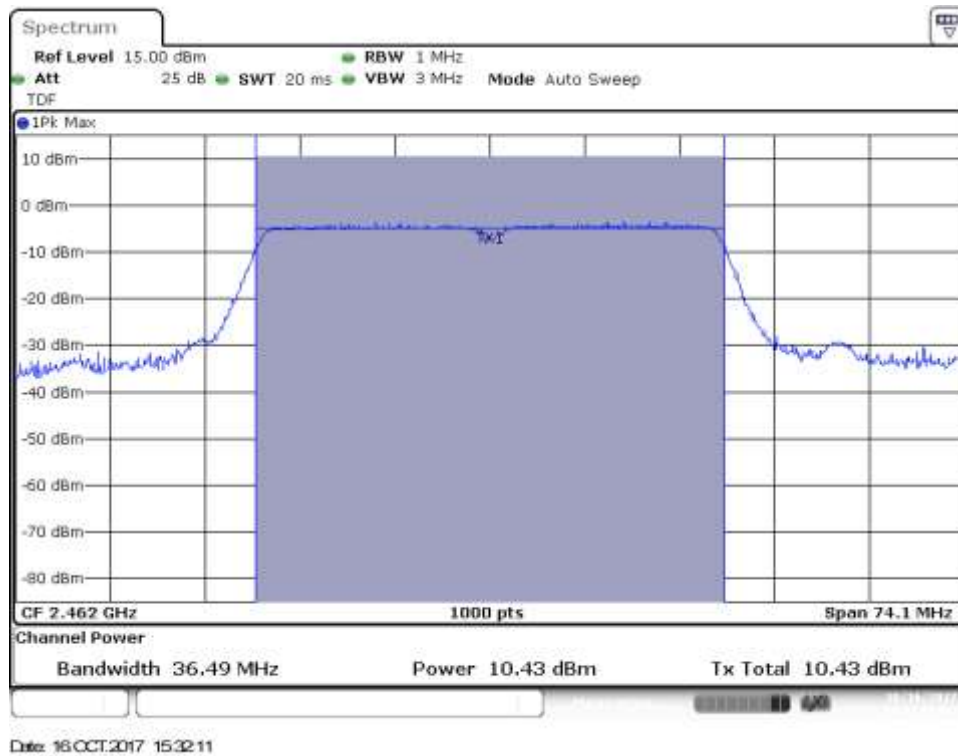
CHAIN A DIV2, 802.11n40, HT0

Channel 7F



CHAIN A DIV1, 802.11n40, HT0

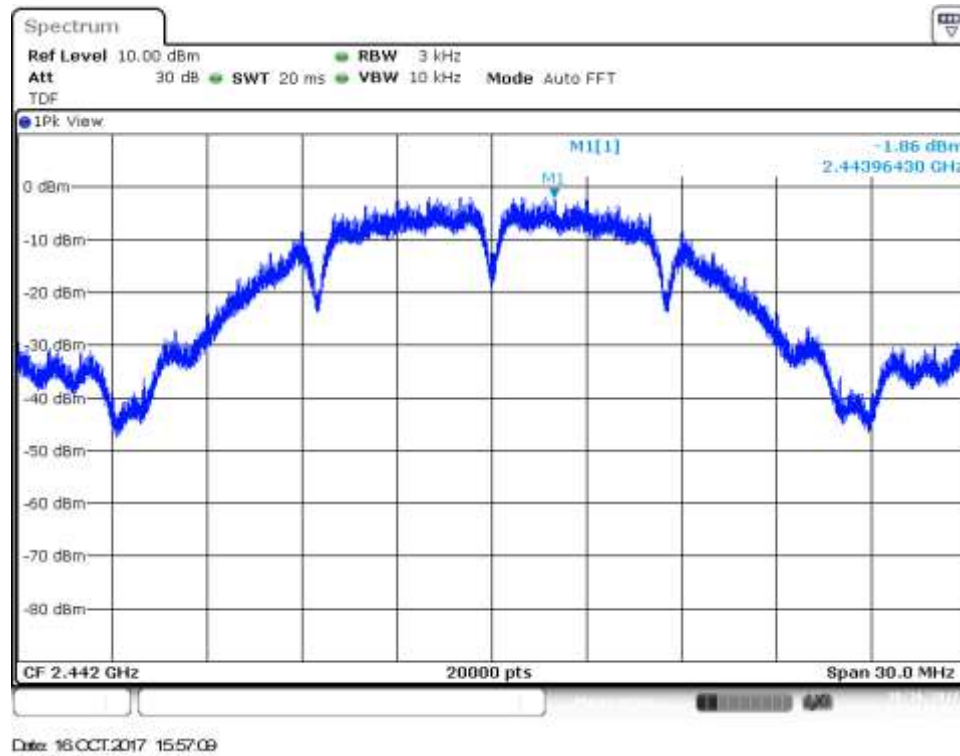
Channel 11F



B.3.4 Power spectral density

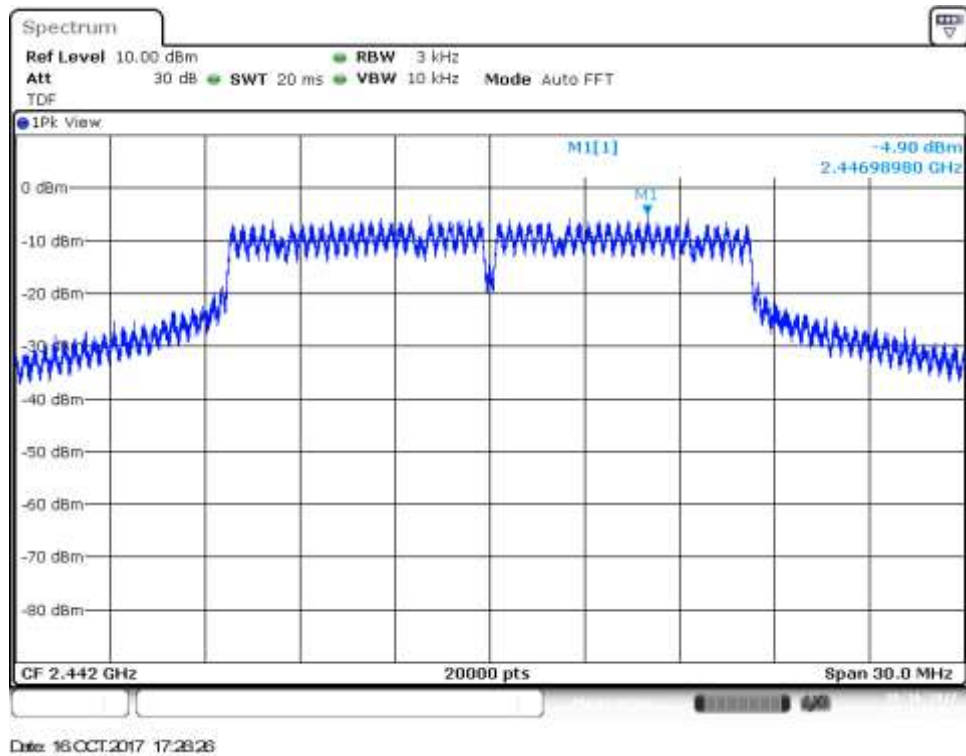
CHAIN A DIV2, 802.11b, 1Mbps

Channel 7



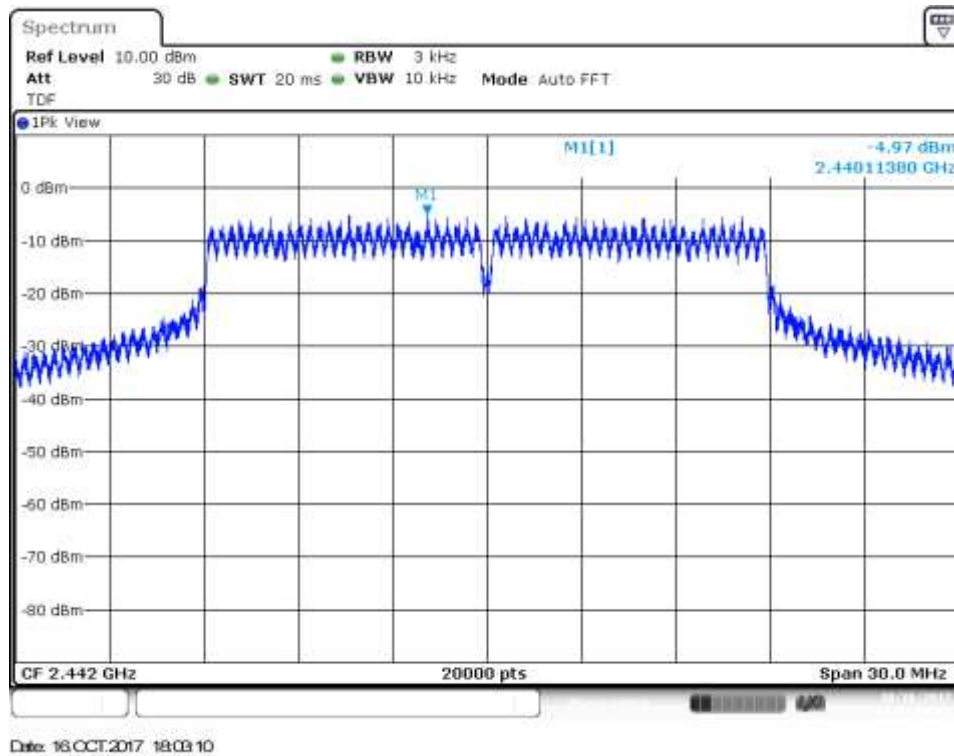
CHAIN A DIV2, 802.11g, 6Mbps

Channel 7



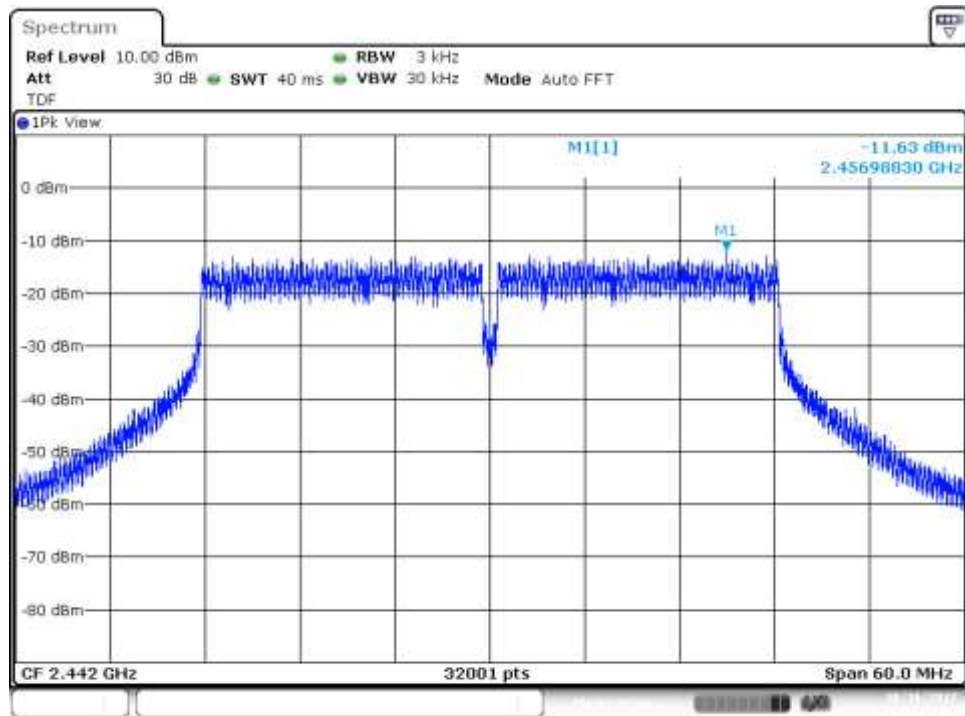
CHAIN A DIV2, 802.11n20, HT0

Channel 7



CHAIN A DIV1, 802.11n40, HT0

Channel 7F



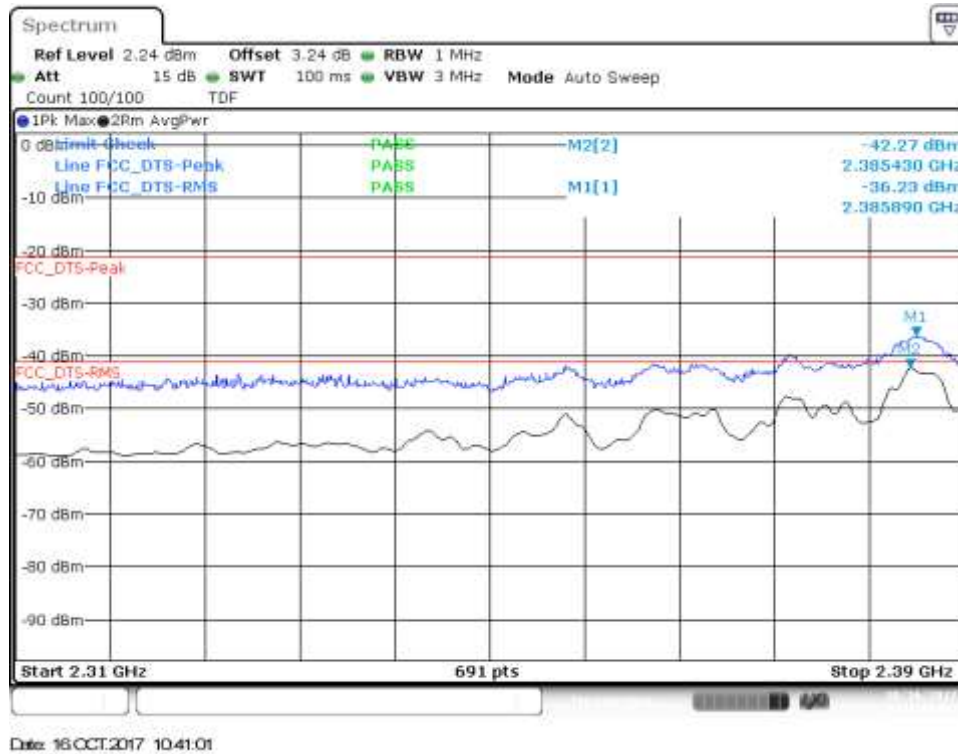
Date: 16 OCT 2017 15:04:45

B.3.5 Out of band emissions - band-edge low (conducted)

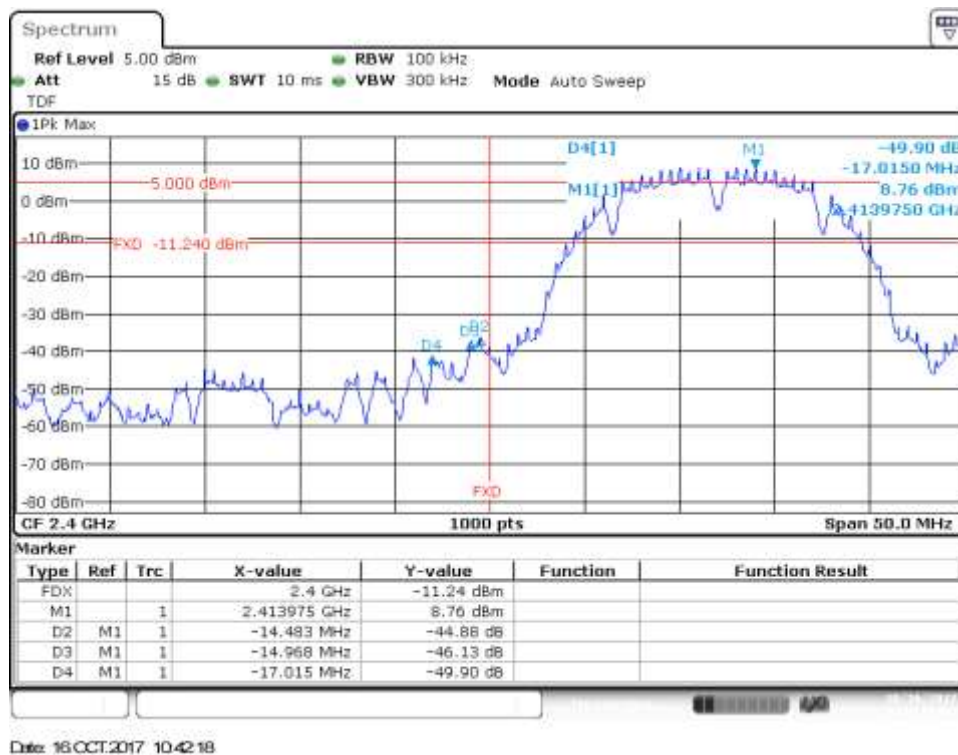
CHAIN A DIV1, 802.11b, 1Mbps

Channel 1

BE Low Freq Section



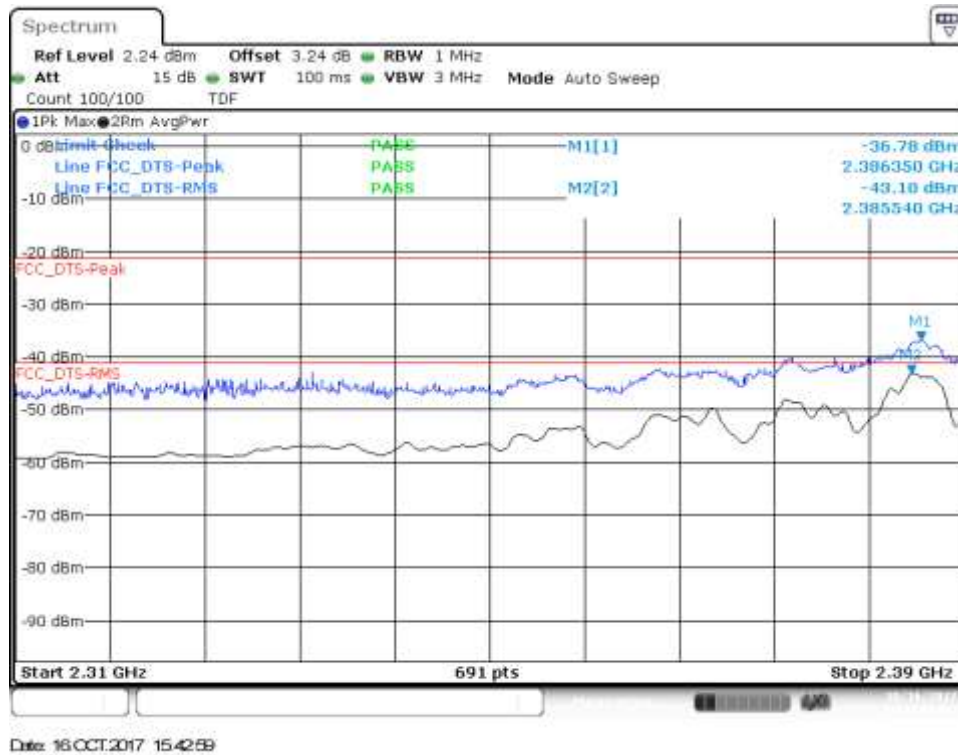
BE Low (Non Restricted)



CHAIN A DIV2, 802.11b, 1Mbps

Channel 1

BE Low Freq Section



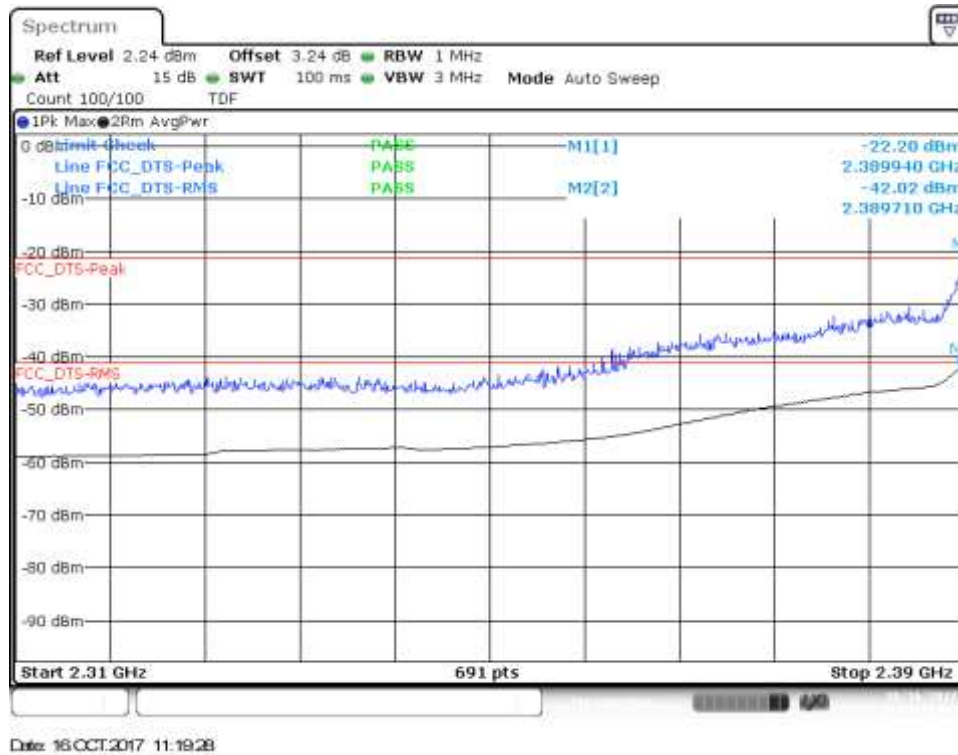
BE Low (Non Restricted)



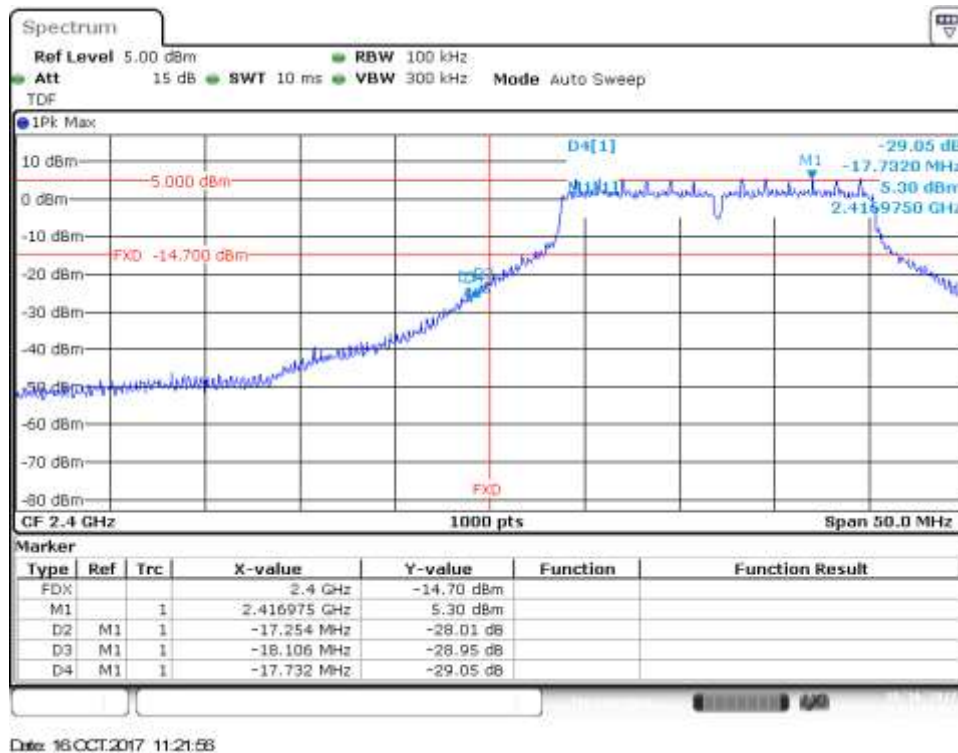
CHAIN A DIV1, 802.11g, 6Mbps

Channel 1

BE Low Freq Section



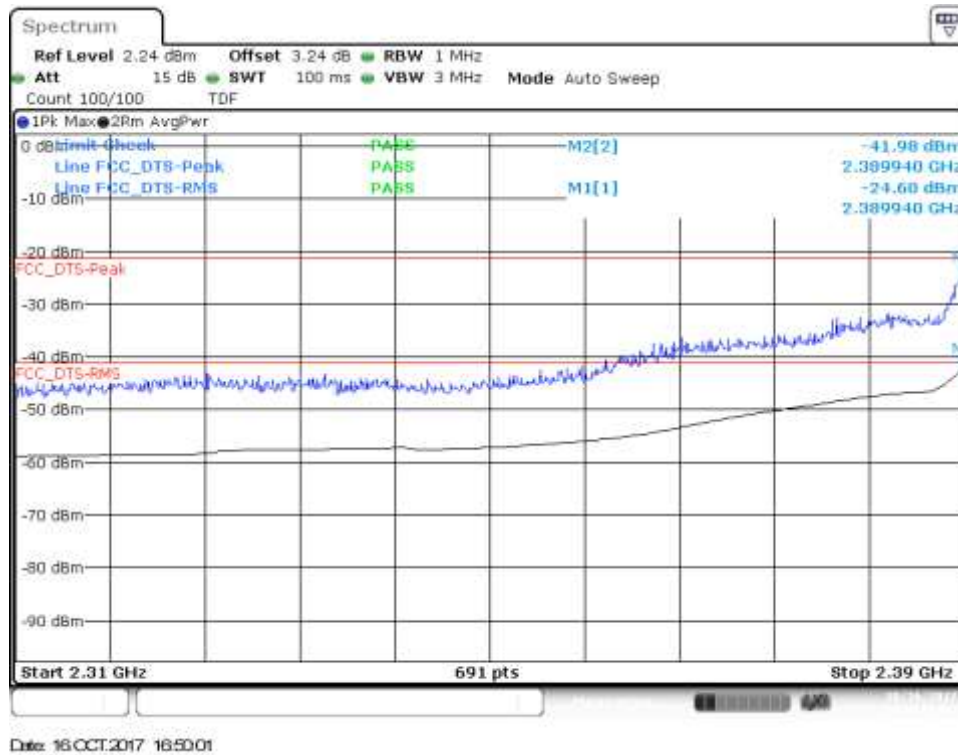
BE Low (Non Restricted)



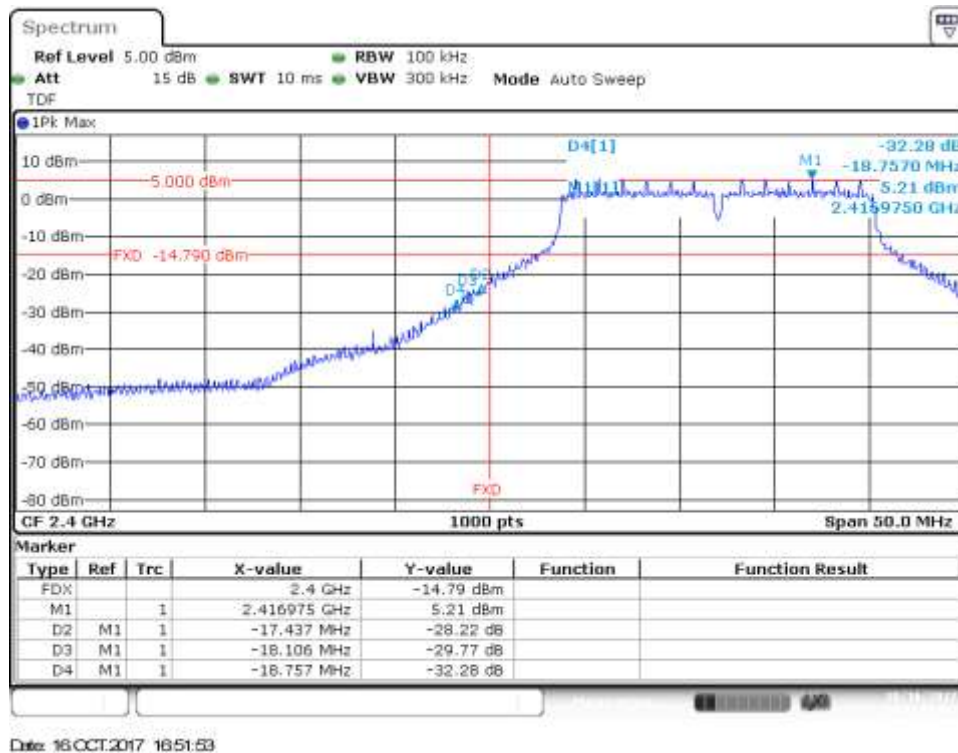
CHAIN A DIV2, 802.11g, 6Mbps

Channel 1

BE Low Freq Section



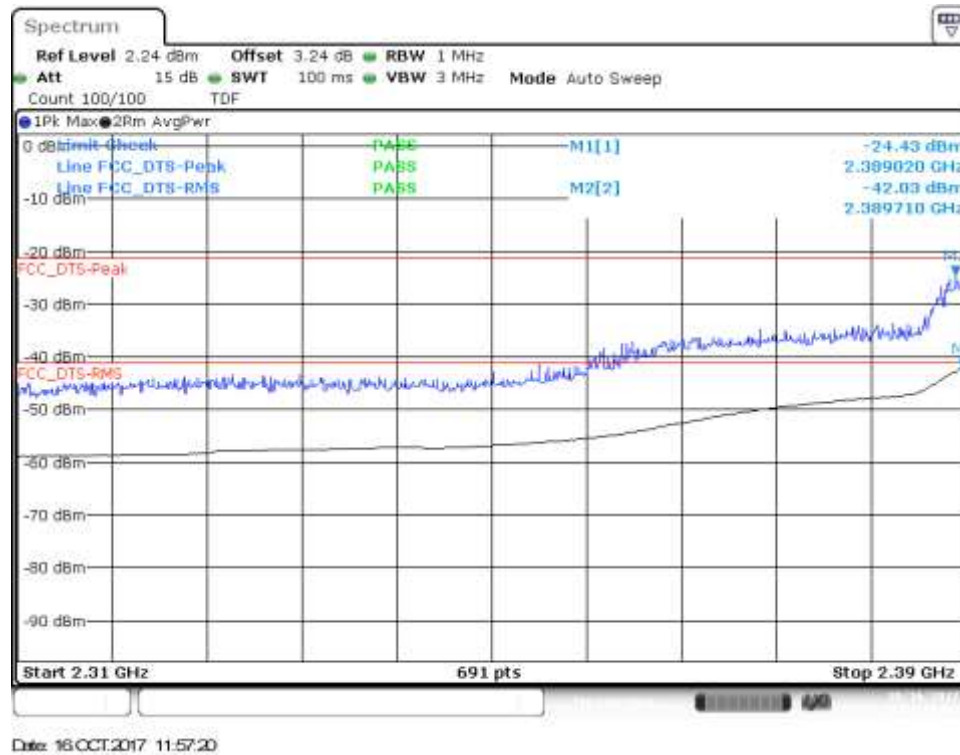
BE Low (Non Restricted)



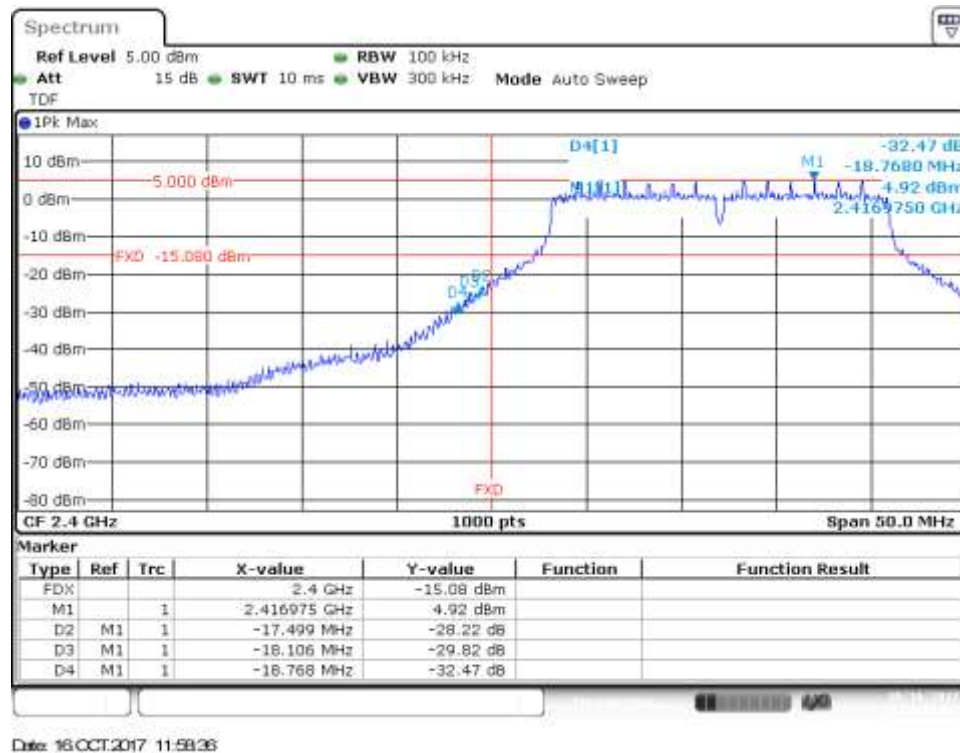
CHAIN A DIV1, 802.11n20, HT0

Channel 1

BE Low Freq Section



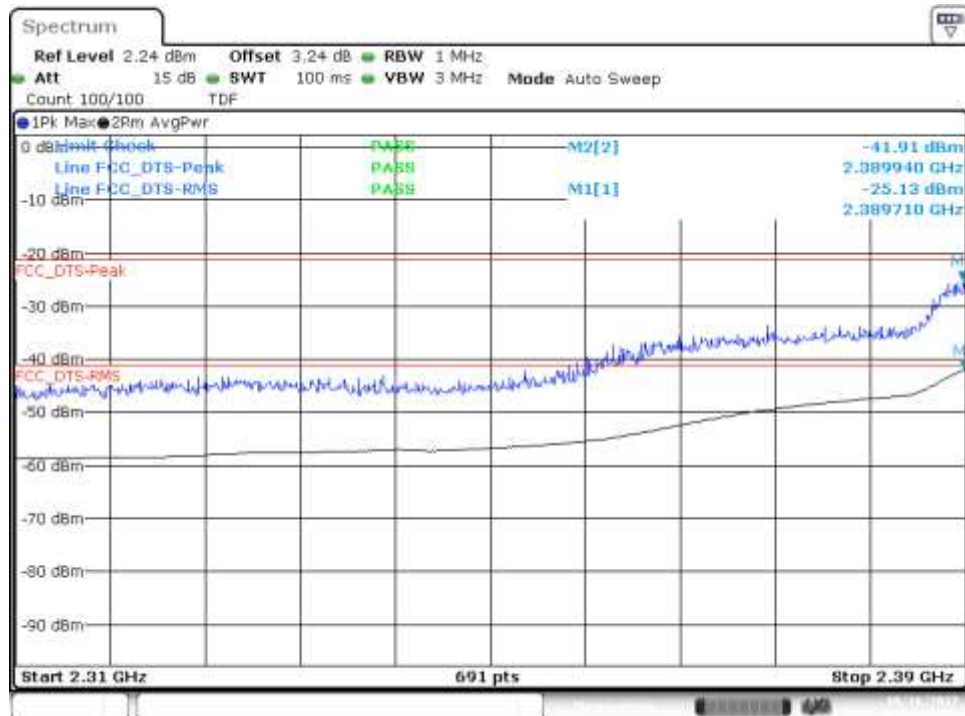
BE Low (Non Restricted)



CHAIN A DIV2, 802.11n20, HT0

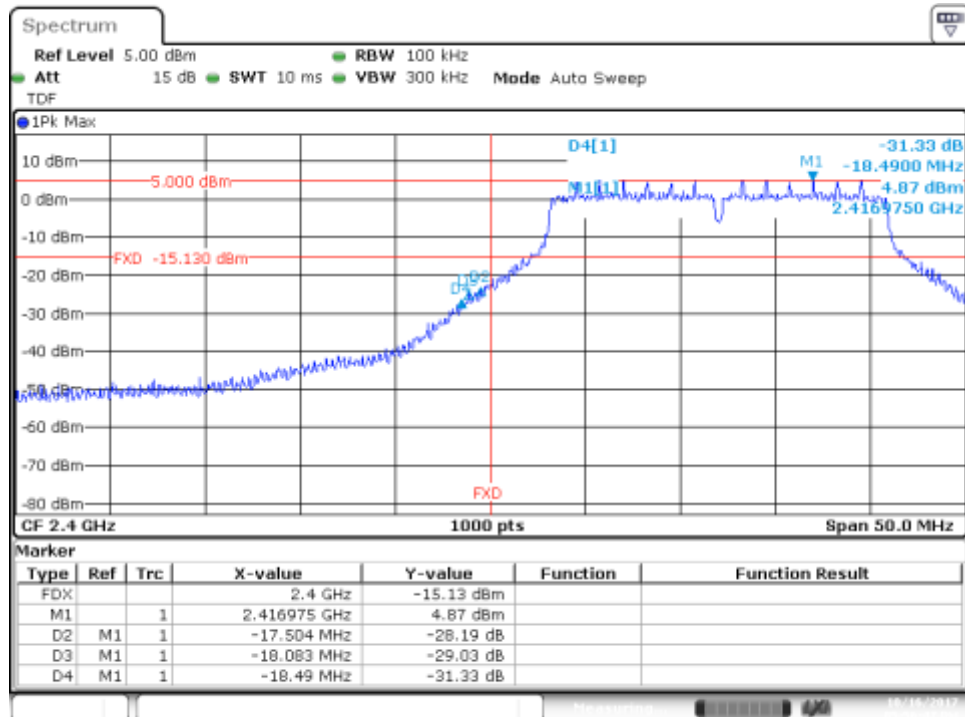
Channel 1

BE Low Freq Section



Date: 16.OCT.2017 17:54:37

BE Low (Non Restricted)

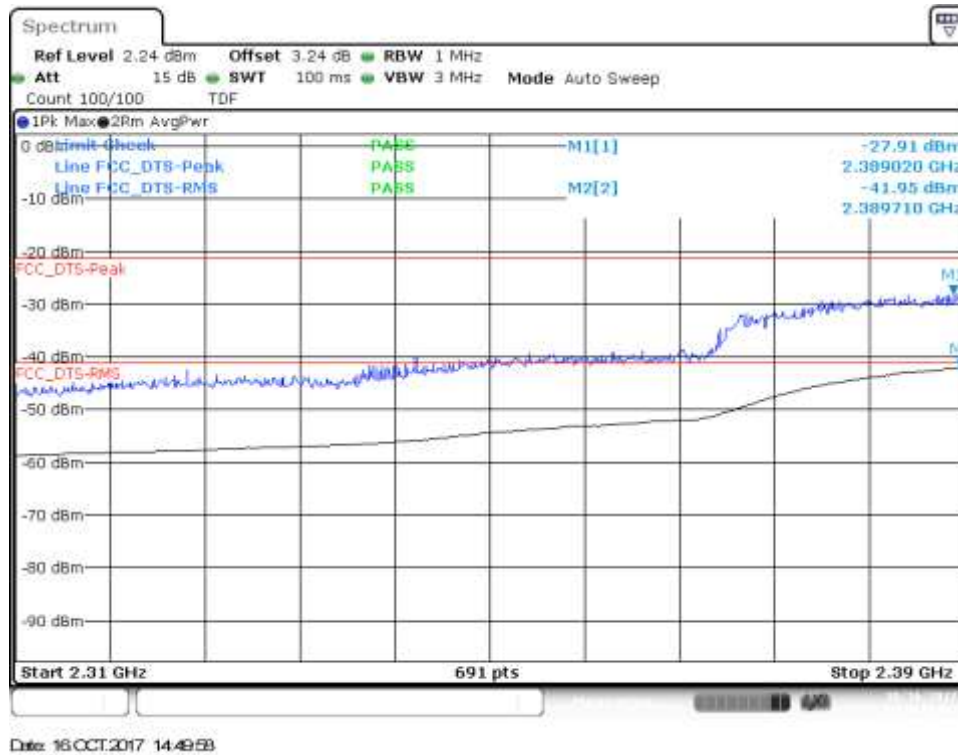


Date: 16.OCT.2017 17:53:47

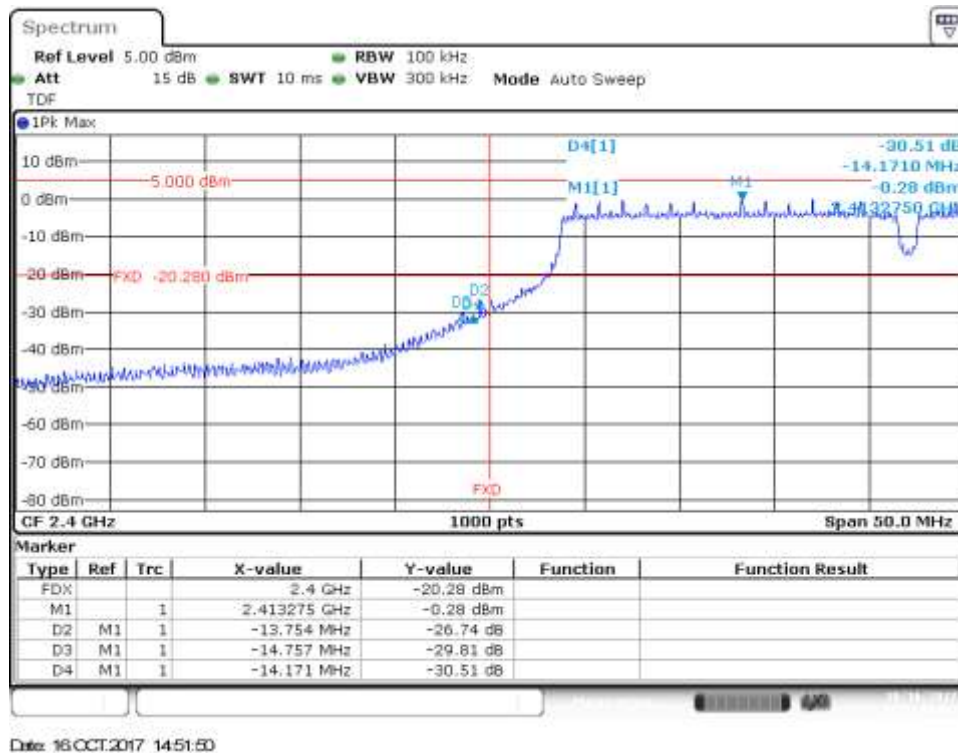
CHAIN A DIV1, 802.11n40, HT0

Channel 3F

BE Low Freq Section



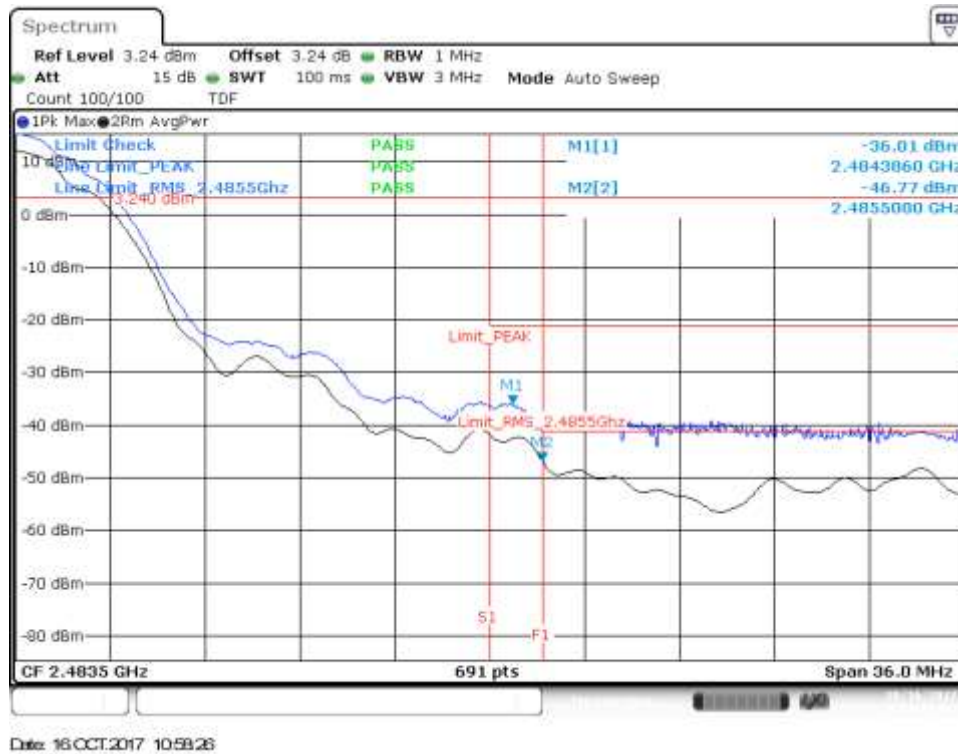
BE Low (Non Restricted)



B.3.6 Out of band emissions - band-edge high (conducted)

CHAIN A DIV1, 802.11b, 1Mbps

Channel 11 - BE High Freq Section (restricted)



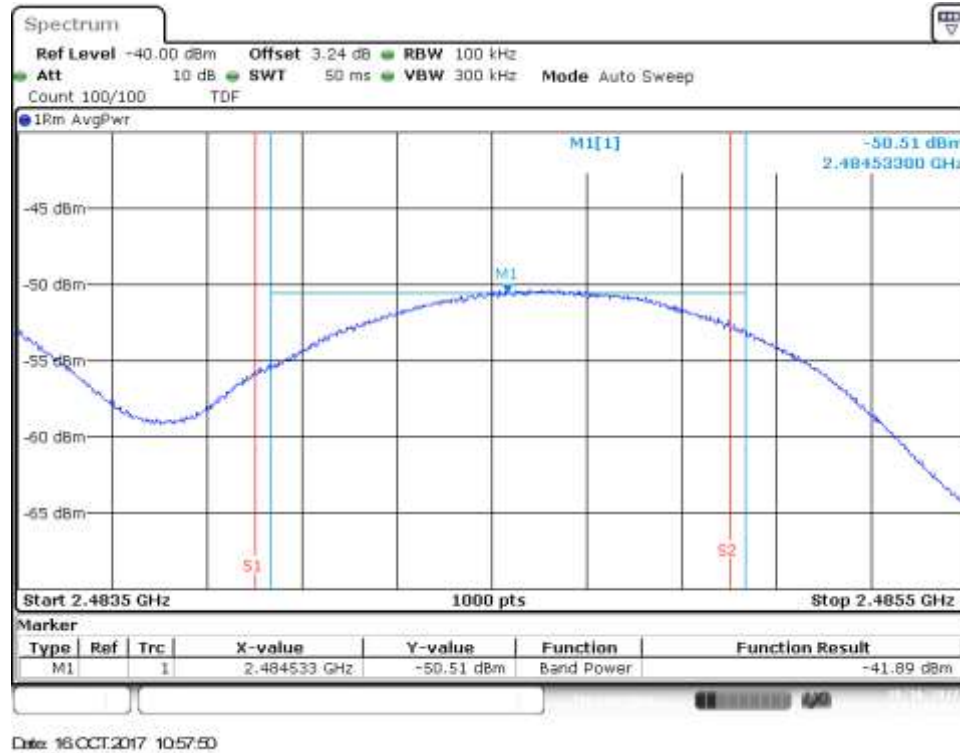
Channel 12 - BE High Freq Section (restricted)



Channel 13 - BE High Freq Section (restricted)

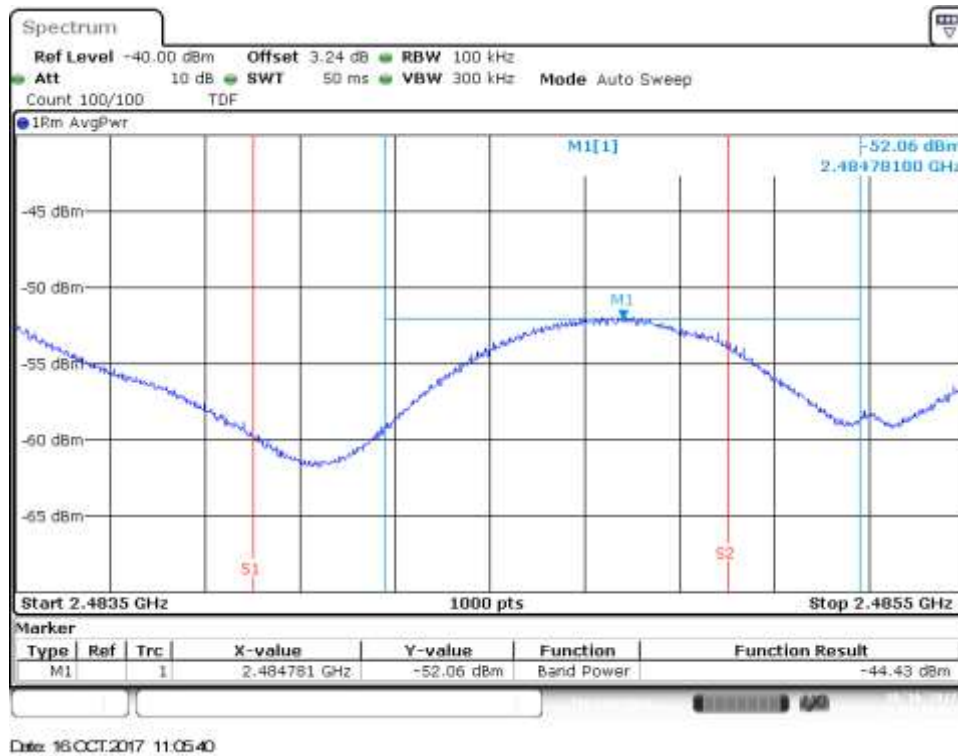


Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

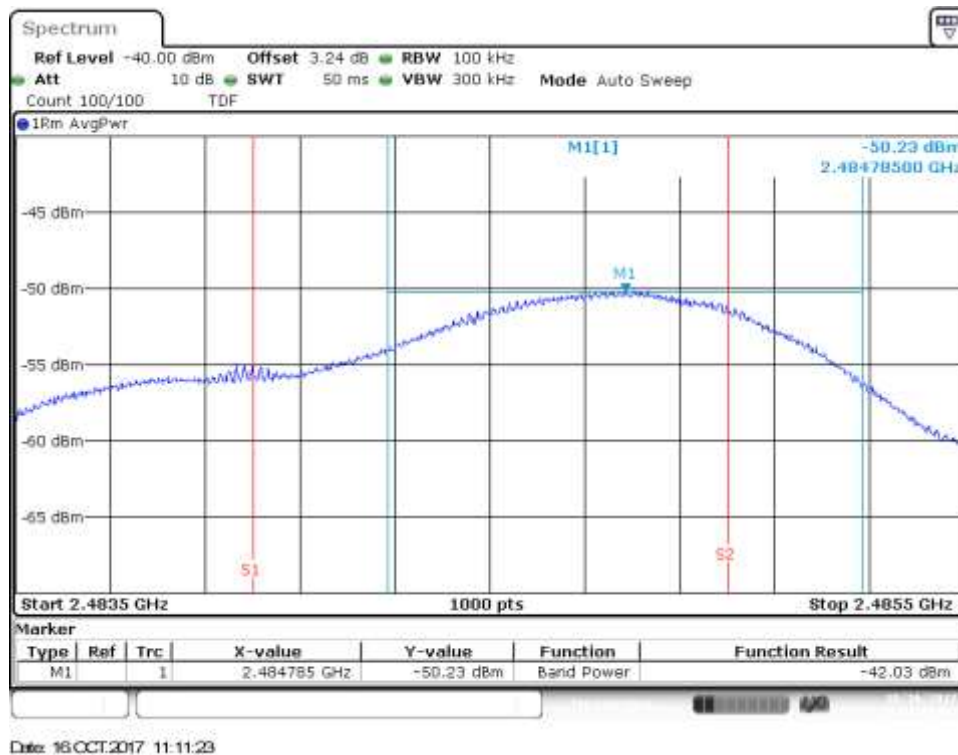


Test Report N° 170919-02.TR04

Channel 12 - BE High Freq Section RMS within 2MHz (restricted)



Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

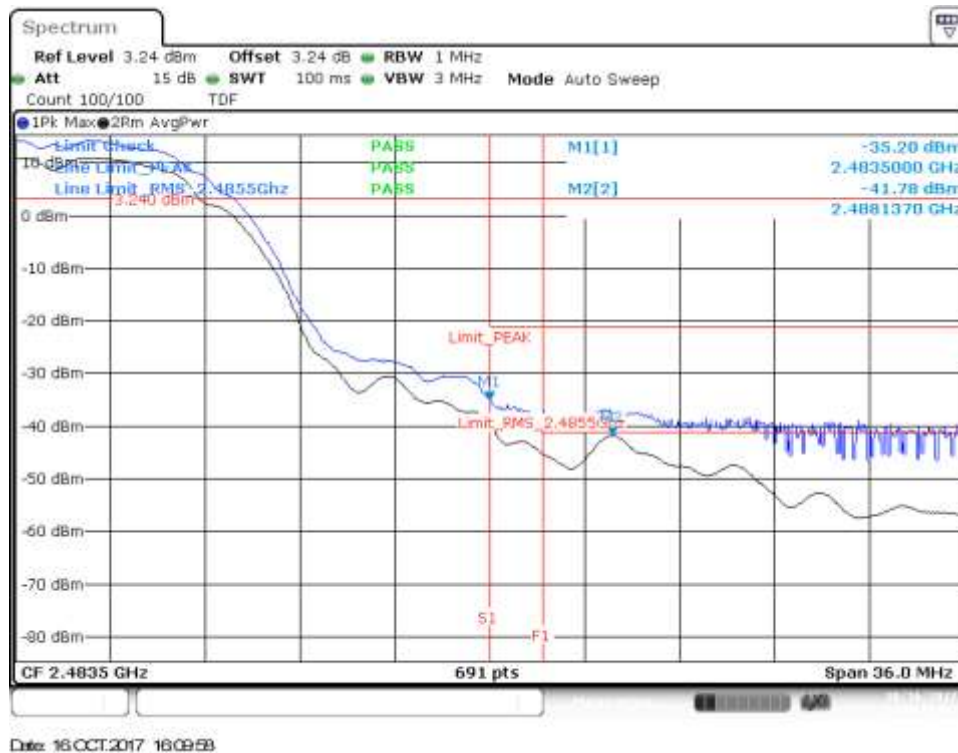


CHAIN A DIV2, 802.11b, 1Mbps

Channel 11 - BE High Freq Section (restricted)



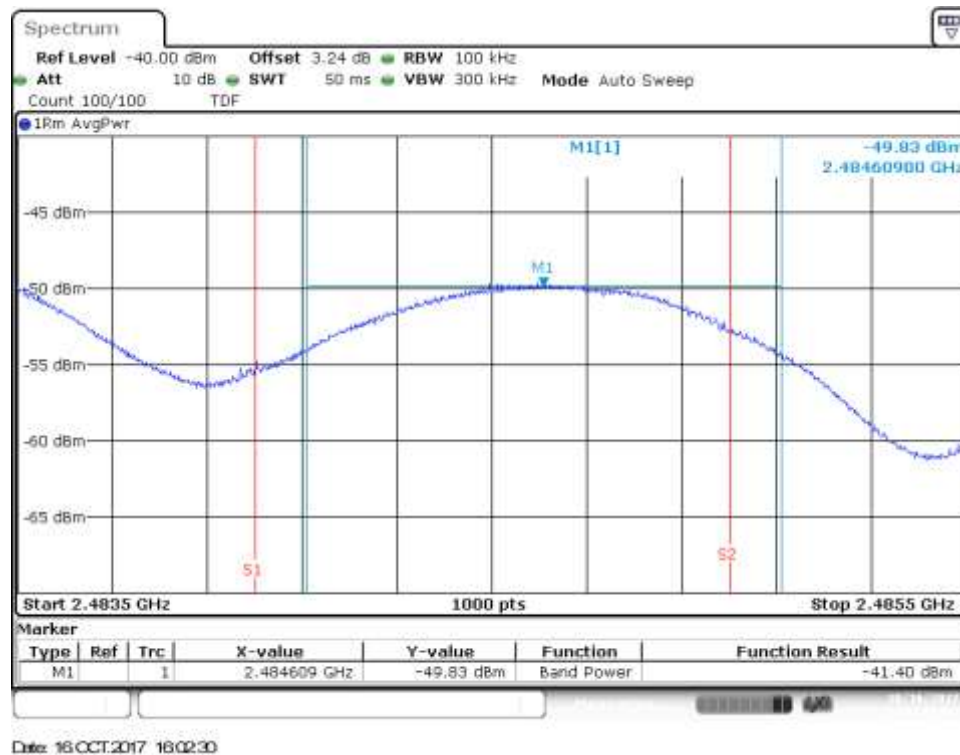
Channel 12 - BE High Freq Section (restricted)



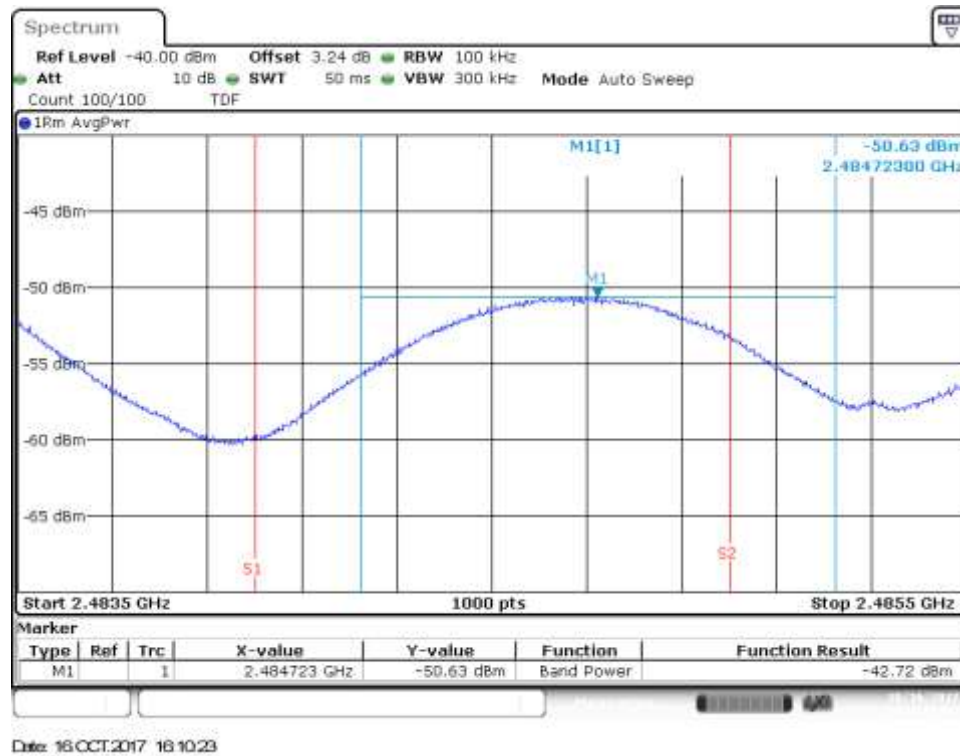
Channel 13 - BE High Freq Section (restricted)



Channel 11 - BE High Freq Section RMS within 2MHz (restricted)



Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

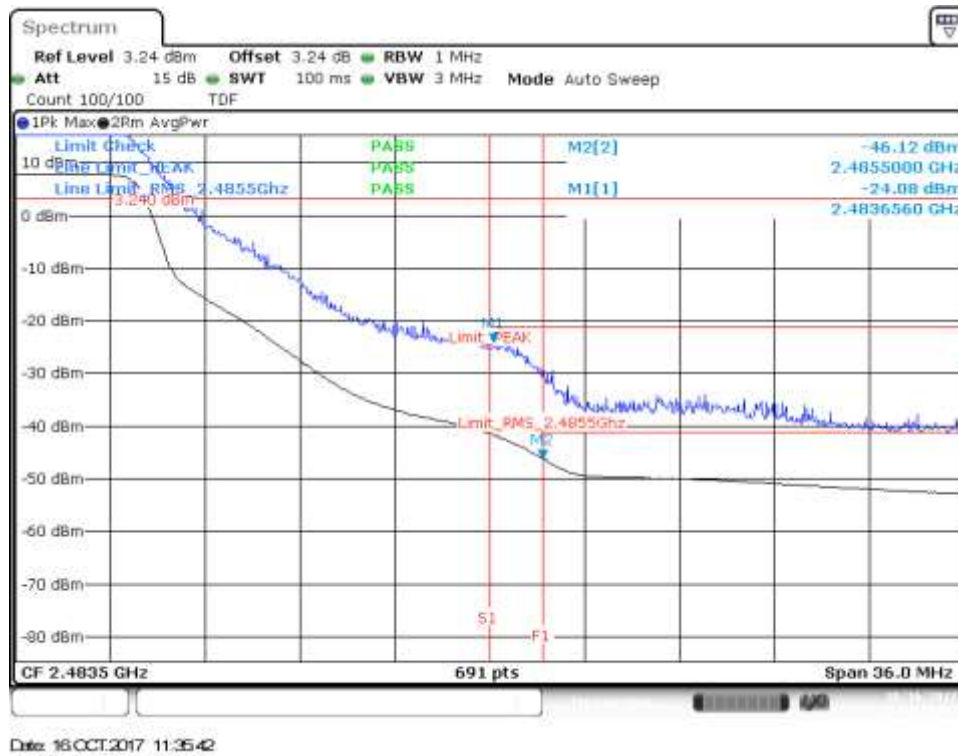


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)



CHAIN A DIV1, 802.11g, 6Mbps

Channel 11 - BE High Freq Section (restricted)



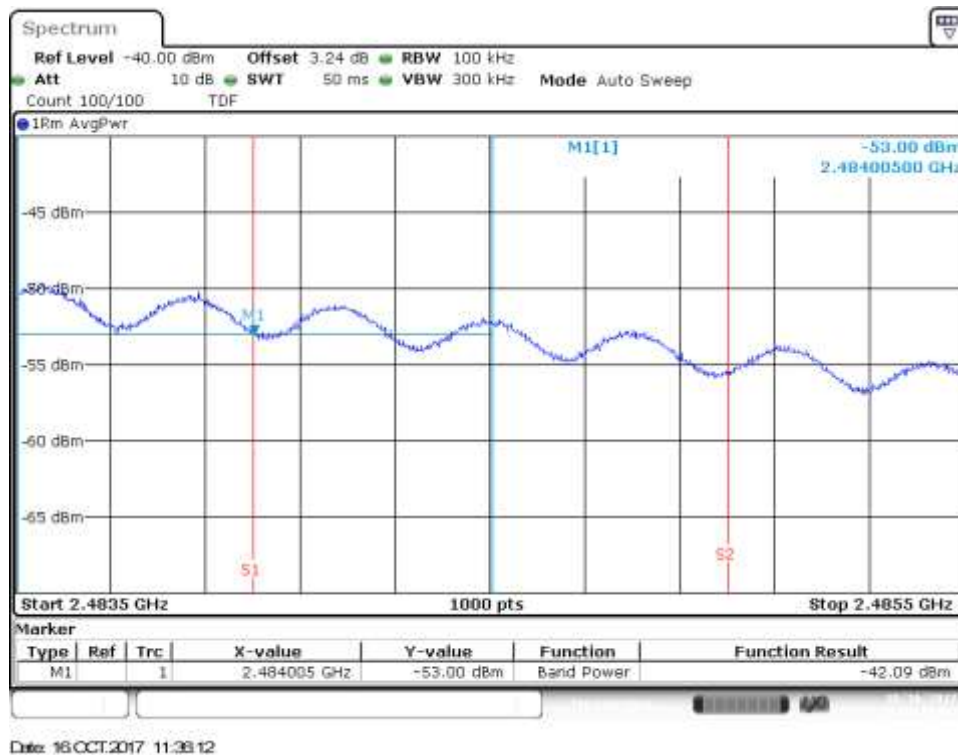
Channel 12 - BE High Freq Section (restricted)



Channel 13 - BE High Freq Section (restricted)

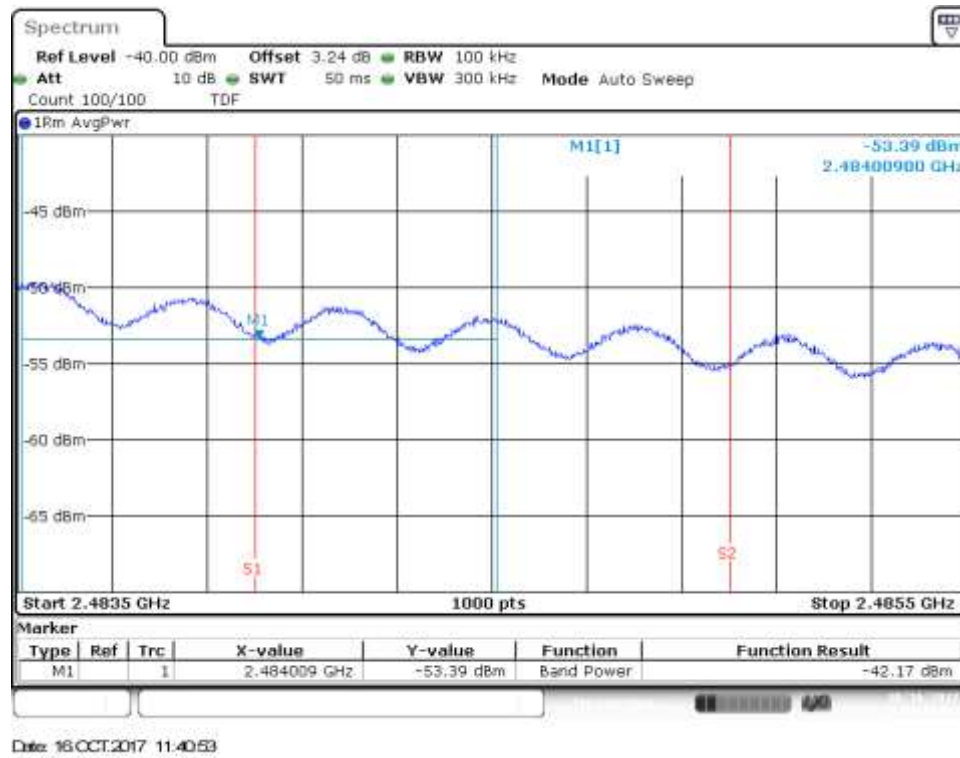


Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

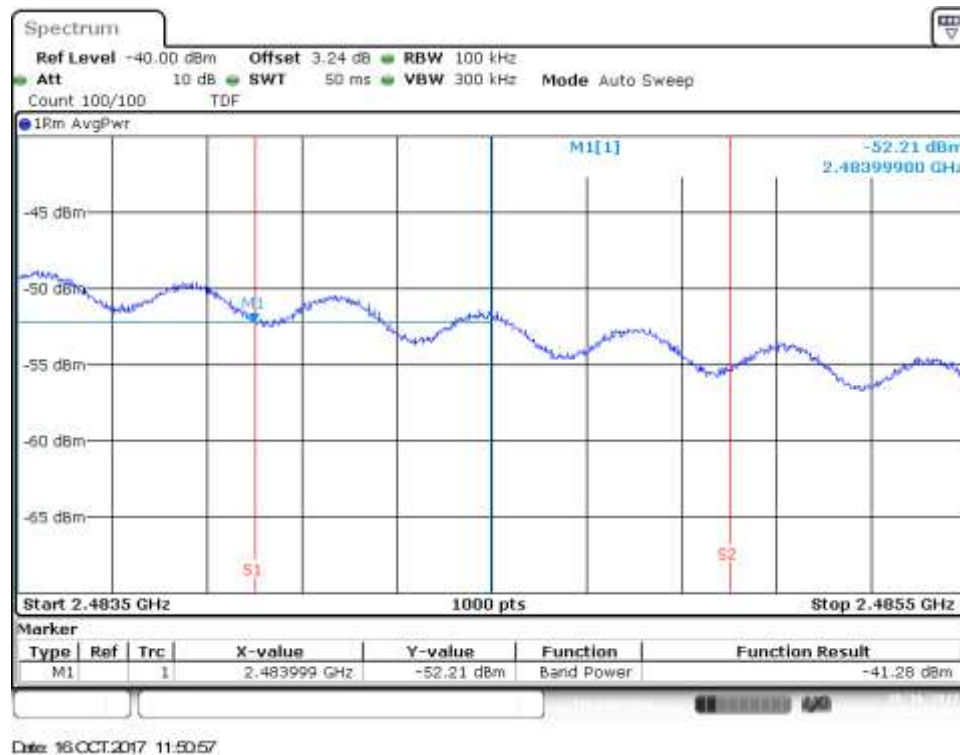


Test Report N° 170919-02.TR04

Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

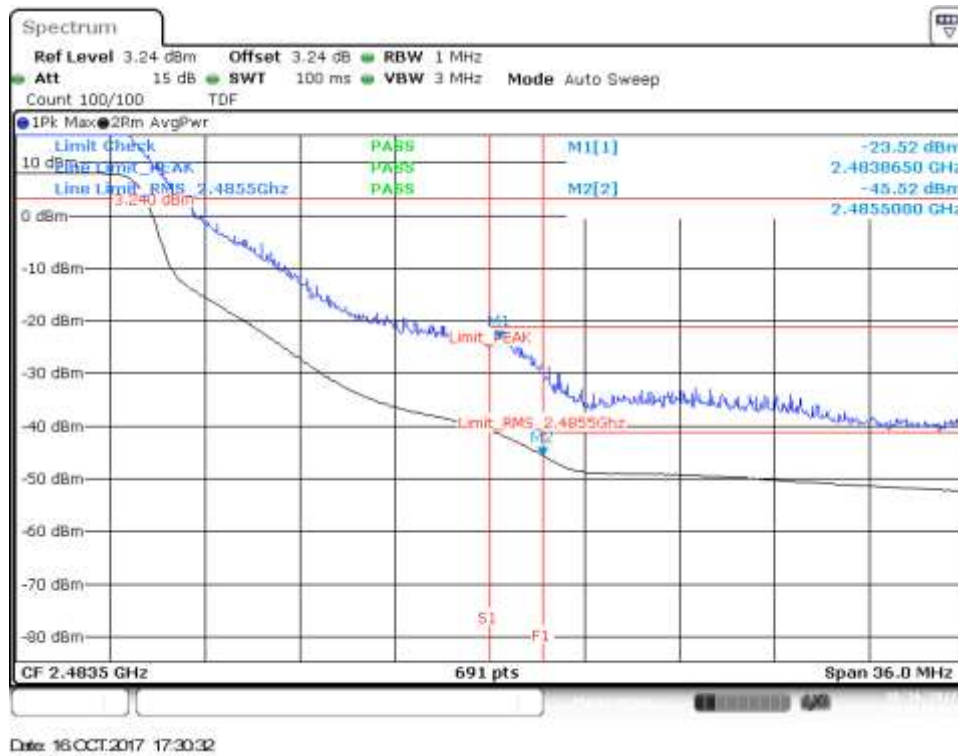


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

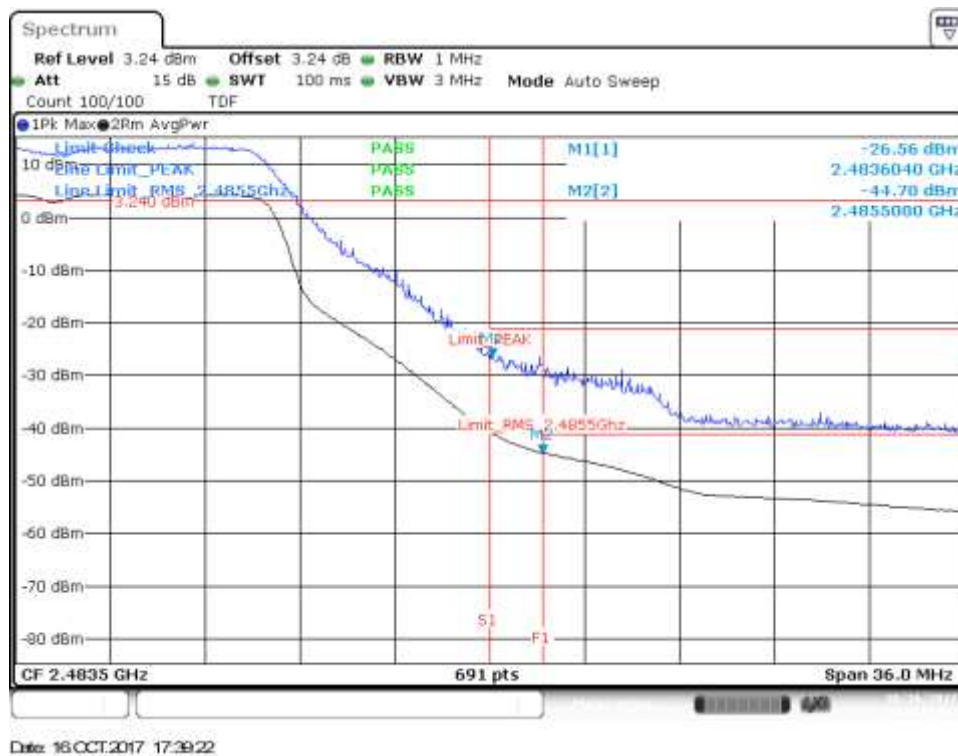


CHAIN A DIV2, 802.11g, 6Mbps

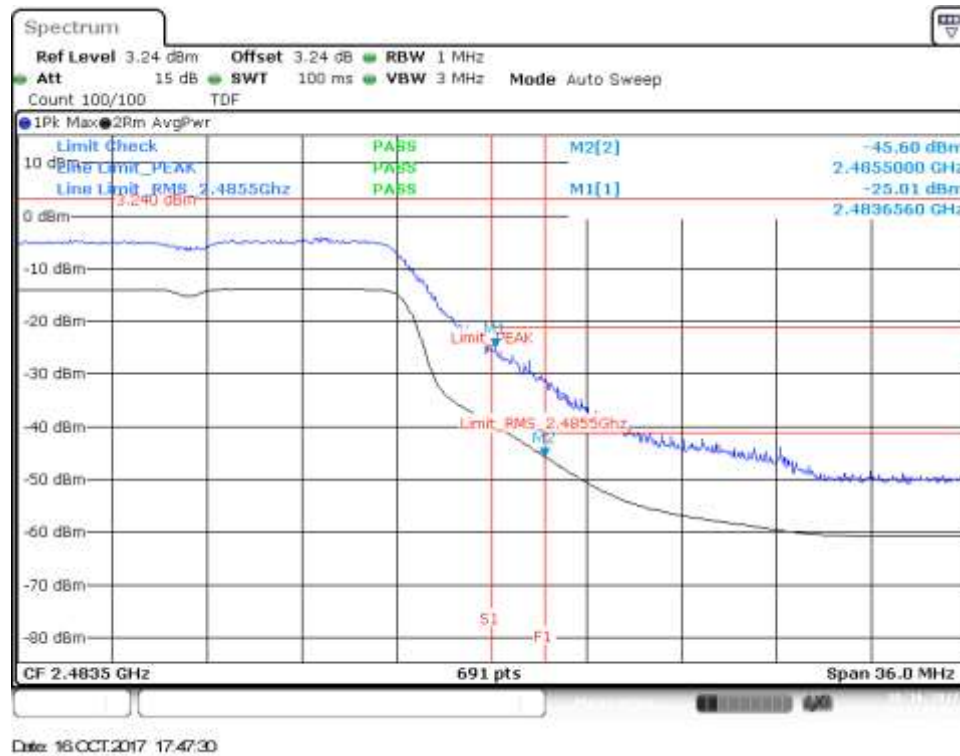
Channel 11 - BE High Freq Section (restricted)



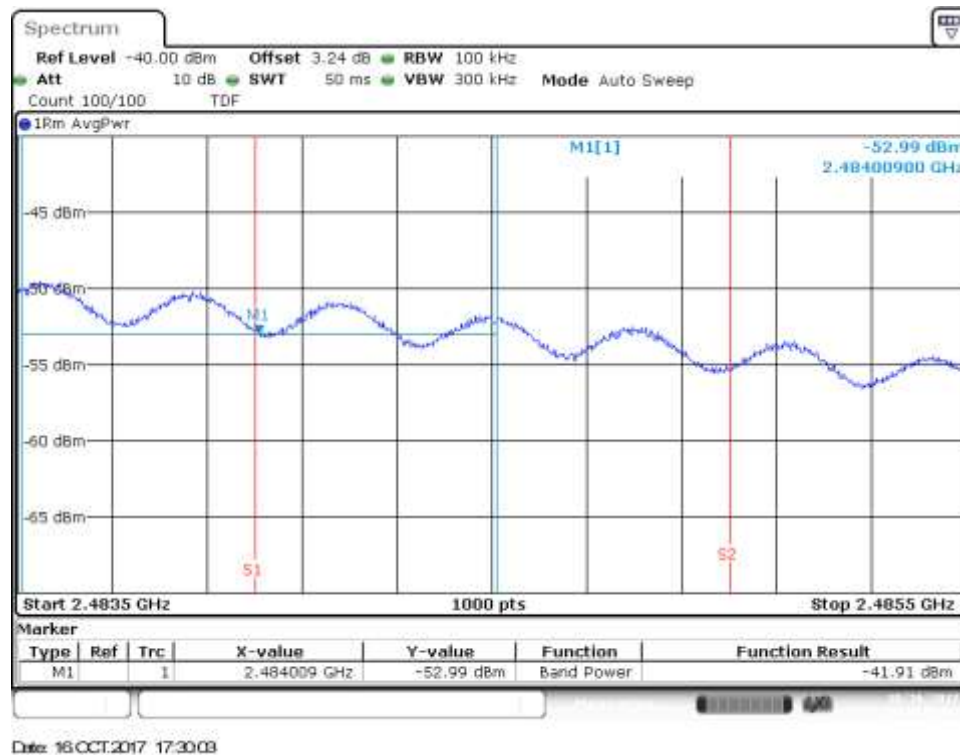
Channel 12 - BE High Freq Section (restricted)



Channel 13 - BE High Freq Section (restricted)

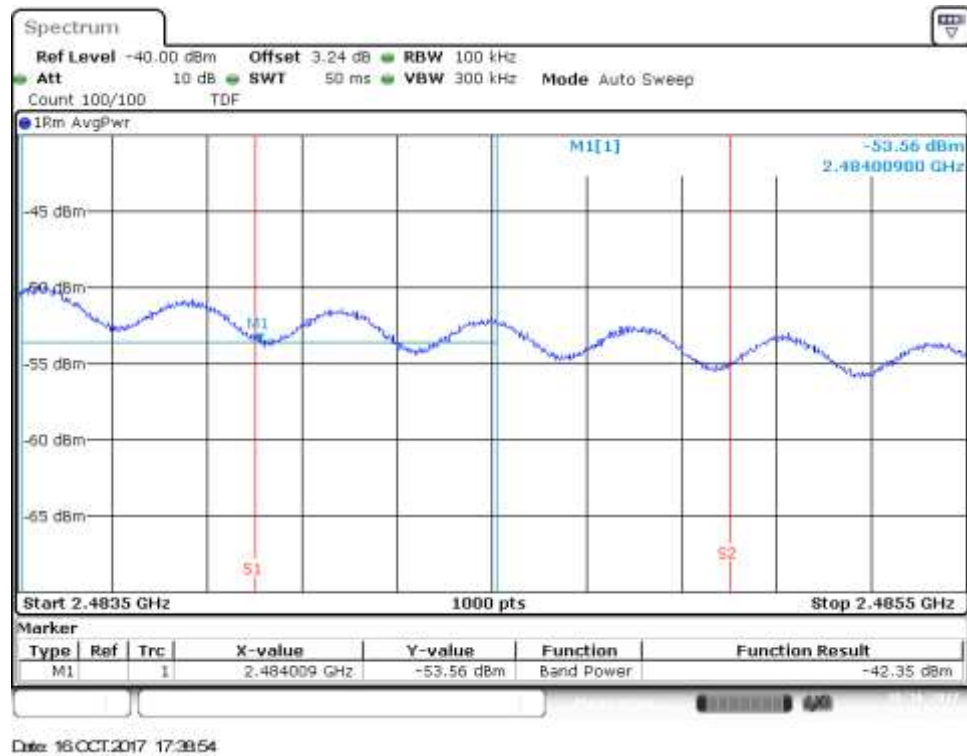


Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

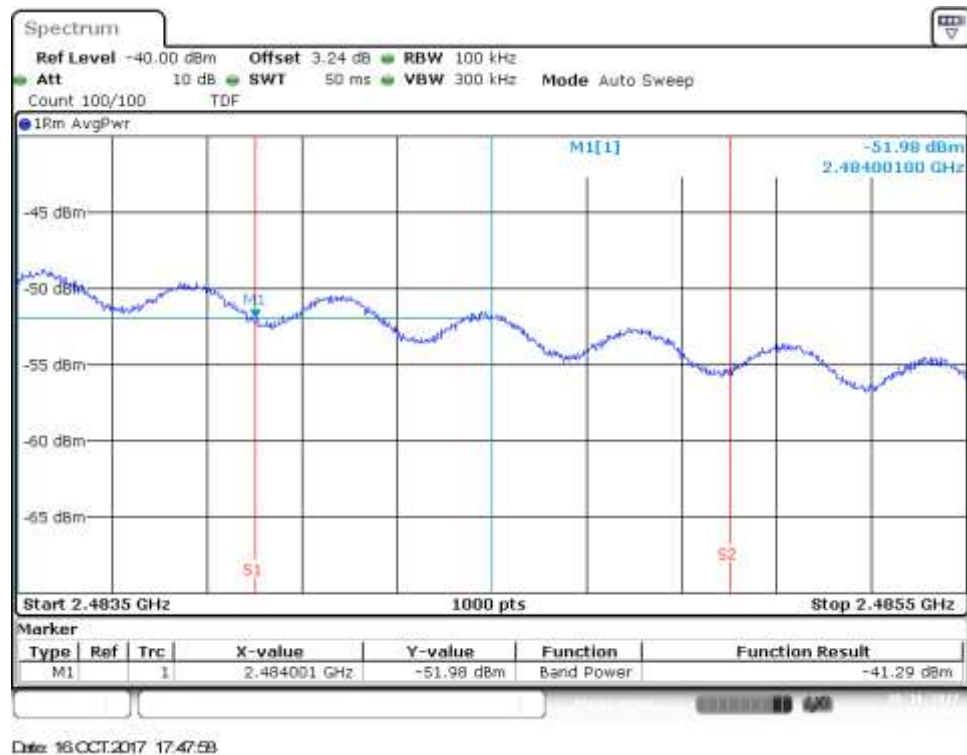


Test Report N° 170919-02.TR04

Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

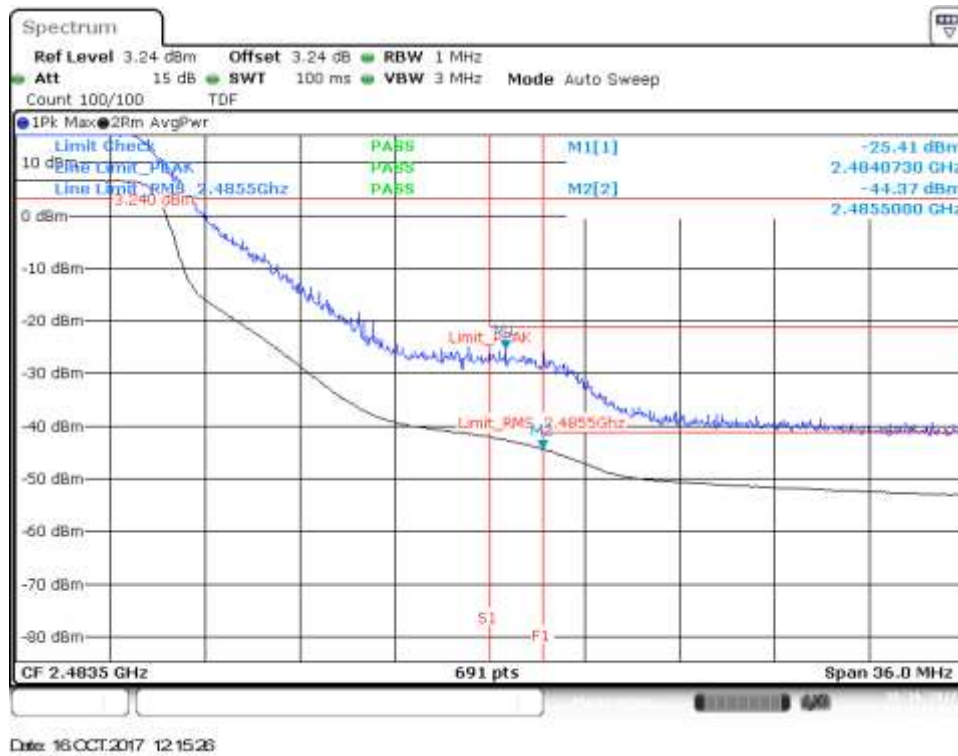


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

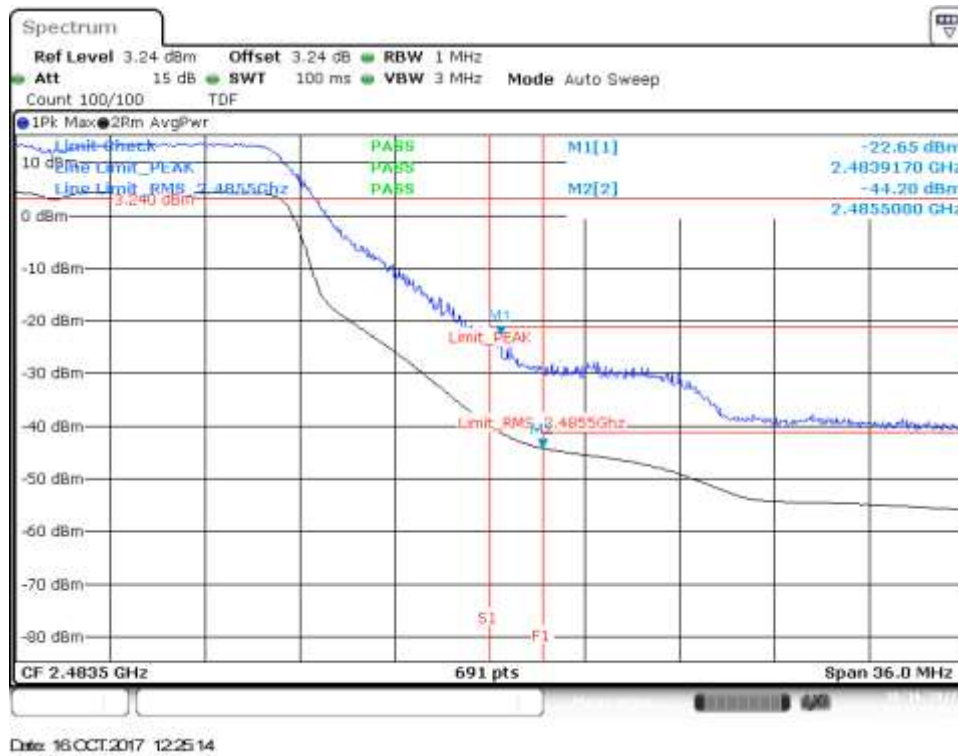


CHAIN A DIV1, 802.11n20, HT0

Channel 11 - BE High Freq Section (restricted)



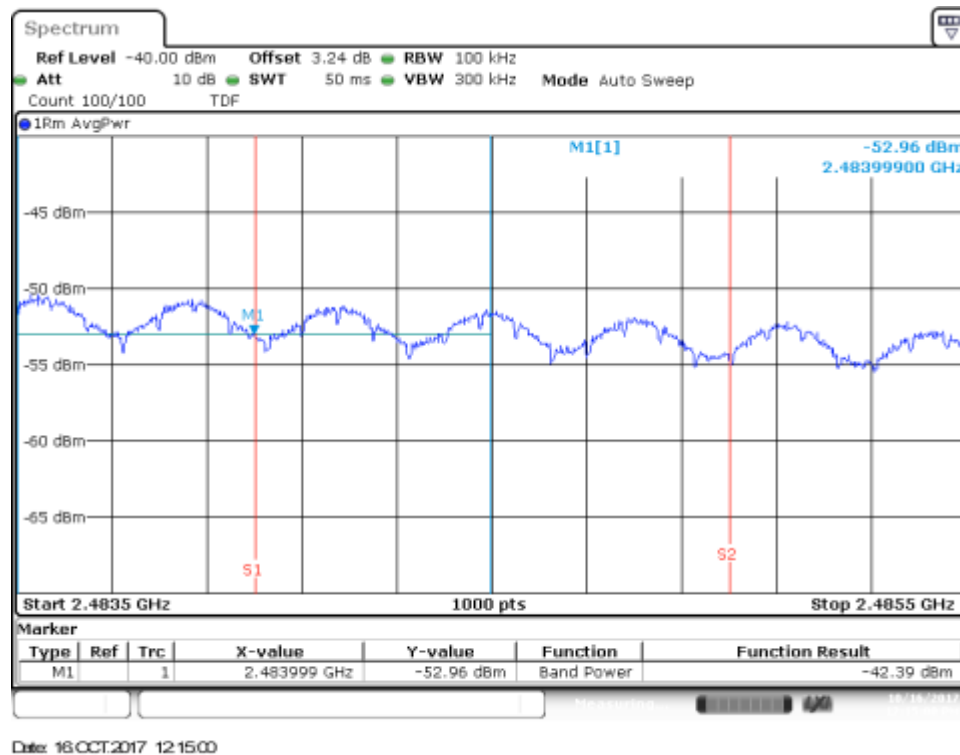
Channel 12 - BE High Freq Section (restricted)



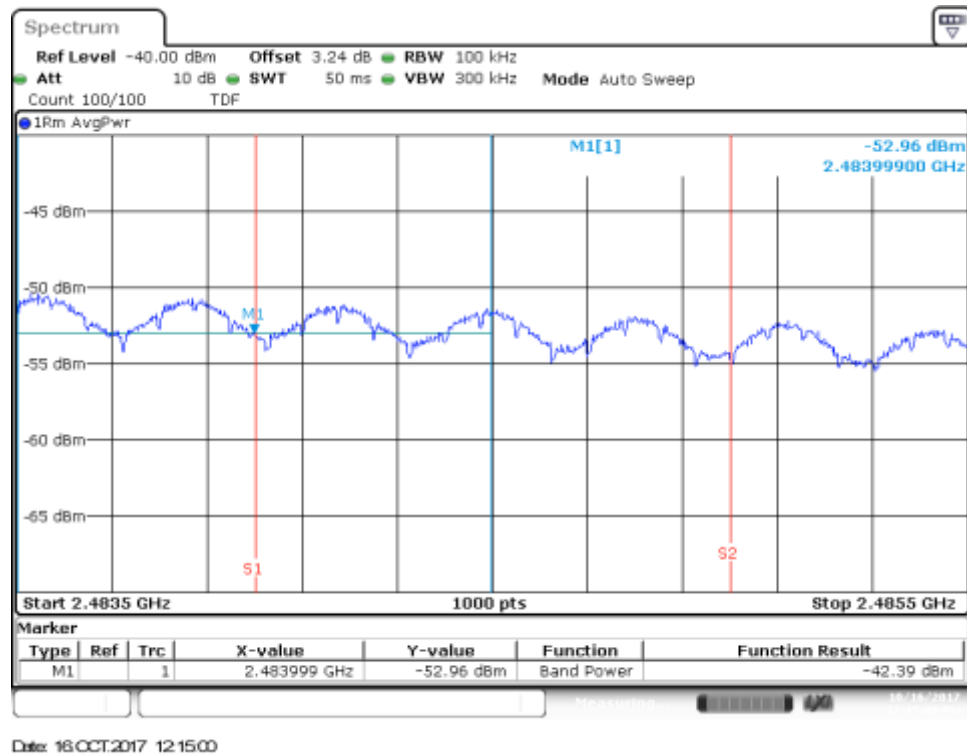
Channel 13 - BE High Freq Section (restricted)



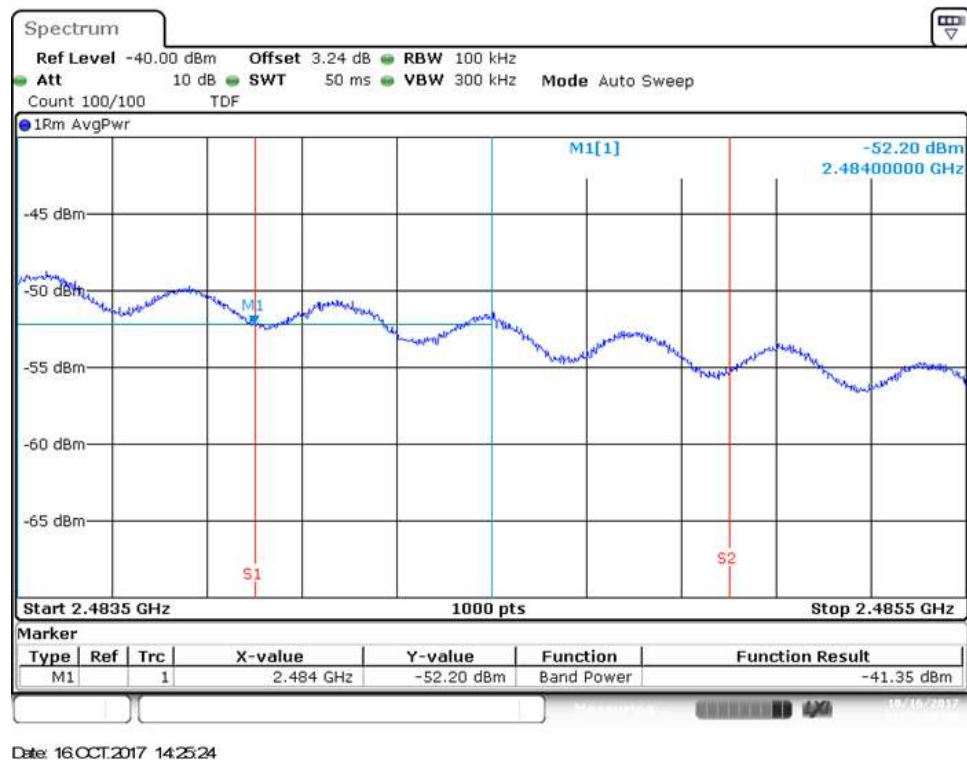
Channel 11 - BE High Freq Section RMS within 2MHz (restricted)



Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

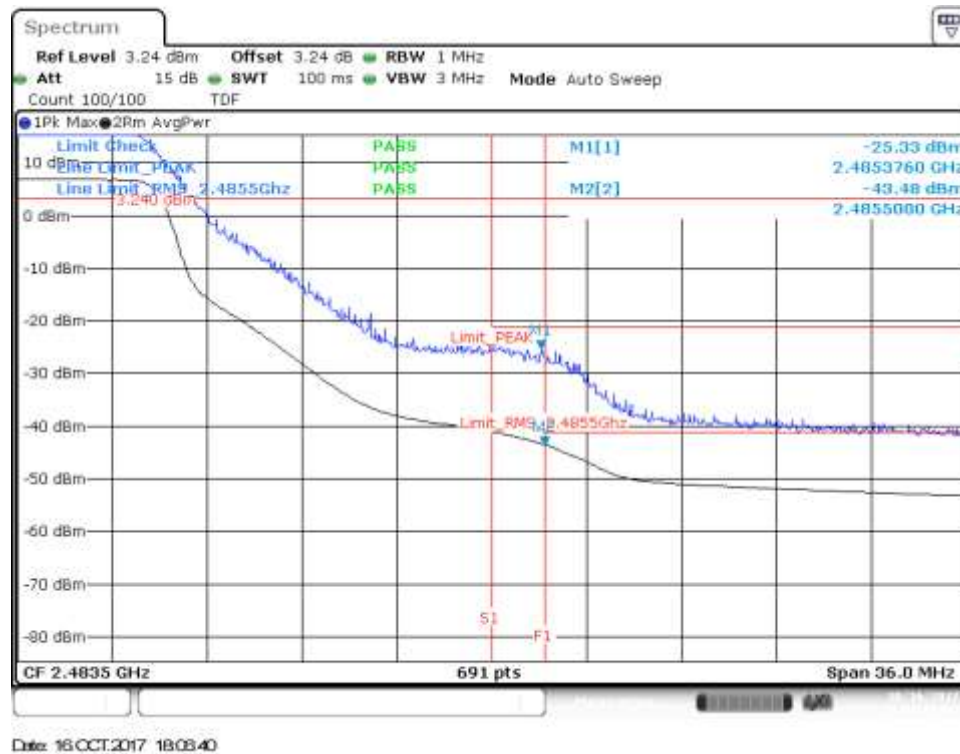


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

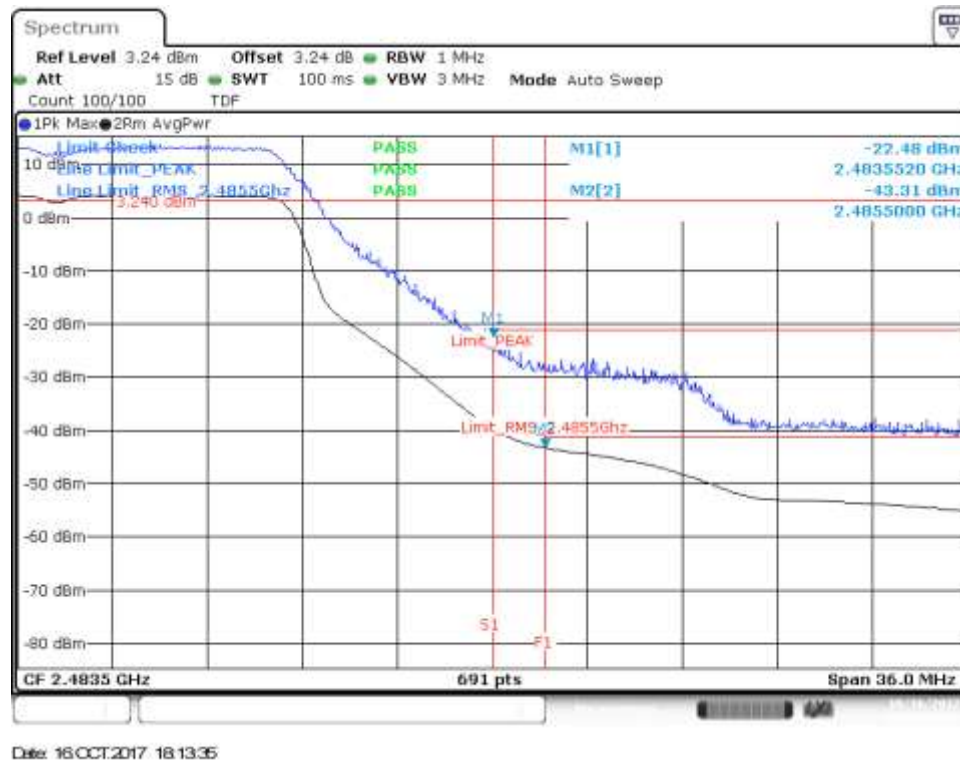


CHAIN A DIV2, 802.11n20, HT0

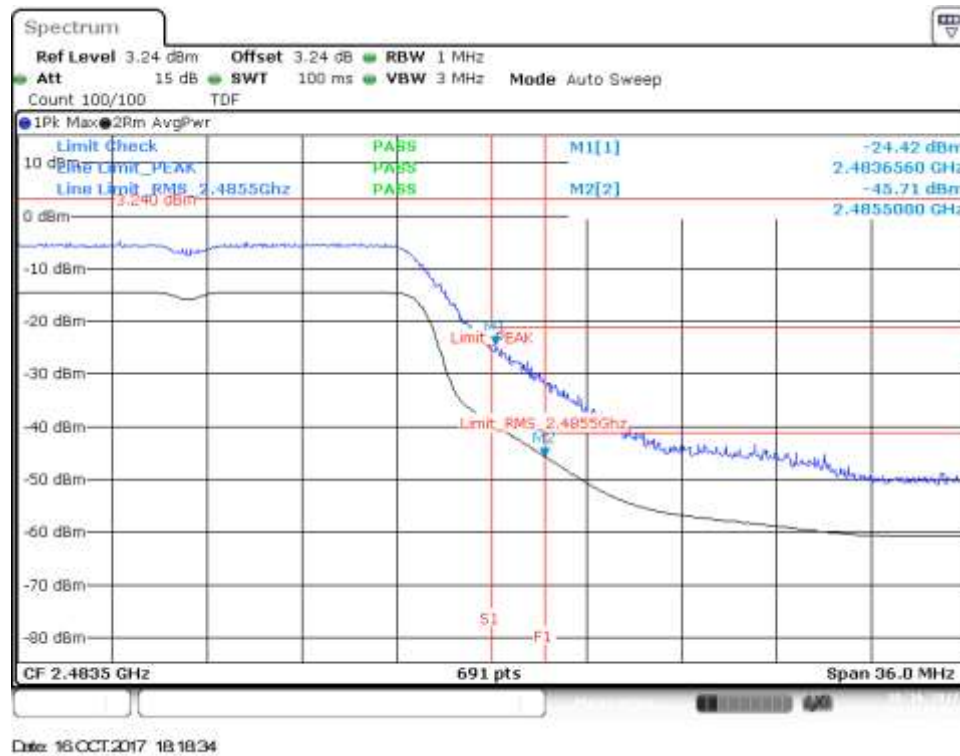
Channel 11 - BE High Freq Section (restricted)



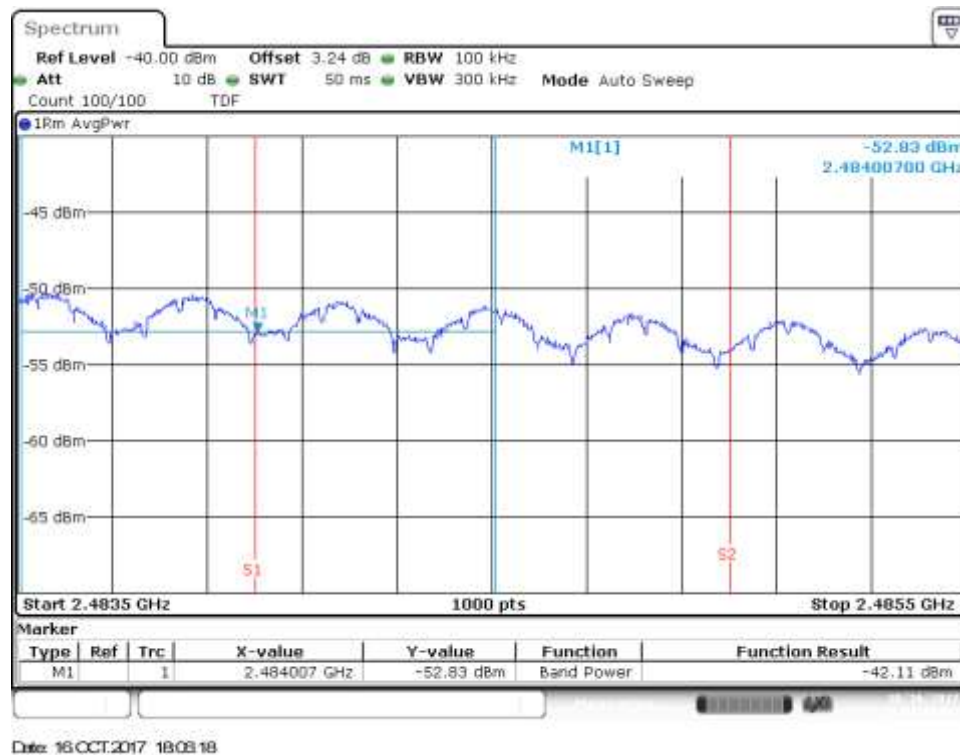
Channel 12 - BE High Freq Section (restricted)



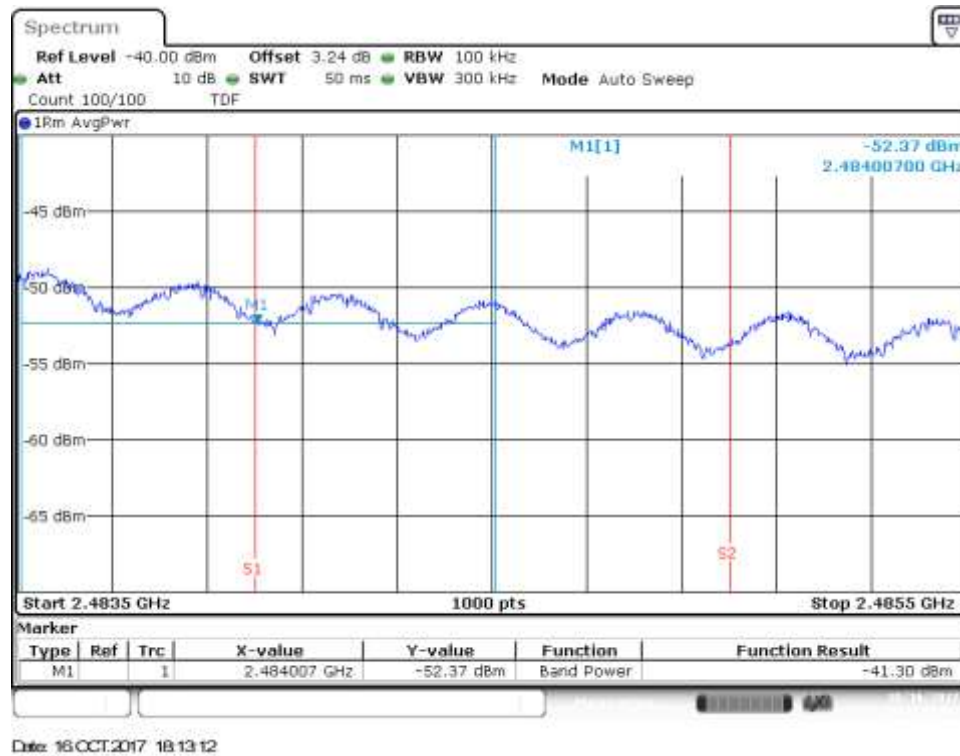
Channel 13 - BE High Freq Section (restricted)



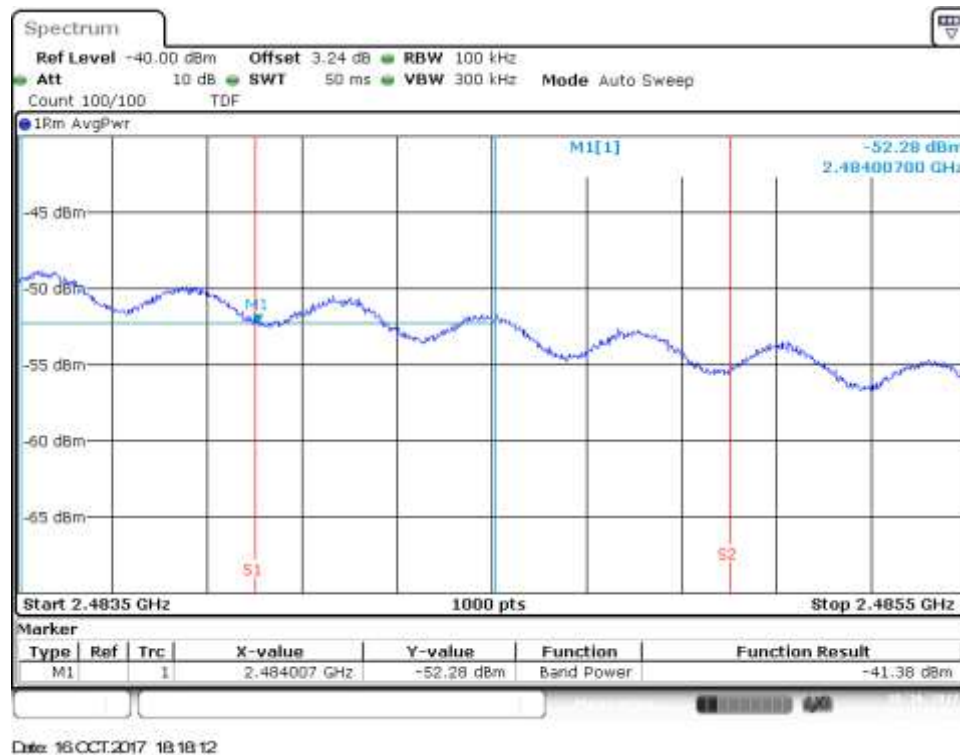
Channel 11 - BE High Freq Section RMS within 2MHz (restricted)



Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

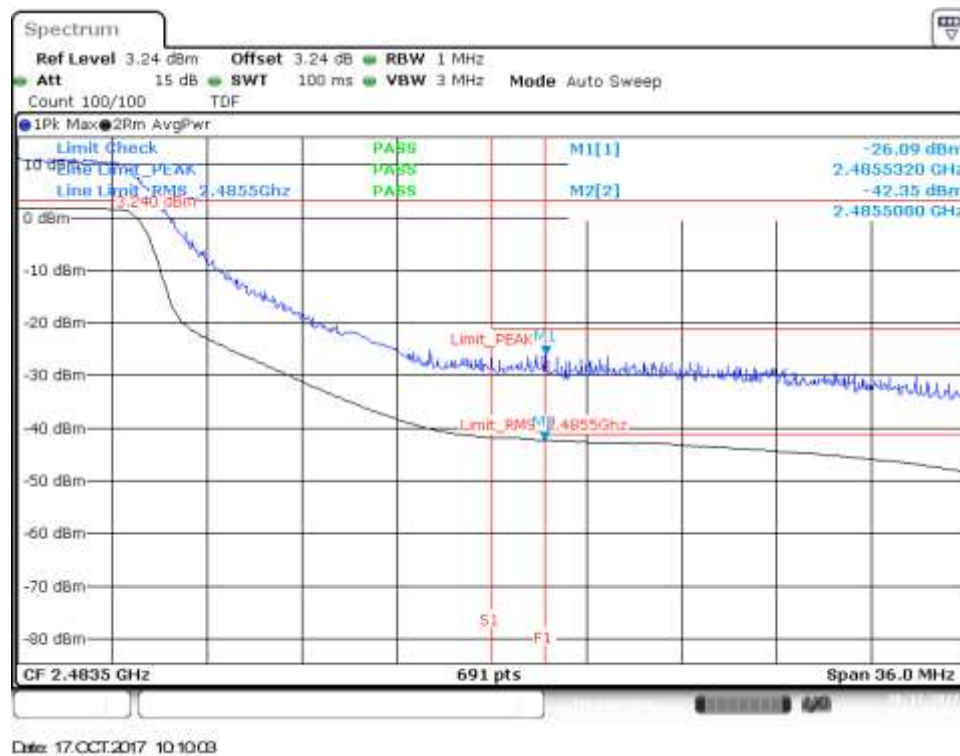


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

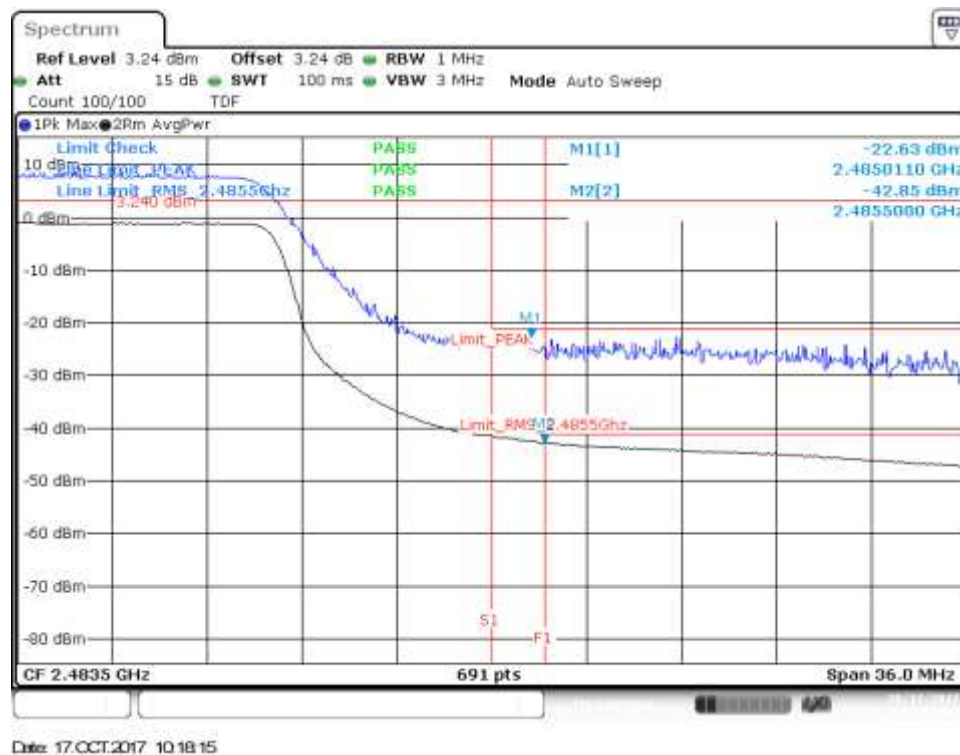


CHAIN A DIV1, 802.11n40, HT0

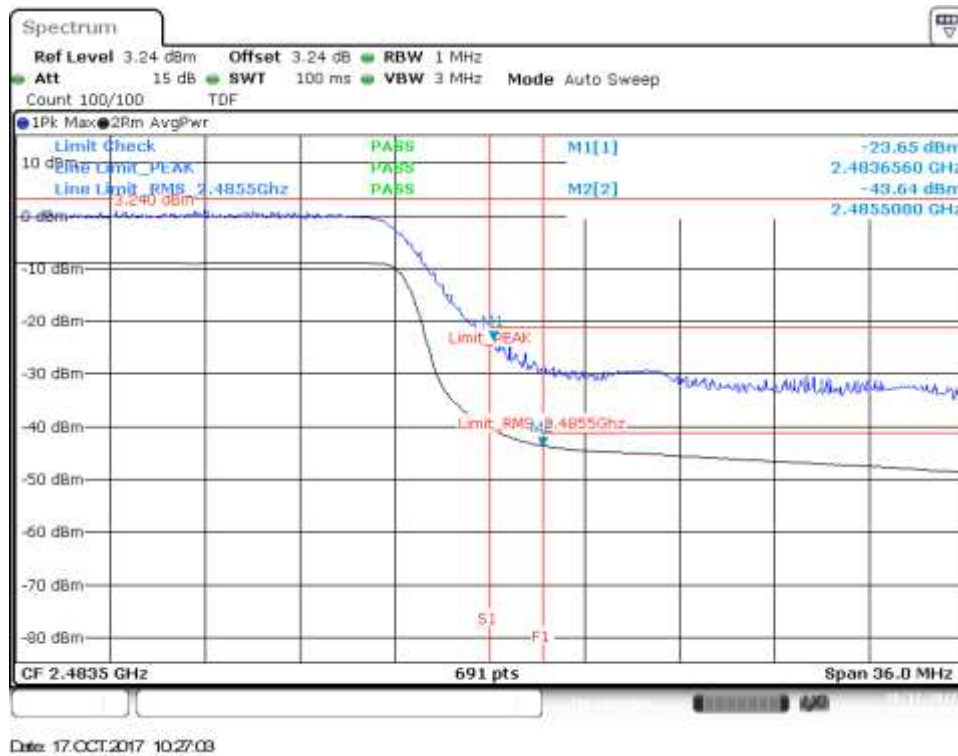
Channel 9F - BE High Freq Section (restricted)



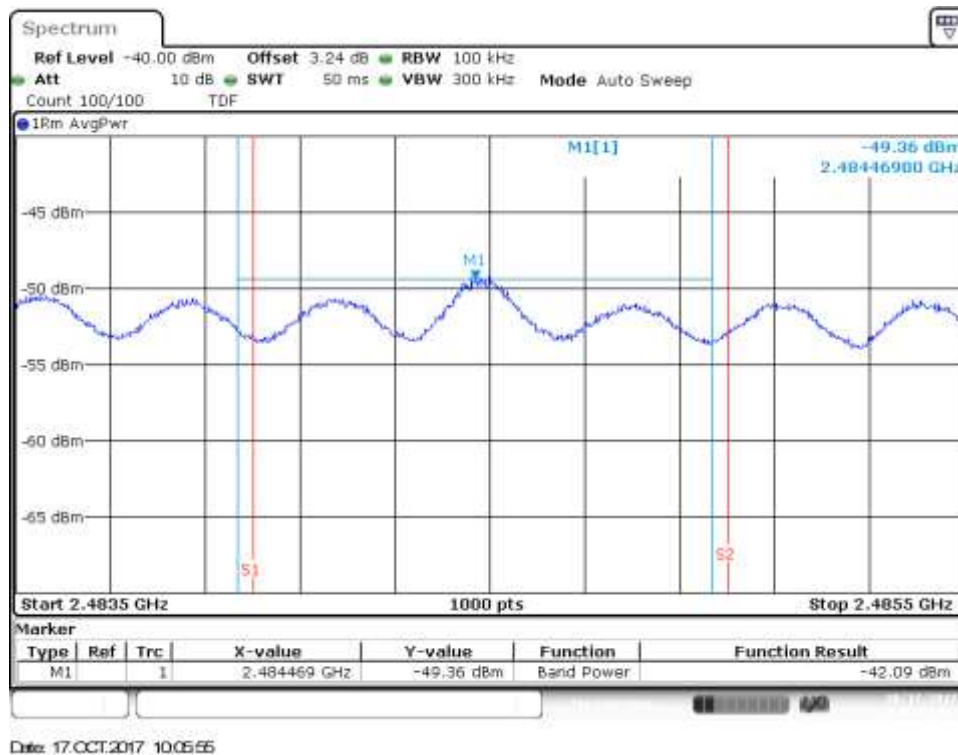
Channel 10F - BE High Freq Section (restricted)



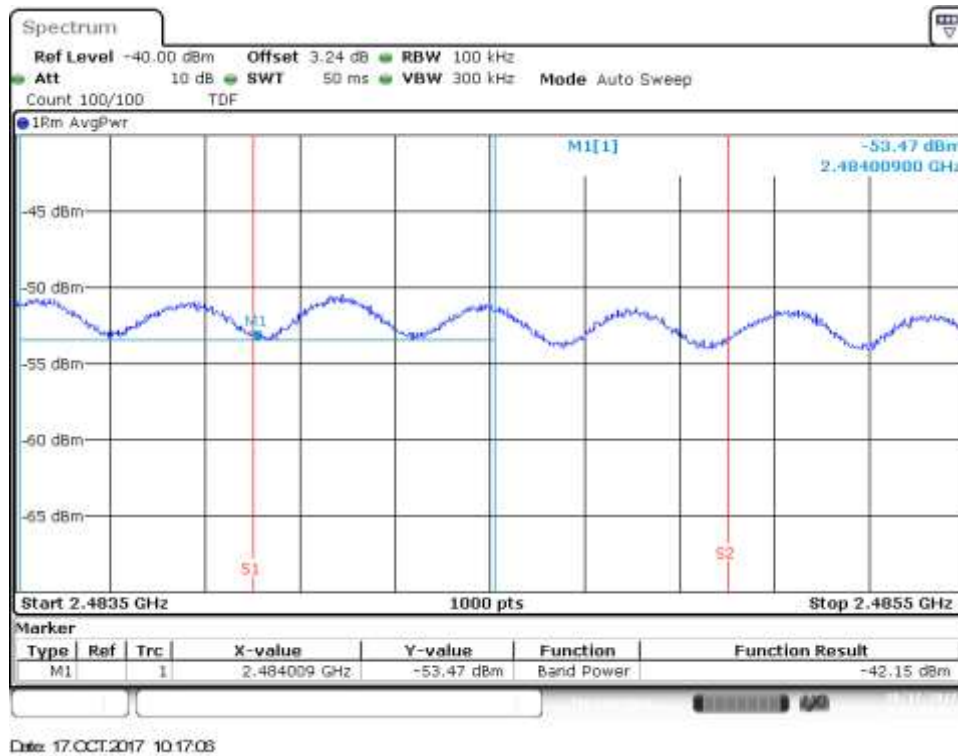
Channel 11F - BE High Freq Section (restricted)



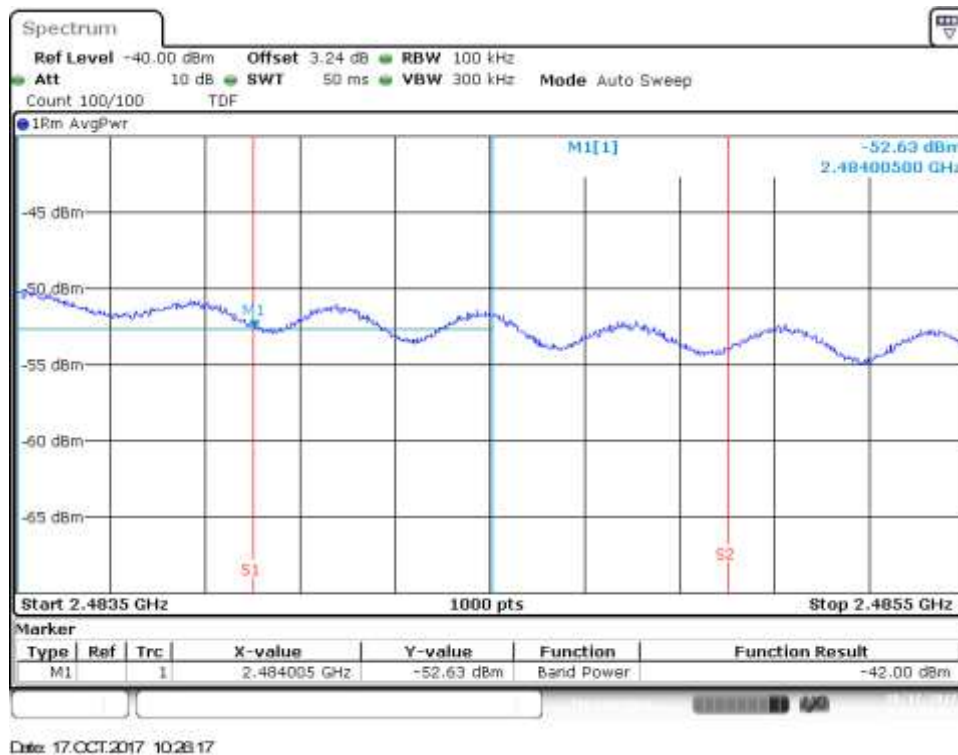
Channel 9F - BE High Freq Section RMS within 2MHz (restricted)



Channel 10F - BE High Freq Section RMS within 2MHz (restricted)

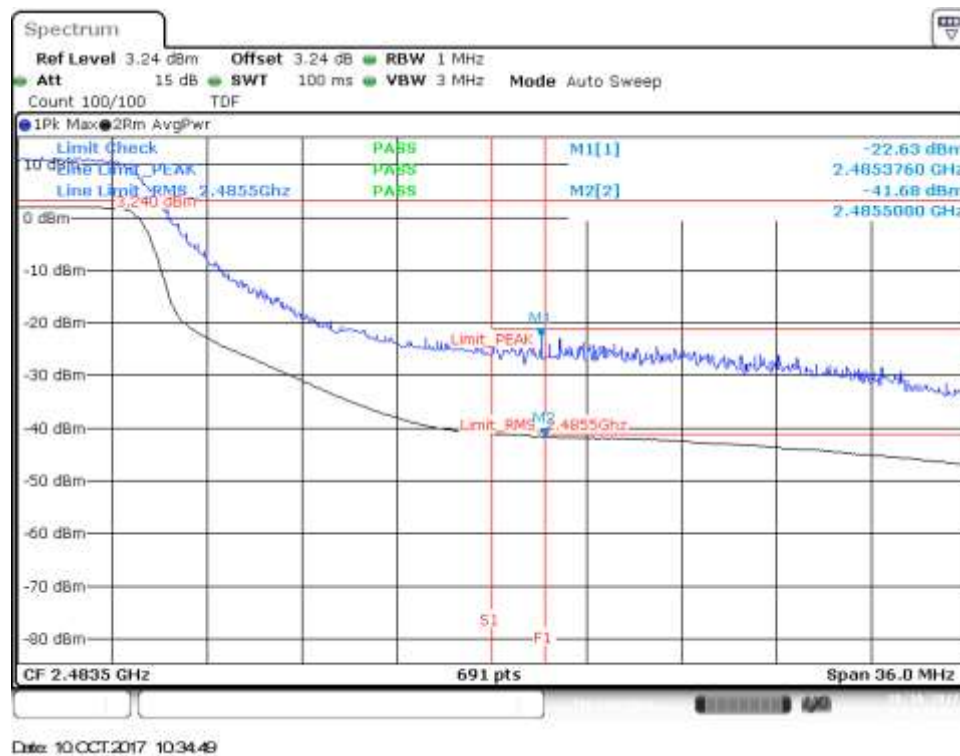


Channel 11F - BE High Freq Section RMS within 2MHz (restricted)

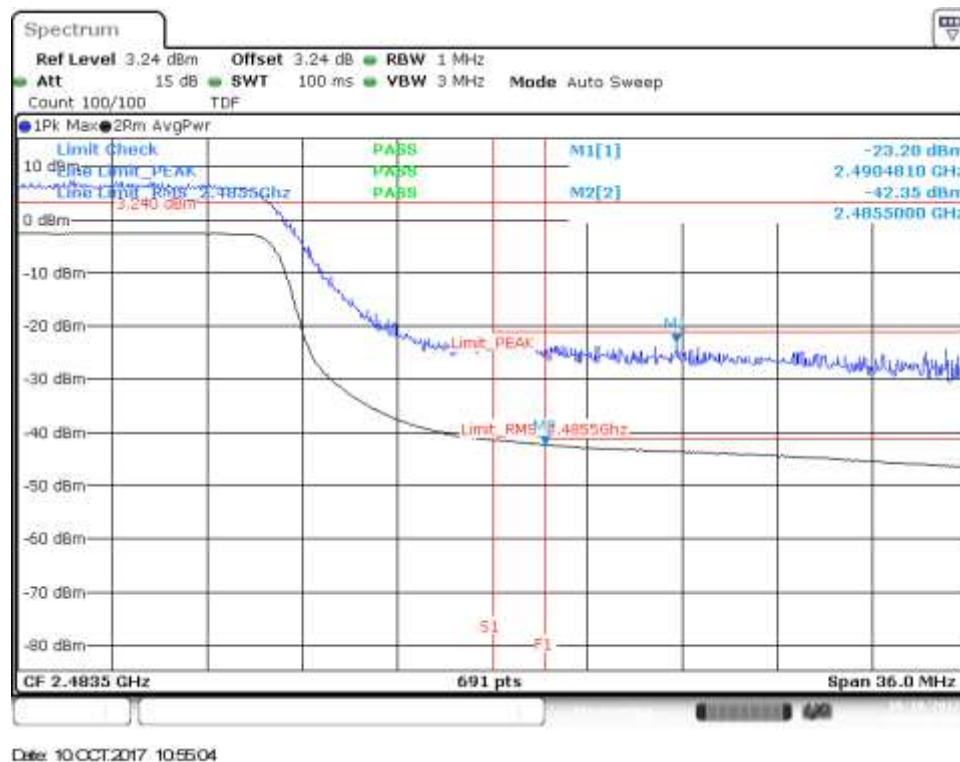


CHAIN A DIV2, 802.11n40, HT0

Channel 9F - BE High Freq Section (restricted)



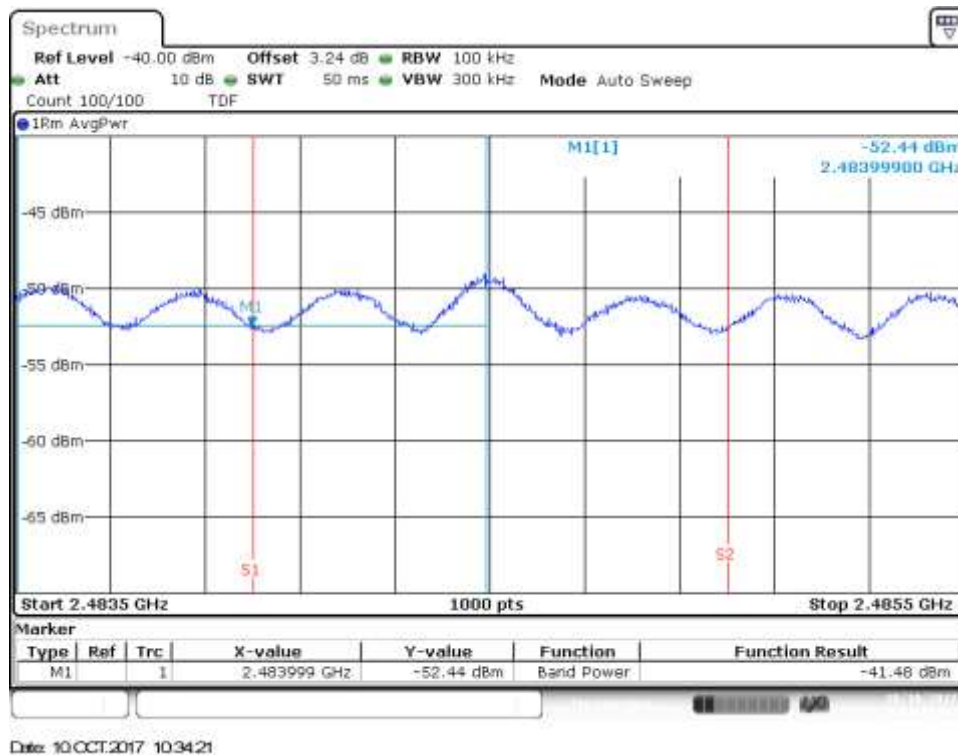
Channel 10F - BE High Freq Section (restricted)



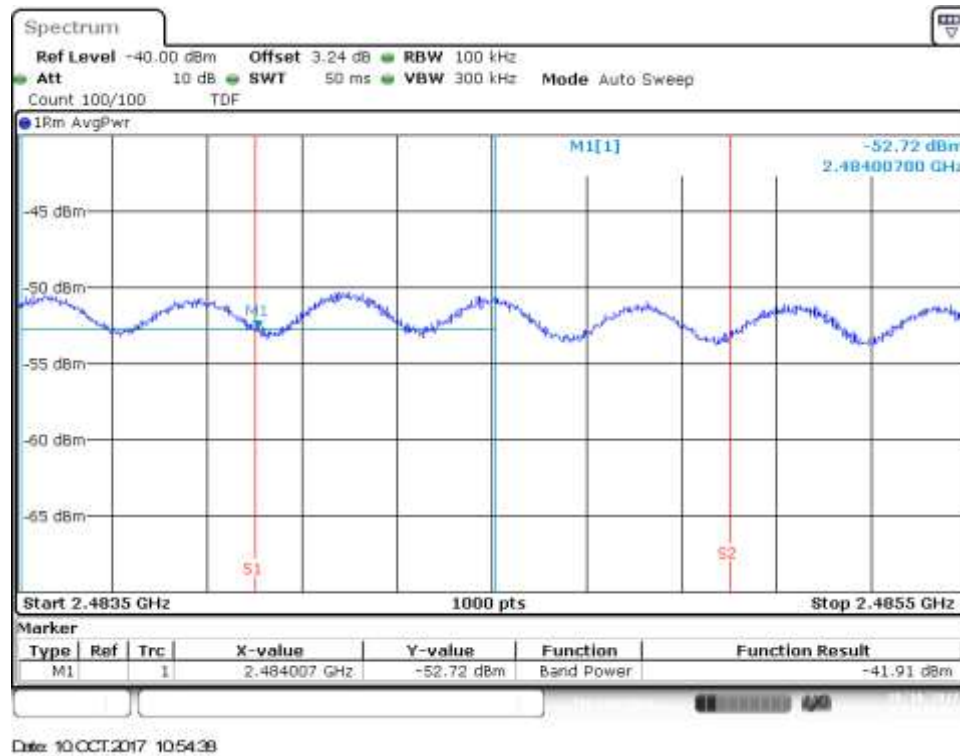
Channel 11F - BE High Freq Section (restricted)



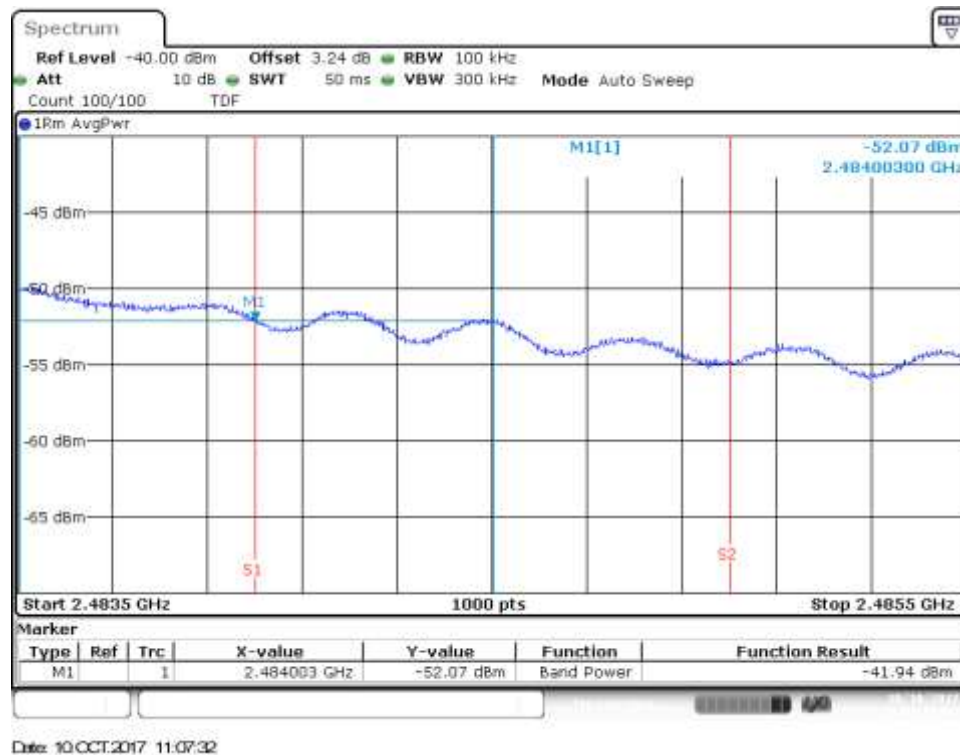
Channel 9F - BE High Freq Section RMS within 2MHz (restricted)



Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



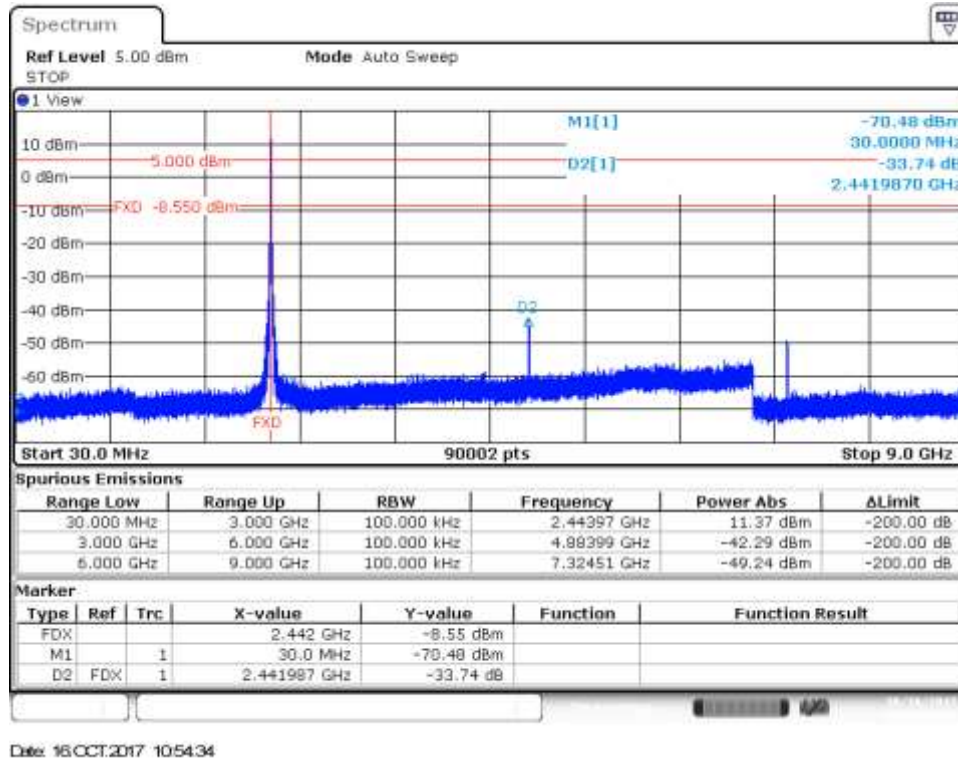
Channel 11F - BE High Freq Section RMS within 2MHz (restricted)



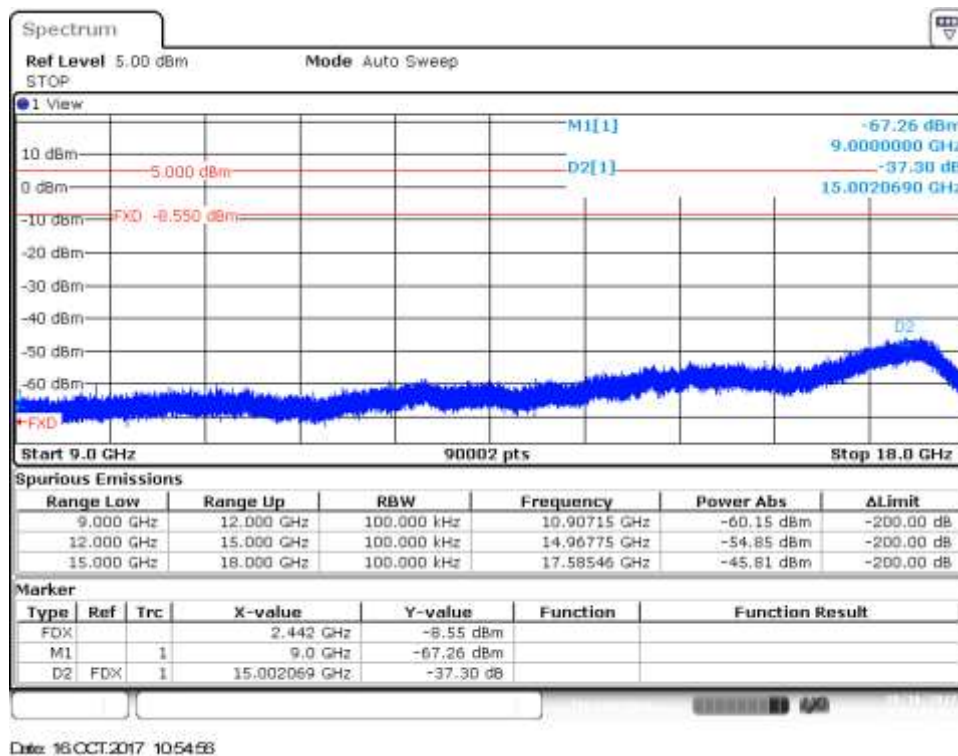
B.3.7 Out of band emissions - spurious

CHAIN A DIV1, 802.11b, 1Mbps

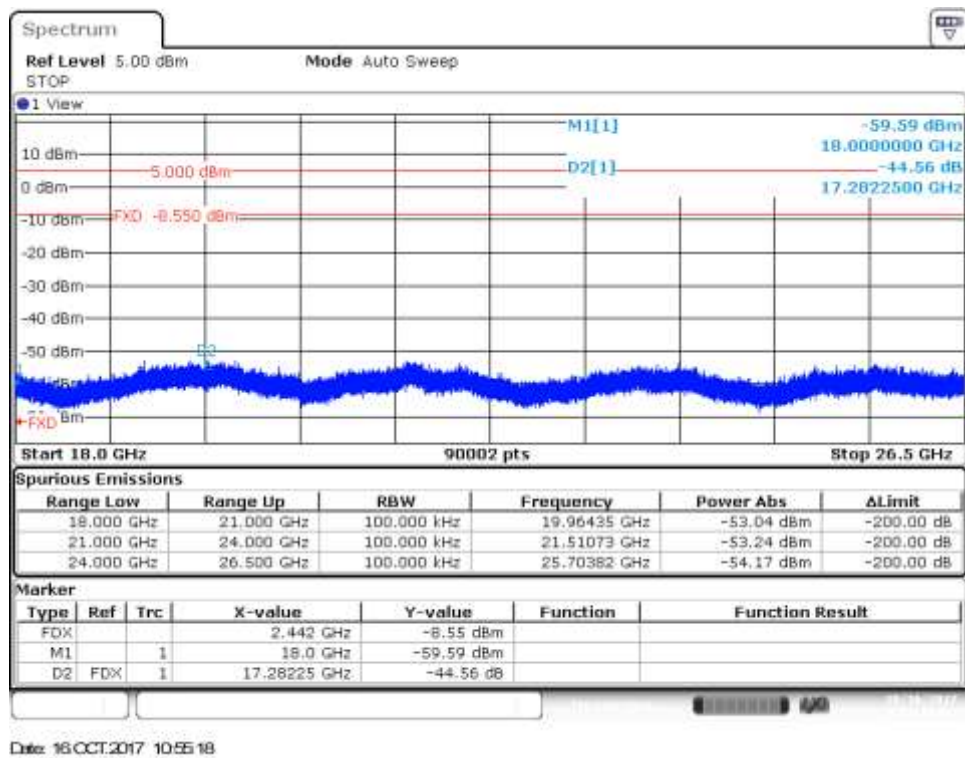
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

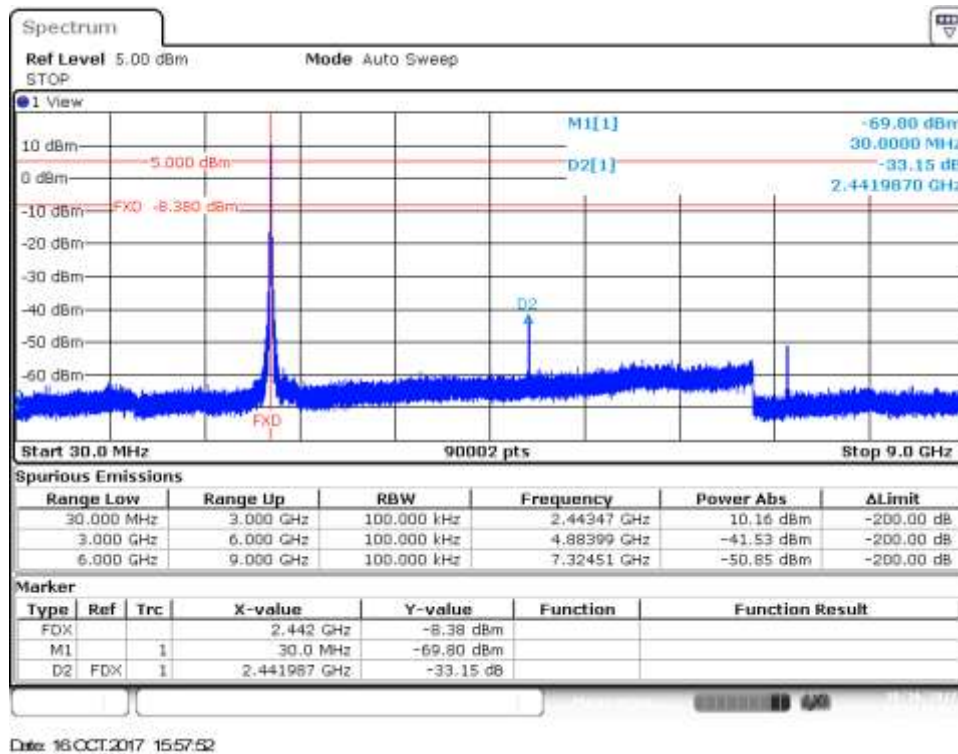


Channel 7 - Spurious 3 Delta Marker Measurement

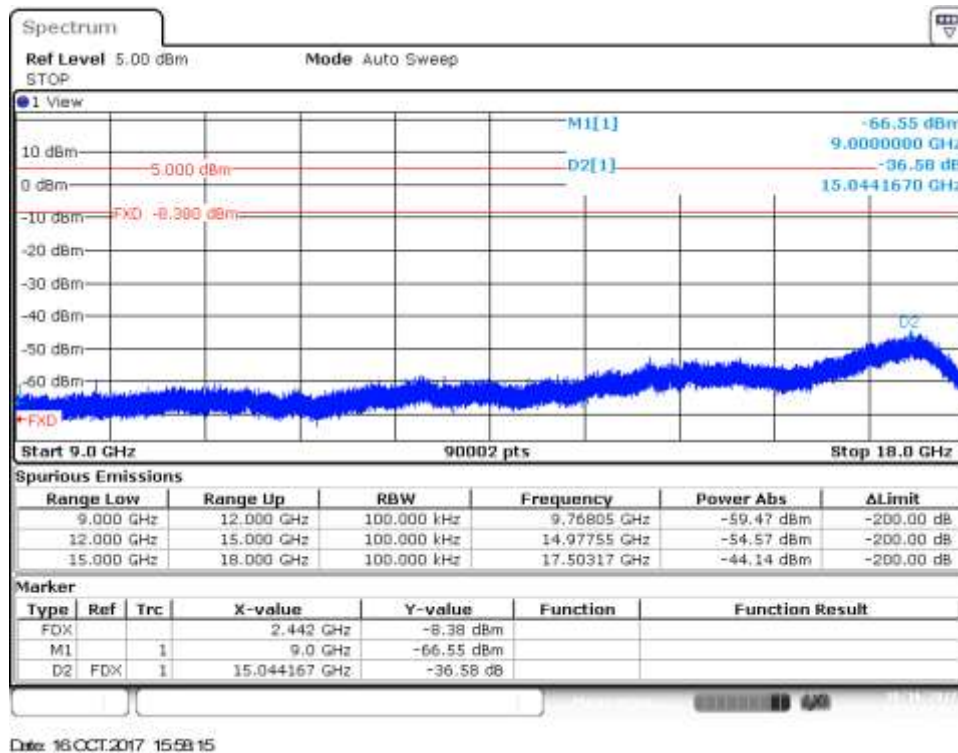


CHAIN A DIV2, 802.11b, 1Mbps

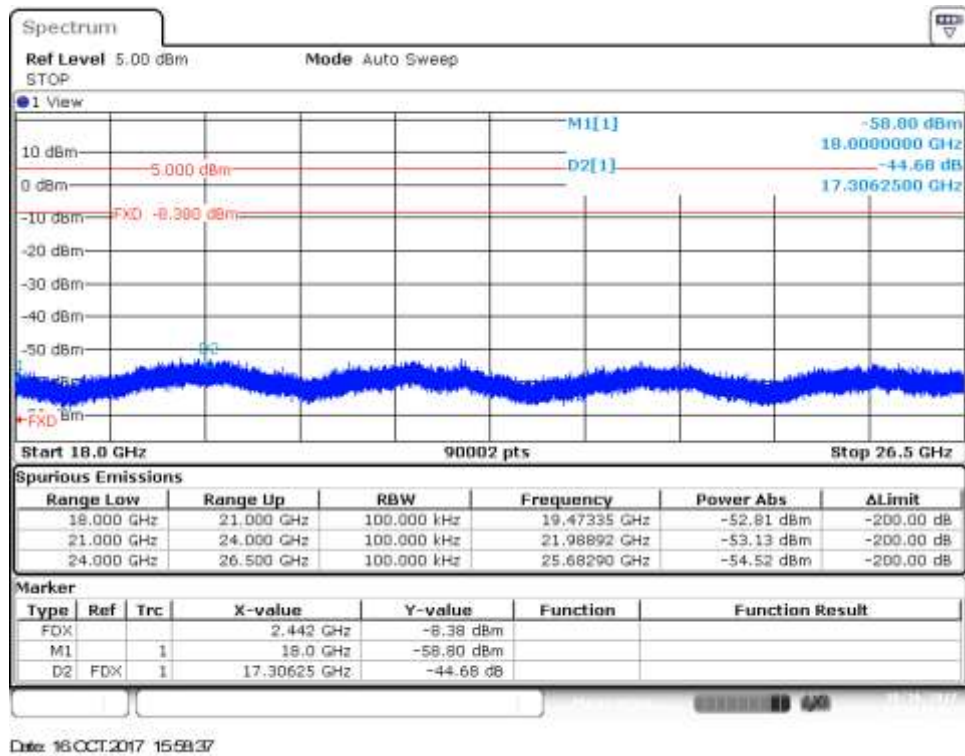
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

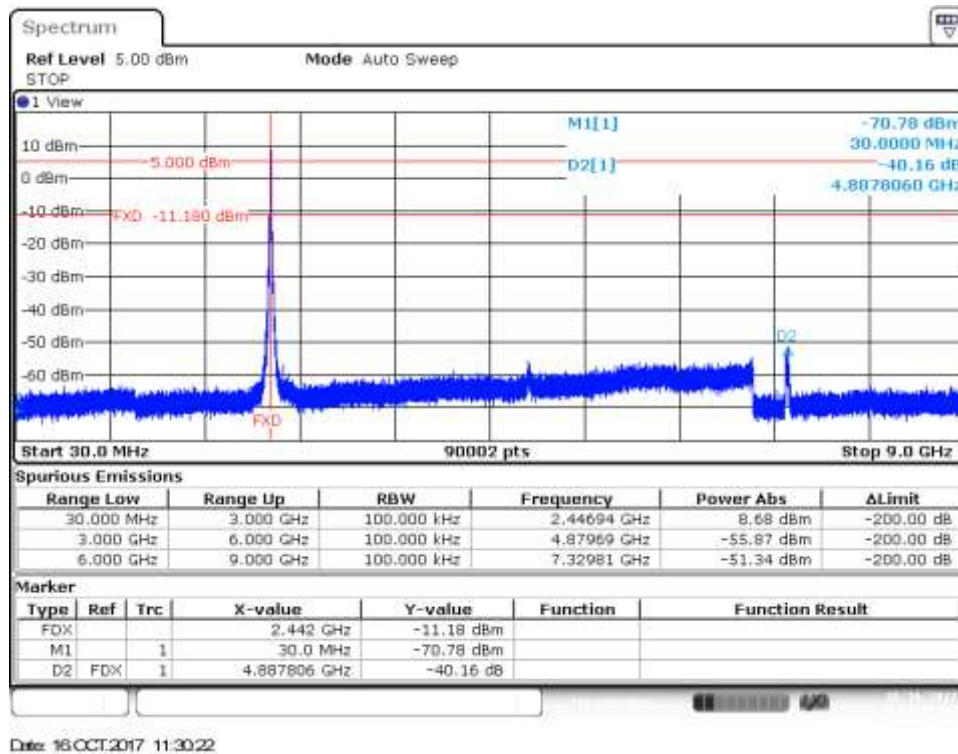


Channel 7 - Spurious 3 Delta Marker Measurement

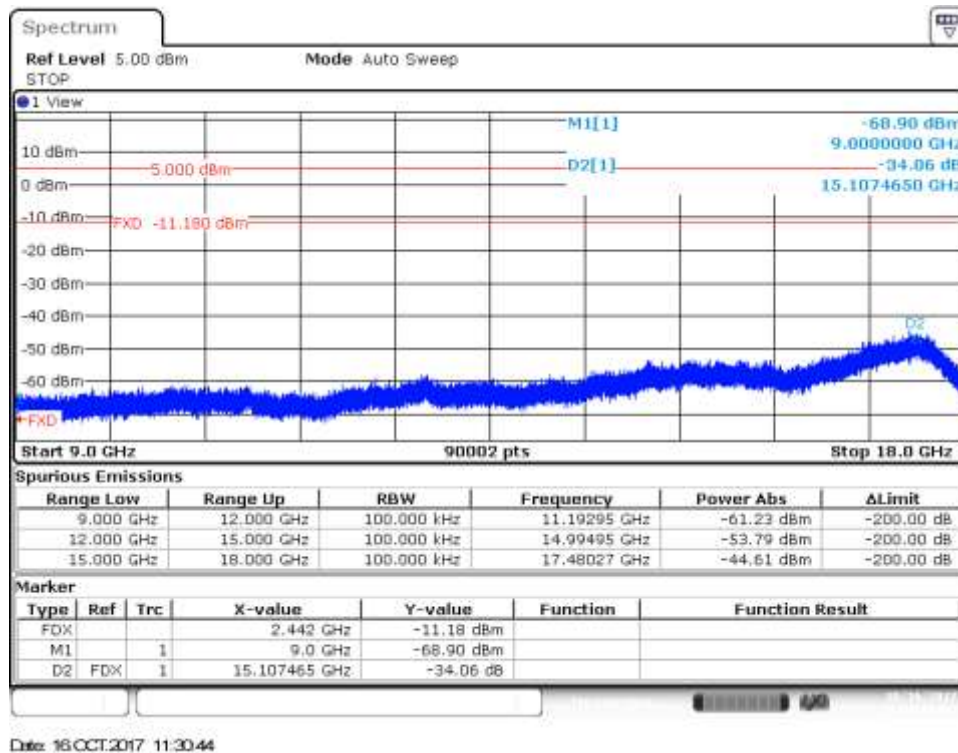


CHAIN A DIV1, 802.11g, 6Mbps

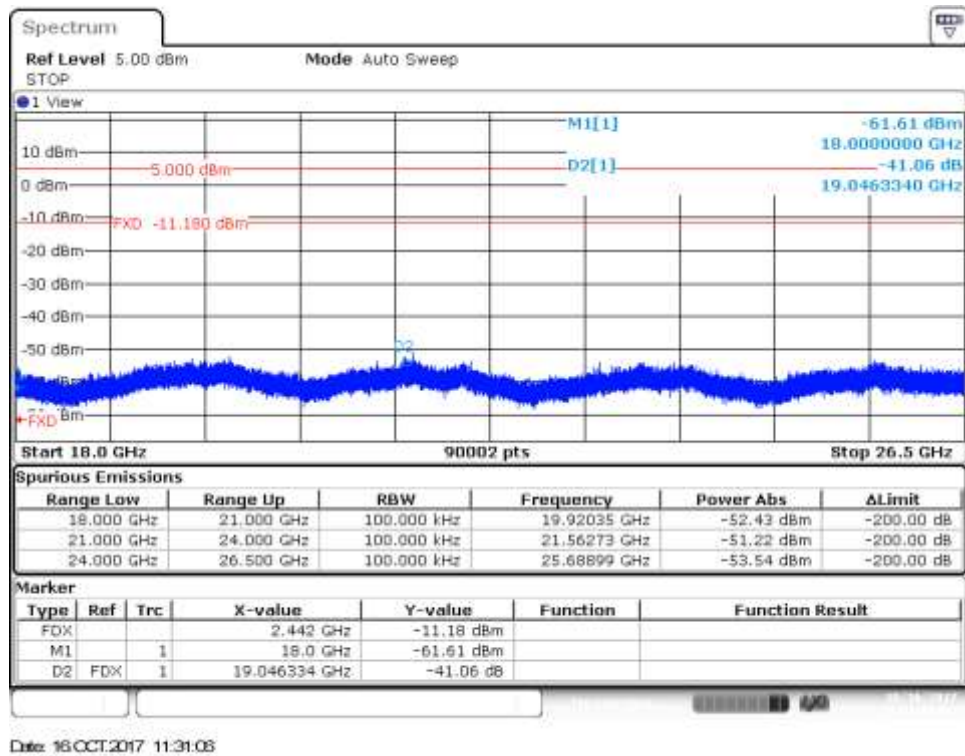
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

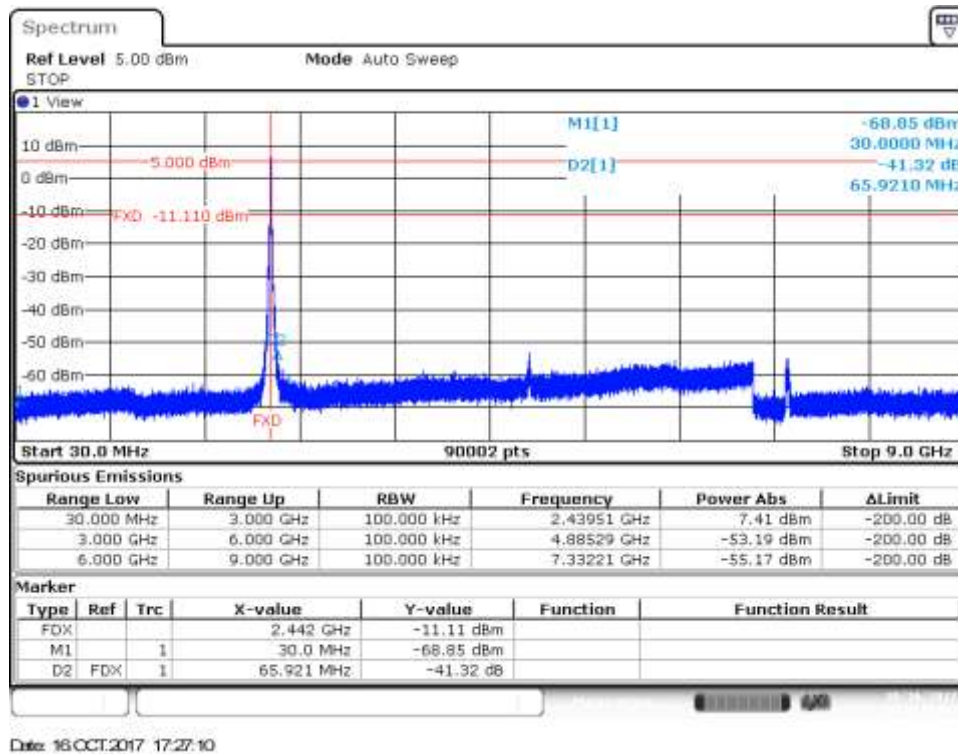


Channel 7 - Spurious 3 Delta Marker Measurement

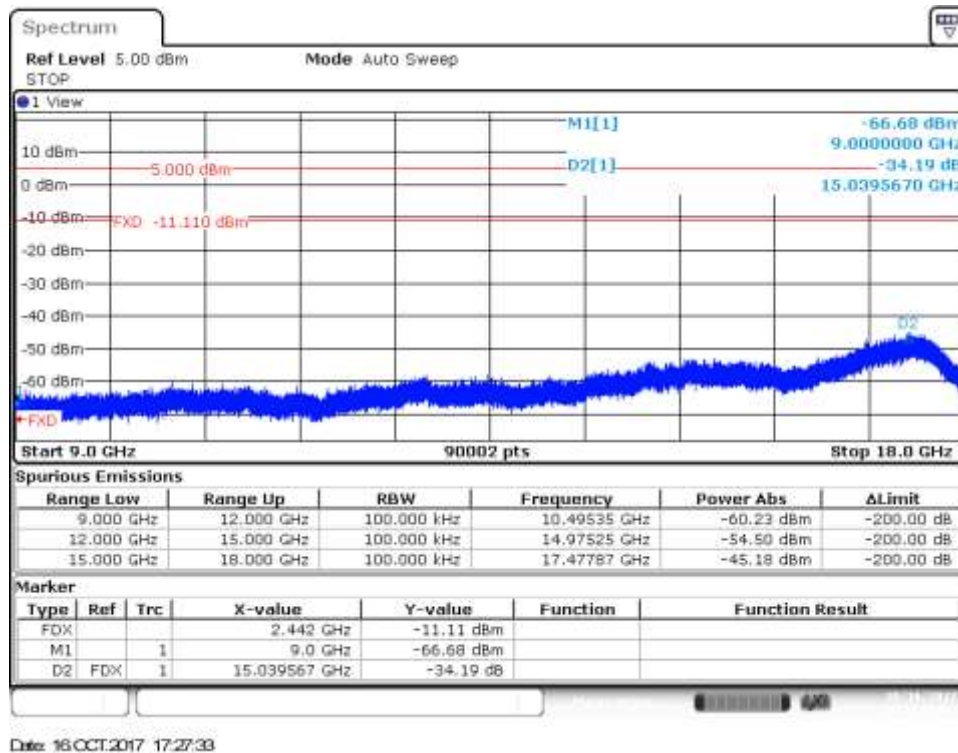


CHAIN A DIV2, 802.11g, 6Mbps

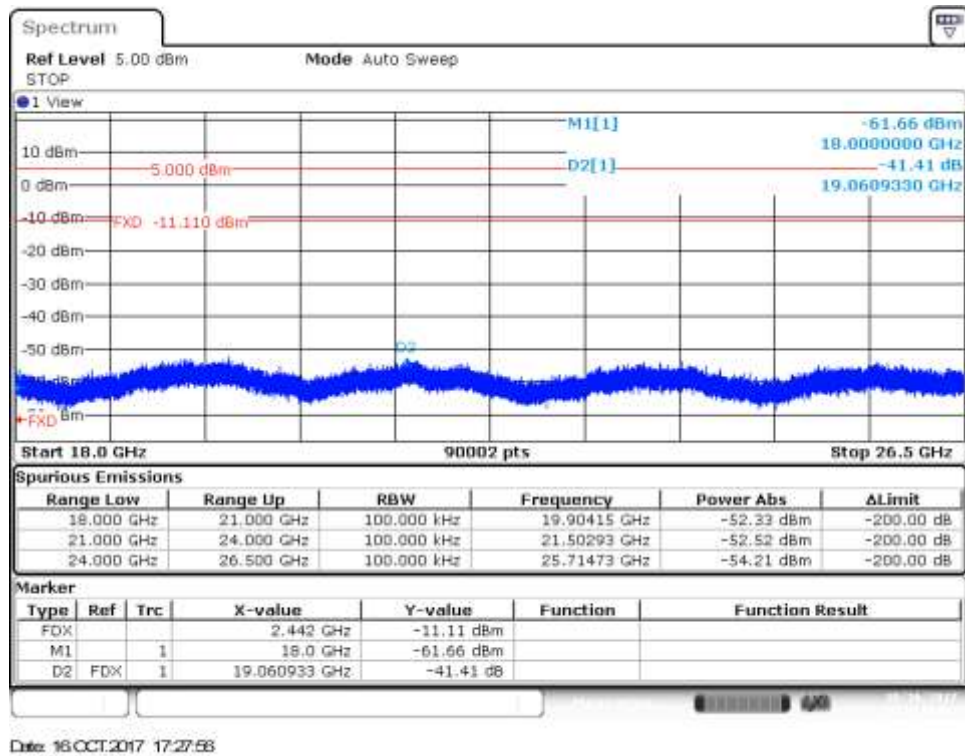
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

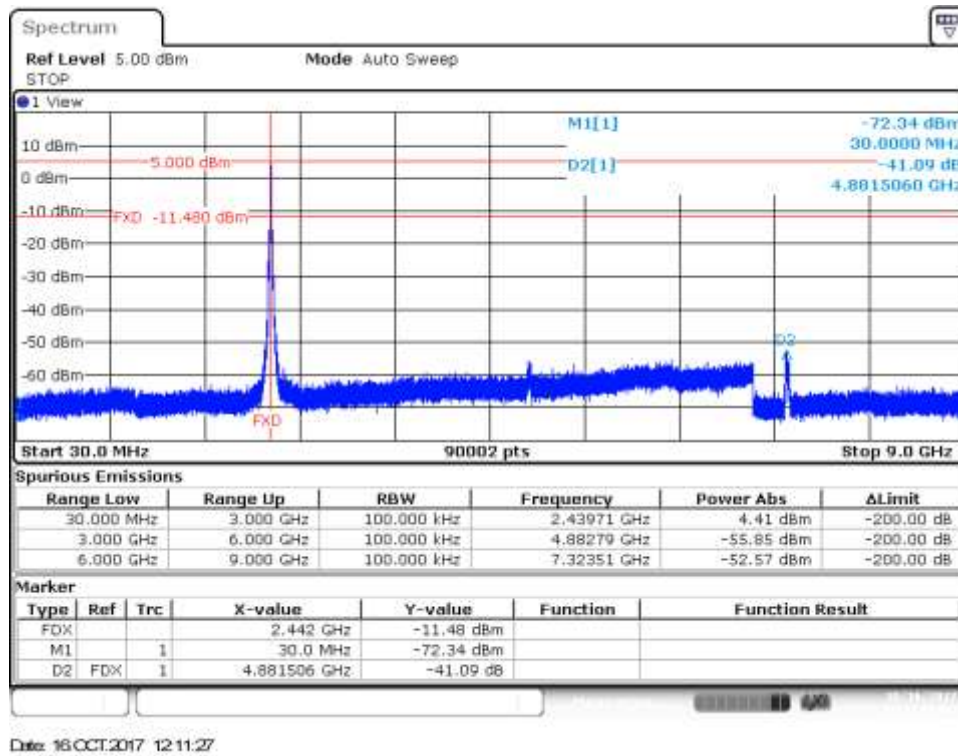


Channel 7 - Spurious 3 Delta Marker Measurement

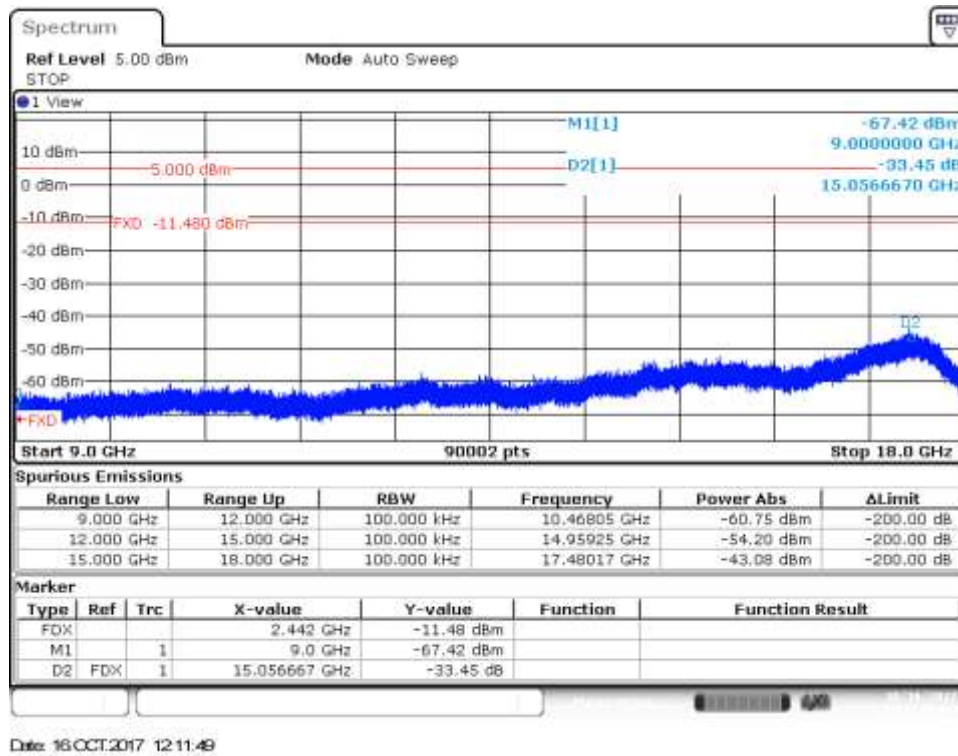


CHAIN A DIV1, 802.11n20, HT0

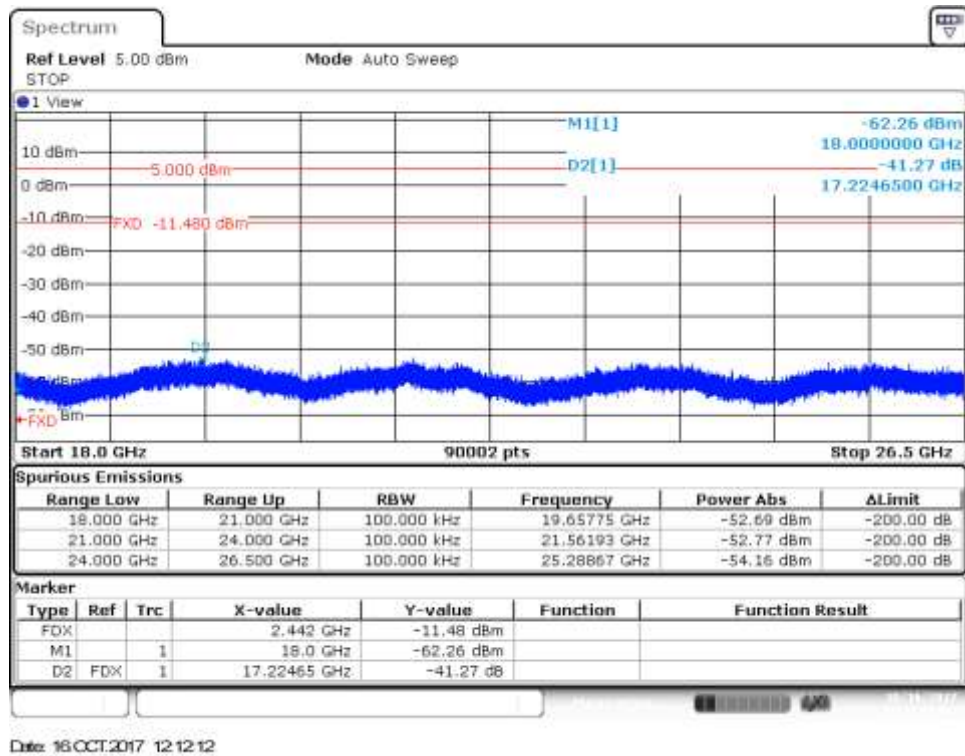
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

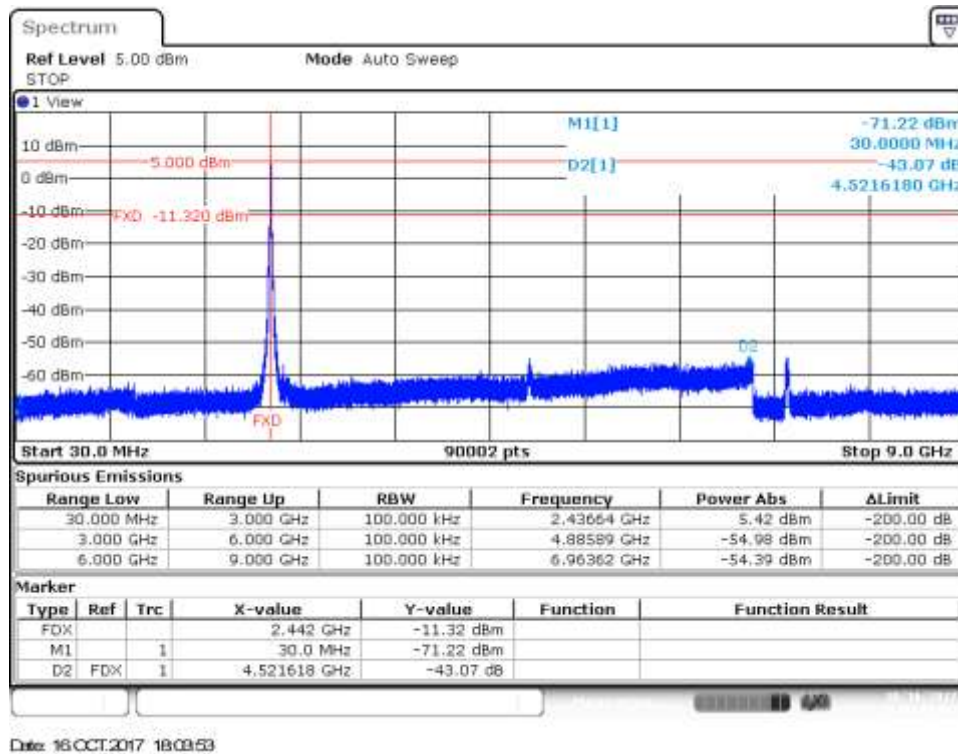


Channel 7 - Spurious 3 Delta Marker Measurement

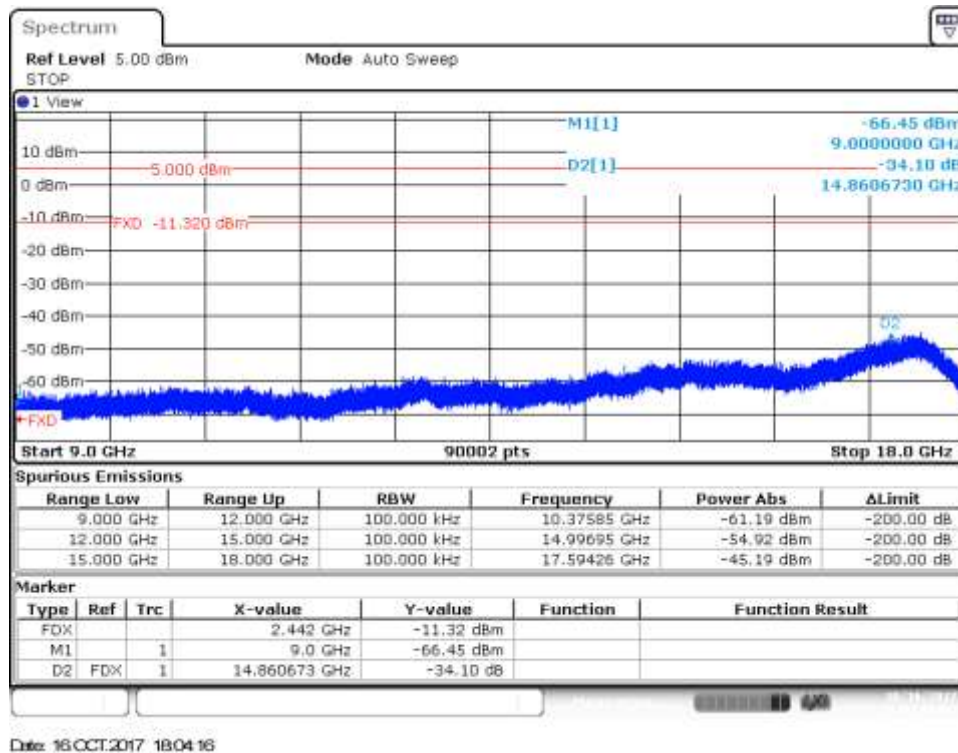


CHAIN A DIV2, 802.11n20, HT0

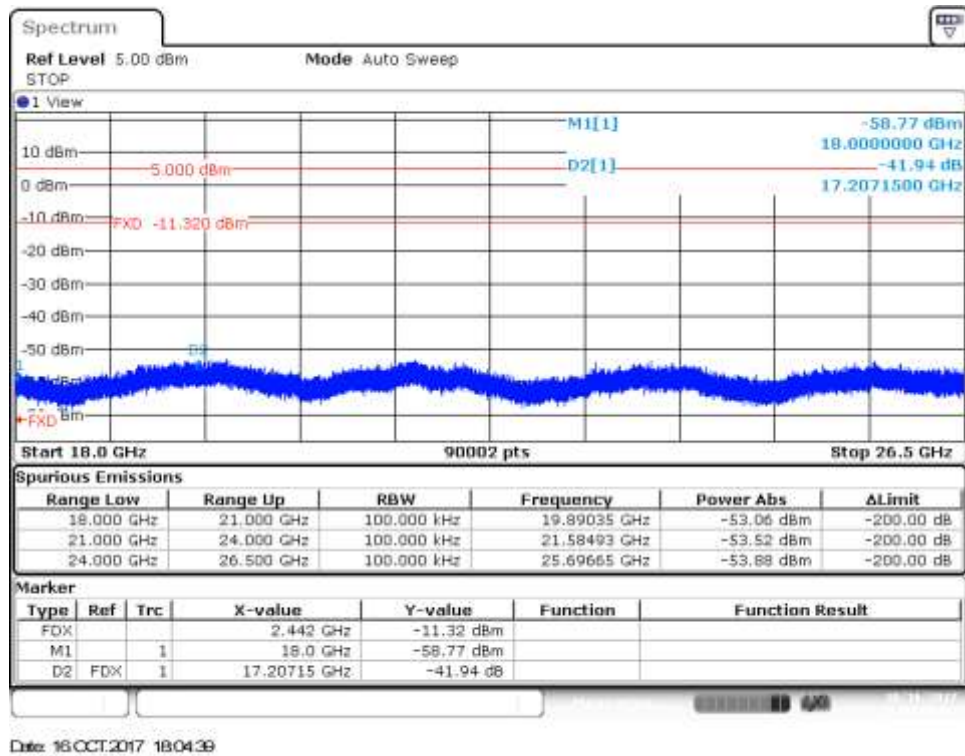
Channel 7 - Spurious 1 Delta Marker Measurement



Channel 7 - Spurious 2 Delta Marker Measurement

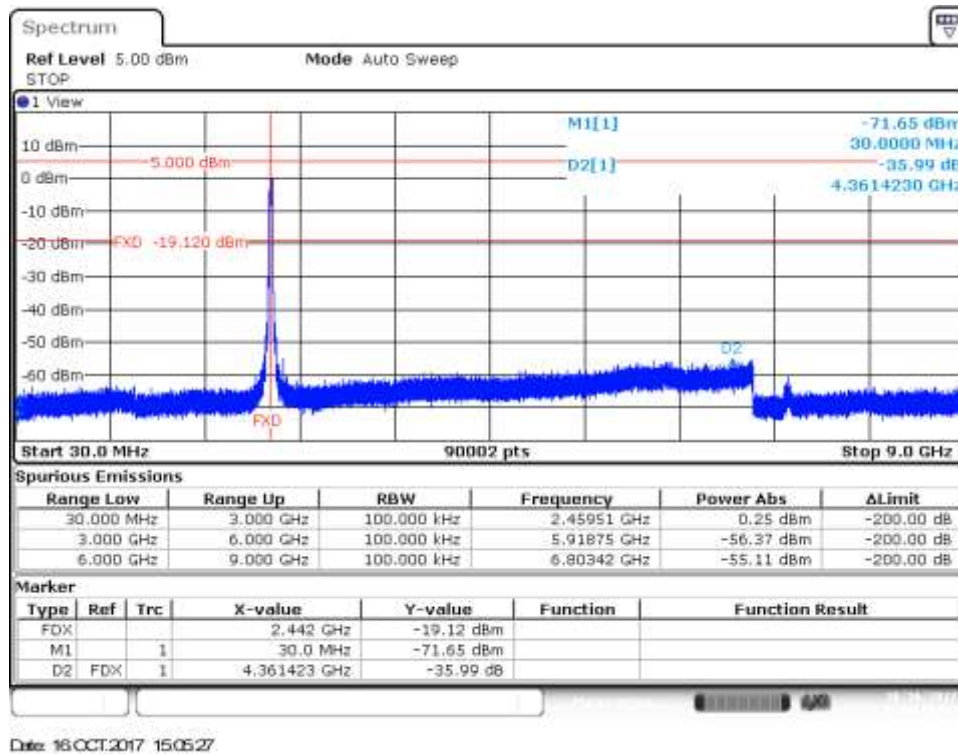


Channel 7 - Spurious 3 Delta Marker Measurement

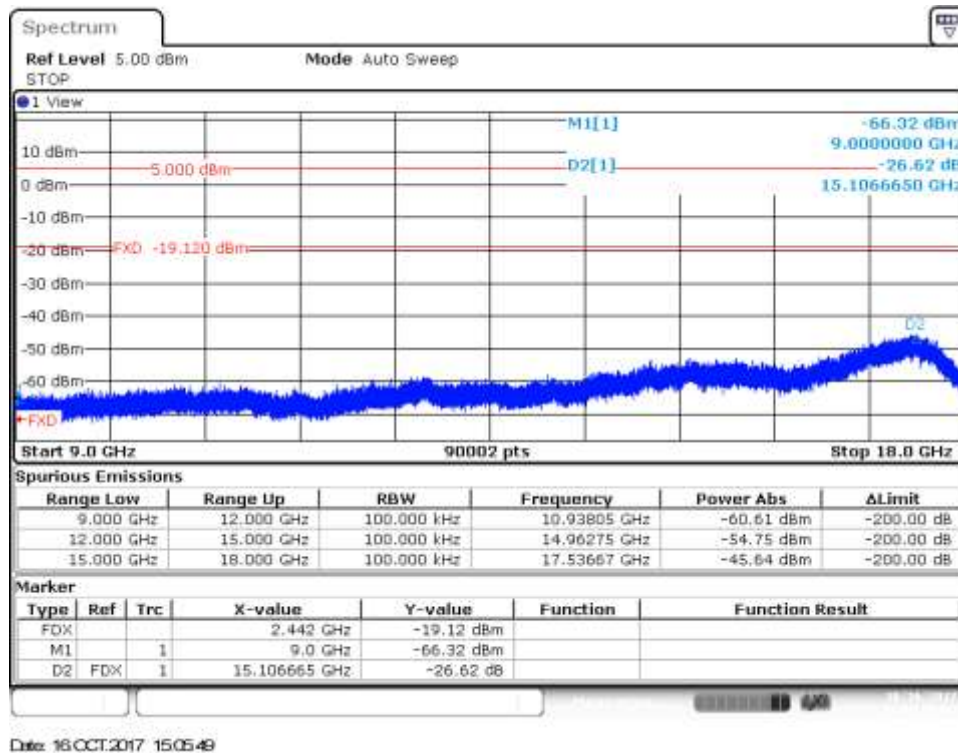


CHAIN A DIV1, 802.11n40, HT0

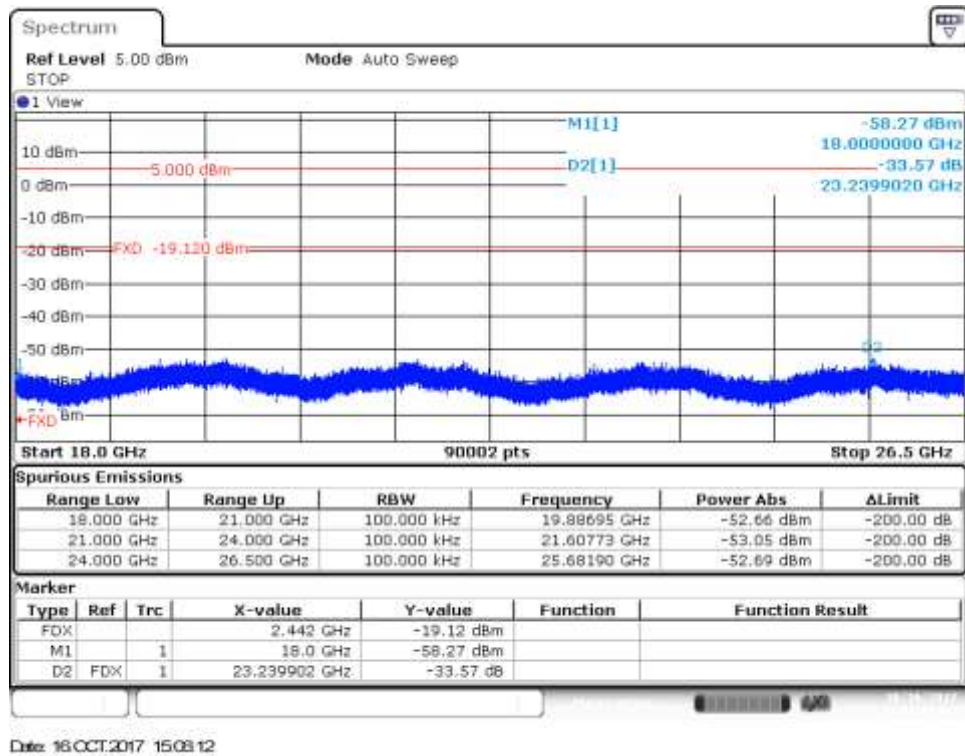
Channel 7F - Spurious 1 Delta Marker Measurement



Channel 7F - Spurious 2 Delta Marker Measurement

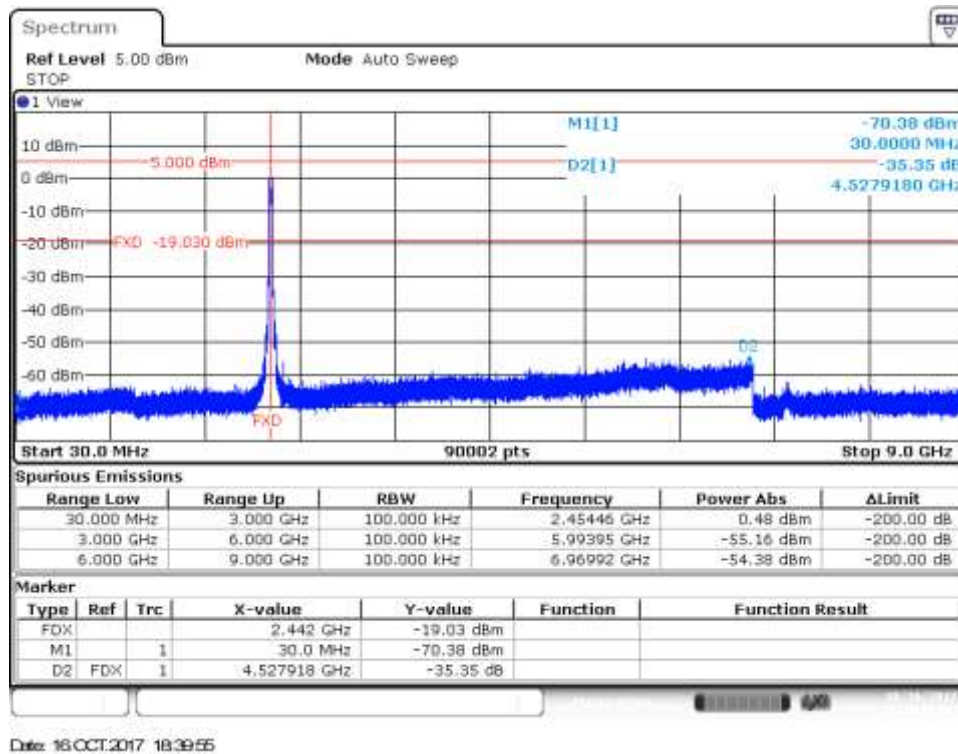


Channel 7F - Spurious 3 Delta Marker Measurement



CHAIN A DIV2, 802.11n40, HT0

Channel 7F - Spurious 1 Delta Marker Measurement



Channel 7F - Spurious 2 Delta Marker Measurement

