中国认可
国际互认
检测
TESTING
CNAS L5662

ETSI EN 301 893 V2.1.1 (2017-05)

TEST REPORT

For

SHENZHEN TENDA TECHNOLOGY CO.,LTD.

6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

Tested Model: Mesh12X
Multiple Models: MX12,EX12,EM12

Report Type: Original Report	**Product Type:** AX3000 Whole Home Mesh Wi-Fi 6 System
Report Number:	DG2220216-04699E-22B
Report Date:	2022-07-20
Reviewed By:	Rocky Xiao RF Engineer
Approved By:	Ivan Cao Assistant Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		AX3000 Whole Home Mesh Wi-Fi 6 System
EUT Model:		Mesh12X
Multiple Models:		MX12,EX12,EM12
Model Difference:		Refer to Dos
Rated Input Voltage:		12Vdc from adapter
Adapter Information	**Model:**	BN067-A18012E
	Input:	100-240Vac 50/60Hz 0.6A
	Output:	12Vdc 1.5A
Serial Number:		DG2220216-04699E-RF-S1
EUT Received Date:		2022.02.18
EUT Received Status:		Good

Technical Specification

Operation Frequency Range (MHz):		5150~5350MHz
RF Output Power (EIRP) (dBm):		18.08dBm (802.11a), 21.21dBm (802.11n ht20), 22.58dBm (802.11n ht40), 21.34dBm (802.11ac vht20), 22.18dBm (802.11ac vht40), 21.26dBm (802.11ac vht80) 20.92dBm (802.11ac vht160) 22.75dBm (802.11ax20), 22.78dBm (802. 11ax40), 22.75dBm (802. 11ax80) 21.81dBm (802. 11ax80) Beamforming: 18.78dBm (802.11n ht20), 22.30dBm (802.11n ht40), 17.39dBm (802.11ac vht20), 20.29dBm (802.11ac vht40), 20.75dBm (802.11ac vht80) 20.41dBm (802.11ax20), 18.70dBm (802. 11ax40), 21.12dBm (802. 11ax80) 20.49dBm (802. 11ax80)
Number of Chains	**Transmit:**	2
	Receive:	2
Antenna Gain (dBi)▲:		4.5
Beamforming Gain (dB)▲:		3
Modulation Type:		OFDM, OFDMA

Objective

This report is prepared on behalf of ***SHENZHEN TENDA TECHNOLOGY CO.,LTD.*** in accordance with ETSI EN 301 893 V2.1.1 (2017-05) 5 GHz RLAN; Harmonized Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

The objective is to determine the compliance of EUT with: ETSI EN 301 893 V2.1.1 (2017-05).

Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 893 V2.1.1 (2017-05) 5 GHz RLAN; Harmonized Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU.

Measurement Uncertainty

Parameter	F_{lab}	Maximum allow uncertainty
RF Frequency	$\pm 1\times10^{-6}$	$\pm 1\times10^{-5}$
RF power conducted	±0.61dB	±1,5dB
RF power radiated	±3.62dB	±6dB
Spurious emissions, conducted	±2.47dB	±3dB
Spurious emissions, radiated	±3.62dB	±6dB
Temperature	±1℃	±2℃
Humidity	±5%	±5%
Time	1%	±10%

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

This report cannot be reproduced except in full, without prior written approval of the Company.

This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk "★ ".

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode, which was provided by manufacture. The system support 802.11a/n ht20/n ht40/ac vht20/ac vht40/ac vht80/ac vht 160/ax 20/ax40/ax80/ax160.

For 5150~5250 MHz band(W52), 7 channels were provided.

Frequency (MHz)	Frequency (MHz)
5180	5220
5190	5230
5200	5240
5210	/

For 5250~5350 MHz band(W53), 7 channels are provided:

Frequency (MHz)	Frequency (MHz)
5260	5300
5270	5310
5280	5320
5290	/

And The 802.11ac vht160, ax160 mode work across W52 and W53, the centre channel frequency is 5250MHz.

Test condition as below:
NT: Normal Temperature 25℃, LT: Low Temperature 0℃, HT: High Temperature +40℃

EUT Exercise Software

Software “accessMtool▲” was used and the power level was configured as below. The worst-case data rates are determined to be as follows for each mode based upon investigation by measuring the average power and PSD across all data rates, bandwidths, and modulations▲:

Band	Mode	Frequency (MHz)	Data rate (Mbps)	Power level	
				Chain 0 (ANT 1)	Chain 1 (ANT 2)
5150-5250	802.11 a	5180	6	70	70
		5240	6	70	70
	802.11 n20	5180	MCS8	60	65
		5240	MCS8	60	65
	802.11 n40	5190	MCS8	70	70
		5230	MCS8	70	70
	802.11 ac20	5180	MCS8	60	65
		5240	MCS8	60	65
	802.11 ac40	5190	MCS8	70	70
		5230	MCS8	70	70
	802.11 ac80	5210	MCS8	70	70
	802.11 ac160	5250	MCS8	70	70
	802.11 ax20	5180	HESS	65	70
		5240	HESS	65	70
	802.11 ax40	5190	HESS	70	70
		5230	HESS	70	70
	802.11 ax80	5210	HESS	70	70
	802.11 ax160	5250	HESS	70	70
5250-5350	802.11 a	5260	6	60	60
		5320	6	60	60
	802.11 n20	5260	MCS8	40	40
		5320	MCS8	40	40
	802.11 n40	5270	MCS8	45	45
		5310	MCS8	45	45
	802.11 ac20	5260	MCS8	40	40
		5320	MCS8	40	40
	802.11 ac40	5270	MCS8	43	45
		5310	MCS8	43	45
	802.11 ac80	5290	MCS8	40	40
	802.11 ax20	5260	HESS	40	40
		5320	HESS	40	40
	802.11 ax40	5270	HESS	45	45
		5310	HESS	45	45
	802.11 ax80	5290	HESS	55	55

Beamforming:

Band	Mode	Frequency (MHz)	Data rate (Mbps)	Power level	
				Chain 0 (ANT 1)	Chain 1 (ANT 2)
5150-5250	802.11 n20	5180	MCS8	52	57
		5240	MCS8	52	57
	802.11 n40	5190	MCS8	62	62
		5230	MCS8	62	62
	802.11 ac20	5180	MCS8	52	57
		5240	MCS8	52	57
	802.11 ac40	5190	MCS8	62	62
		5230	MCS8	62	62
	802.11 ac80	5210	MCS8	62	62
	802.11 ac160	5250	MCS8	62	62
	802.11 ax20	5180	HESS	57	62
		5240	HESS	57	62
	802.11 ax40	5190	HESS	62	62
		5230	HESS	62	62
	802.11 ax80	5210	HESS	62	62
	802.11 ax160	5250	HESS	62	62
5250-5350	802.11 n20	5260	MCS8	32	32
		5320	MCS8	32	32
	802.11 n40	5270	MCS8	37	37
		5310	MCS8	37	37
	802.11 ac20	5260	MCS8	32	32
		5320	MCS8	32	32
	802.11 ac40	5270	MCS8	35	37
		5310	MCS8	35	37
	802.11 ac80	5290	MCS8	32	32
	802.11 ax20	5260	HESS	32	32
		5320	HESS	32	32
	802.11 ax40	5270	HESS	37	37
		5310	HESS	37	37
	802.11 ax80	5290	HESS	47	47

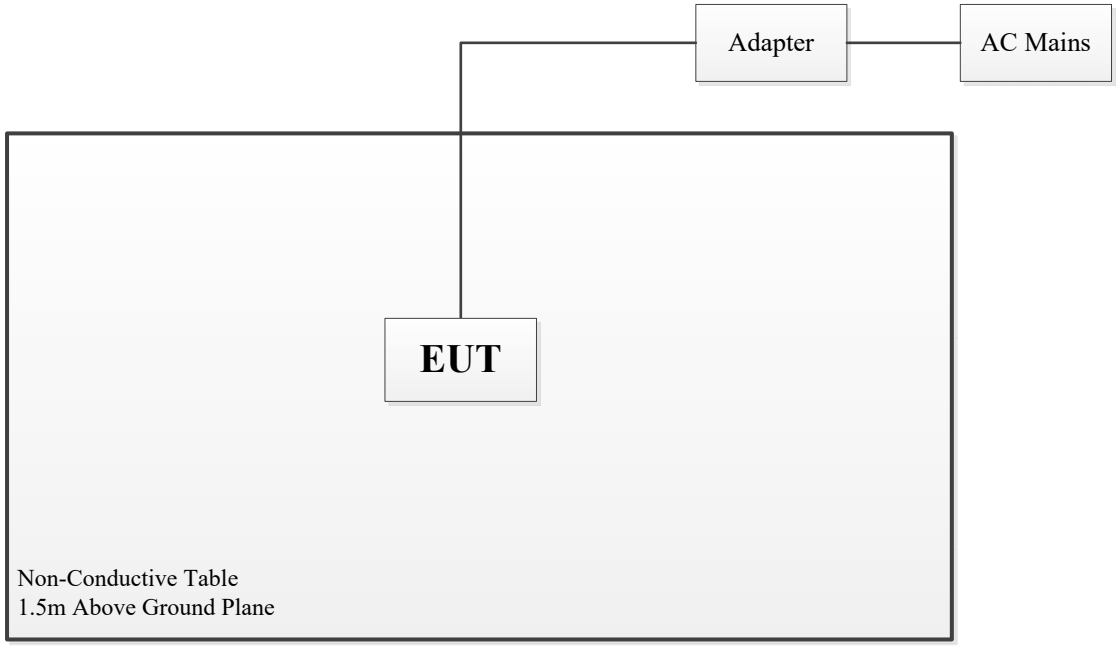
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL*3	Laptop	E6410	GYXJ3 A00 JSD2
DELL	Adapter	HA65NM130	CN-OFPC2Y-CH200-14M-061U-A07
Huawei	Phone	BLN-AL40	BLN-AL40C00B120

Support Cable List and Details

Cable Description	Shielding Cable	Ferrite Core	Length (m)	From Port	To
Power Cable	Yes	No	1.2	EUT	Adapter
RJ45 Cable*3	Yes	No	1.2	Ethernet port of EUT	Laptop

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated emissions below 1GHz					
Sunol Sciences	Antenna	JB3	A060611-1	2020-11-10	2023-11-10
R&S	EMI Test Receiver	ESR3	102453	2021-09-22	2022-09-21
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2021-07-19	2022-07-18
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2021-07-19	2022-07-18
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2021-07-19	2022-07-18
Sonoma	Amplifier	310N	372193	2021-07-18	2022-07-17
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2021-09-04	2022-09-03
Agilent	Signal Generator	E8247C	MY43321350	2021-04-25	2022-04-24
Radiated emissions above 1GHz					
ETS-Lindgren	Horn Antenna	3115	000 527 35	2021-10-12	2024-10-11
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2020-12-05	2023-12-04
Agilent	Spectrum Analyzer	E4440A	SG43360054	2021-07-22	2022-07-21
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2021-09-04	2022-09-03
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2021-06-27	2022-06-26
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2021-09-04	2022-09-03
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2021-06-27	2022-06-26
ETS-Lindgren	Horn Antenna	3115	000 527 35	2021-10-12	2024-10-11
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2020-12-05	2023-12-04
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2021-09-04	2022-09-03
Agilent	Signal Generator	E8247C	MY43321350	2021-04-25	2022-04-24
Sinoscite	Bandstop Filters	BSF5150-5850MN-0899-003	0899003	2021-05-06	2022-05-05
Mini Circuits	High Pass Filter	VHF-6010+	31118	2021-06-16	2022-06-15
RF conducted					
R&S	Spectrum Analyzer	FSU 26	200160/026	2021-04-25	2022-04-24
Unknown	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	2021-09-04	2022-09-03
HP	Step Attenuator	8494B	1510A05007	2021-09-04	2022-09-03
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2021-07-22	2022-07-21
R&S	Wideband Radio Communication Tester	CMW500	147473	2021-09-22	2022-09-21
BACL	TEMP&HUMI Test Chamber	BTH-150	30022	2022-02-24	2023-02-23
Agilent	MXG Vector Signal Generator	N5182B	MY51350142	2021-04-25	2022-04-24
Keysight	MXA Signal Analyzer	N9020	MY48490137	2021-10-26	2022-10-25
Agilent	MXG Analog Signal Generator	N5181A	MY48180151	2021-10-26	2022-10-25

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXG Vector Signal Generator	N5182A	MY49060274	2021-10-26	2022-10-25
Tonscend	RF Control Unit	JS0806-2	19G8060171	2021-10-26	2022-10-25

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Environmental Conditions

Test Site:	Radiated emissions	RF conducted
Temperature:	15.3~15.7°C	22.4~25.3 °C
Relative Humidity:	55~58%	45~65%
ATM Pressure:	102.2~102.6kPa	101~101.8kPa
Tester:	Leo Yuan, Ivy Tang	Alice Tan
Test Date:	2022-02-23~2022-02-24	2022-03-30~2022-04-08

SUMMARY OF TEST RESULTS

SN	Rule and Clause	Description of Test	Test Result
1	EN 301 893 Clause 4.2.1	Carrier frequencies	Compliant
2	EN 301 893 Clause 4.2.2	Nominal channel bandwidth and occupied channel bandwidth	Compliant
3	EN 301 893 Clause 4.2.3	RF output power	Compliant
		Transmit power control (TPC)	Not applicable*
		Power Density	Compliant
4	EN 301 893 Clause 4.2.4.1	Transmitter unwanted emissions outside the 5 GHz RLAN bands	Compliant
5	EN 301 893 Clause 4.2.4.2	Transmitter unwanted emissions within the 5 GHz RLAN bands	Compliant
6	EN 301 893 Clause 4.2.5	Receiver spurious emissions	Compliant
7	EN 301 893 Clause 4.2.6	Dynamic frequency selection (DFS)	Compliant**
8	EN 301 893 Clause 4.2.7	Adaptivity	Compliant
9	EN 301 893 Clause 4.2.8	Receiver blocking	Compliant
10	EN 301 893 Clause 4.2.9	User access restrictions	Compliant*
11	EN 301 893 Clause 4.2.10	Geo-location capability	Not applicable*

Note:
Not applicable*: The device without this function.
Compliant*: Please refer to the product information declared by the manufacturer.
Compliant**: Please refer to DFS report.

1 – CARRIER FREQUENCIES

Definition

The Nominal Centre Frequency is the centre of the Operating Channel.

Limit

The actual centre frequency for any given channel declared by the manufacturer shall be maintained within the range fc ± 20 ppm.

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.2

Test Data

Test Result: *Compliant. The Normal condition please refer to following Plots and tables(Testing was performed with Antenna Chain 0).*

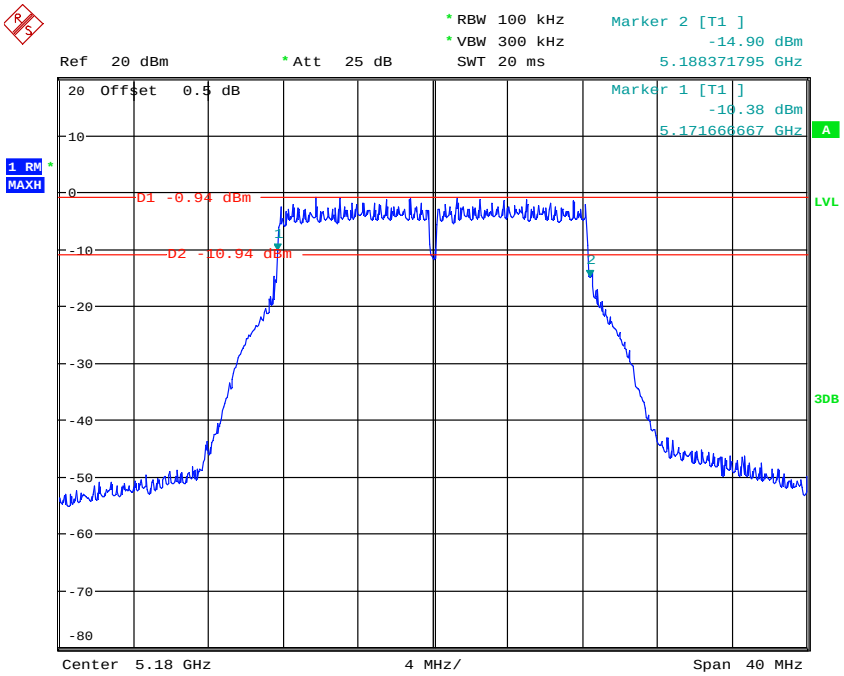
Band	Mode	Fc (MHz)	F1 (MHz)	F2 (MHz)	Result (ppm)	Limit (ppm)
5150-5250	802.11 a	5180	5171.667	5188.372	3.760	±20
		5240	5231.641	5248.385	2.480	
	802.11 n20	5180	5171.051	5188.962	1.250	
		5240	5231.038	5248.987	2.390	
	802.11 n40	5190	5171.692	5208.436	12.330	
		5230	5211.615	5248.462	7.360	
	802.11 ac20	5180	5171.051	5188.962	1.250	
		5240	5231.013	5248.962	-2.390	
	802.11 ac40	5190	5171.692	5208.436	12.330	
		5230	5211.718	5248.436	14.720	
	802.11 ac80	5210	5171.586	5248.564	14.400	
	802.11 ac160	5250	5171.436	5328.692	12.190	
	802.11 ax20	5180	5170.372	5189.667	3.760	
		5240	5230.372	5249.667	3.720	
	802.11 ax40	5190	5170.949	5209.205	14.840	
		5230	5210.744	5249.205	-4.880	
	802.11 ax80	5210	5170.872	5249.205	7.390	
	802.11 ax160	5250	5170.410	5329.692	9.710	

Band	Mode	Fc (MHz)	F1 (MHz)	F2 (MHz)	Result (ppm)	Limit (ppm)
5250-5350	802.11 a	5260	5251.654	5268.397	4.850	±20
		5320	5311.641	5328.385	2.440	
	802.11 n20	5260	5251.038	5268.962	0.000	
		5320	5311.013	5328.962	-2.350	
	802.11 n40	5270	5251.615	5288.436	4.840	
		5310	5291.692	5328.436	12.050	
	802.11 ac20	5260	5251.013	5268.962	-2.380	
		5320	5311.051	5328.962	1.220	
	802.11 ac40	5270	5251.692	5288.436	12.140	
		5310	5291.692	5328.308	0.000	
	802.11 ac80	5290	5251.590	5328.564	14.560	
	802.11 ax20	5260	5250.371	5269.667	3.610	
		5320	5310.372	5329.654	2.440	
	802.11 ax40	5270	5250.744	5289.205	-4.840	
		5310	5290.872	5329.205	7.250	
	802.11 ax80	5290	5250.821	5329.205	2.460	

Note: Result = (F-Fc)/Fc*10^6, where F= (F1+F2)/2

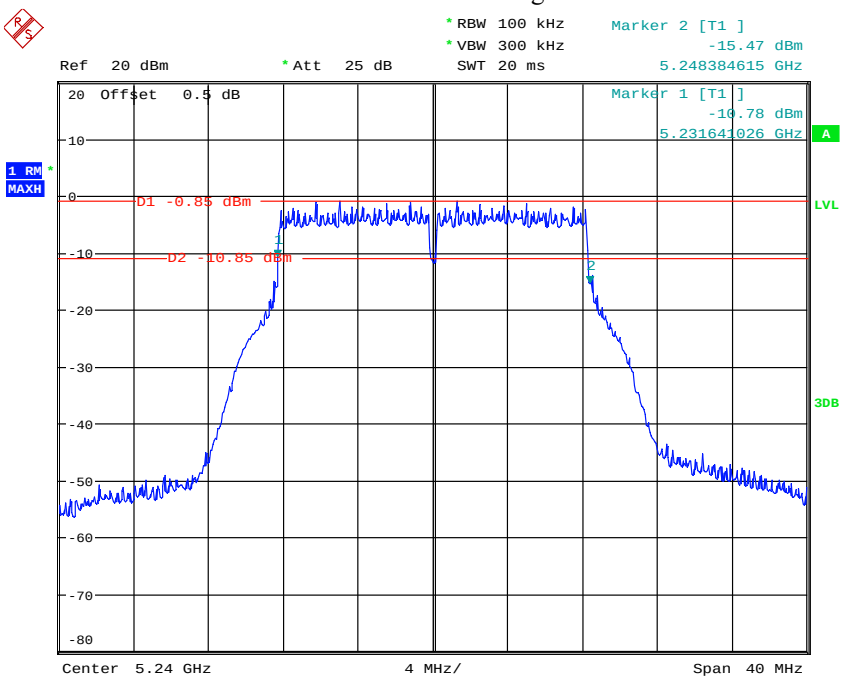
5150-5250MHz

802.11 a Low



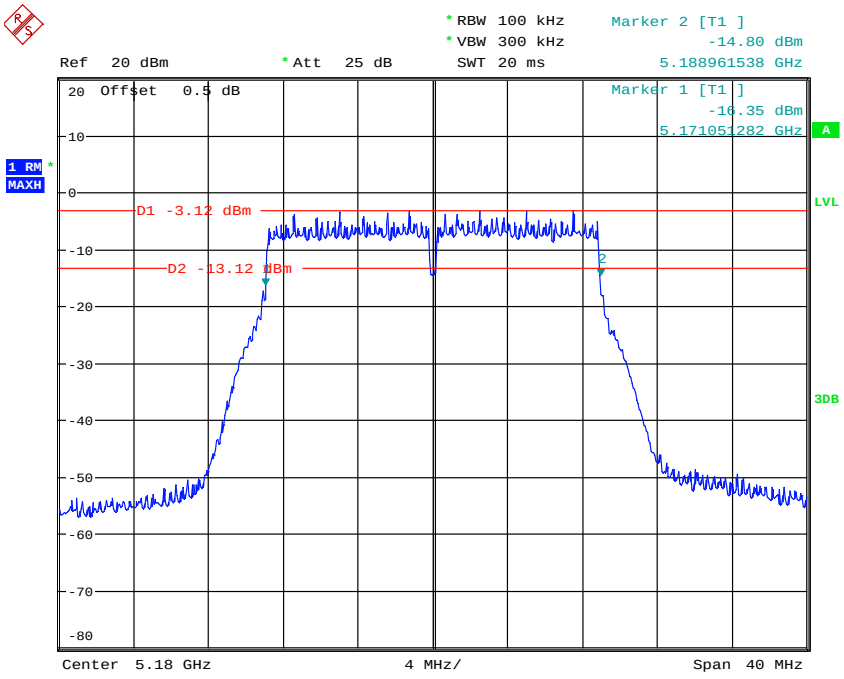
Date: 7.APR.2022 08:35:21

802.11 a High



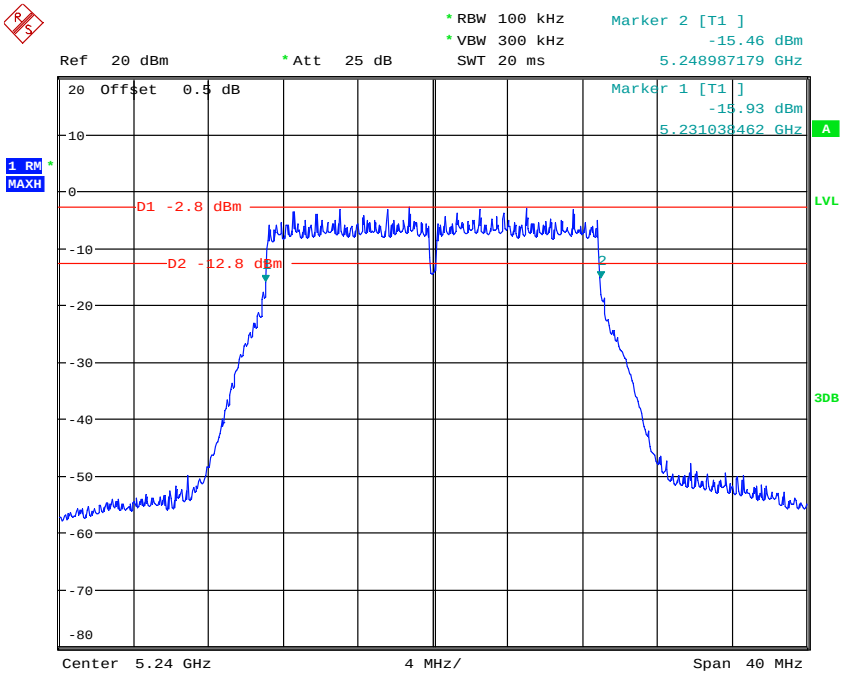
Date: 7.APR.2022 08:37:40

802.11 n20 Low



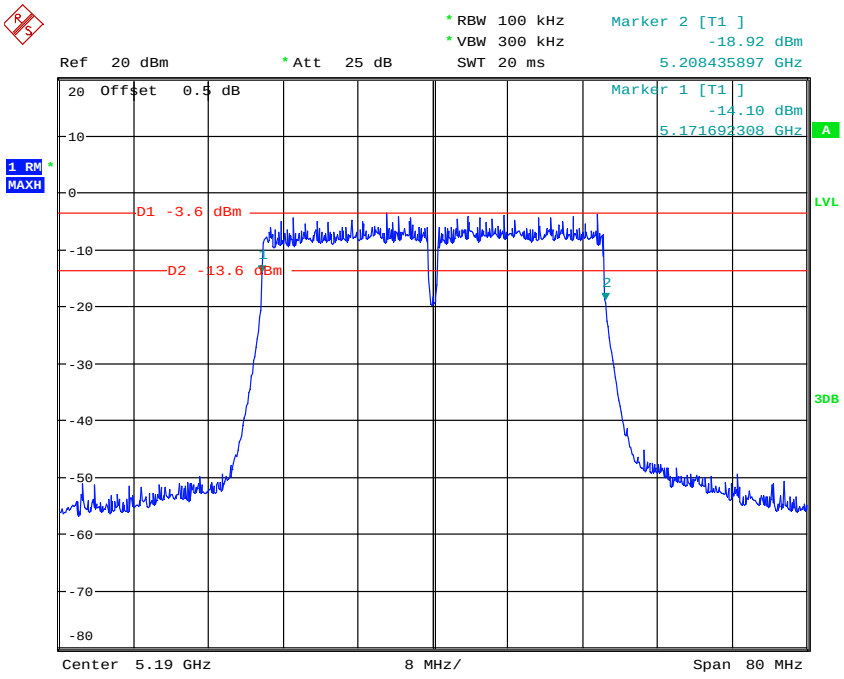
Date: 7.APR.2022 08:40:47

802.11 n20 High



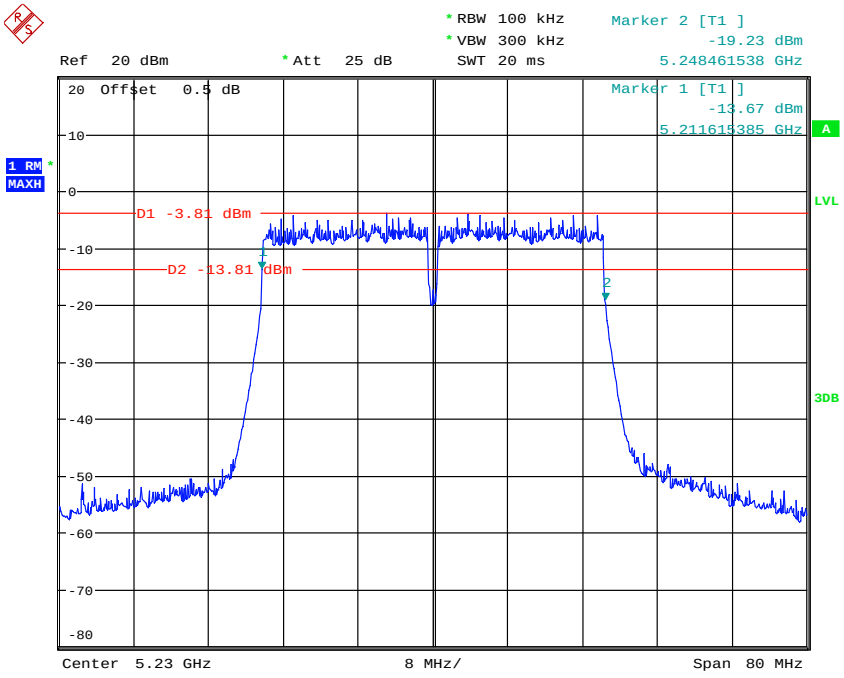
Date: 7.APR.2022 08:43:35

802.11 n40 Low



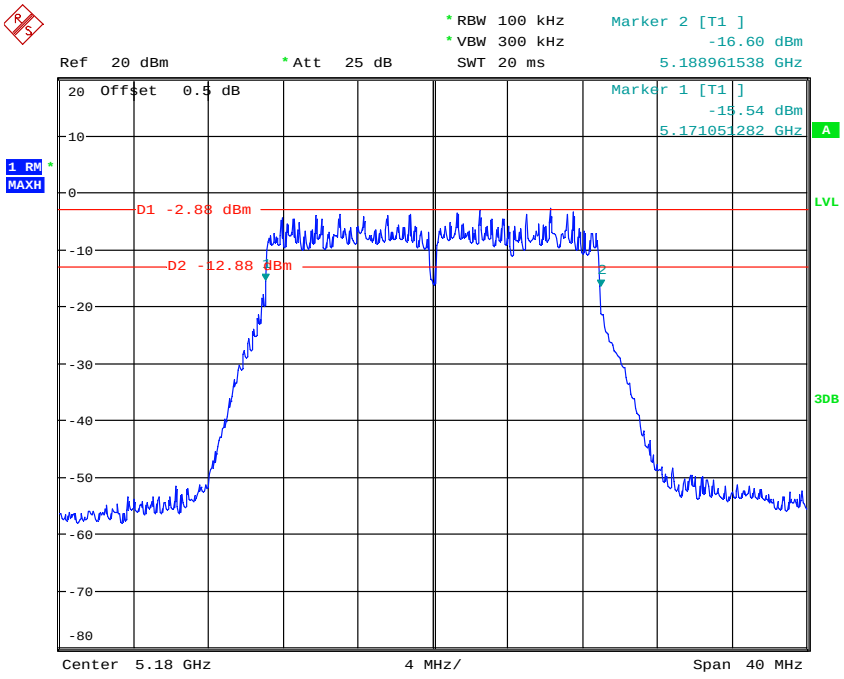
Date: 7.APR.2022 08:46:20

802.11 n40 High



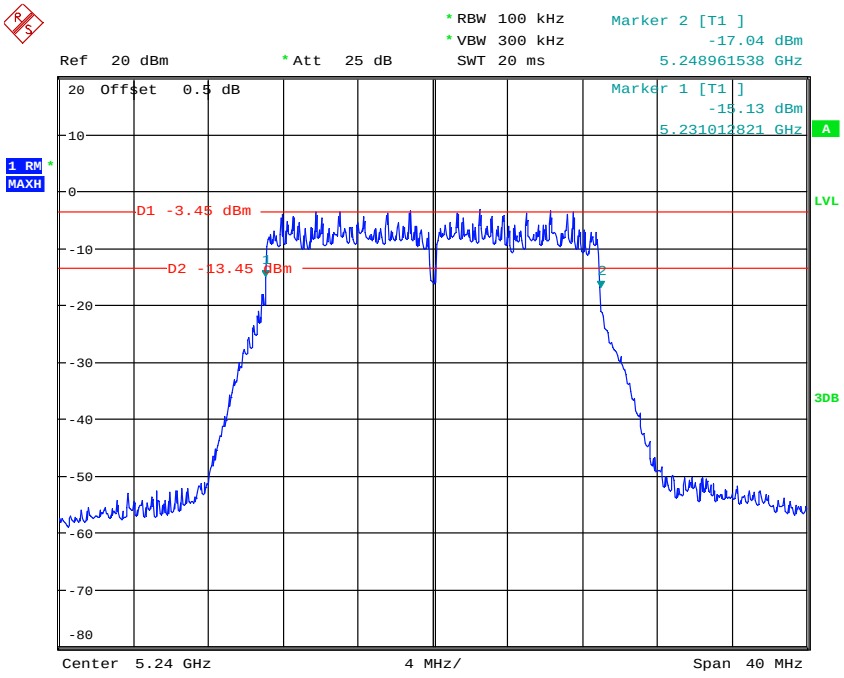
Date: 7.APR.2022 08:48:39

802.11 ac20 Low



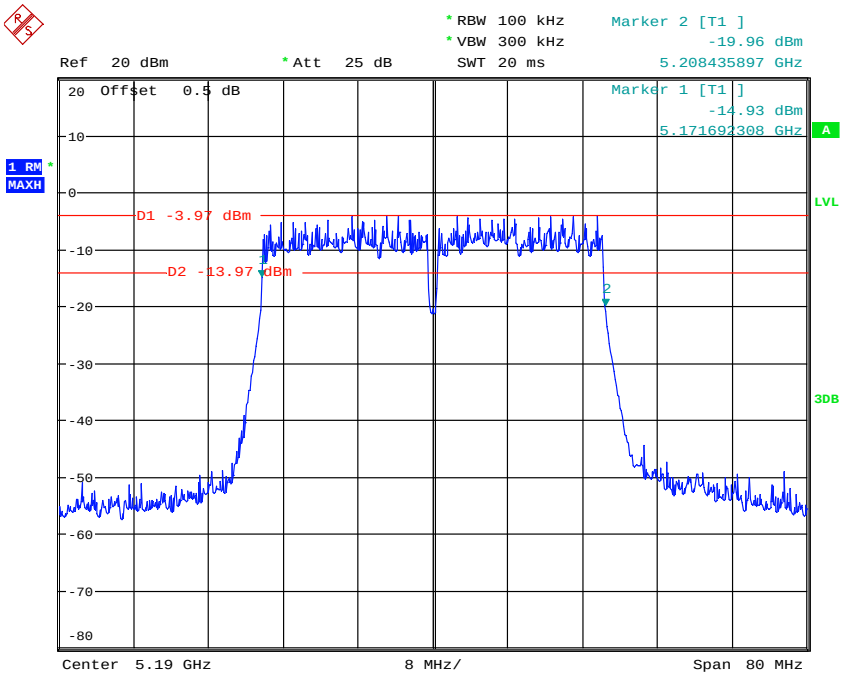
Date: 7.APR.2022 08:51:26

802.11 ac20 High



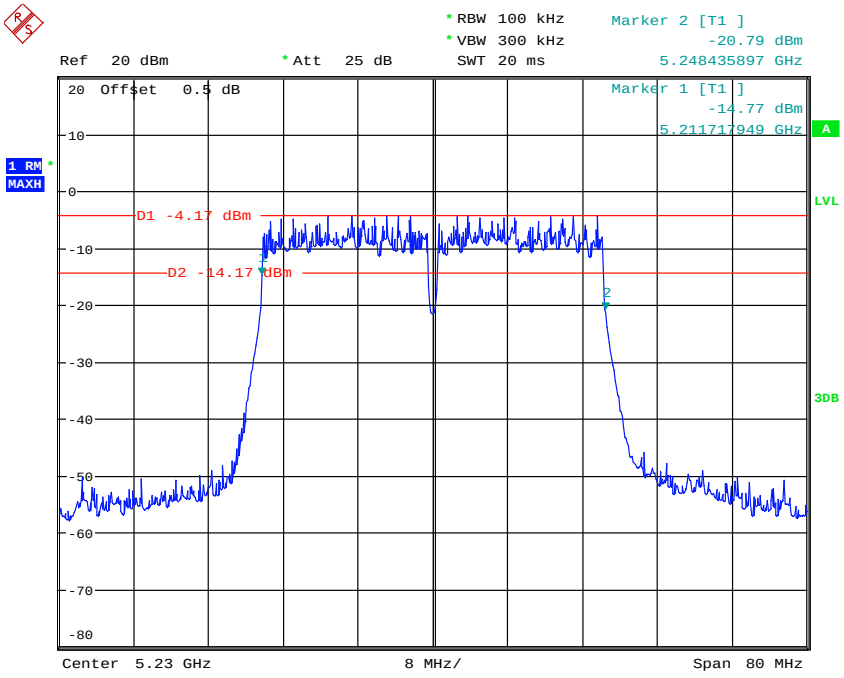
Date: 7.APR.2022 08:53:21

802.11 ac40 Low



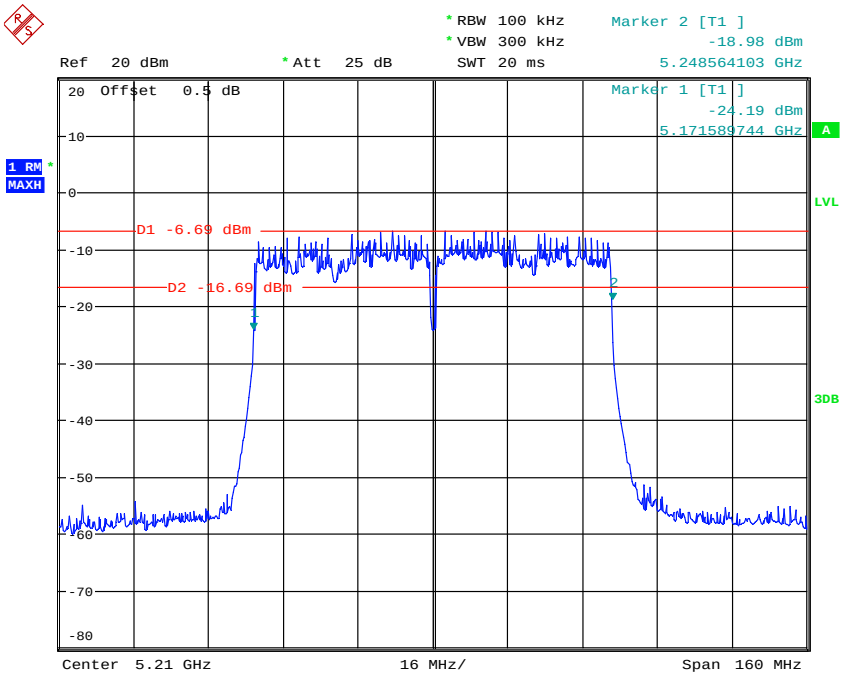
Date: 7.APR.2022 08:55:38

802.11 ac40 High



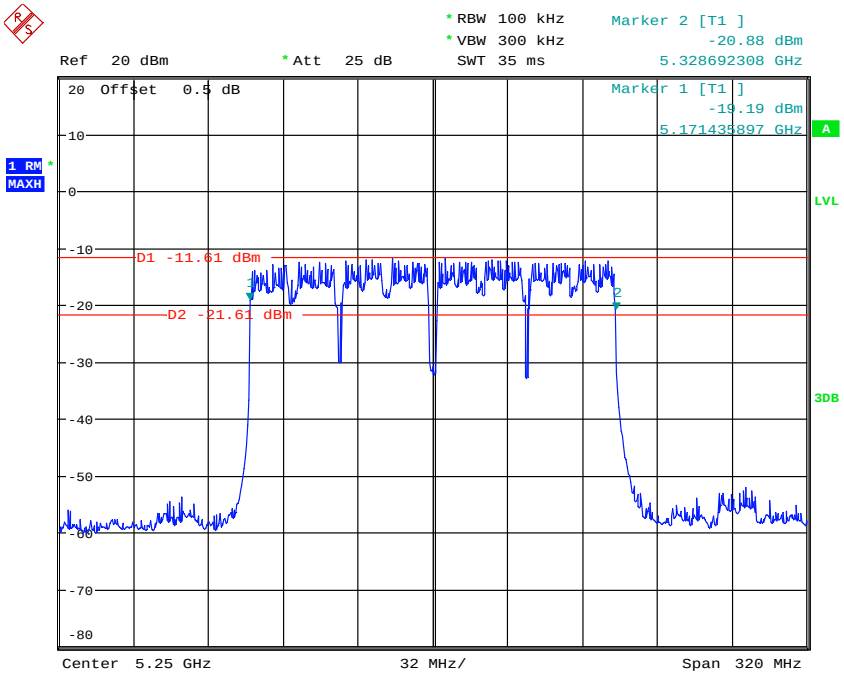
Date: 7.APR.2022 08:58:03

802.11 ac80 Middle



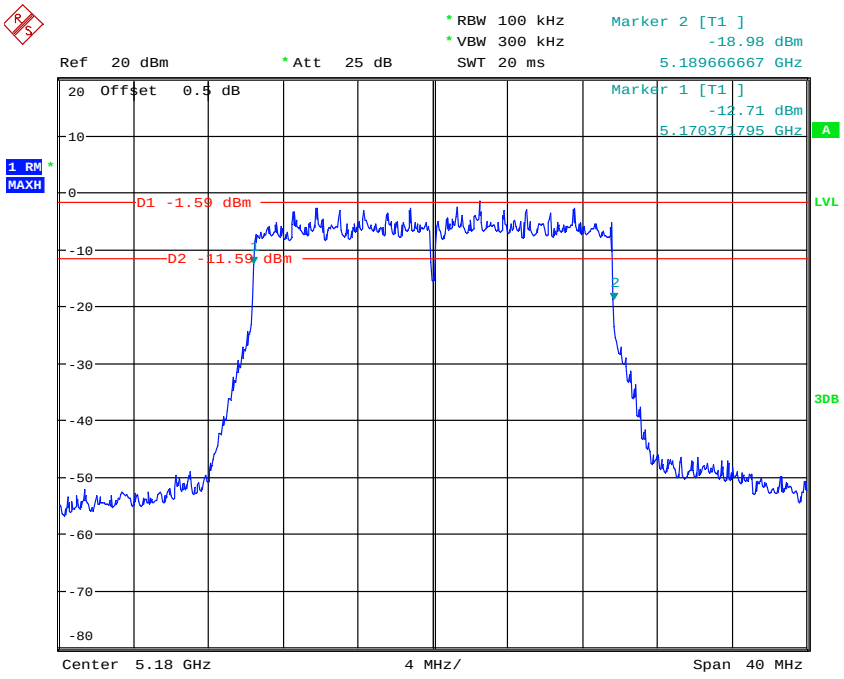
Date: 7.APR.2022 09:02:40

802.11 ac160 Middle



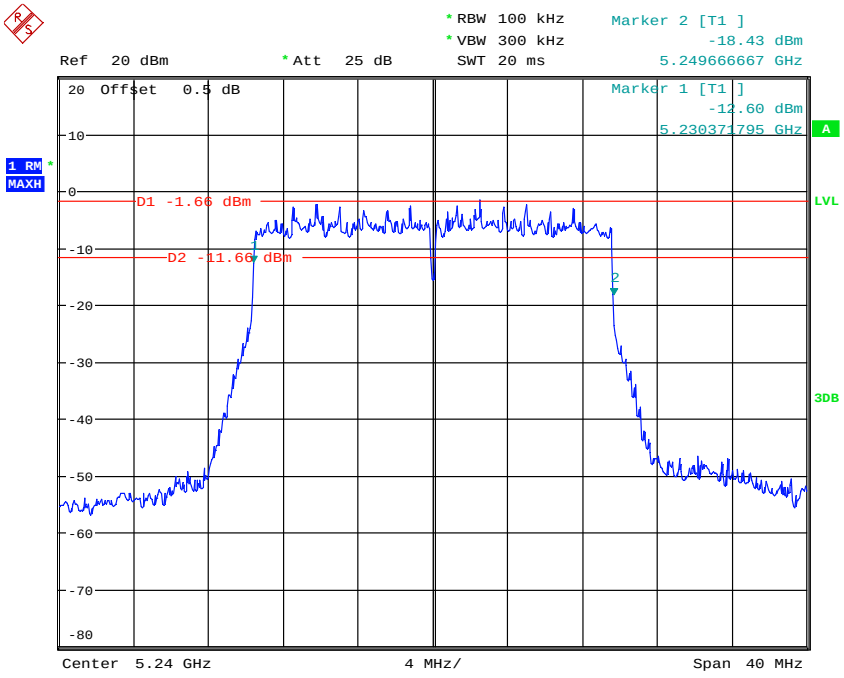
Date: 7.APR.2022 10:43:47

802.11 ax20 Low



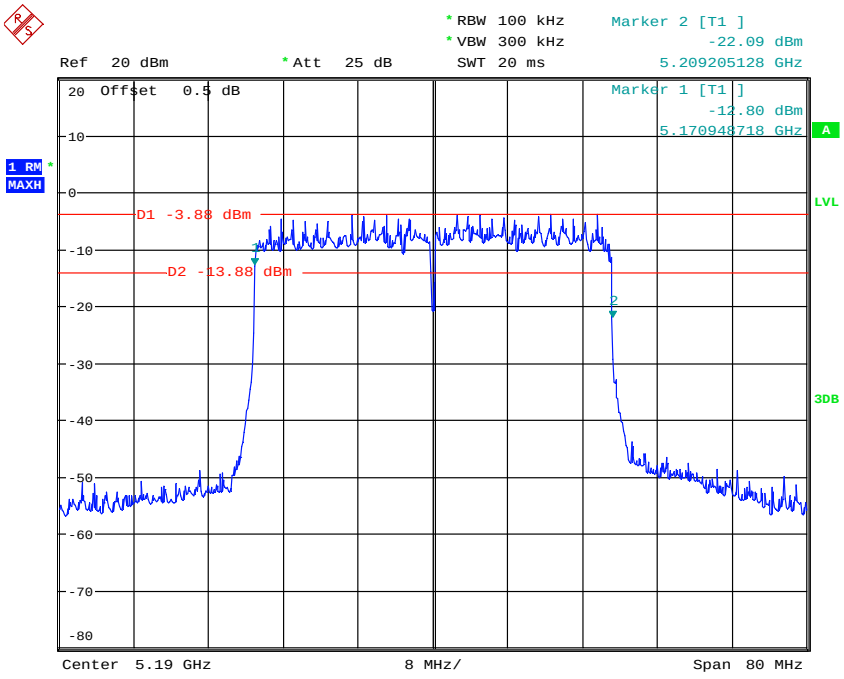
Date: 7.APR.2022 09:07:55

802.11 ax20 High



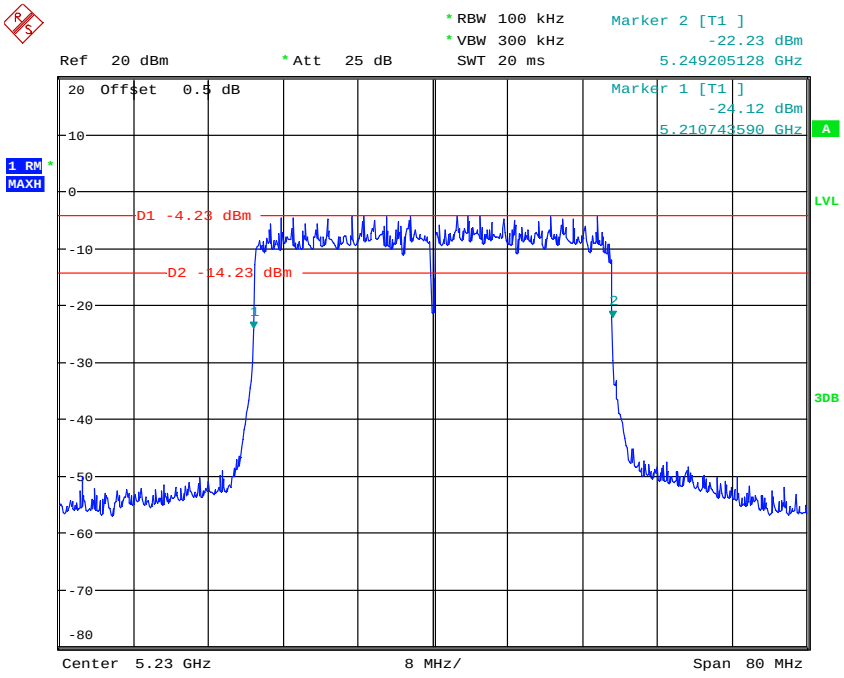
Date: 7.APR.2022 09:12:06

802.11 ax40 Low



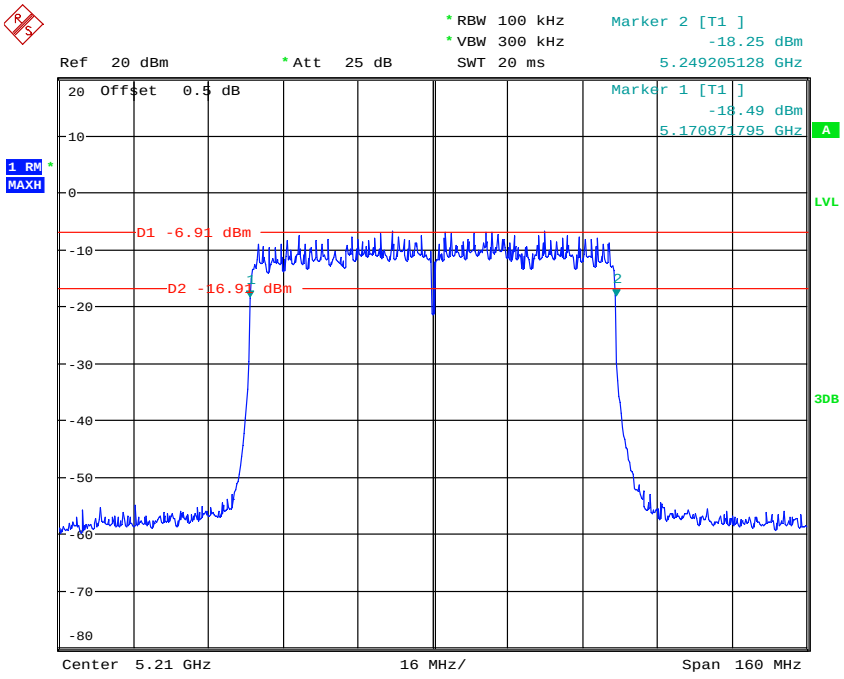
Date: 7.APR.2022 09:14:37

802.11 ax40 High



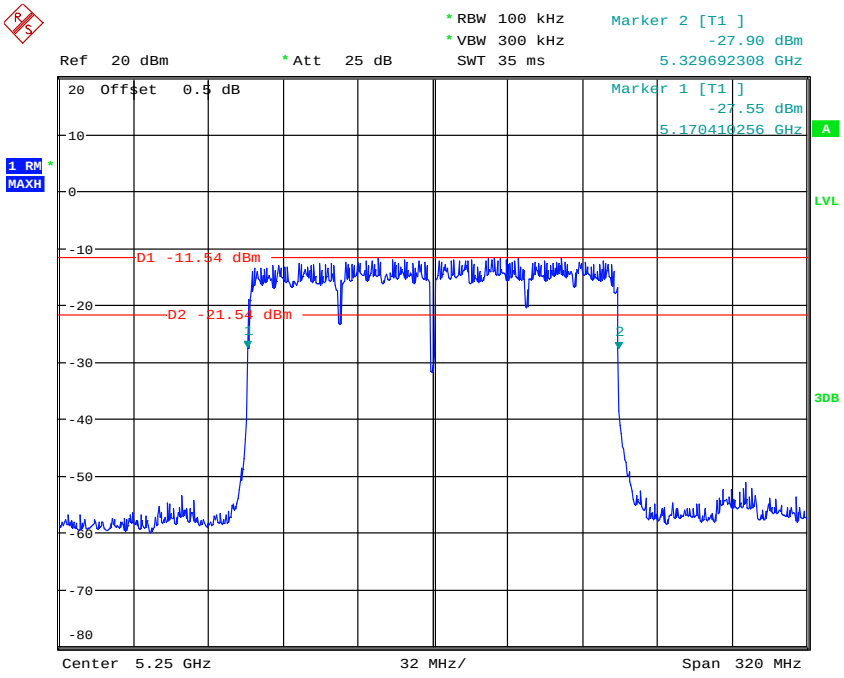
Date: 7.APR.2022 09:16:34

802.11 ax80 Middle



Date: 7.APR.2022 09:18:26

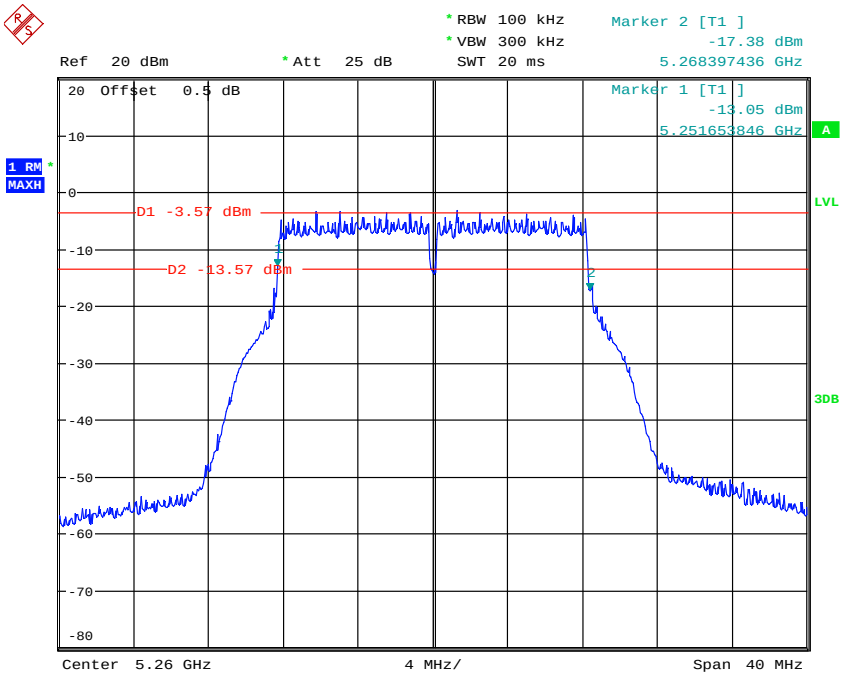
802.11 ax160 Middle



Date: 7.APR.2022 09:22:16

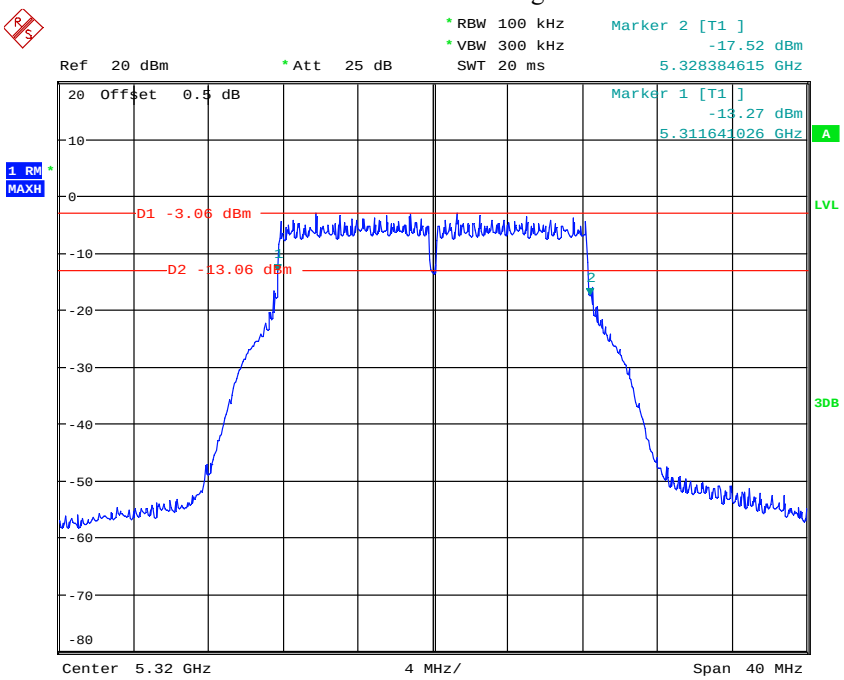
5250- 5350MHz

802.11 a Low



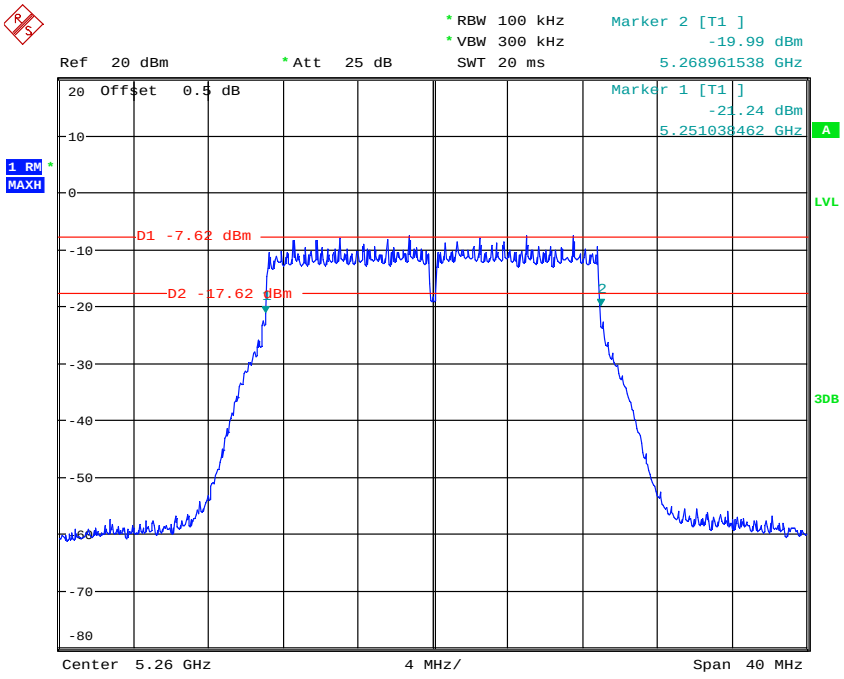
Date: 7.APR.2022 09:25:11

802.11 a High



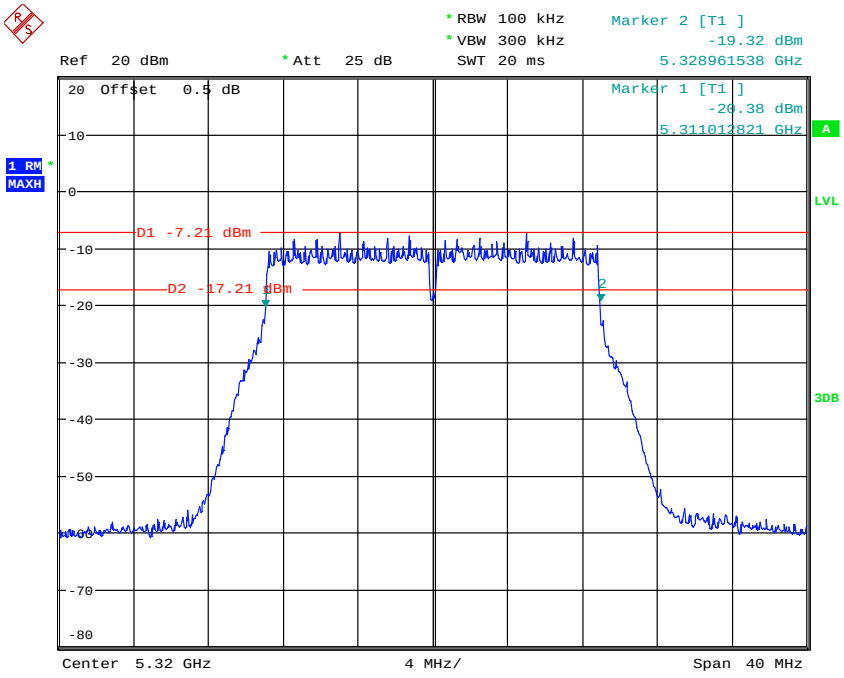
Date: 7.APR.2022 09:28:08

802.11 n20 Low



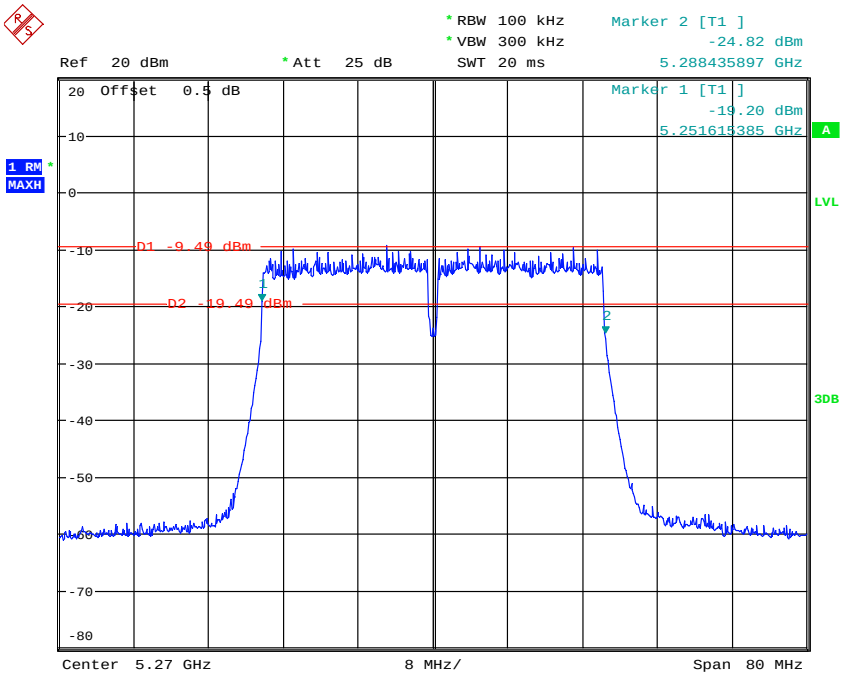
Date: 7.APR.2022 09:30:06

802.11 n20 High



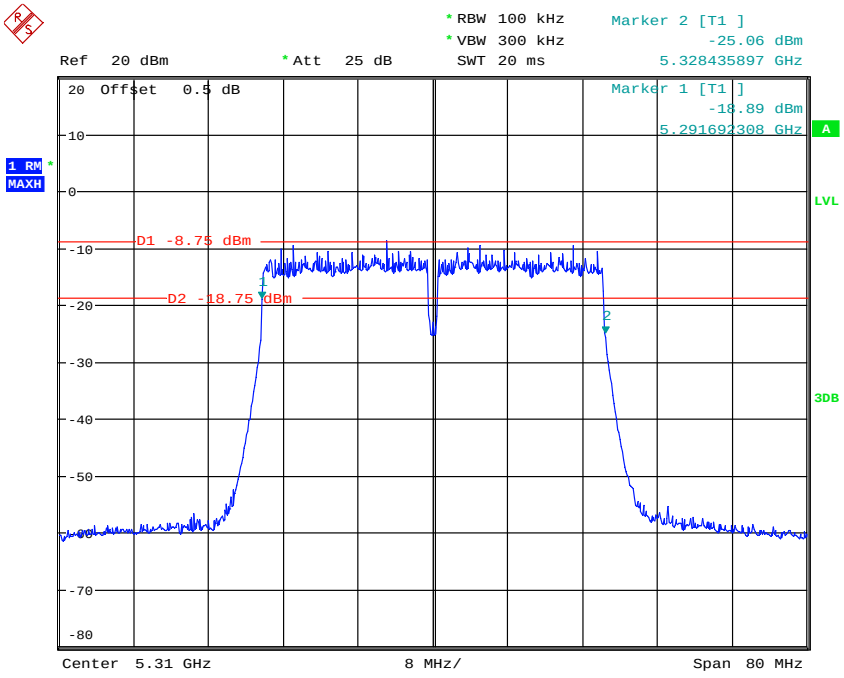
Date: 7.APR.2022 09:32:15

802.11 n40 Low



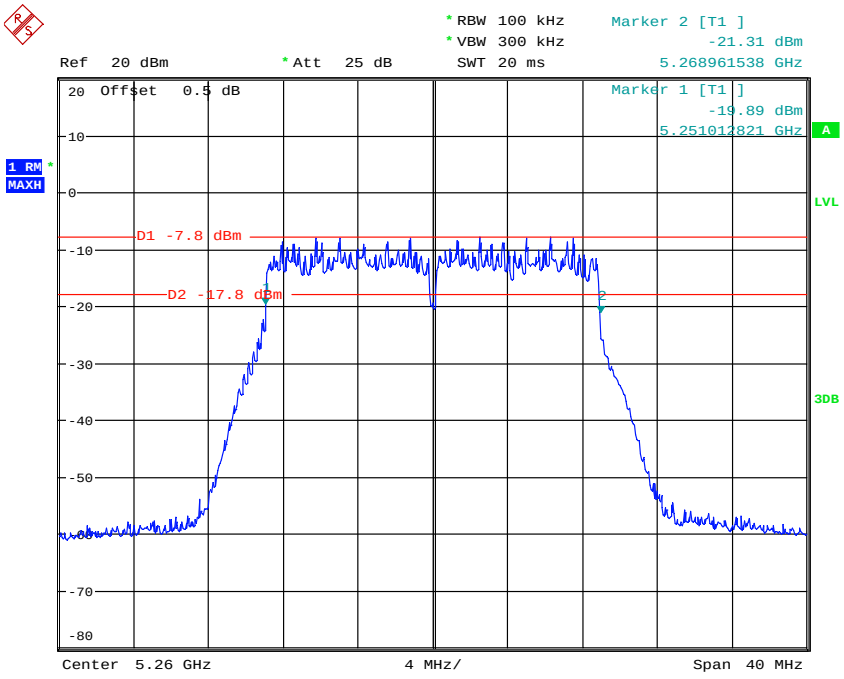
Date: 7.APR.2022 09:35:29

802.11 n40 High



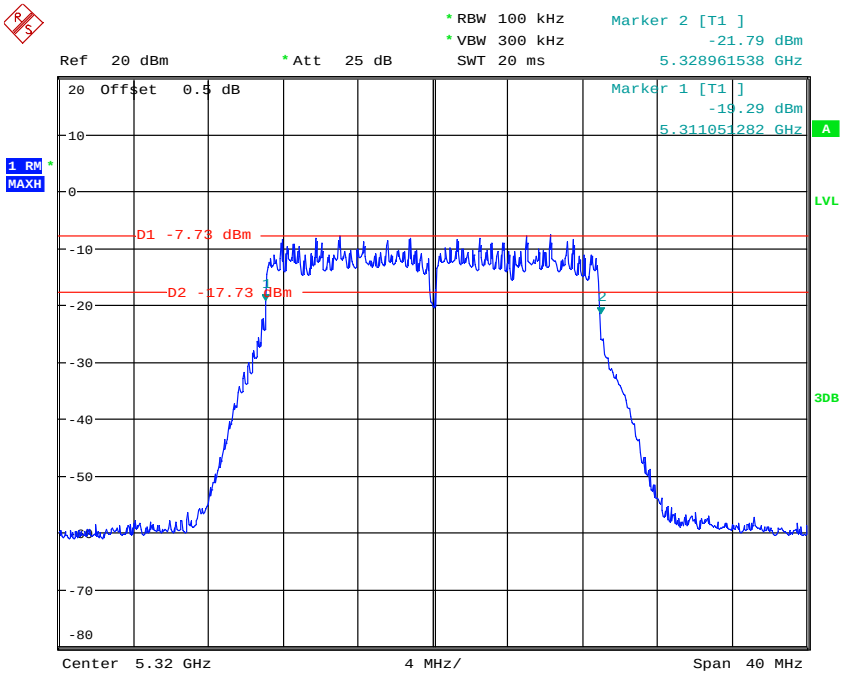
Date: 7.APR.2022 09:38:36

802.11 ac20 Low



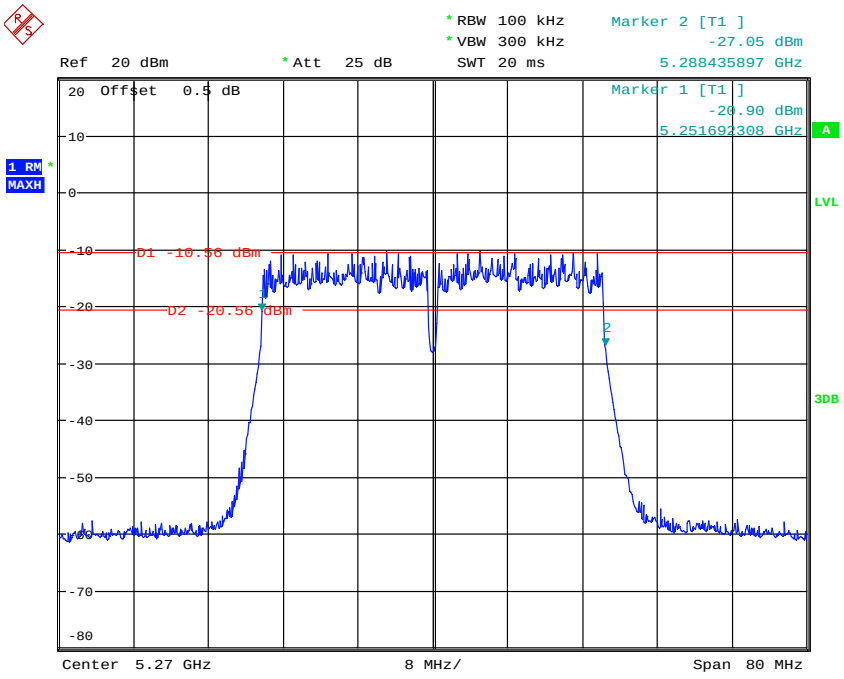
Date: 7.APR.2022 09:41:42

802.11 ac20 High



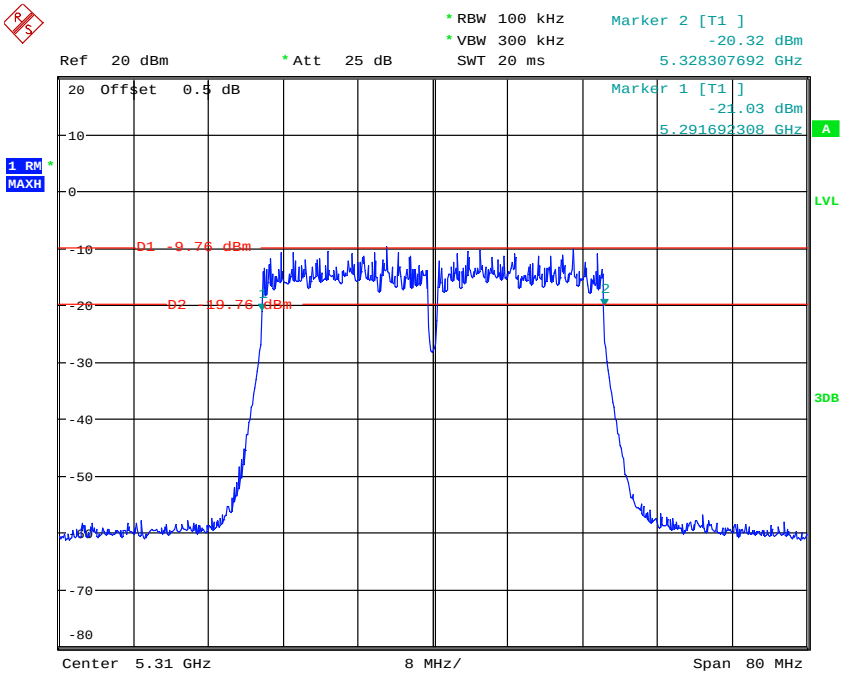
Date: 7.APR.2022 09:44:07

802.11 ac40 Low



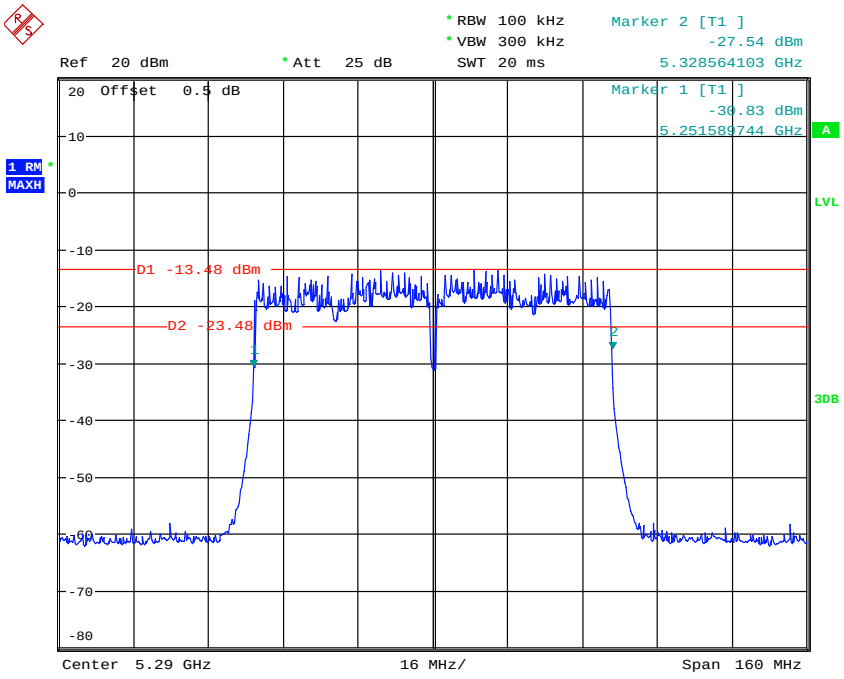
Date: 7.APR.2022 09:47:01

802.11 ac40 High



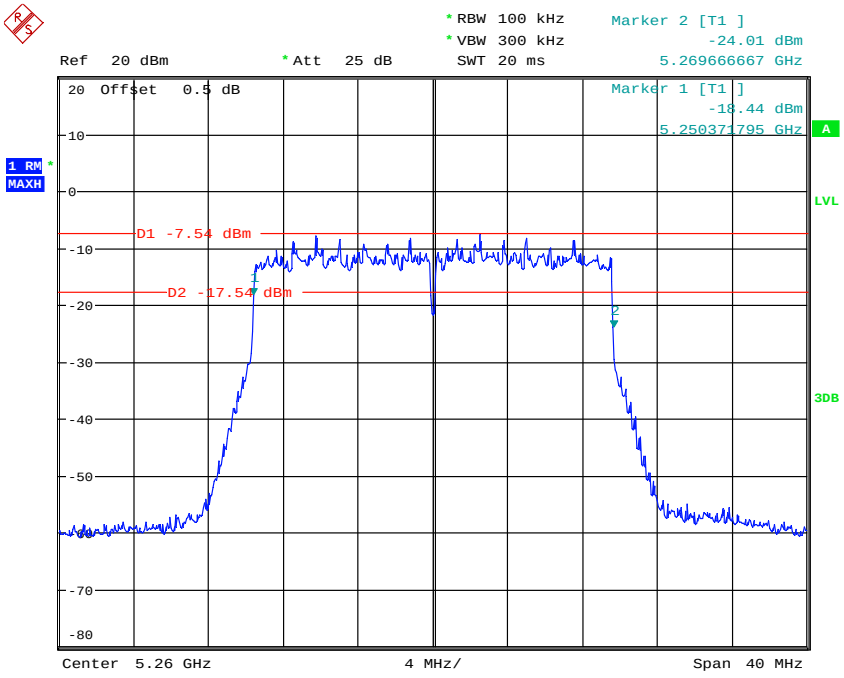
Date: 7.APR.2022 09:49:17

802.11 ac80 Middle



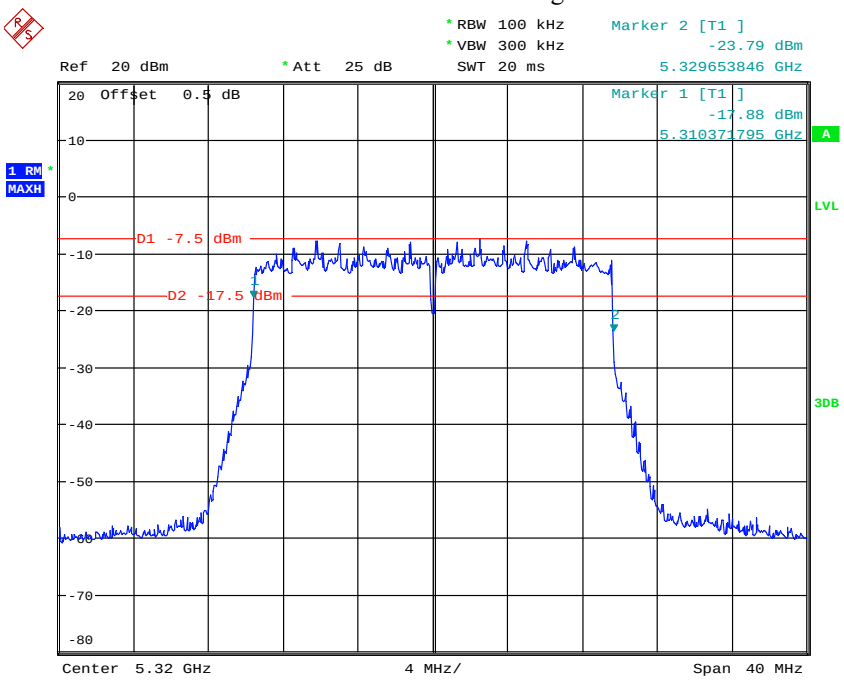
Date: 7.APR.2022 09:52:11

802.11 ax20 Low



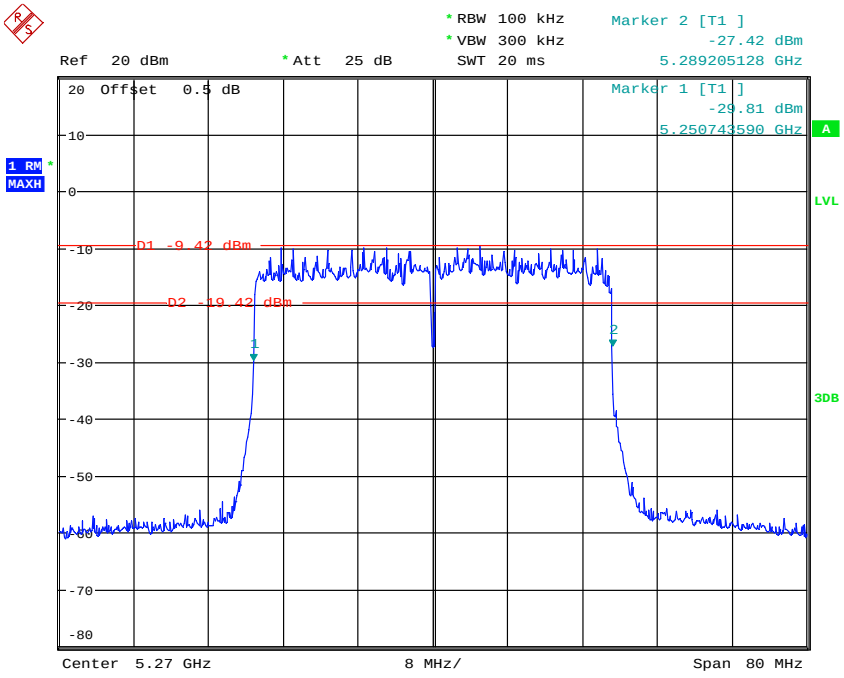
Date: 7.APR.2022 09:57:20

802.11 ax20 High



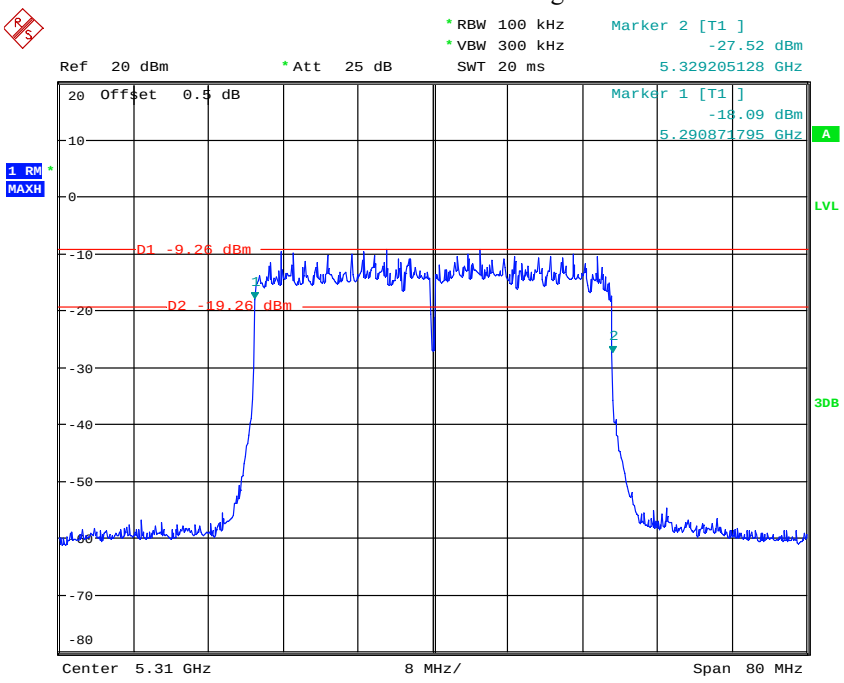
Date: 7.APR.2022 09:59:53

802.11 ax40 Low



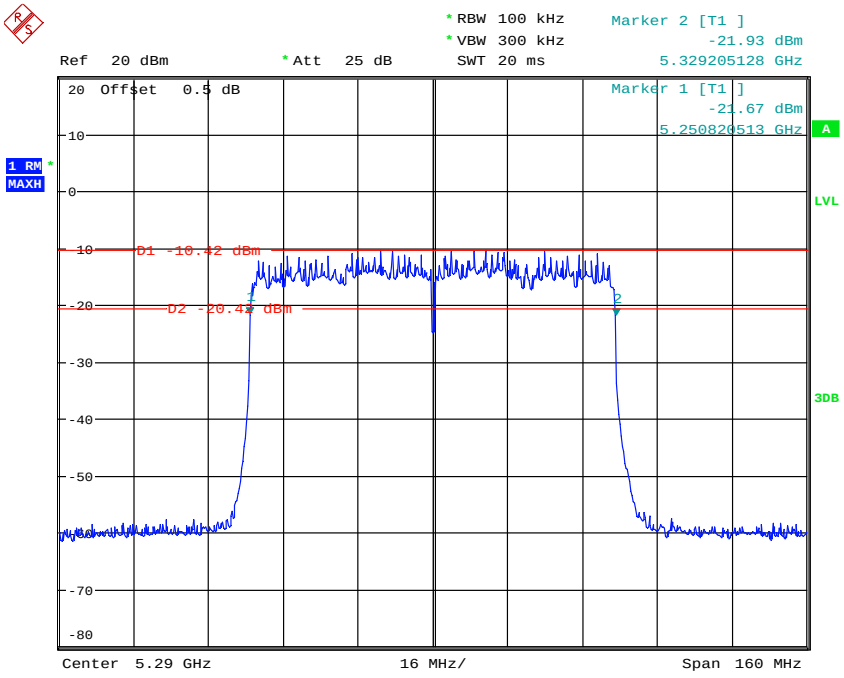
Date: 7.APR.2022 10:03:05

802.11 ax40 High



Date: 7.APR.2022 10:04:42

802.11 ax80 Middle



Date: 7.APR.2022 10:06:47

2 – NOMINAL CHANNEL BANDWIDTH AND OCCUPIED CHANNEL BANDWIDTH

Definition

The Nominal Channel Bandwidth is the widest band of frequencies, inclusive of guard bands, assigned to a single channel.

The Occupied Channel Bandwidth is the bandwidth containing 99 % of the power of the signal.

When equipment has simultaneous transmissions in adjacent channels, these transmissions may be considered as one signal with an actual Nominal Channel Bandwidth of 'n' times the individual Nominal Channel Bandwidth where 'n' is the number of adjacent channels. When equipment has simultaneous transmissions in non-adjacent channels, each power envelope shall be considered separately.

Limit

The Nominal Channel Bandwidth for a single Operating Channel shall be 20 MHz.

Alternatively, equipment may implement a lower Nominal Channel Bandwidth with a minimum of 5 MHz, providing they still comply with the Nominal Centre Frequencies defined in clause 4.2.1 (20 MHz raster).
The Occupied Channel Bandwidth shall be between 80 % and 100 % of the Nominal Channel Bandwidth. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement.

The Occupied Channel Bandwidth might change with time/payload.

During a Channel Occupancy Time (COT), equipment may operate temporarily with an Occupied Channel Bandwidth of less than 80 % of its Nominal Channel Bandwidth with a minimum of 2 MHz.

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.3

Test Data

Test Result: *Compliant. Please refer to following tables(Testing was performed with Antenna Chain 0).*

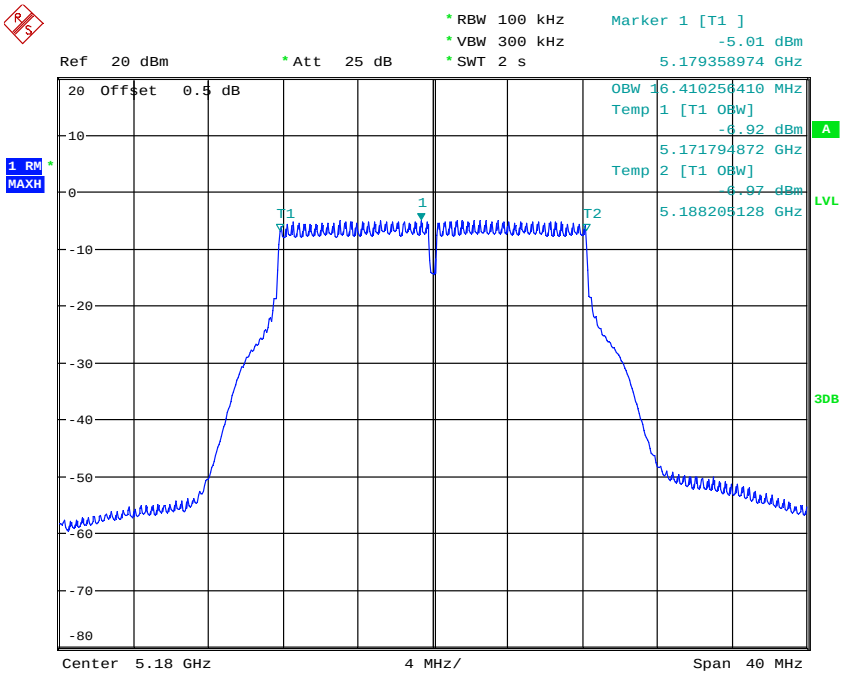
Band	Mode	Fc (MHz)	Nominal Channel Bandwidth (MHz)	Result (MHz)	Limit (MHz)
5150-5250 MHz	802.11 a	5180	20	16.410	16~20
		5240	20	16.410	
	802.11 n20	5180	20	17.692	16~20
		5240	20	17.692	
	802.11 n40	5190	40	36.282	32~40
		5230	40	36.282	
	802.11 ac20	5180	20	17.628	16~20
		5240	20	17.628	
	802.11 ac40	5190	40	36.154	32~40
		5230	40	36.154	
	802.11 ac80	5210	80	75.641	64~80
	802.11 ac160	5250	160	154.359	128~160
	802.11 ax20	5180	20	18.91	16~20
		5240	20	18.91	16~20
	802.11 ax40	5190	40	37.436	32~40
		5230	40	37.436	32~40
	802.11 ax80	5210	80	76.667	64~80
	802.11 ax160	5250	160	155.385	128~160

Band	Mode	Fc (MHz)	Nominal Channel Bandwidth (MHz)	Result (MHz)	Limit (MHz)
5250-5350 MHz	802.11 a	5260	20	16.474	16~20
		5320	20	16.474	
	802.11 n20	5260	20	17.692	16~20
		5320	20	17.692	
	802.11 n40	5270	40	36.282	32~40
		5310	40	36.282	
	802.11 ac20	5260	20	17.628	16~20
		5320	20	17.628	
	802.11 ac40	5270	40	36.282	32~40
		5310	40	36.154	
	802.11 ac80	5290	80	75.641	64~80
	802.11 ax20	5260	20	18.91	16~20
		5320	20	18.91	16~20
	802.11 ax40	5270	40	37.436	32~40
		5310	40	37.436	32~40
	802.11 ax80	5290	80	76.667	64~80

Please refer to following plots:

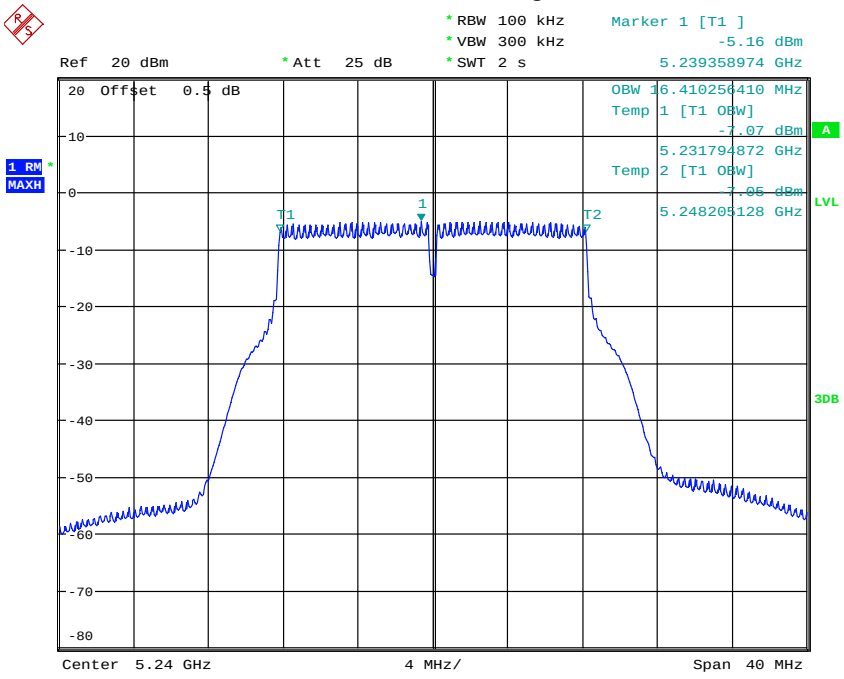
5150-5250MHz

802.11 a Low



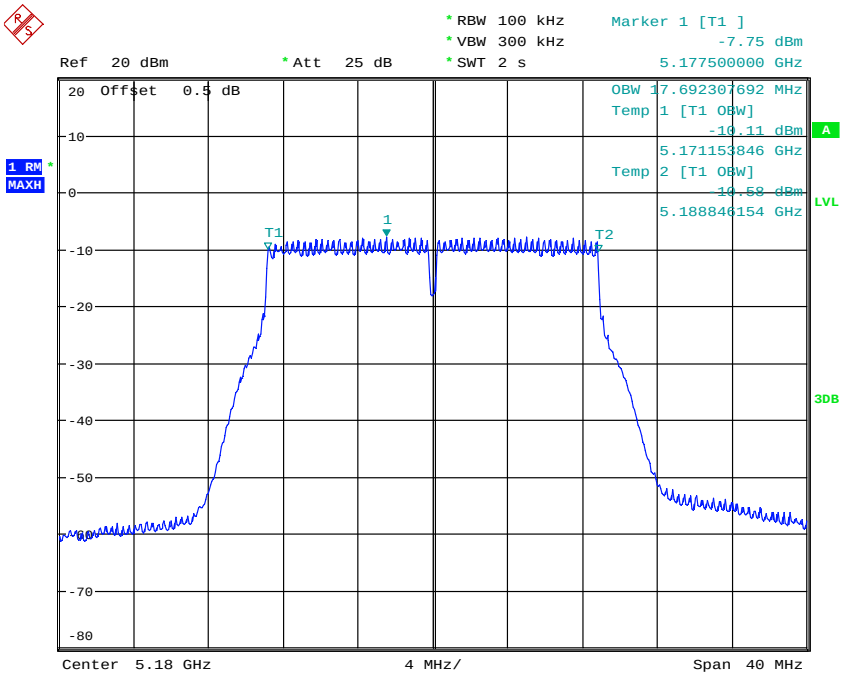
Date: 2.APR.2022 09:47:01

802.11 a High



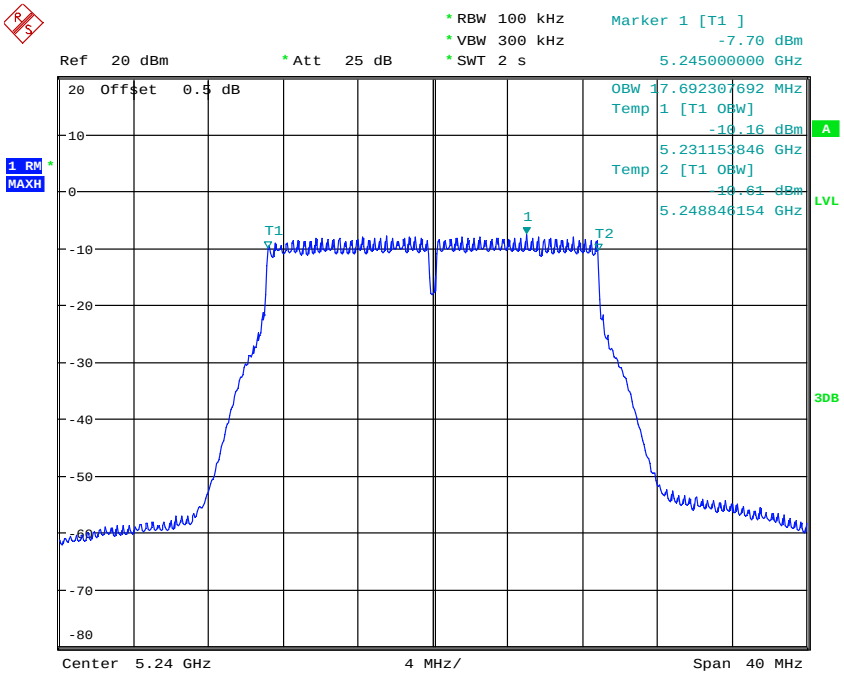
Date: 2.APR.2022 09:48:16

802.11 n20 Low



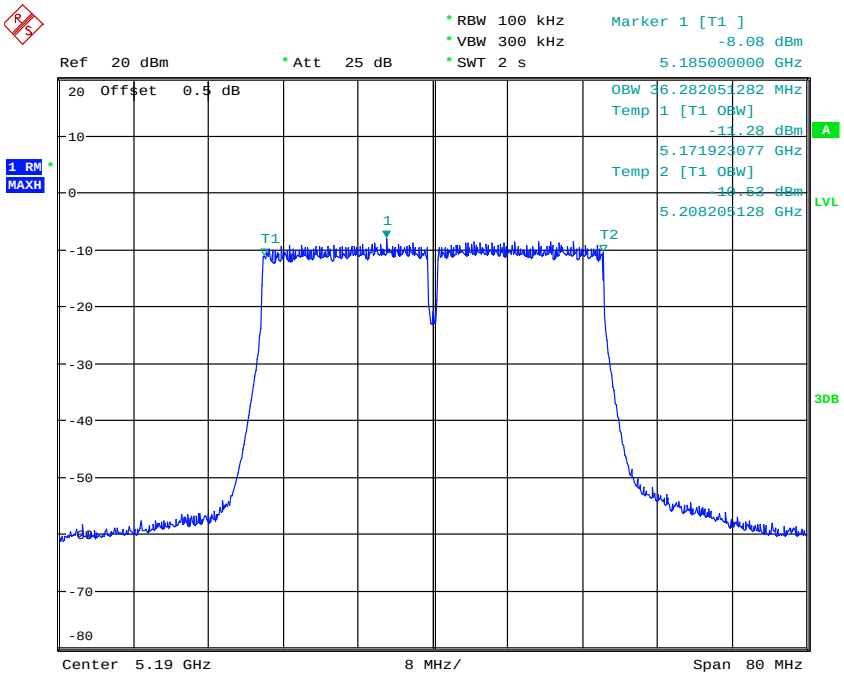
Date: 2.APR.2022 09:51:42

802.11 n20 High



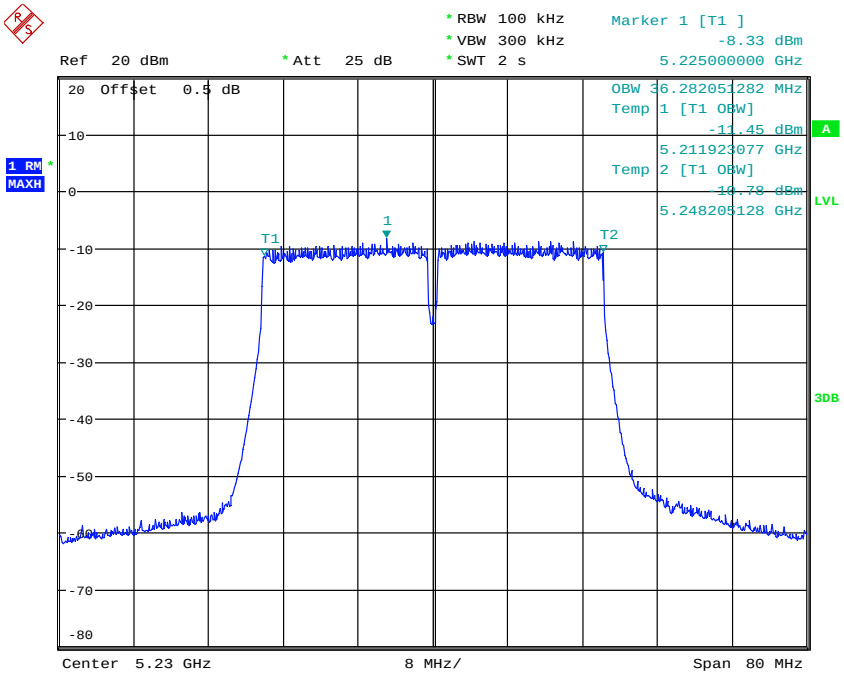
Date: 2.APR.2022 09:53:09

802.11 n40 Low



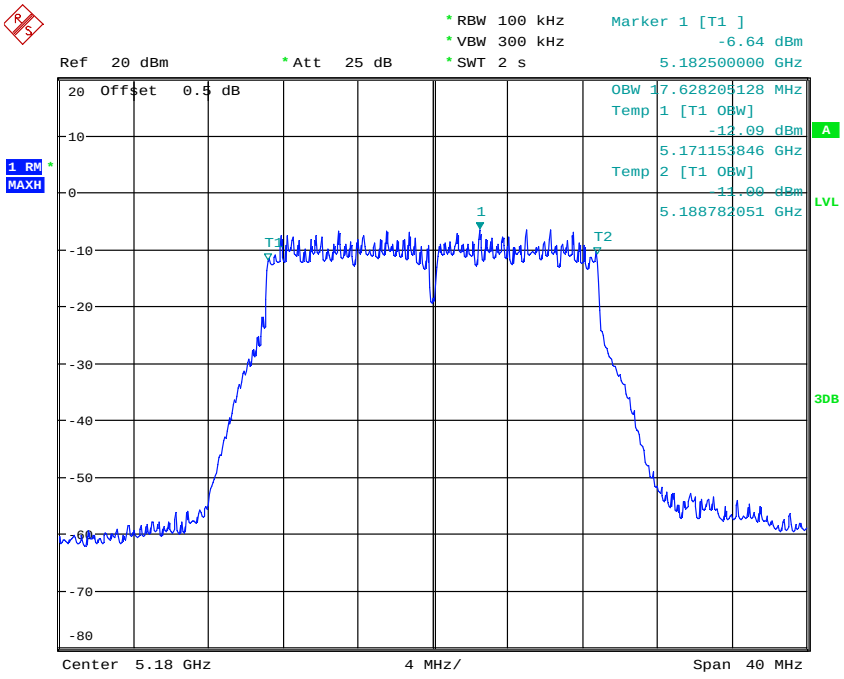
Date: 2.APR.2022 09:55:16

802.11 n40 High



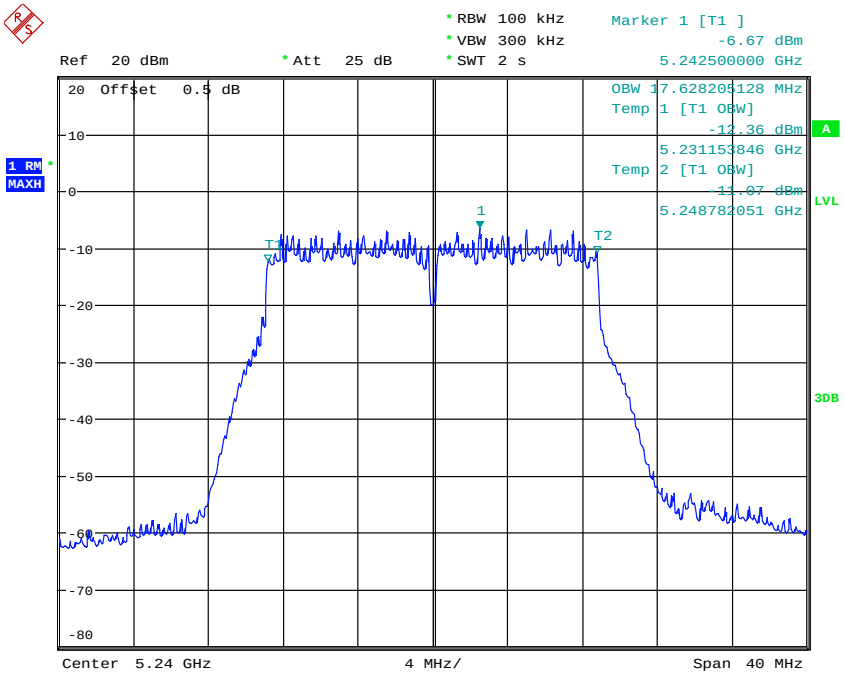
Date: 2.APR.2022 09:56:10

802.11 ac20 Low



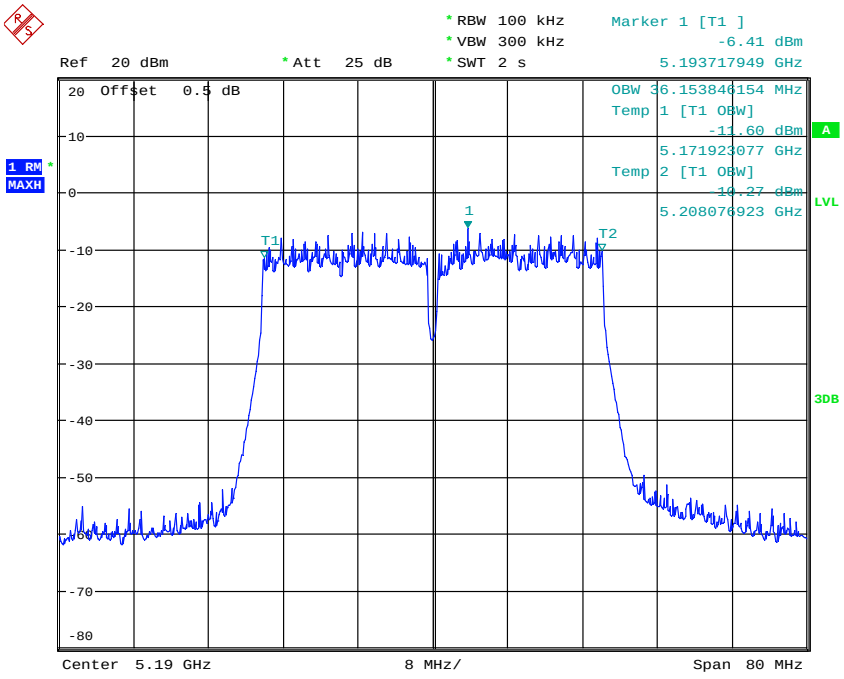
Date: 2.APR.2022 09:58:43

802.11 ac20 High



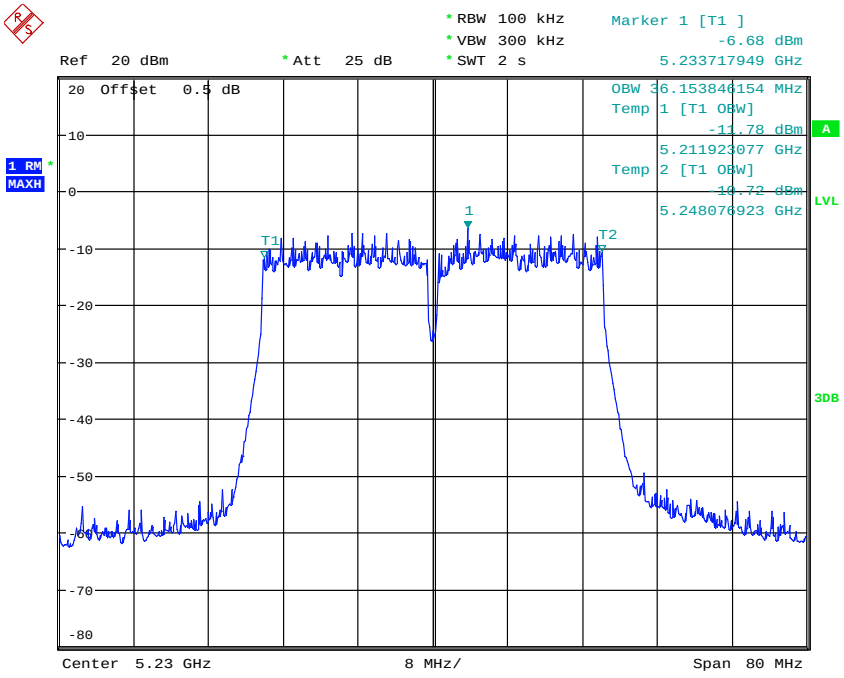
Date: 2.APR.2022 09:59:28

802.11 ac40 Low



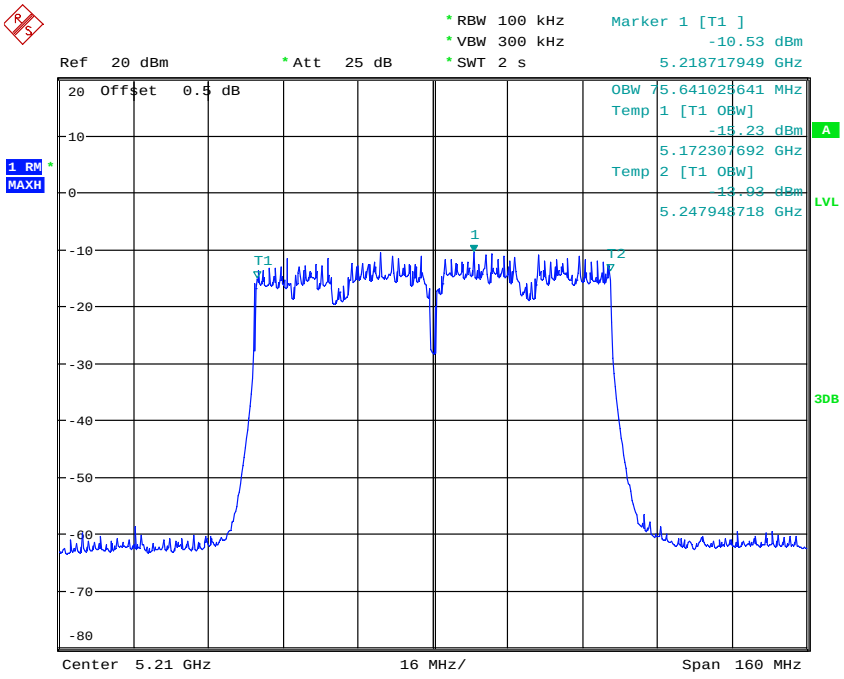
Date: 2.APR.2022 10:01:07

802.11 ac40 High



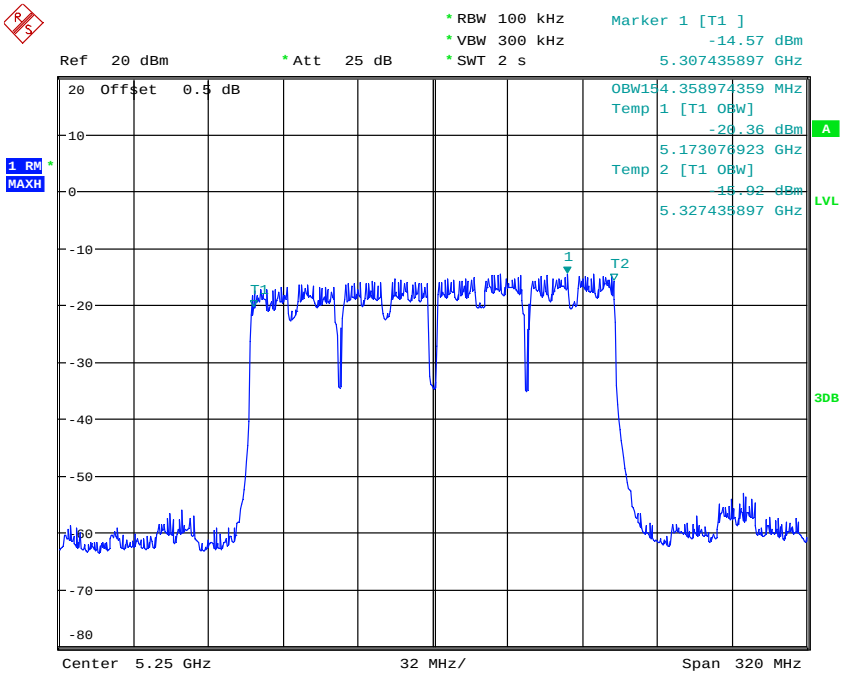
Date: 2.APR.2022 10:06:08

802.11 ac80 Middle



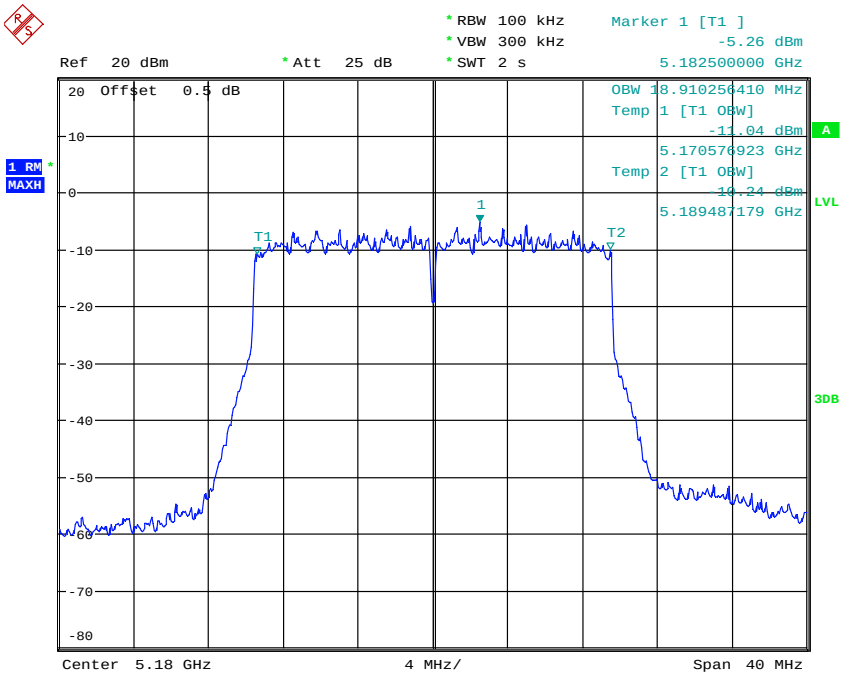
Date: 2.APR.2022 10:08:12

802.11 ac160 Middle



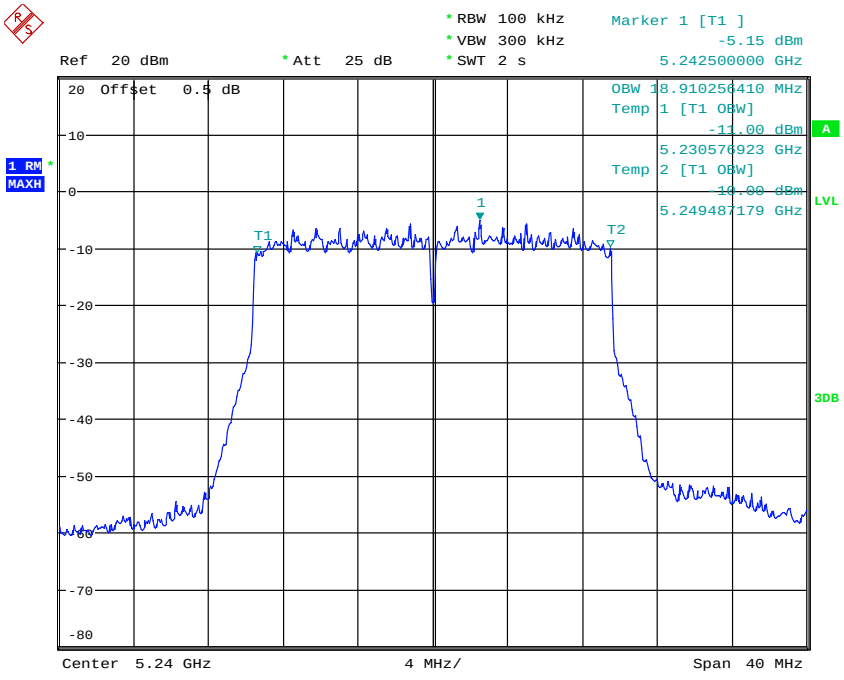
Date: 2.APR.2022 10:12:43

802.11 ax20 Low



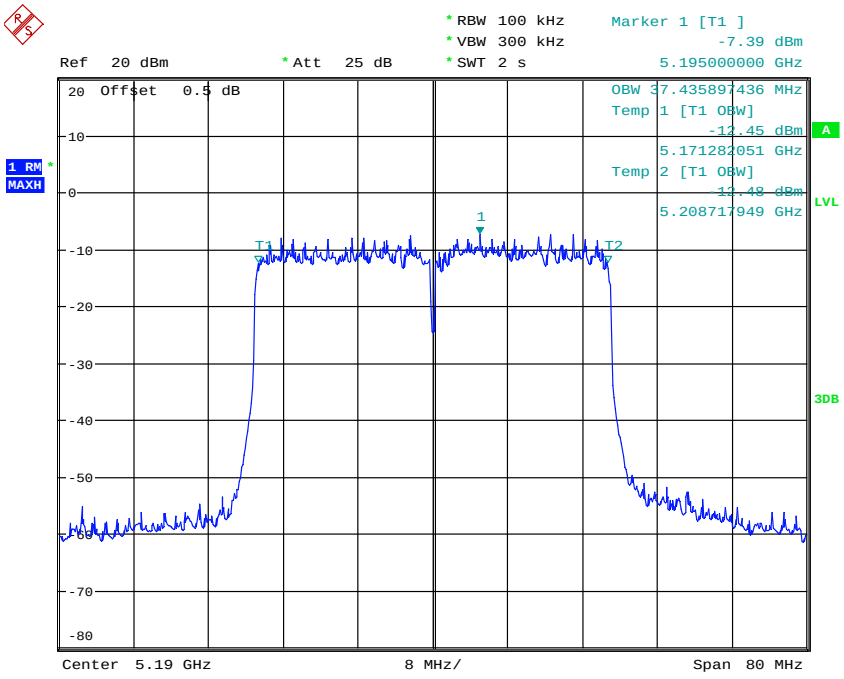
Date: 2.APR.2022 10:15:21

802.11 ax20 High



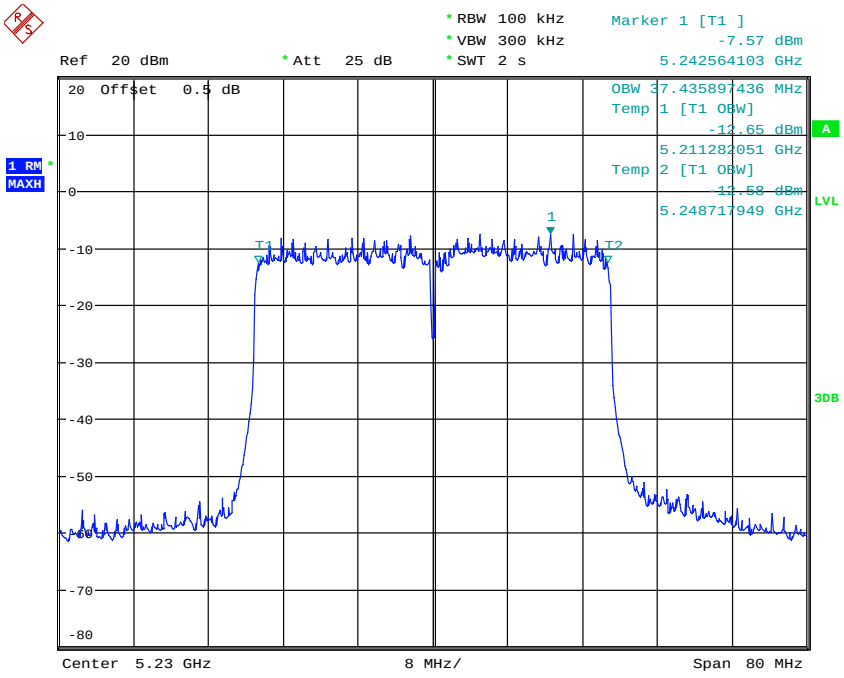
Date: 2.APR.2022 10:17:23

802.11 ax40 Low



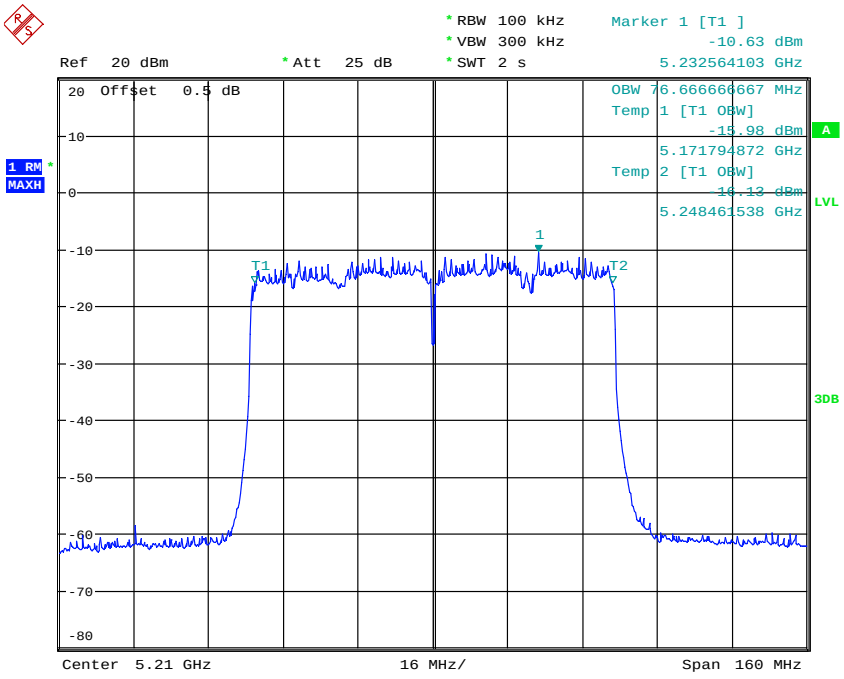
Date: 2.APR.2022 10:18:36

802.11 ax40 High



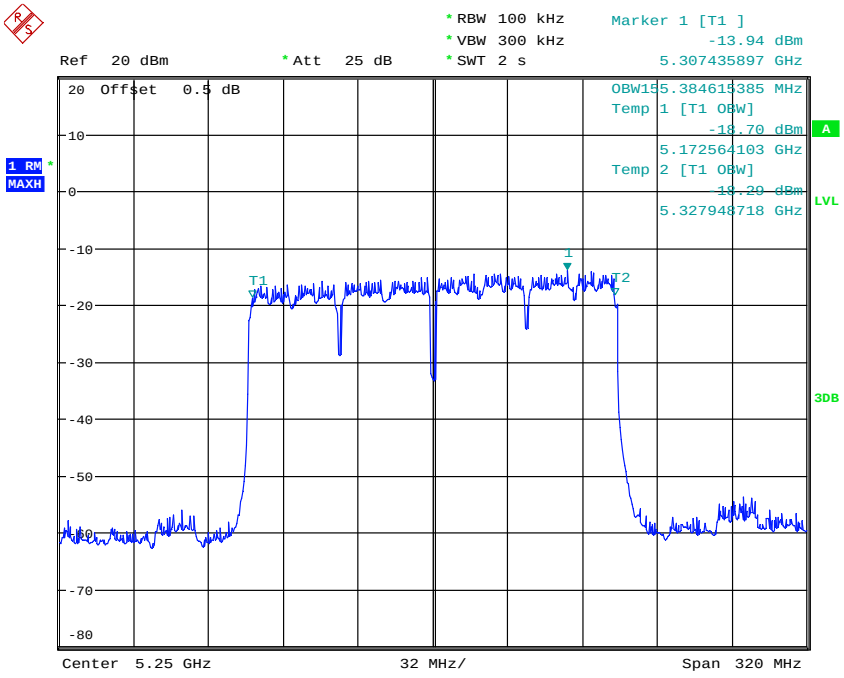
Date: 2.APR.2022 10:19:16

802.11 ax80 Middle



Date: 2.APR.2022 10:21:10

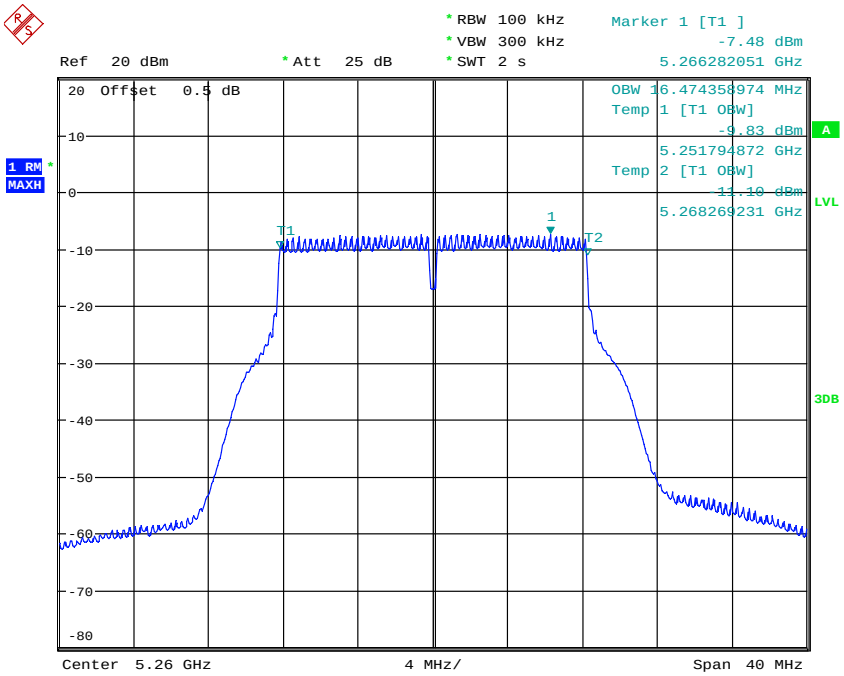
802.11 ax160 Middle



Date: 2.APR.2022 10:22:19

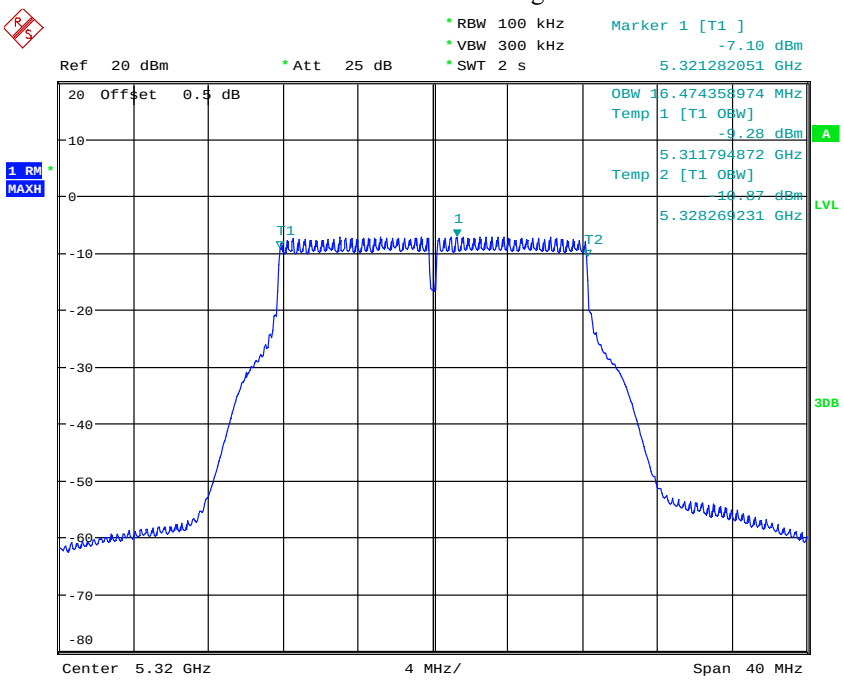
5250- 5350MHz

802.11 a Low



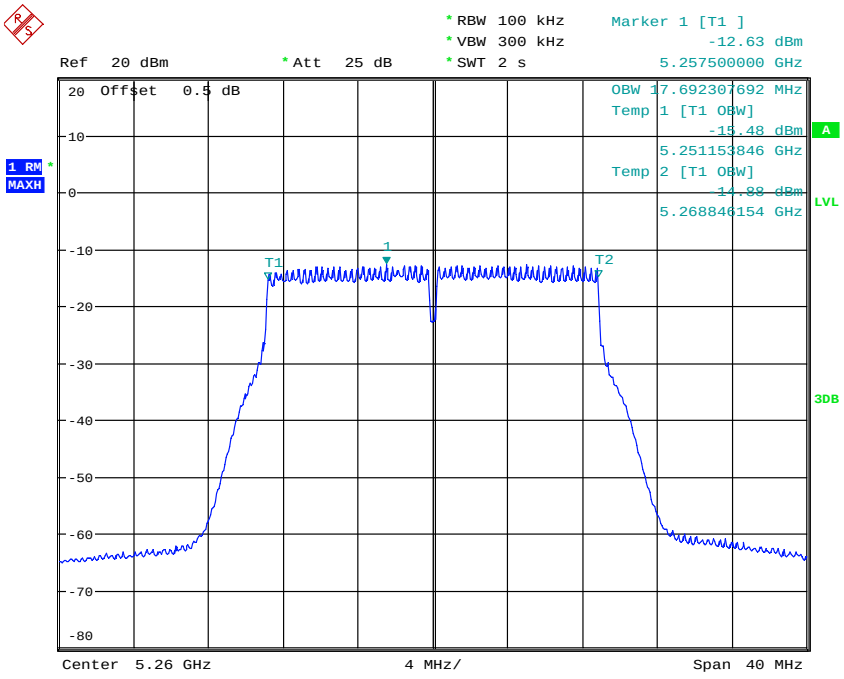
Date: 2.APR.2022 10:26:07

802.11 a High



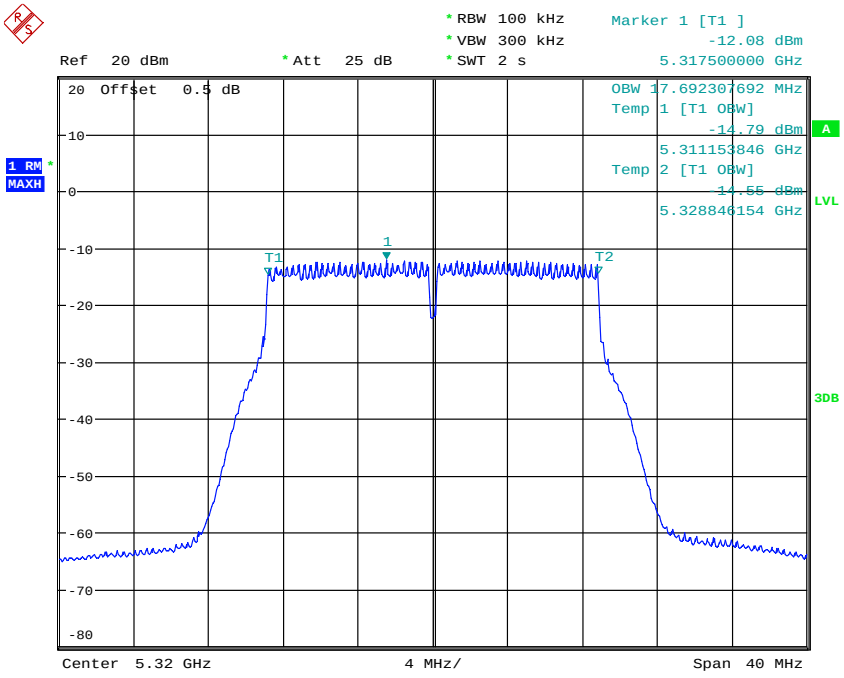
Date: 2.APR.2022 10:28:21

802.11 n20 Low



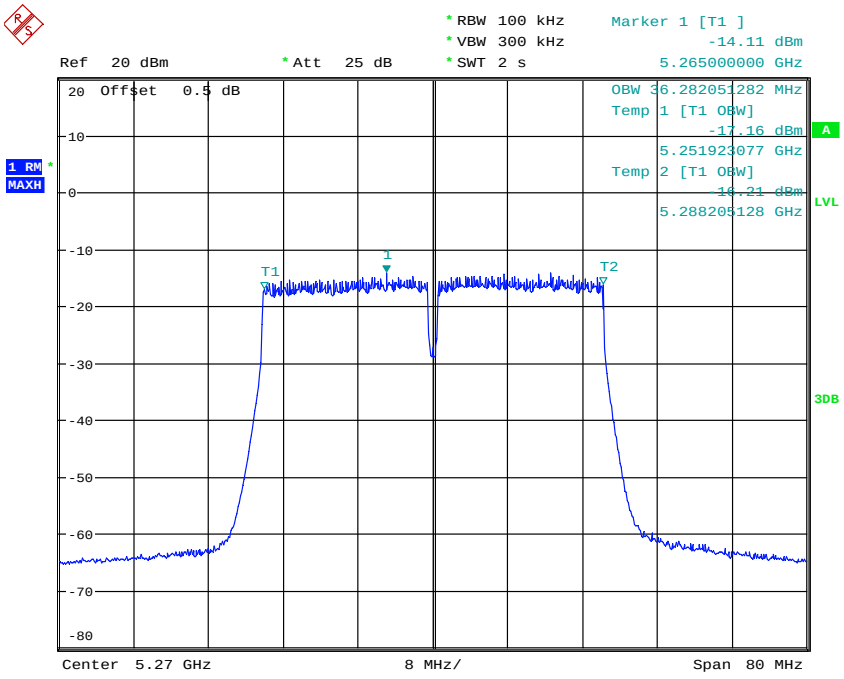
Date: 2.APR.2022 10:29:45

802.11 n20 High



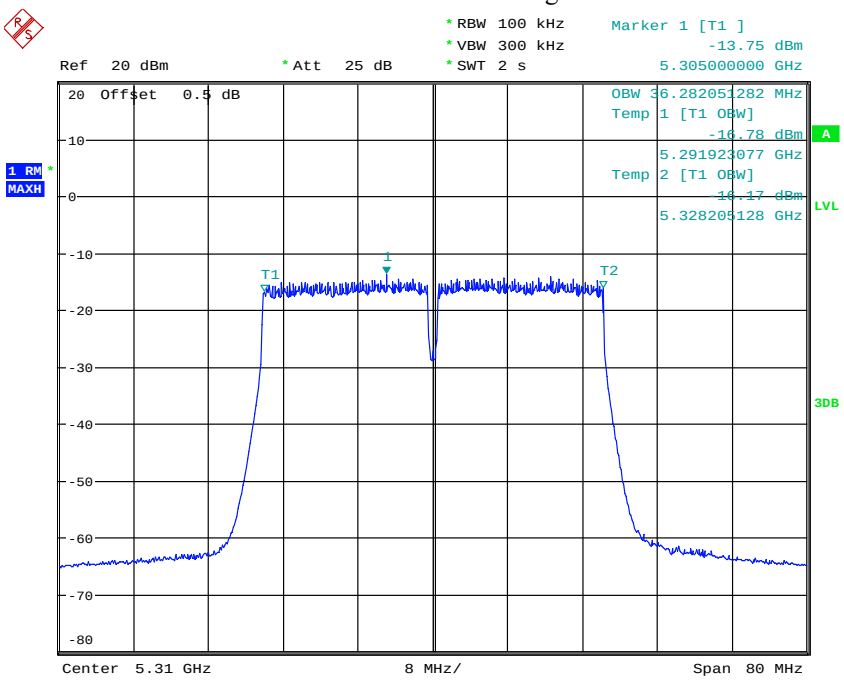
Date: 2.APR.2022 10:30:50

802.11 n40 Low



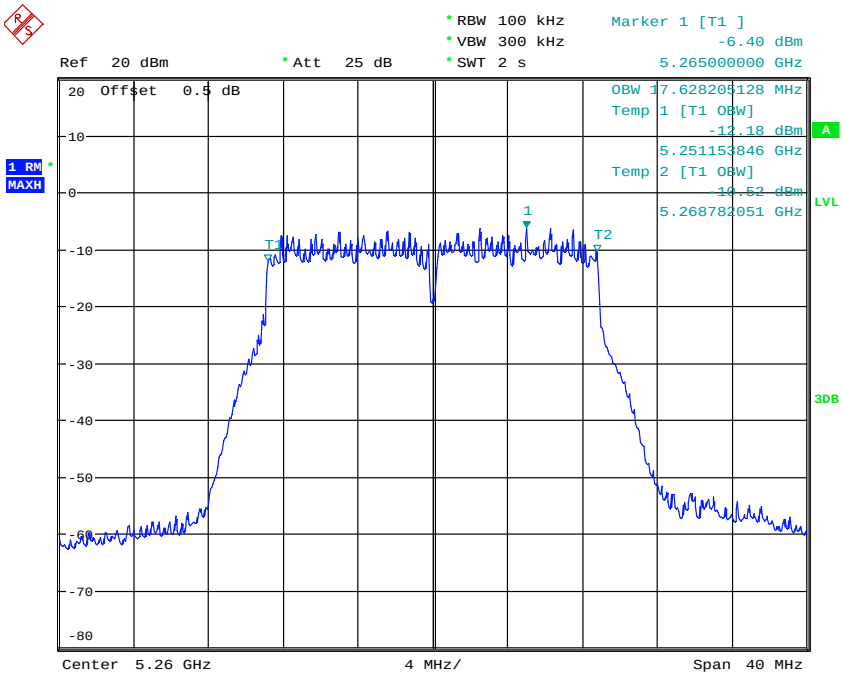
Date: 2.APR.2022 10:34:15

802.11 n40 High



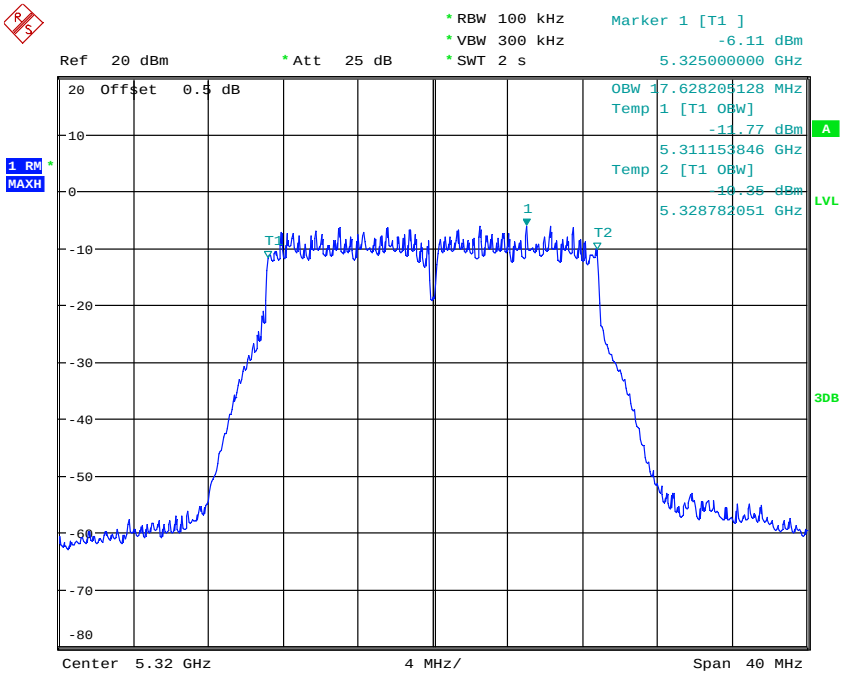
Date: 2.APR.2022 10:35:22

802.11 ac20 Low



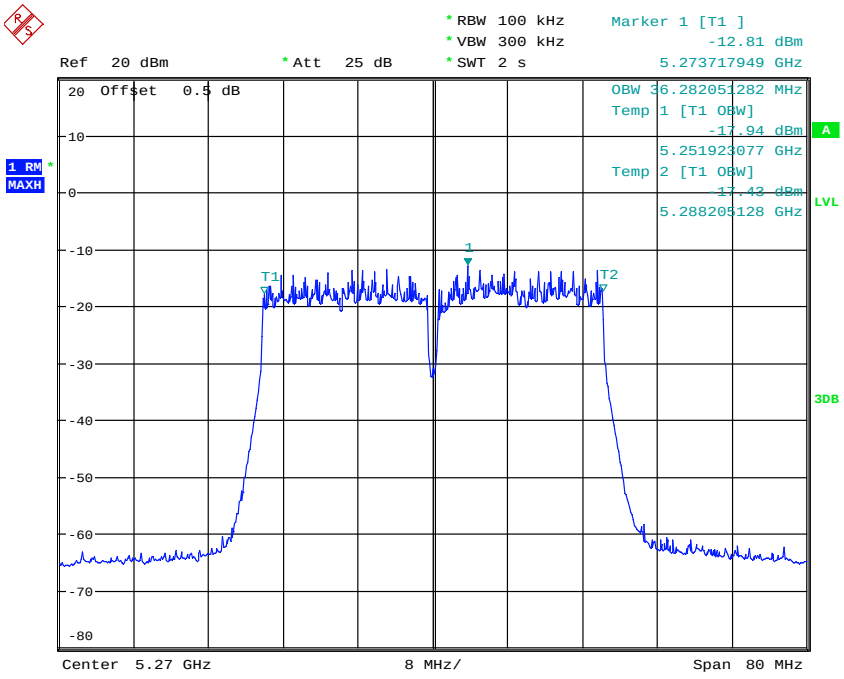
Date: 2.APR.2022 10:36:35

802.11 ac20 High



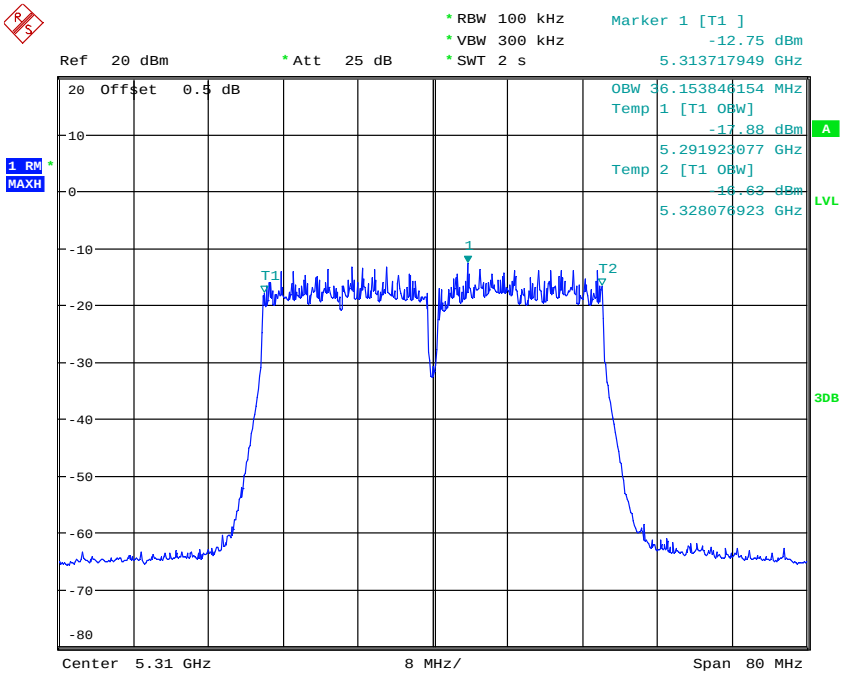
Date: 2.APR.2022 10:37:13

802.11 ac40 Low



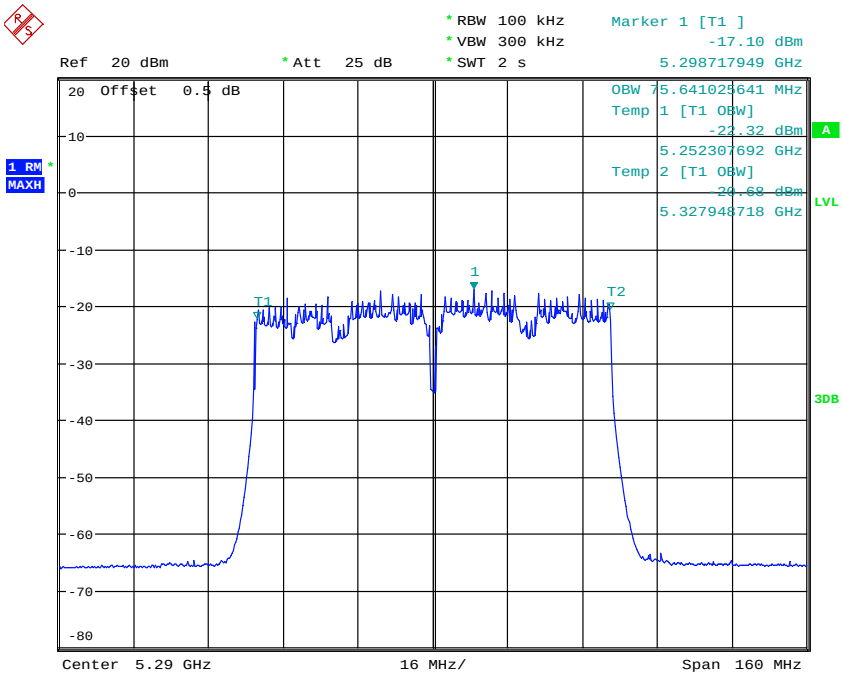
Date: 2.APR.2022 10:38:27

802.11 ac40 High



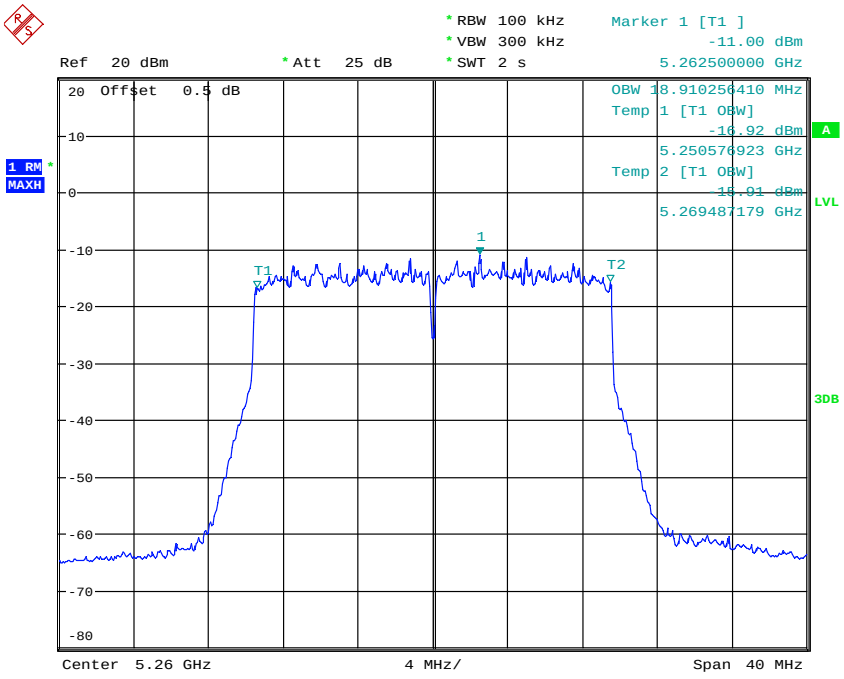
Date: 2.APR.2022 10:39:07

802.11 ac80 Middle



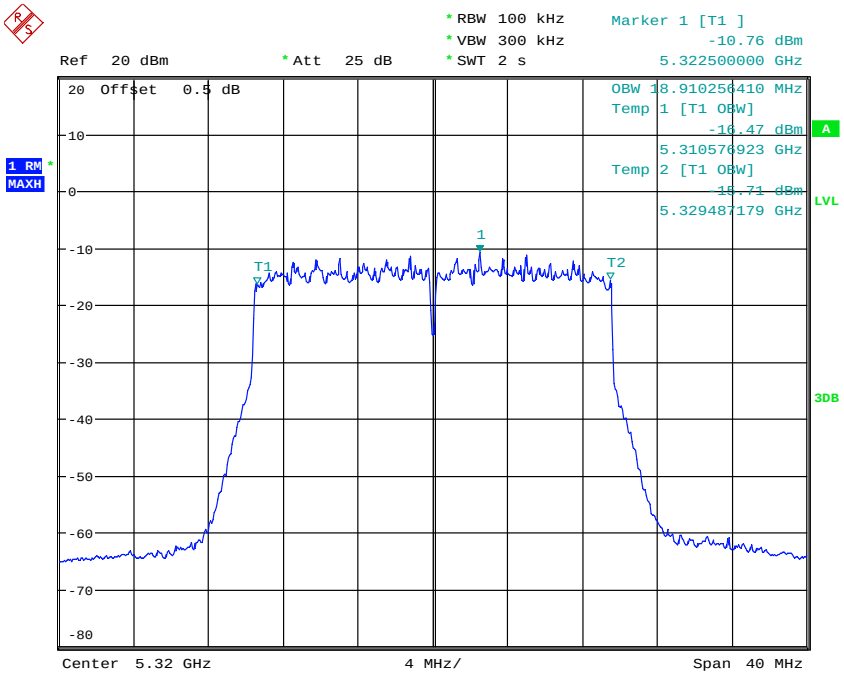
Date: 2.APR.2022 10:41:19

802.11 ax20 Low



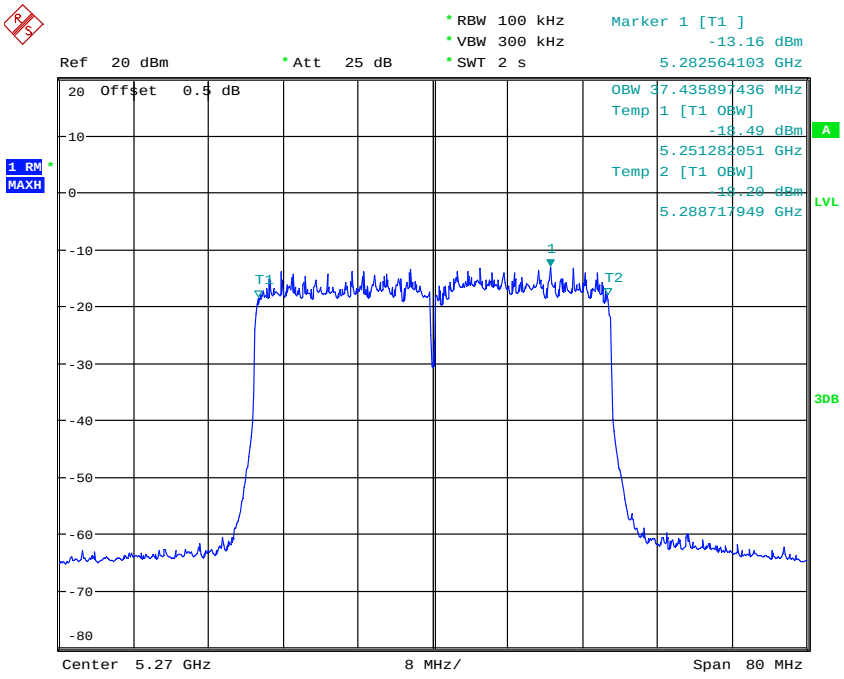
Date: 2.APR.2022 10:51:15

802.11 ax20 High



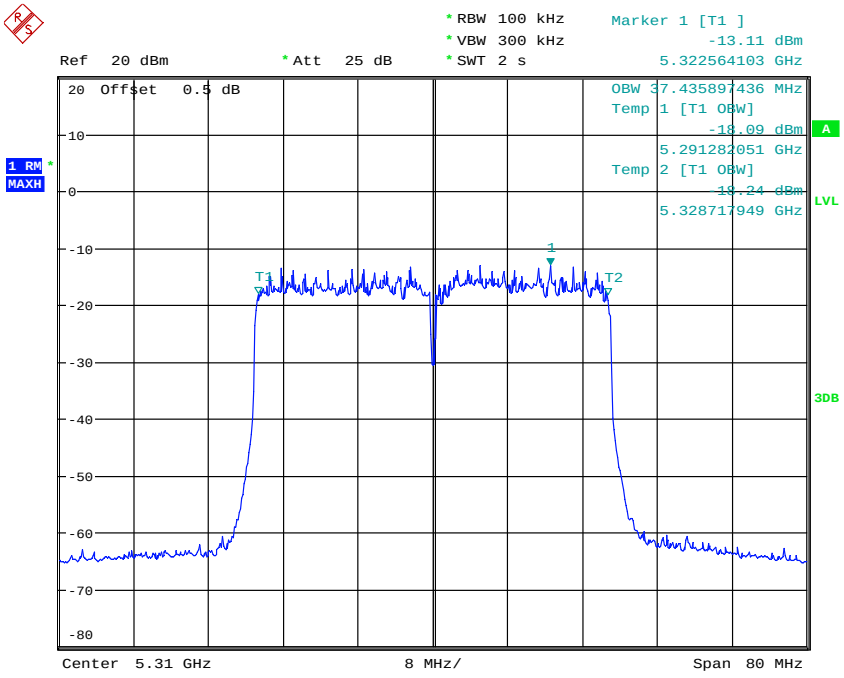
Date: 2.APR.2022 10:51:54

802.11 ax40 Low



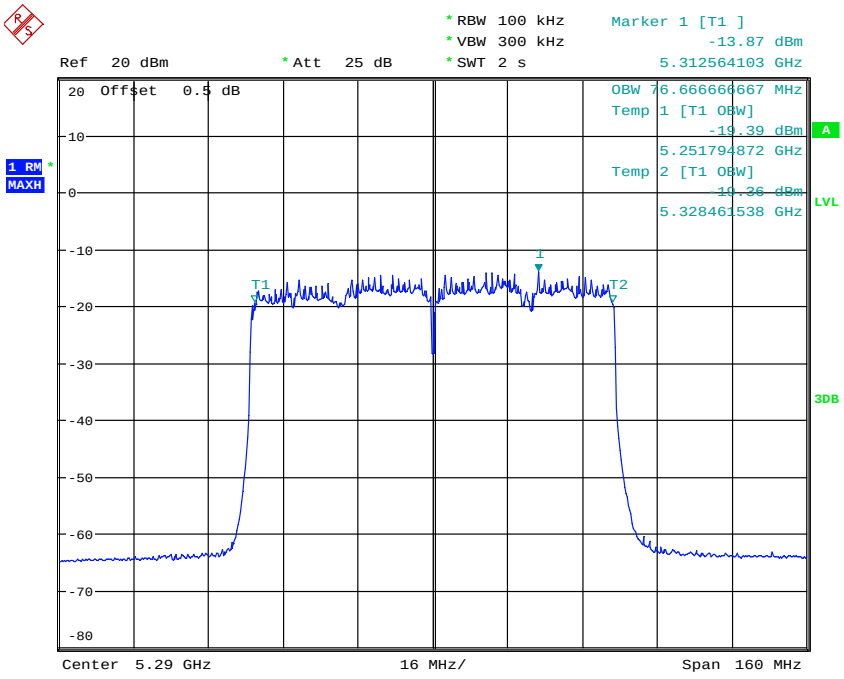
Date: 2.APR.2022 10:53:07

802.11 ax40 High



Date: 2.APR.2022 10:55:07

802.11 ax80 Middle



Date: 2.APR.2022 11:04:20

3 – RF OUTPUT POWER, TRANSMIT POWER CONTROL (TPC), POWER DENSITY

Definition

RF Output Power:

The RF Output Power is the mean equivalent isotropically radiated power (e.i.r.p.) during a transmission burst.

Transmit Power Control (TPC):

Transmit Power Control (TPC) is a mechanism to be used by the RLAN device to ensure a mitigation factor of at least 3 dB on the aggregate power from a large number of devices. This requires the RLAN device to have a TPC range from which the lowest value is at least 6 dB below the values for mean e.i.r.p. given in table 2 for devices with TPC.

Power Density:

The Power Density is the mean Equivalent Isotropically Radiated Power (e.i.r.p.) density during a transmission burst.

Limit

TPC is not required for channels whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MH.

For devices with TPC, the RF output power and the power density when configured to operate at the highest stated power level of the TPC range shall not exceed the levels given in table 2.

Devices are allowed to operate without TPC. See table 2 for the applicable limits in this case.

Table 2: Mean e.i.r.p. limits for RF output power and Power Density at the highest power level (P_H)

Frequency range (MHz)	Mean e.i.r.p. limit for P_H (dBm)		Mean e.i.r.p. density limit (dBm/MHz)	
	with TPC	without TPC	with TPC	without TPC
5 150 to 5 350	23	20/23 (see note 1)	10	7/10 (see note 2)
5 470 to 5 725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

NOTE 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 23 dBm.

NOTE 2: The applicable limit is 7 dBm/MHz, except for transmissions whose nominal bandwidth falls completely within the band 5 150 MHz to 5 250 MHz, in which case the applicable limit is 10 dBm/MHz.

NOTE 3: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the frequency range 5 250 MHz to 5 350 MHz.

Table 3: Mean e.i.r.p. limits for RF Output Power at the lowest power level of the TPC range

Frequency range	Mean e.i.r.p. (dBm) limit for P_L
5 250 MHz to 5 350 MHz	17
5 470 MHz to 5 725 MHz	24 (see note)
NOTE: Slave devices without a *Radar Interference Detection* function shall comply with the limits for the band 5 250 MHz to 5 350 MHz.	

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.4

Test Data

Test Result: *Compliant. Please refer to following table(s).*

RF output power, 802.11 a:

Band (MHz)	Fc (MHz)	Test condition	Conducted output power (dBm)		Result (dBm)		Limit (dBm)
			Chain 0	Chain 1	Chain 0	Chain 1	
5150-5250	5180	NT	10.8	12.11	15.3	16.61	23
		LT	10.76	12.08	15.26	16.58	
		HT	10.73	12.05	15.23	16.55	
	5240	NT	10.2	11.05	14.7	15.55	23
		LT	10.15	11.01	14.65	15.51	
		HT	10.12	10.98	14.62	15.48	
5250-5350	5260	NT	12.81	13.58	17.31	18.08	20
		LT	12.76	13.53	17.26	18.03	
		HT	12.74	13.49	17.24	17.99	
	5320	NT	12.64	13.3	17.14	17.8	20
		LT	12.6	13.25	17.1	17.75	
		HT	12.56	13.21	17.06	17.71	

RF output power, 802.11 n20:

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5180	NT	12.59	14.52	21.17	23
		LT	12.55	14.49	21.14	
		HT	12.51	14.46	21.1	
	5240	NT	12.41	14.7	21.21	23
		LT	12.36	14.67	21.18	
		HT	12.32	14.64	21.14	
5250-5350	5260	NT	7.81	8.72	15.8	20
		LT	7.78	8.69	15.77	
		HT	7.75	8.65	15.73	
	5320	NT	7.63	8.52	15.61	20
		LT	7.61	8.5	15.59	
		HT	7.59	8.48	15.57	

RF output power, 802.11 n40:

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5190	NT	15.03	15.11	22.58	23
		LT	15.01	15.08	22.56	
		HT	14.98	15.06	22.53	
	5230	NT	14.89	15.08	22.5	23
		LT	14.87	15.04	22.47	
		HT	14.85	15.01	22.44	
5250-5350	5270	NT	7.9	8.73	15.85	20
		LT	7.87	8.71	15.82	
		HT	7.84	8.69	15.8	
	5310	NT	7.68	8.41	15.57	20
		LT	7.65	8.39	15.55	
		HT	7.63	8.37	15.53	

RF output power, 802.11 ac20:

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5180	NT	12.68	14.74	21.34	23
		LT	12.66	14.71	21.32	
		HT	12.64	14.68	21.29	
	5240	NT	12.43	14.75	21.25	23
		LT	12.4	14.73	21.23	
		HT	12.38	14.71	21.21	
5250-5350	5260	NT	6.62	8.15	14.96	20
		LT	6.58	8.13	14.93	
		HT	6.54	8.11	14.91	
	5320	NT	6.43	7.88	14.73	20
		LT	6.39	7.86	14.7	
		HT	6.35	7.84	14.67	

RF output power, 802.11 ac40:

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5190	NT	14.85	14.49	22.18	23
		LT	14.82	14.47	22.16	
		HT	14.79	14.45	22.13	
	5230	NT	14.14	14.65	21.91	23
		LT	14.11	14.62	21.88	
		HT	14.08	14.6	21.86	
5250-5350	5270	NT	8.39	8.82	16.12	20
		LT	8.36	8.79	16.09	
		HT	8.33	8.76	16.06	
	5310	NT	8.28	8.6	15.95	20
		LT	8.25	8.56	15.92	
		HT	8.23	8.52	15.89	

RF output power, 802.11 ac80:

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5210	NT	13.46	14.02	21.26	23
		LT	13.43	13.98	21.22	
		HT	13.41	13.94	21.19	
5250-5350	5290	NT	6.33	6.98	14.18	20
		LT	6.3	6.93	14.14	
		HT	6.27	6.89	14.1	

RF output power: 802.11 802.11 ac160

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5250	NT	13.36	13.45	20.92	23
		LT	13.34	13.41	20.89	
		HT	13.32	13.38	20.86	
5250-5350	5250	NT	11.78	12.01	19.41	20
		LT	11.75	11.98	19.38	
		HT	11.72	11.95	19.35	

RF output power: 802.11 802.11 ax20

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5180	NT	14.83	15.18	22.52	23
		LT	14.8	15.16	22.49	
		HT	14.77	15.14	22.47	
	5240	NT	14.11	16.13	22.75	23
		LT	14.08	16.11	22.72	
		HT	14.05	16.09	22.7	
5250-5350	5260	NT	7.44	7.26	14.86	20
		LT	7.4	7.23	14.83	
		HT	7.36	7.2	14.79	
	5320	NT	7.41	7.11	14.77	20
		LT	7.37	7.07	14.73	
		HT	7.34	7.06	14.71	

RF output power: 802.11 802.11 ax40

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5190	NT	15.08	15.12	22.61	23
		LT	15.26	15.28	22.78	
		HT	15.04	15.44	22.75	
	5230	NT	15.08	15.18	22.64	23
		LT	15.05	15.16	22.62	
		HT	15.02	15.15	22.6	
5250-5350	5270	NT	7.51	7.96	15.25	20
		LT	7.49	7.93	15.23	
		HT	7.47	7.9	15.2	
	5310	NT	7.69	7.86	15.29	20
		LT	7.66	7.83	15.26	
		HT	7.63	7.81	15.23	

RF output power: 802.11 802.11 ax80

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5210	NT	14.83	15.12	22.49	23
		LT	14.8	15.08	22.45	
		HT	14.78	15.65	22.75	
5250-5350	5290	NT	9.93	9.57	17.26	20
		LT	9.91	9.54	17.24	
		HT	9.89	9.52	17.22	

RF output power: 802.11 802.11 ax160

Band (MHz)	Fc (MHz)	Test condition	Result (dBm)			Limit (dBm)
			Chain 0	Chain 1	Total	
5150-5250	5250	NT	14.41	14.19	21.81	23
		LT	14.39	14.16	21.79	
		HT	14.36	14.14	21.76	
5250-5350	5250	NT	12.35	12.06	19.72	20
		LT	12.32	12.03	19.69	
		HT	12.3	12.01	19.67	

Note: The antenna Gain was added into the result.

Power Density:

Band (MHz)	Mode	Fc (MHz)	Conducted power density (dBm/MHz)		Result (dBm/MHz)		Limit (dBm/MHz)
			Chain 0	Chain 1	Chain 0	Chain 1	
5150-5250	802.11 a	5180	3.51	4.38	8.15	9.02	10
		5240	3.34	4.36	7.98	9.00	
	802.11 n20	5180	0.39	2.67	9.57		
		5240	0.53	2.57	9.56		
	802.11 n40	5190	-0.01	-0.13	8.12		
		5230	-0.40	-0.25	7.87		
	802.11 ac20	5180	0.53	2.64	9.99		
		5240	0.58	2.62	10.00		
	802.11 ac40	5190	-0.11	0.17	8.72		
		5230	-0.12	0.23	8.74		
	802.11 ac80	5210	-3.33	-2.66	6.00		
	802.11 ac160	5250	-6.14	-9.30	1.66		
	802.11 ax20	5180	1.37	0.11	9.11		
		5240	1.34	-0.56	8.82		
	802.11 ax40	5190	0.09	0.02	8.32		
		5230	-0.12	0.18	8.29		
	802.11 ax80	5210	-3.33	-2.50	5.72		
	802.11 ax160	5250	-5.88	-5.70	2.93		
5250-5350	802.11 a	5260	1.22	1.49	5.86	6.13	7
		5320	1.49	1.68	6.13	6.32	
	802.11 n20	5260	-4.38	-7.37	2.27		
		5320	-3.83	-7.82	2.51		
	802.11 n40	5270	-5.76	-5.39	2.62		
		5310	-5.41	-5.53	2.72		
	802.11 ac20	5260	-4.46	-7.15	2.68		
		5320	-3.98	-6.76	3.13		
	802.11 ac40	5270	-6.03	-5.82	2.76		
		5310	-6.07	-5.25	3.04		
	802.11 ac80	5290	-5.91	-6.55	2.76		
	802.11 ac160	5250	-7.62	-7.97	1.31		
	802.11 ax20	5260	-4.04	-7.98	2.74		
		5320	-3.71	-7.25	3.19		
	802.11 ax40	5270	-5.19	-5.43	2.95		
		5310	-6.38	-5.38	2.41		
	802.11 ax80	5290	-5.92	-6.11	2.60		
	802.11 ax160	5250	-8.88	-7.95	0.33		

Note:
1, The antenna gain and duty cycle factor were added into the result.
2, Duty cycle factor = 10*log(1/duty cycle)

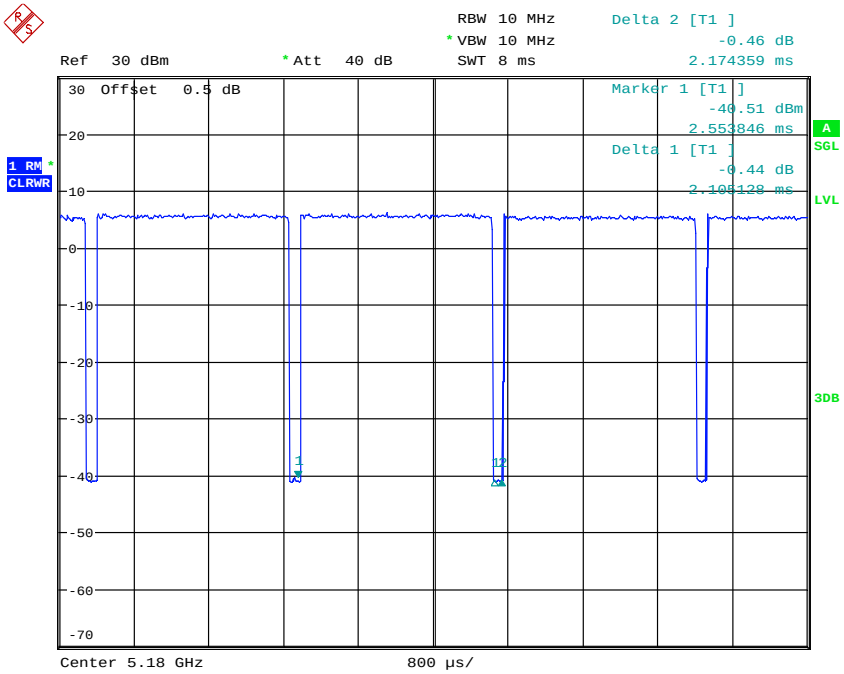
Duty Cycle:

Mode	Ton (ms)	Toff (ms)	Duty Cycle(%)	Duty Cycle Factor (dB)
802.11 a	2.105	2.174	96.83	0.14
802.11 n20	1.009	1.101	91.64	0.38
802.11 n40	0.508	0.594	85.52	0.68
802.11 ac20	0.129	0.154	83.77	0.77
802.11 ac40	0.087	0.114	76.32	1.17
802.11 ac80	0.067	0.094	71.28	1.47
802.11 ac160	0.061	0.088	69.32	1.59
802.11 ax20	0.141	0.170	82.94	0.81
802.11 ax40	0.143	0.170	84.12	0.75
802.11 ax80	0.097	0.125	77.60	1.10
802.11 ax160	0.084	0.111	75.68	1.21

Duty Cycle:

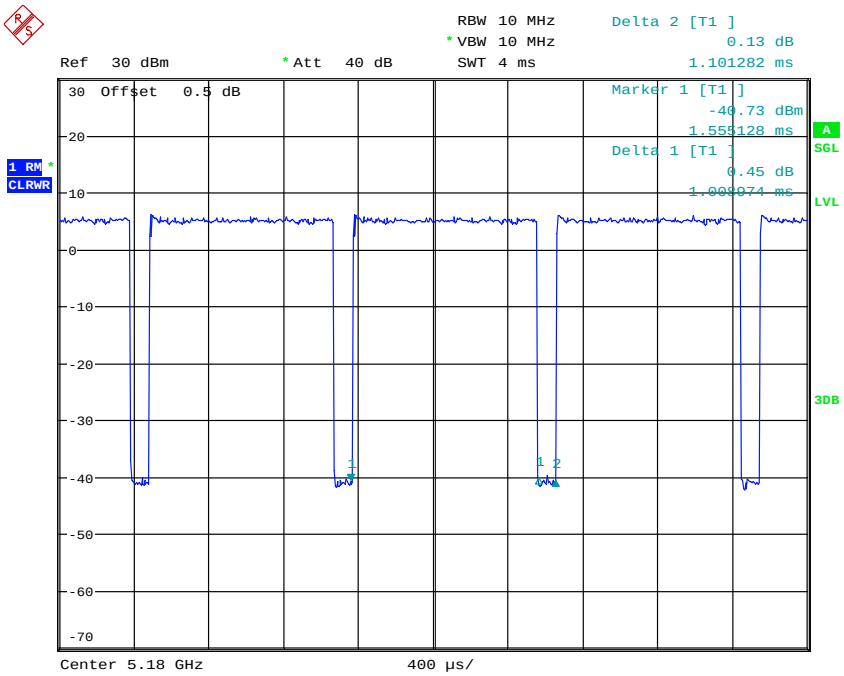
5150-5250MHz

802.11 a



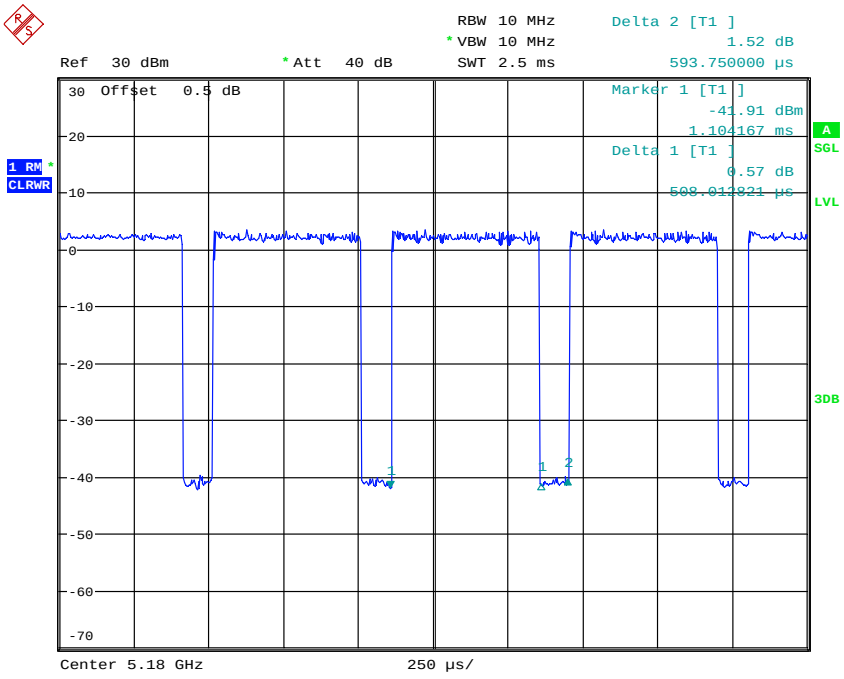
Date: 21.MAR.2022 19:02:15

802.11 n20



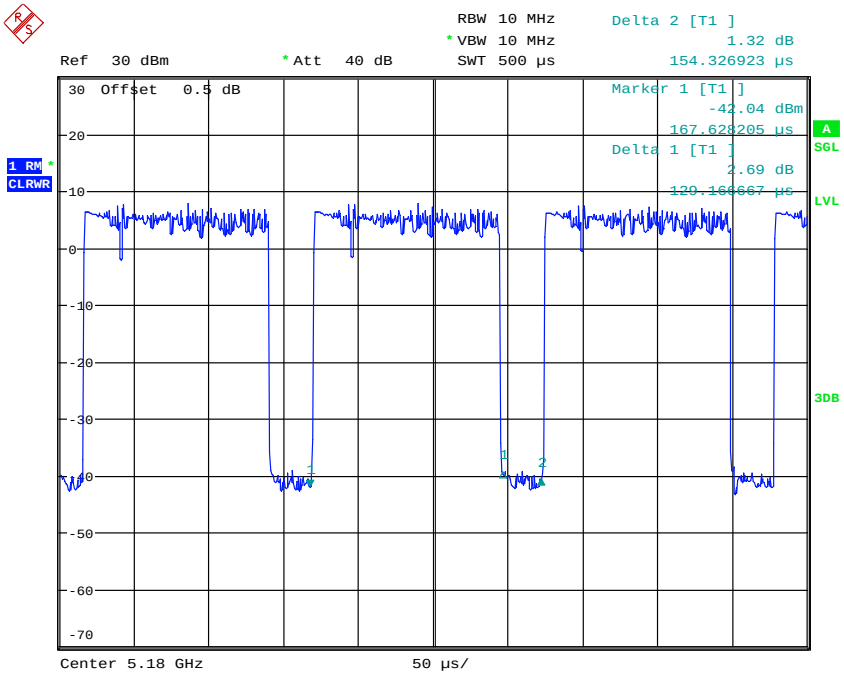
Date: 21.MAR.2022 19:13:35

802.11n40



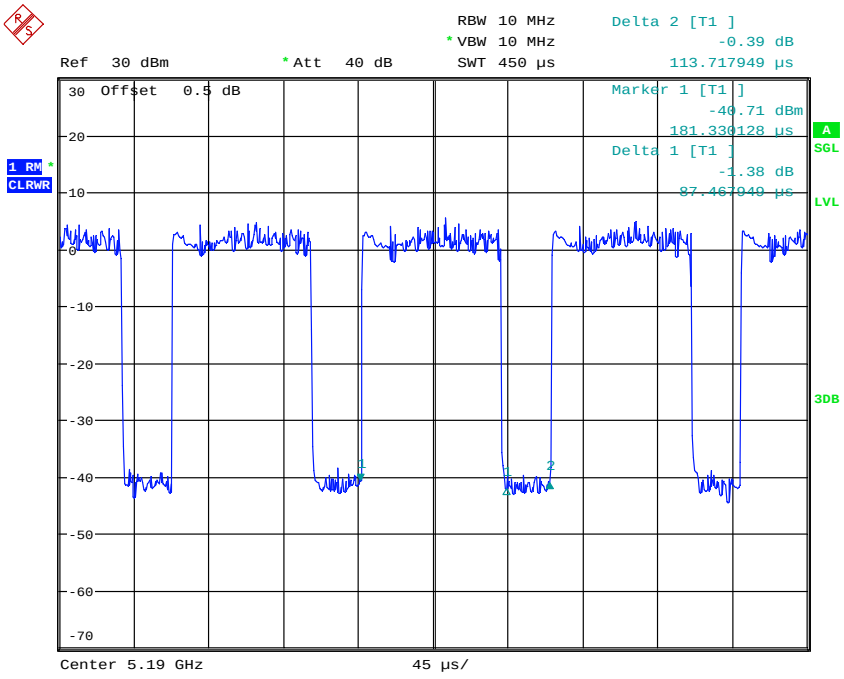
Date: 21.MAR.2022 19:15:54

802.11 ac20



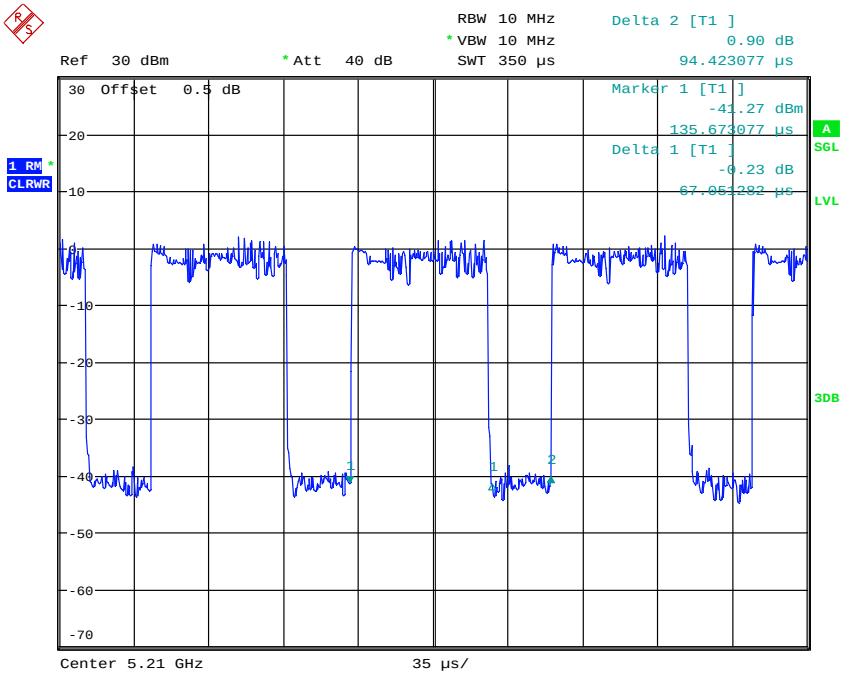
Date: 21.MAR.2022 19:18:59

802.11 ac40



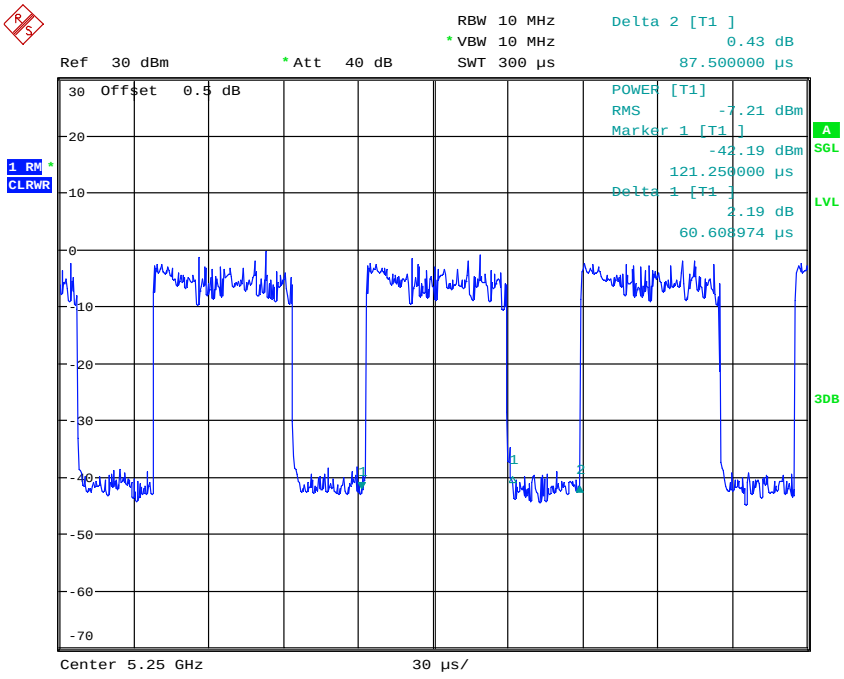
Date: 21.MAR.2022 19:20:57

802.11 ac80



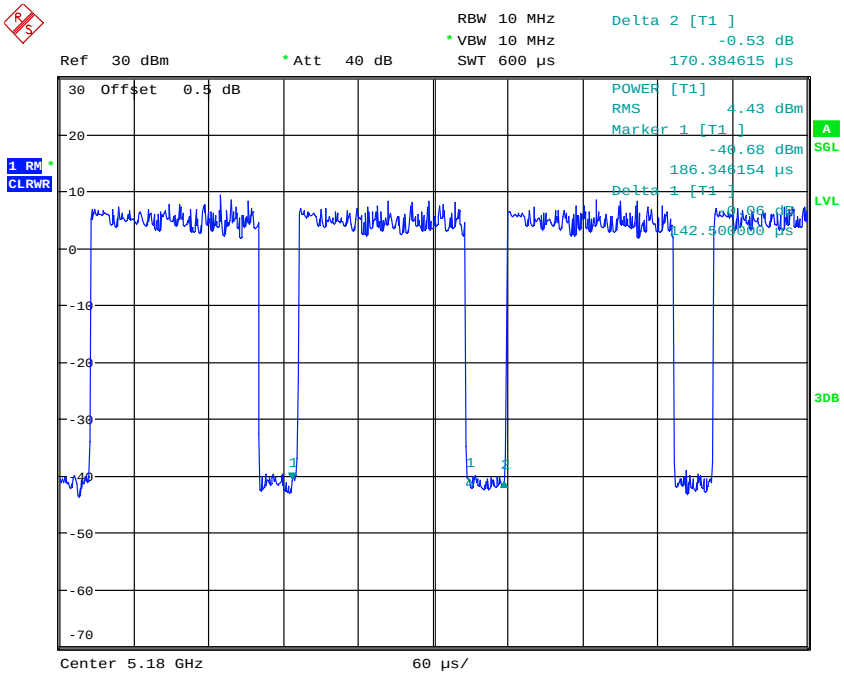
Date: 21.MAR.2022 19:23:29

802.11 ac160



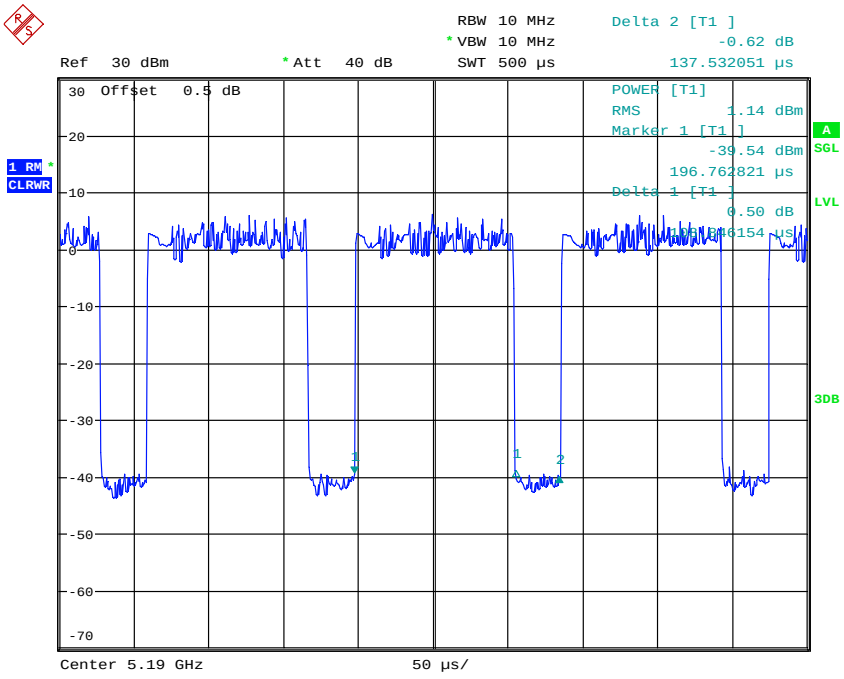
Date: 21.MAR.2022 19:27:11

802.11 ax20



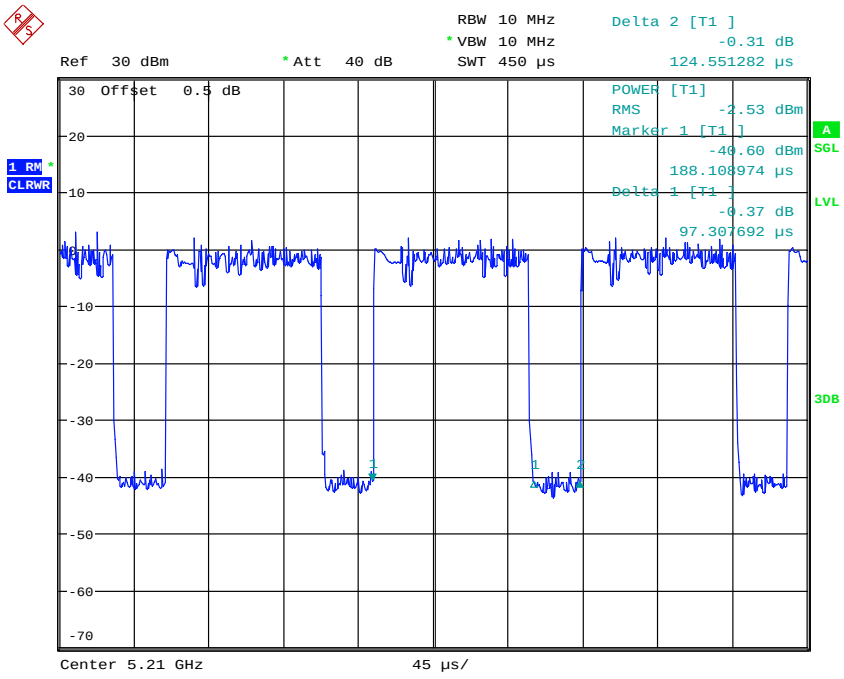
Date: 21.MAR.2022 19:34:12

802.11 ax40



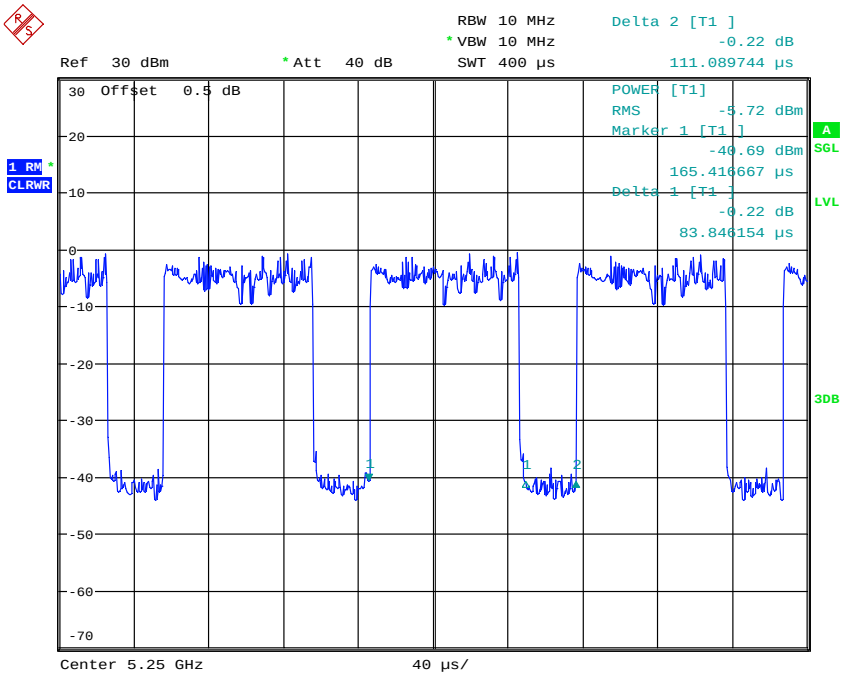
Date: 21.MAR.2022 19:36:11

802.11 ax80



Date: 21.MAR.2022 19:39:08

802.11 ax160



Date: 21.MAR.2022 19:42:01

4 – TRANSMITTER UNWANTED EMISSIONS OUTSIDE THE 5 GHZ RLAN BANDS

Definition

Transmitter unwanted emissions outside the 5 GHz RLAN bands are radio frequency emissions outside the 5 GHz RLAN bands defined in clause 3.1.

Limit

The level of transmitter unwanted emissions outside the 5 GHz RLAN bands shall not exceed the limits given in table 4.

Table 4: Transmitter unwanted emission limits outside the 5 GHz RLAN bands

Frequency range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 5,15 GHz	-30 dBm	1 MHz
5,35 GHz to 5,47 GHz	-30 dBm	1 MHz
5,725 GHz to 26 GHz	-30 dBm	1 MHz

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.5

Test Data

Test Result: *Compliant. Please refer to following tables.*

802.11 a_Chain 0 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10360.00	H	36.12	-50.96	13.48	0.40	-37.88	-30.00	7.88
10360.00	V	36.33	-50.19	13.48	0.40	-37.11	-30.00	7.11
5710.00	H	36.56	-57.30	13.92	1.33	-44.71	-30.00	14.71
4900.00	V	39.64	-55.26	13.90	1.46	-42.82	-30.00	12.82
89.35	H	48.66	-62.15	0.00	0.19	-62.34	-54.00	8.34
61.60	V	54.10	-51.42	-9.45	0.17	-61.04	-54.00	7.04

802.11 a_Chain 0 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10480.00	H	36.45	-50.59	13.32	0.30	-37.57	-30.00	7.57
10480.00	V	36.23	-50.07	13.32	0.30	-37.05	-30.00	7.05
88.45	H	48.87	-61.62	0.00	0.19	-61.81	-54.00	7.81
58.32	V	55.78	-47.83	-11.07	0.17	-59.07	-54.00	5.07

802.11 a_Chain 1 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10360.00	H	36.06	-51.02	13.48	0.40	-37.94	-30.00	7.94
10360.00	V	36.22	-50.30	13.48	0.40	-37.22	-30.00	7.22
6476.00	H	36.39	-55.64	13.52	1.68	-43.80	-30.00	13.80
6476.00	V	39.93	-52.18	13.52	1.68	-40.34	-30.00	10.34
87.63	H	47.33	-62.86	0.00	0.19	-63.05	-54.00	9.05
60.25	V	53.22	-52.13	-10.17	0.17	-62.47	-54.00	8.47

802.11 a_Chain 1 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10480.00	H	36.09	-50.95	13.32	0.30	-37.93	-30.00	7.93
10480.00	V	36.87	-49.43	13.32	0.30	-36.41	-30.00	6.41
88.57	H	50.14	-60.39	0.00	0.19	-60.58	-54.00	6.58
60.24	V	54.24	-51.11	-10.17	0.17	-61.45	-54.00	7.45

802.11 a_Chain 0 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10520.00	H	36.54	-50.49	13.24	0.30	-37.55	-30.00	7.55
10520.00	V	36.42	-49.85	13.24	0.30	-36.91	-30.00	6.91
88.41	H	50.33	-60.14	0.00	0.19	-60.33	-54.00	6.33
59.41	V	55.14	-49.58	-10.57	0.17	-60.32	-54.00	6.32

802.11 a_Chain 0 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10640.00	H	36.06	-50.98	13.04	0.43	-38.37	-30.00	8.37
10640.00	V	36.24	-50.08	13.04	0.43	-37.47	-30.00	7.47
88.34	H	51.31	-59.14	0.00	0.19	-59.33	-54.00	5.33
60.11	V	55.41	-49.92	-10.24	0.17	-60.33	-54.00	6.33

802.11 a_Chain 1 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10520.00	H	36.28	-50.75	13.24	0.30	-37.81	-30.00	7.81
10520.00	V	36.03	-50.24	13.24	0.30	-37.30	-30.00	7.30
88.74	H	50.11	-60.48	0.00	0.19	-60.67	-54.00	6.67
58.99	V	55.43	-48.86	-10.76	0.17	-59.79	-54.00	5.79

802.11 a_Chain 1 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10640.00	H	36.32	-50.72	13.04	0.43	-38.11	-30.00	8.11
10640.00	V	36.35	-49.97	13.04	0.43	-37.36	-30.00	7.36
88.56	H	51.33	-59.20	0.00	0.19	-59.39	-54.00	5.39
60.22	V	55.63	-49.72	-10.18	0.17	-60.07	-54.00	6.07

802.11 n20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10360.00	H	36.14	-50.94	13.48	0.40	-37.86	-30.00	7.86
10360.00	V	36.25	-50.27	13.48	0.40	-37.19	-30.00	7.19
6476.00	H	36.91	-55.12	13.52	1.68	-43.28	-30.00	13.28
6476.00	V	39.87	-52.24	13.52	1.68	-40.40	-30.00	10.40
88.69	H	49.85	-60.72	0.00	0.19	-60.91	-54.00	6.91
60.24	V	50.41	-54.94	-10.17	0.17	-65.28	-54.00	11.28

802.11 n20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10480.00	H	36.07	-50.97	13.32	0.30	-37.95	-30.00	7.95
10480.00	V	37.12	-49.18	13.32	0.30	-36.16	-30.00	6.16
88.24	H	50.66	-59.75	0.00	0.19	-59.94	-54.00	5.94
61.97	V	51.18	-54.38	-9.26	0.17	-63.81	-54.00	9.81

802.11 n20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10520.00	H	36.25	-50.78	13.24	0.30	-37.84	-30.00	7.84
10520.00	V	36.47	-49.80	13.24	0.30	-36.86	-30.00	6.86
88.36	H	51.44	-59.01	0.00	0.19	-59.20	-54.00	5.20
60.69	V	50.41	-54.99	-9.93	0.17	-65.09	-54.00	11.09

802.11 n20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10640.00	H	36.19	-50.85	13.04	0.43	-38.24	-30.00	8.24
10640.00	V	37.26	-49.06	13.04	0.43	-36.45	-30.00	6.45
88.43	H	52.22	-58.26	0.00	0.19	-58.45	-54.00	4.45
61.11	V	51.27	-54.19	-9.71	0.17	-64.07	-54.00	10.07

802.11 n40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10380.00	H	36.85	-50.23	13.44	0.38	-37.17	-30.00	7.17
10380.00	V	36.38	-50.11	13.44	0.38	-37.05	-30.00	7.05
5710.00	H	36.12	-57.74	13.92	1.33	-45.15	-30.00	15.15
4840.00	V	41.07	-54.65	14.14	1.53	-42.04	-30.00	12.04
88.96	H	51.14	-59.53	0.00	0.19	-59.72	-54.00	5.72
63.20	V	50.24	-55.47	-8.60	0.17	-64.24	-54.00	10.24

802.11 n40 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10460.00	H	36.22	-50.83	13.34	0.31	-37.80	-30.00	7.80
10460.00	V	36.35	-49.99	13.34	0.31	-36.96	-30.00	6.96
4910.00	V	40.34	-54.66	13.91	1.46	-42.21	-30.00	12.21
89.36	H	51.24	-59.58	0.00	0.19	-59.77	-54.00	5.77

802.11 n40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10540.00	H	36.04	-50.99	13.18	0.32	-38.13	-30.00	8.13
10540.00	V	36.38	-49.90	13.18	0.32	-37.04	-30.00	7.04
87.96	H	50.25	-60.06	0.00	0.19	-60.25	-54.00	6.25
60.36	V	50.33	-55.03	-10.11	0.17	-65.31	-54.00	11.31

802.11 n40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10620.00	H	36.11	-50.93	13.02	0.41	-38.32	-30.00	8.32
10620.00	V	36.47	-49.84	13.02	0.41	-37.23	-30.00	7.23
88.57	H	50.30	-60.23	0.00	0.19	-60.42	-54.00	6.42
61.24	V	51.33	-54.14	-9.64	0.17	-63.95	-54.00	9.95

802.11 ac20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10360.00	H	36.33	-50.75	13.48	0.40	-37.67	-30.00	7.67
10360.00	V	36.28	-50.24	13.48	0.40	-37.16	-30.00	7.16
88.19	H	49.86	-60.53	0.00	0.19	-60.72	-54.00	6.72
59.68	V	50.27	-54.72	-10.45	0.17	-65.34	-54.00	11.34

802.11 ac20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10480.00	H	36.03	-51.01	13.32	0.30	-37.99	-30.00	7.99
10480.00	V	36.55	-49.75	13.32	0.30	-36.73	-30.00	6.73
89.47	H	50.39	-60.47	0.00	0.19	-60.66	-54.00	6.66
60.98	V	51.88	-53.56	-9.78	0.17	-63.51	-54.00	9.51

802.11 ac20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10520.00	H	36.24	-50.79	13.24	0.30	-37.85	-30.00	7.85
10520.00	V	36.45	-49.82	13.24	0.30	-36.88	-30.00	6.88
89.65	H	50.33	-60.59	0.00	0.19	-60.78	-54.00	6.78
58.44	V	51.28	-52.45	-11.02	0.17	-63.64	-54.00	9.64

802.11 ac20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10640.00	H	36.29	-50.75	13.04	0.43	-38.14	-30.00	8.14
10640.00	V	36.48	-49.84	13.04	0.43	-37.23	-30.00	7.23
88.74	H	52.66	-57.93	0.00	0.19	-58.12	-54.00	4.12
60.38	V	53.30	-52.07	-10.10	0.17	-62.34	-54.00	8.34

802.11 ac40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10380.00	H	36.26	-50.82	13.44	0.38	-37.76	-30.00	7.76
10380.00	V	36.51	-49.98	13.44	0.38	-36.92	-30.00	6.92
88.74	H	49.74	-60.85	0.00	0.19	-61.04	-54.00	7.04
62.18	V	48.77	-56.82	-9.14	0.17	-66.13	-54.00	12.13

802.11 ac40 **5230 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10460.00	H	36.44	-50.61	13.34	0.31	-37.58	-30.00	7.58
10460.00	V	36.71	-49.63	13.34	0.31	-36.60	-30.00	6.60
87.94	H	50.11	-60.19	0.00	0.19	-60.38	-54.00	6.38
60.35	V	49.90	-55.46	-10.11	0.17	-65.74	-54.00	11.74

802.11 ac40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10540.00	H	36.53	-50.50	13.18	0.32	-37.64	-30.00	7.64
10540.00	V	36.89	-49.39	13.18	0.32	-36.53	-30.00	6.53
89.36	H	47.44	-63.38	0.00	0.19	-63.57	-54.00	9.57
58.47	V	48.00	-55.76	-11.00	0.17	-66.93	-54.00	12.93

802.11 ac40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10620.00	H	36.28	-50.76	13.02	0.41	-38.15	-30.00	8.15
10620.00	V	36.36	-49.95	13.02	0.41	-37.34	-30.00	7.34
88.88	H	49.14	-61.50	0.00	0.19	-61.69	-54.00	7.69
64.52	V	49.82	-56.06	-7.90	0.17	-64.13	-54.00	10.13

802.11 ac80 **5210 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10420.00	H	36.06	-51.00	13.38	0.35	-37.97	-30.00	7.97
10420.00	V	36.71	-49.70	13.38	0.35	-36.67	-30.00	6.67
87.90	H	51.24	-59.05	0.00	0.19	-59.24	-54.00	5.24
59.60	V	48.95	-55.96	-10.48	0.17	-66.61	-54.00	12.61

802.11 ac80 **5290 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10580.00	H	36.21	-50.83	13.06	0.37	-38.14	-30.00	8.14
10580.00	V	36.58	-49.71	13.06	0.37	-37.02	-30.00	7.02
89.68	H	52.22	-58.71	0.00	0.19	-58.90	-54.00	4.90
60.38	V	51.24	-54.13	-10.10	0.17	-64.40	-54.00	10.40

802.11 ac160 **5250 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10500.00	H	36.15	-50.88	13.30	0.28	-37.86	-30.00	7.86
10500.00	V	36.36	-49.90	13.30	0.28	-36.88	-30.00	6.88
88.42	H	52.65	-57.82	0.00	0.19	-58.01	-54.00	4.01
57.55	V	52.96	-49.87	-11.43	0.17	-61.47	-54.00	7.47

802.11 ax20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10360.00	H	36.59	-50.49	13.48	0.40	-37.41	-30.00	7.41
10360.00	V	36.42	-50.10	13.48	0.40	-37.02	-30.00	7.02
87.51	H	50.11	-60.03	0.00	0.19	-60.22	-54.00	6.22
62.98	V	51.47	-54.22	-8.72	0.17	-63.11	-54.00	9.11

802.11 ax20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10480.00	H	36.52	-50.52	13.32	0.30	-37.50	-30.00	7.50
10480.00	V	36.59	-49.71	13.32	0.30	-36.69	-30.00	6.69
87.55	H	51.29	-58.87	0.00	0.19	-59.06	-54.00	5.06
62.84	V	52.30	-53.37	-8.79	0.17	-62.33	-54.00	8.33

802.11 ax20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10520.00	H	36.08	-50.95	13.24	0.30	-38.01	-30.00	8.01
10520.00	V	36.11	-50.16	13.24	0.30	-37.22	-30.00	7.22
89.41	H	49.74	-61.10	0.00	0.19	-61.29	-54.00	7.29
58.96	V	51.41	-52.85	-10.78	0.17	-63.80	-54.00	9.80

802.11 ax20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10640.00	H	36.39	-50.65	13.04	0.43	-38.04	-30.00	8.04
10640.00	V	36.57	-49.75	13.04	0.43	-37.14	-30.00	7.14
88.22	H	50.34	-60.06	0.00	0.19	-60.25	-54.00	6.25
60.36	V	52.20	-53.16	-10.11	0.17	-63.44	-54.00	9.44

802.11 ax40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10380.00	H	36.04	-51.04	13.44	0.38	-37.98	-30.00	7.98
10380.00	V	36.05	-50.44	13.44	0.38	-37.38	-30.00	7.38
88.98	H	48.96	-61.72	0.00	0.19	-61.91	-54.00	7.91
60.33	V	50.15	-55.21	-10.13	0.17	-65.51	-54.00	11.51

802.11 ax40 **5230 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10460.00	H	36.35	-50.70	13.34	0.31	-37.67	-30.00	7.67
10460.00	V	36.48	-49.86	13.34	0.31	-36.83	-30.00	6.83
87.96	H	49.85	-60.46	0.00	0.19	-60.65	-54.00	6.65
57.85	V	49.87	-53.26	-11.29	0.17	-64.72	-54.00	10.72

802.11 ax40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10540.00	H	36.56	-50.47	13.18	0.32	-37.61	-30.00	7.61
10540.00	V	36.33	-49.95	13.18	0.32	-37.09	-30.00	7.09
87.98	H	50.42	-59.89	0.00	0.19	-60.08	-54.00	6.08
58.74	V	50.14	-53.90	-10.88	0.17	-64.95	-54.00	10.95

802.11 ax40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10620.00	H	36.82	-50.22	13.02	0.41	-37.61	-30.00	7.61
10620.00	V	36.74	-49.57	13.02	0.41	-36.96	-30.00	6.96
87.70	H	49.85	-60.36	0.00	0.19	-60.55	-54.00	6.55
63.33	V	48.75	-56.98	-8.54	0.17	-65.69	-54.00	11.69

802.11 ax80 **5210 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10420.00	H	36.59	-50.47	13.38	0.35	-37.44	-30.00	7.44
10420.00	V	36.28	-50.13	13.38	0.35	-37.10	-30.00	7.10
88.17	H	50.14	-60.24	0.00	0.19	-60.43	-54.00	6.43
64.52	V	49.91	-55.97	-7.90	0.17	-64.04	-54.00	10.04

802.11 ax80 **5290 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10580.00	H	36.45	-50.59	13.06	0.37	-37.90	-30.00	7.90
10580.00	V	36.71	-49.58	13.06	0.37	-36.89	-30.00	6.89
88.52	H	50.28	-60.23	0.00	0.19	-60.42	-54.00	6.42
60.34	V	51.89	-53.47	-10.12	0.17	-63.76	-54.00	9.76

802.11 ax160 **5250 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
10500.00	H	36.82	-50.21	13.30	0.28	-37.19	-30.00	7.19
10500.00	V	36.47	-49.79	13.30	0.28	-36.77	-30.00	6.77
87.51	H	51.25	-58.89	0.00	0.19	-59.08	-54.00	5.08
58.87	V	52.39	-51.78	-10.82	0.17	-62.77	-54.00	8.77

Note 1:The unit of antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz.
Note 2:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

5 – TRANSMITTER UNWANTED EMISSIONS WITHIN THE 5 GHZ RLAN BANDS

Definition

Transmitter unwanted emissions within the 5 GHz RLAN bands are radio frequency emissions within the 5 GHz RLAN bands defined in clause 3.1.

Limit

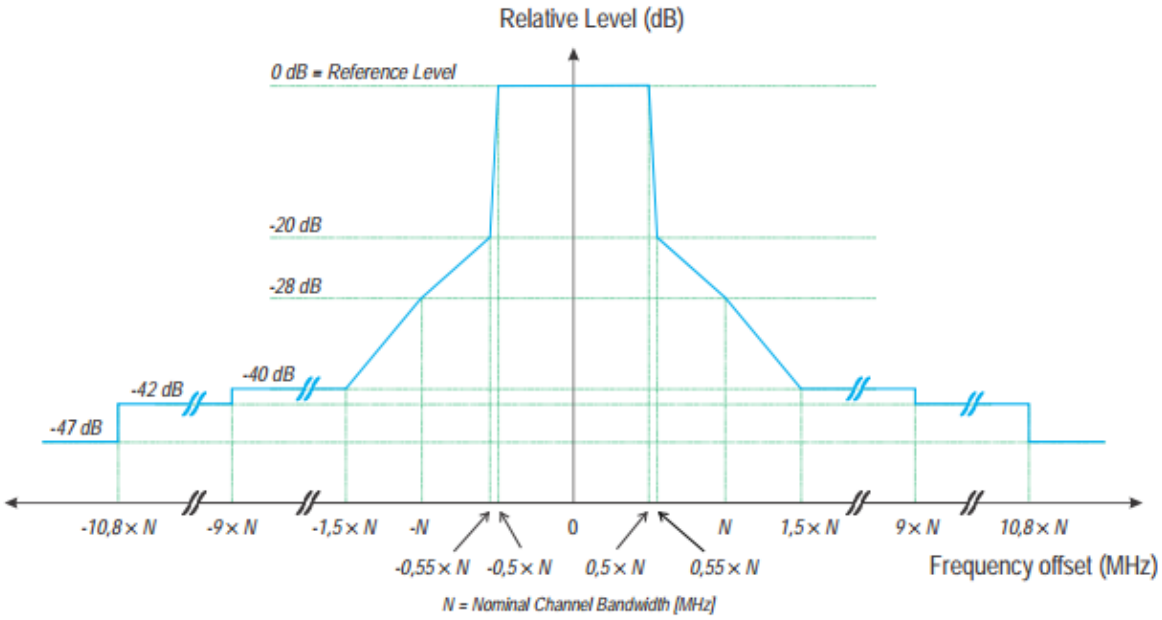


Figure 1: Transmit spectral power mask

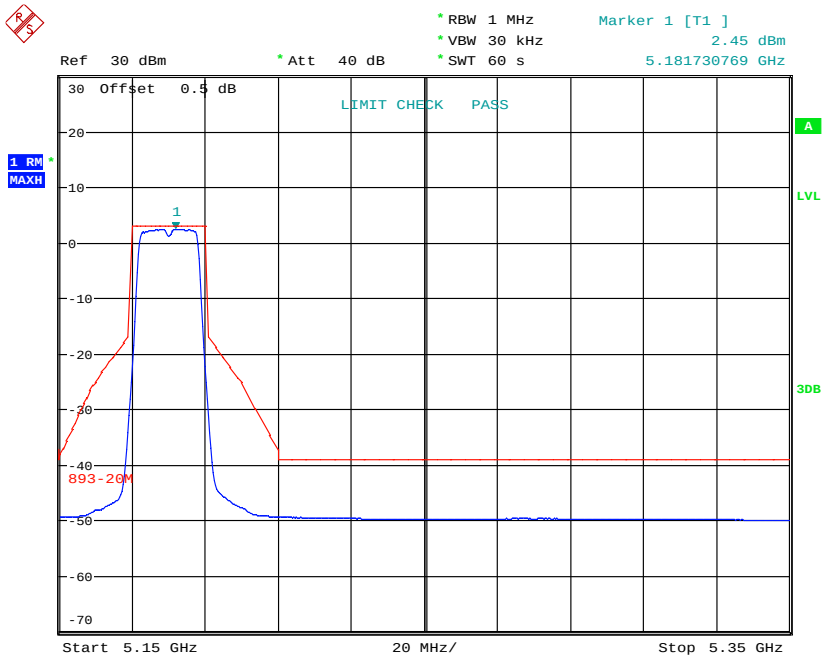
Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.6

Test Data

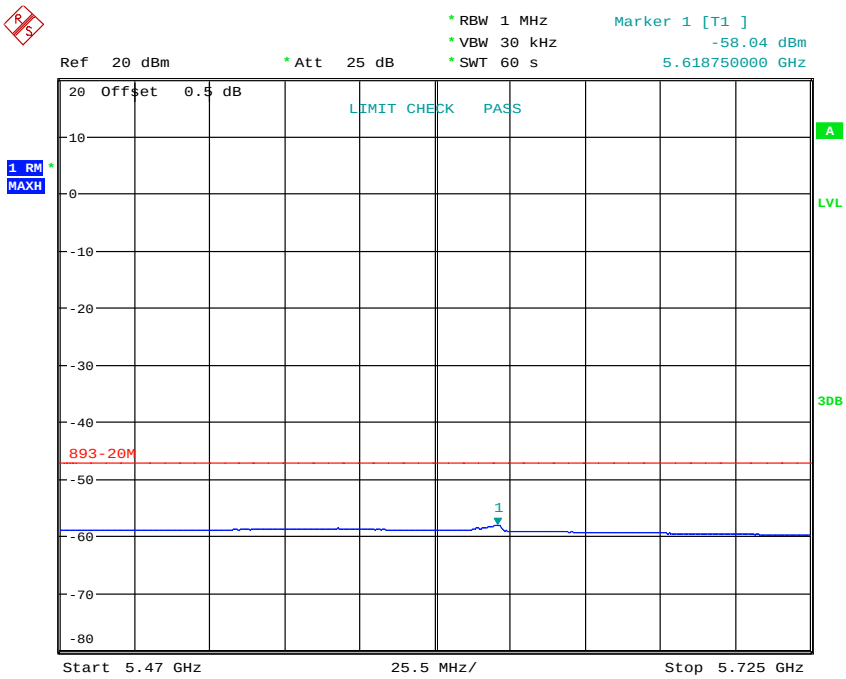
Test Result: *Compliant. Please refer to following Plots.*
5150-5250MHz, Chain 0

802.11 a -1



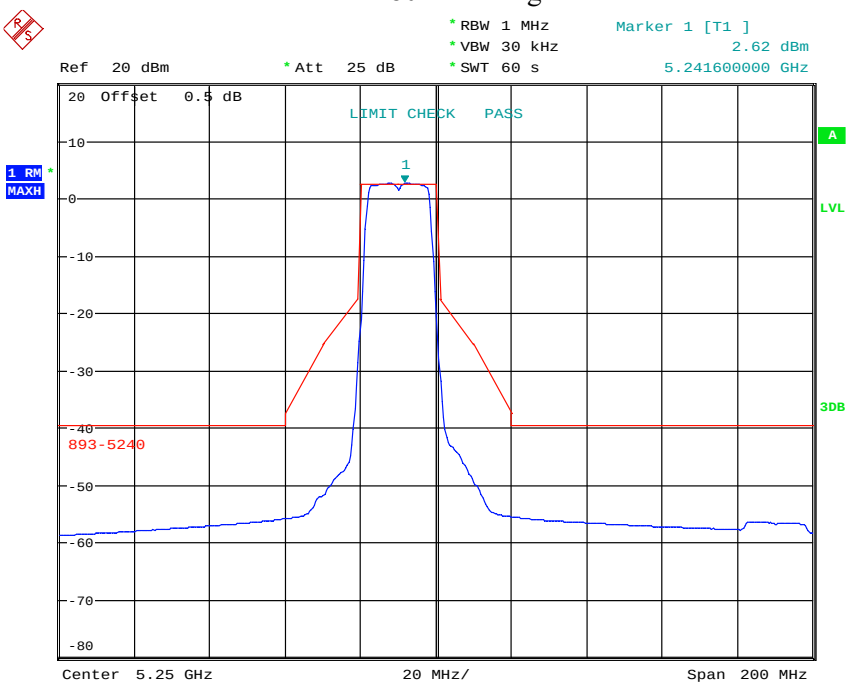
Date: 7.APR.2022 15:18:08

802.11 a -2



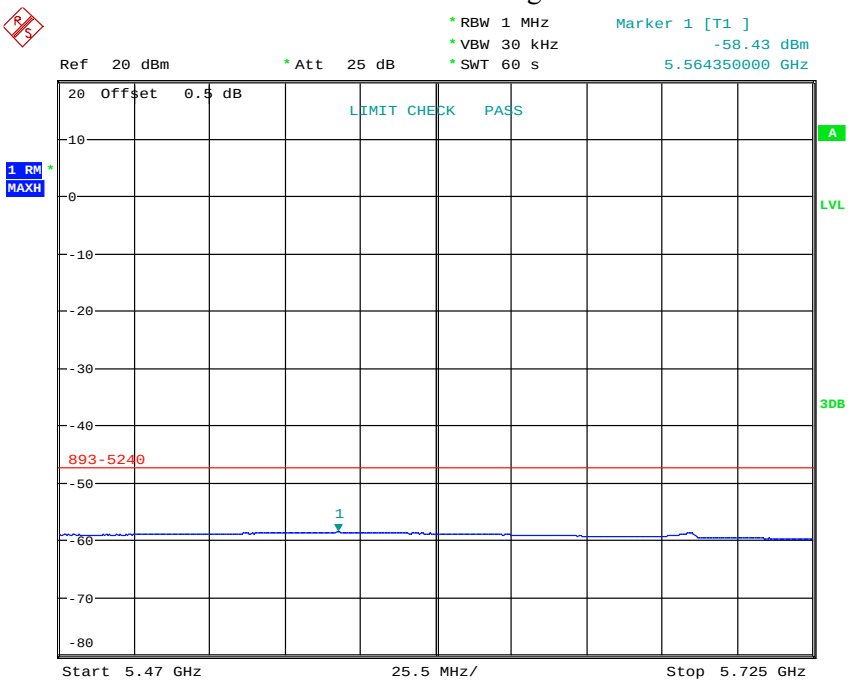
Date: 7.APR.2022 21:35:22

802.11 a High-1



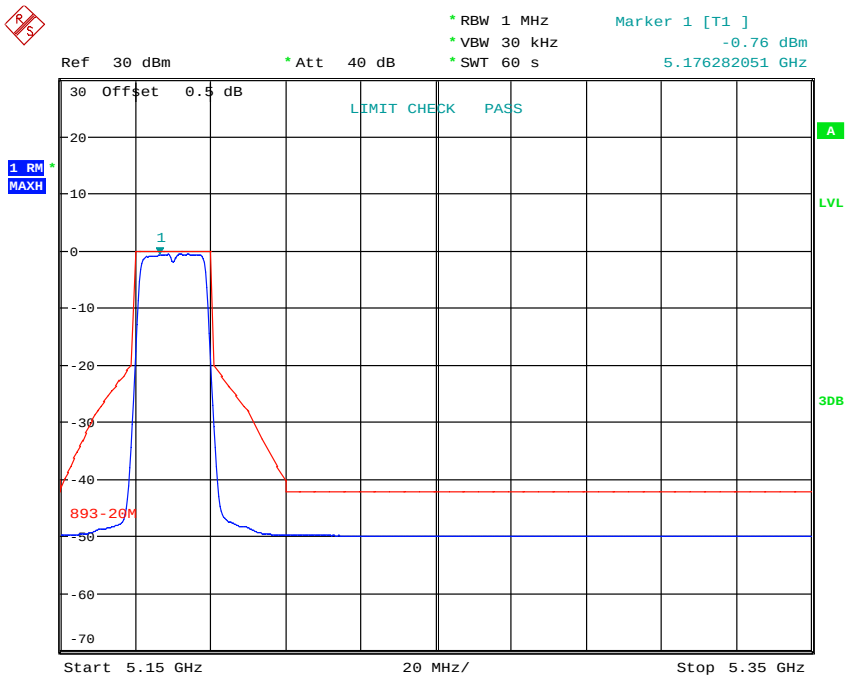
Date: 8.APR.2022 08:38:18

802.11 a High-2



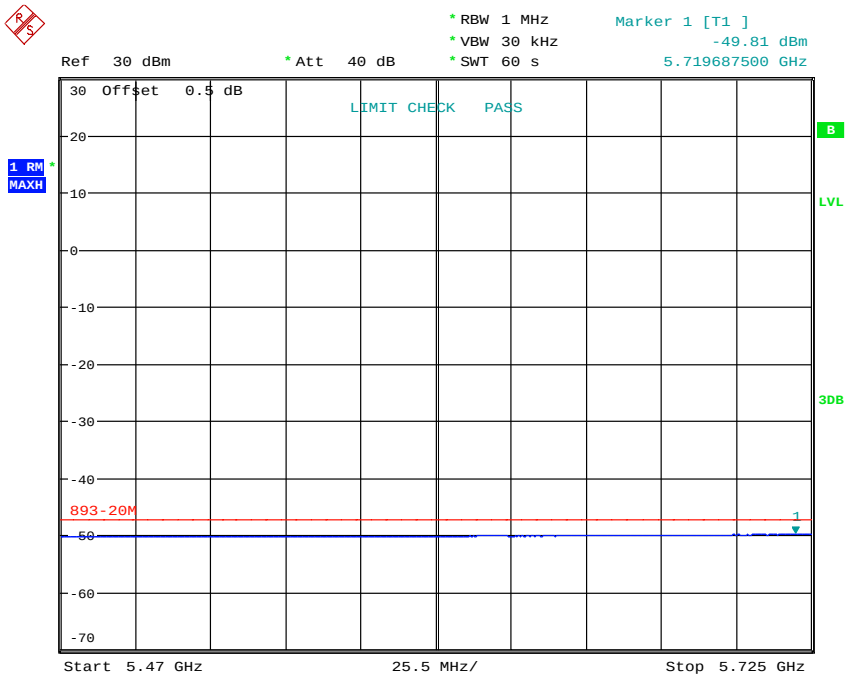
Date: 8.APR.2022 09:03:39

802.11 n20 Low-1



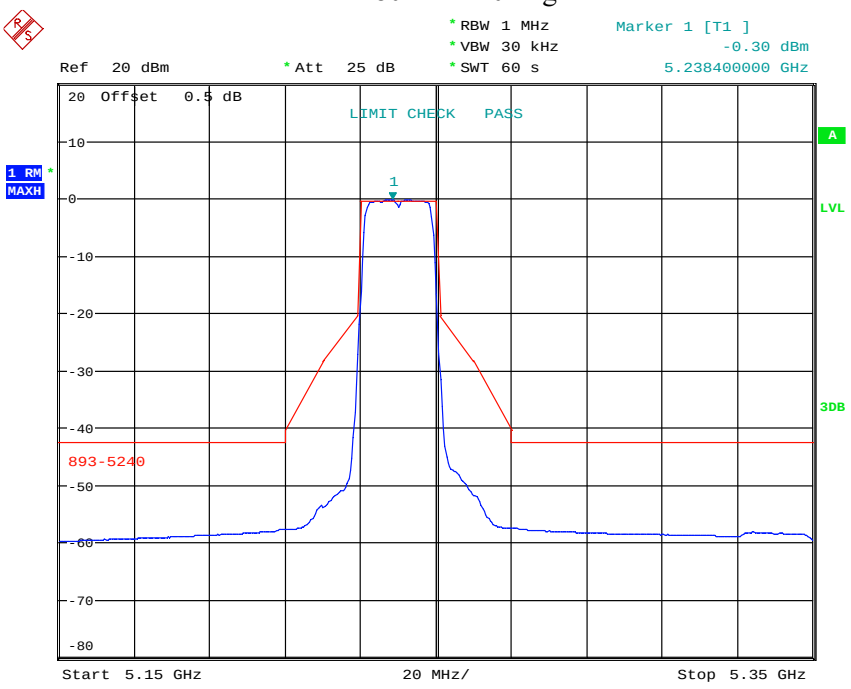
Date: 7.APR.2022 14:38:25

802.11 n20 Low-2



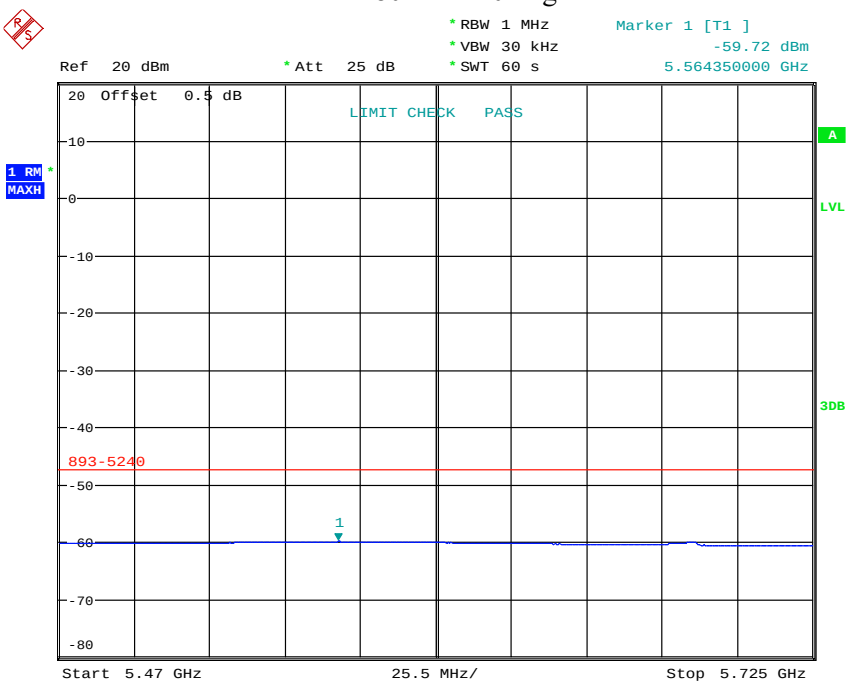
Date: 7.APR.2022 15:00:03

802.11 n20 High-1



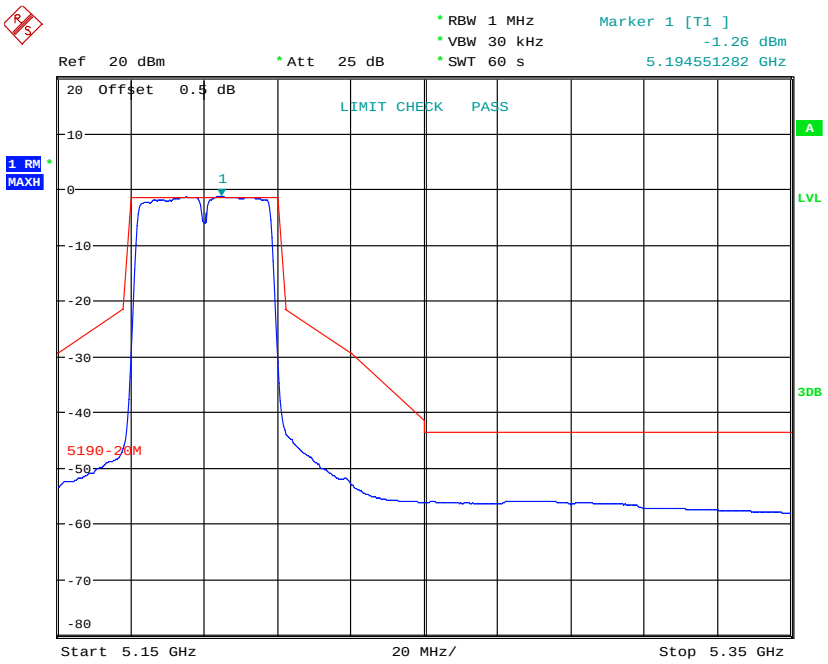
Date: 8.APR.2022 08:56:45

802.11 n20 High-2



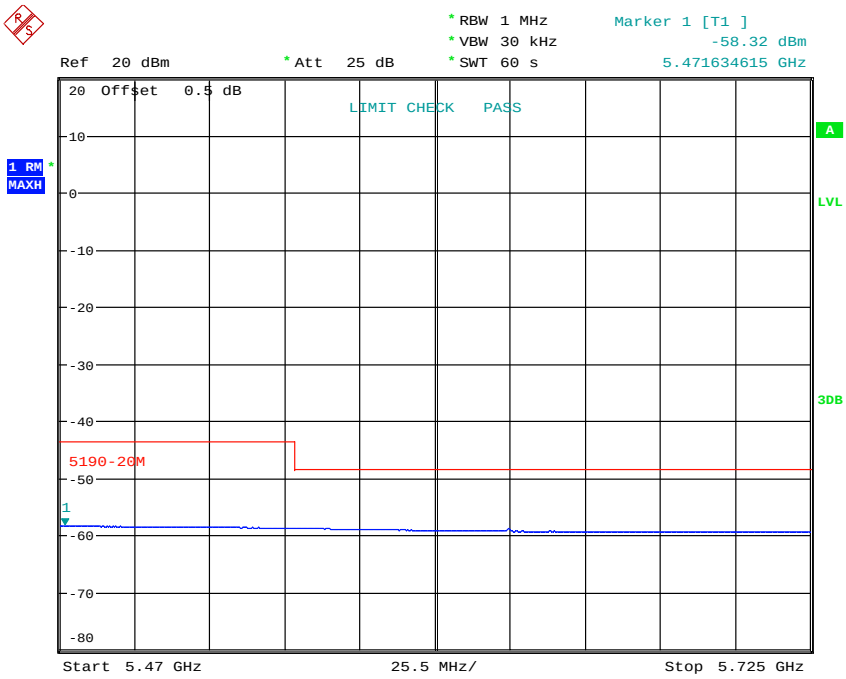
Date: 8.APR.2022 08:58:53

802.11 n40 Low-1



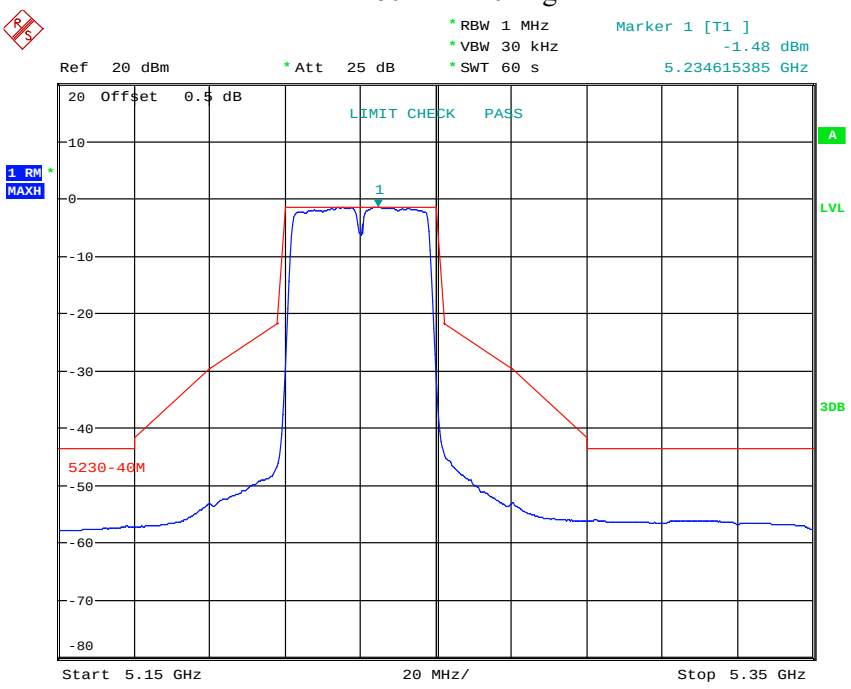
Date: 7.APR.2022 19:30:14

802.11 n40 Low-2



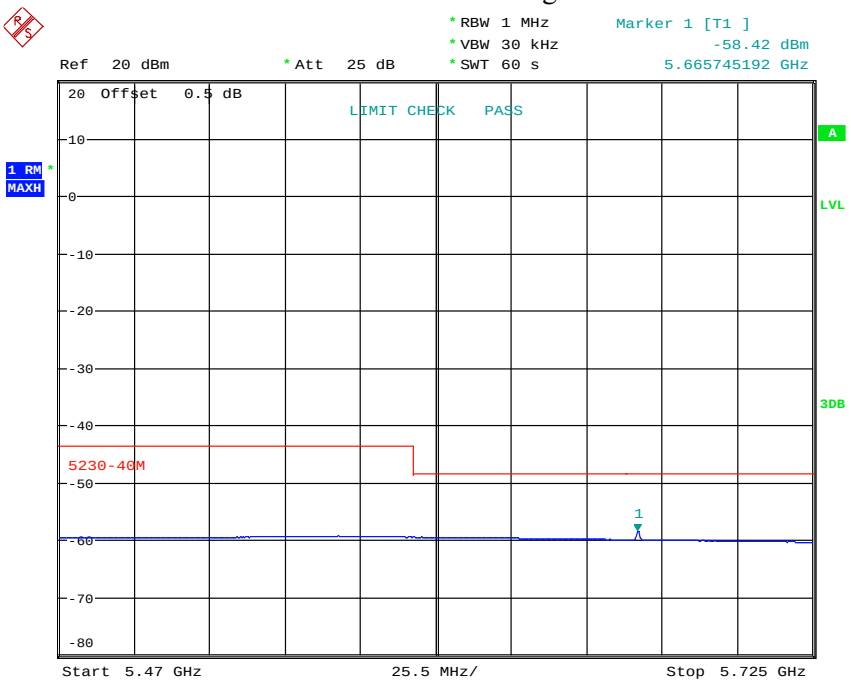
Date: 7.APR.2022 19:44:33

802.11 n40 High-1



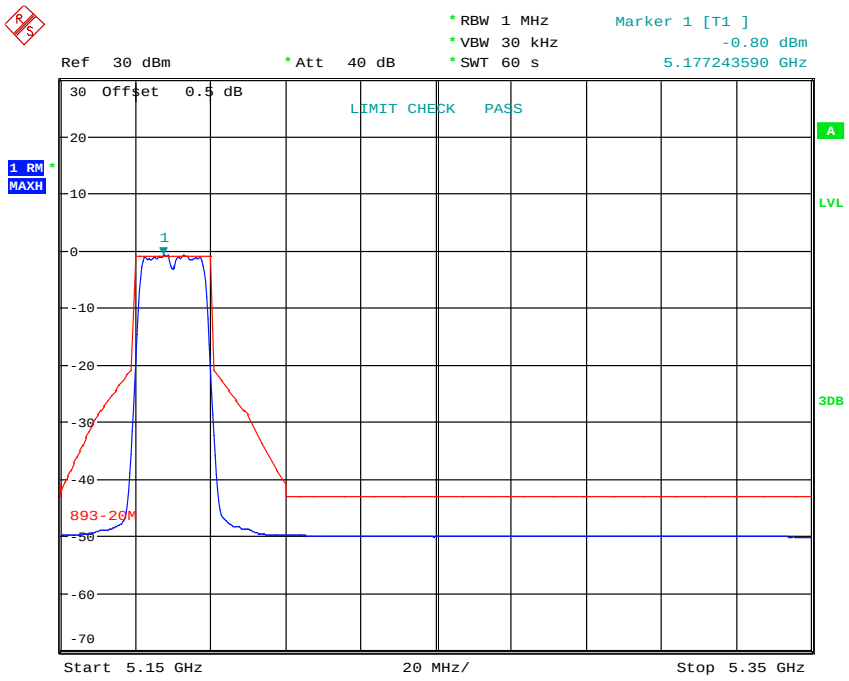
Date: 8.APR.2022 10:43:04

802.11 n40 High-2



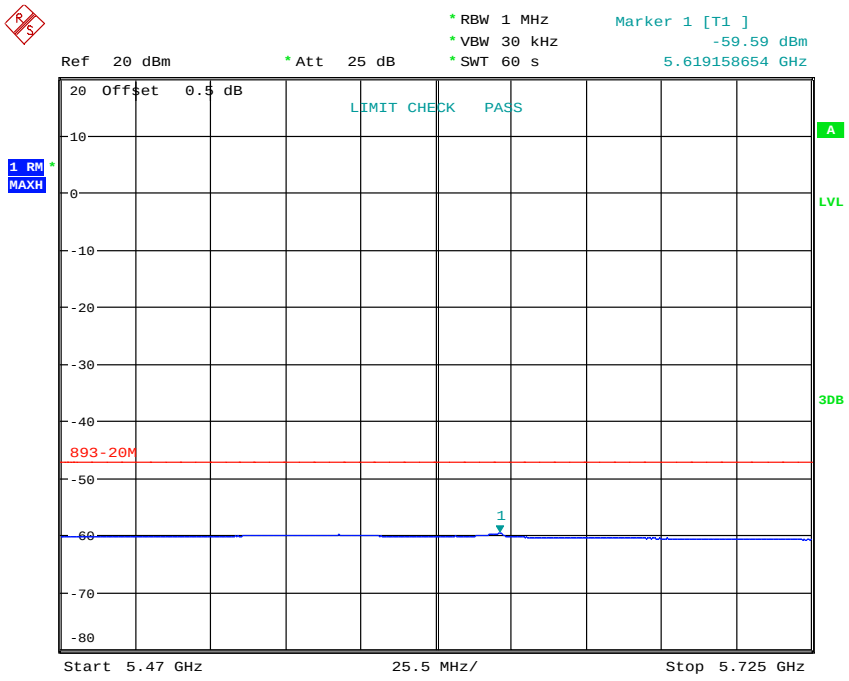
Date: 8.APR.2022 10:45:34

802.11 ac20 Low-1



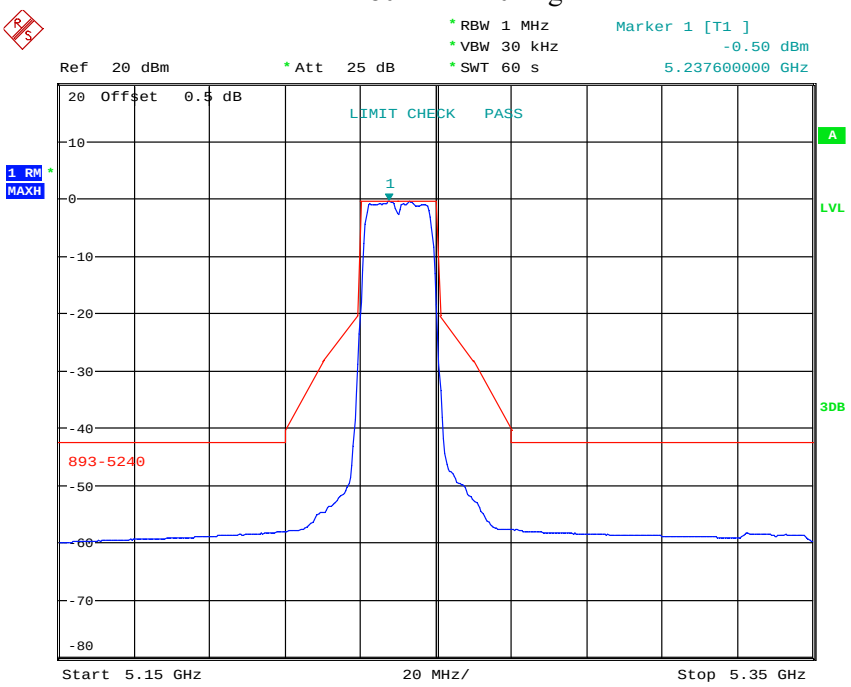
Date: 7.APR.2022 15:27:58

802.11 ac20 Low-2



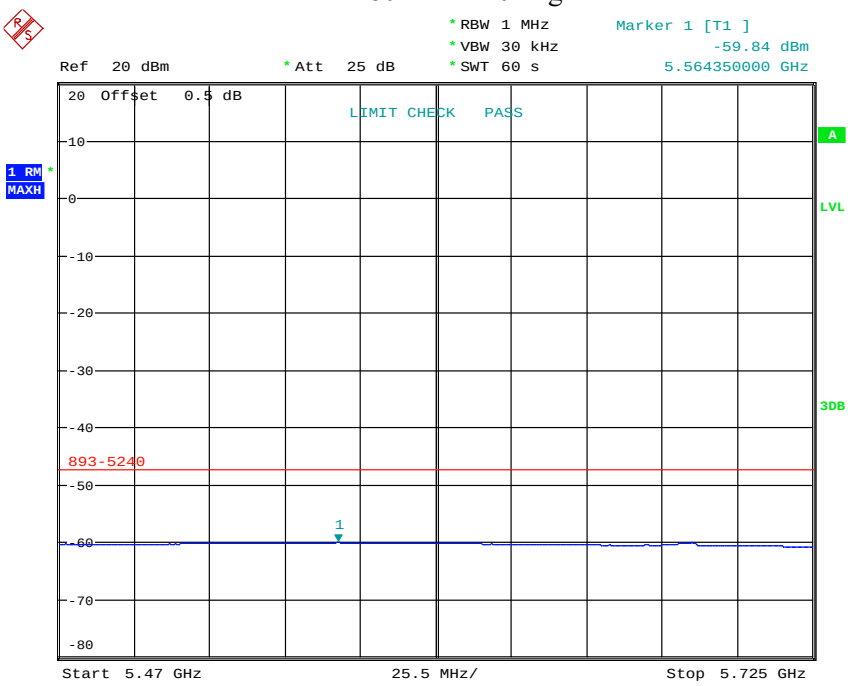
Date: 7.APR.2022 21:29:40

802.11 ac20 High-1



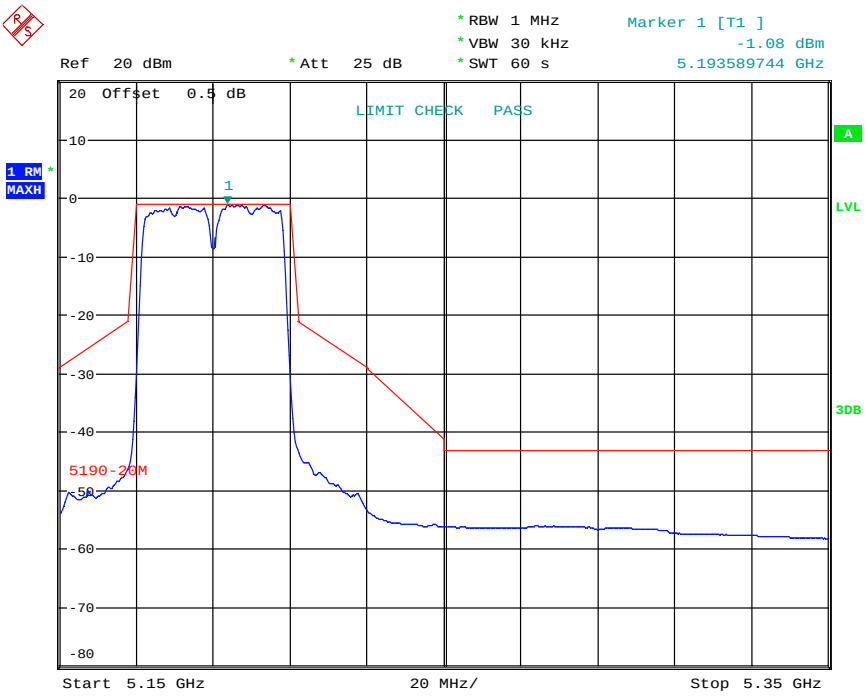
Date: 8.APR.2022 09:07:24

802.11 ac20 High-2



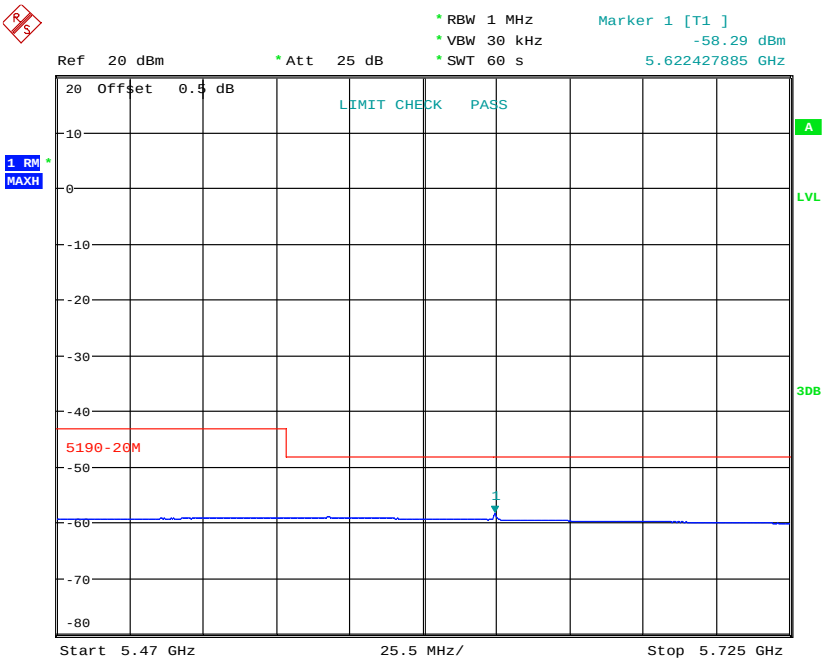
Date: 8.APR.2022 09:09:20

802.11 ac40 Low-1



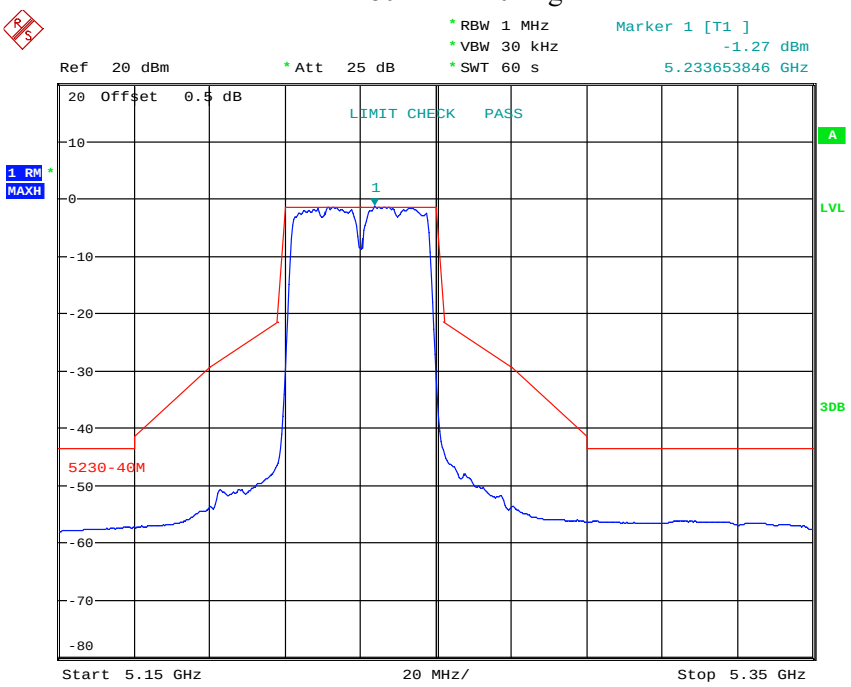
Date: 7.APR.2022 19:51:04

802.11 ac40 Low-2



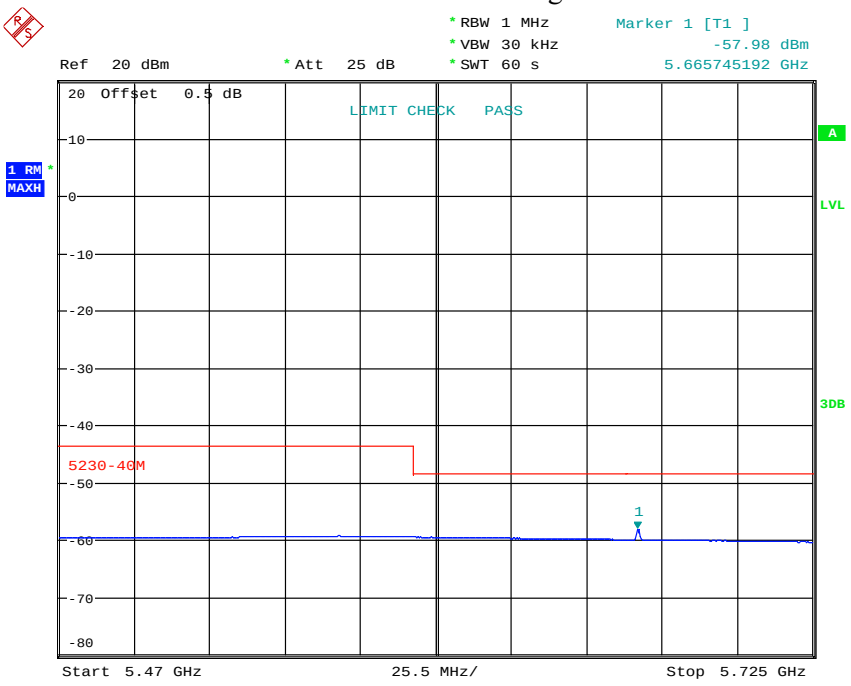
Date: 7.APR.2022 19:54:59

802.11 ac40 High-1



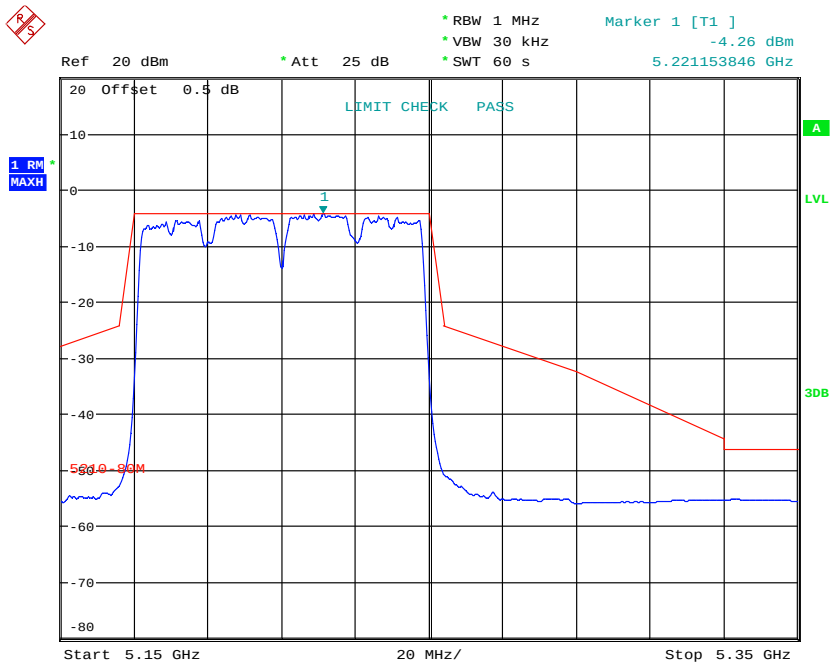
Date: 8.APR.2022 10:59:34

802.11 ac40 High-2



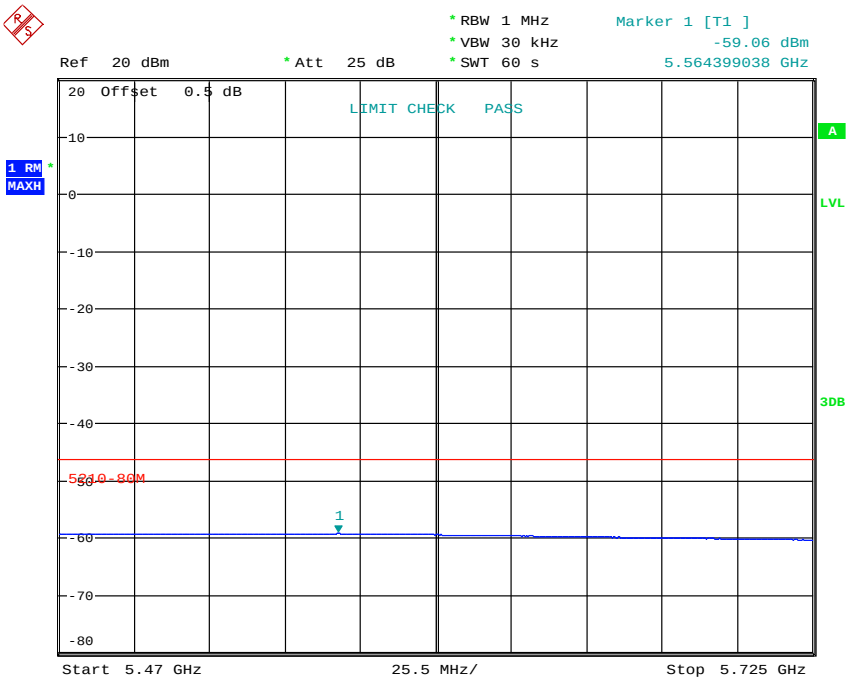
Date: 8.APR.2022 11:01:23

802.11 ac80 Middle-1



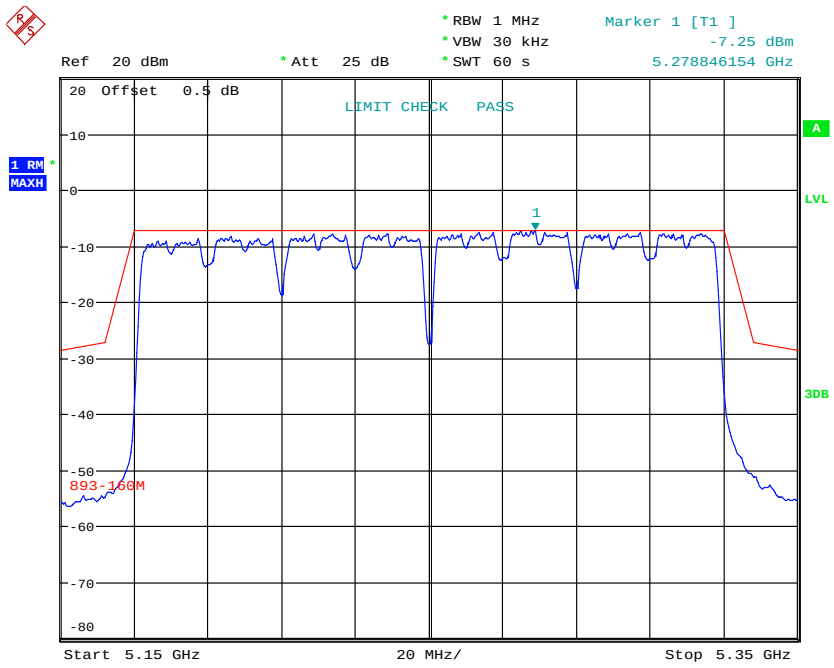
Date: 8.APR.2022 13:05:39

802.11 ac80 Middle-2



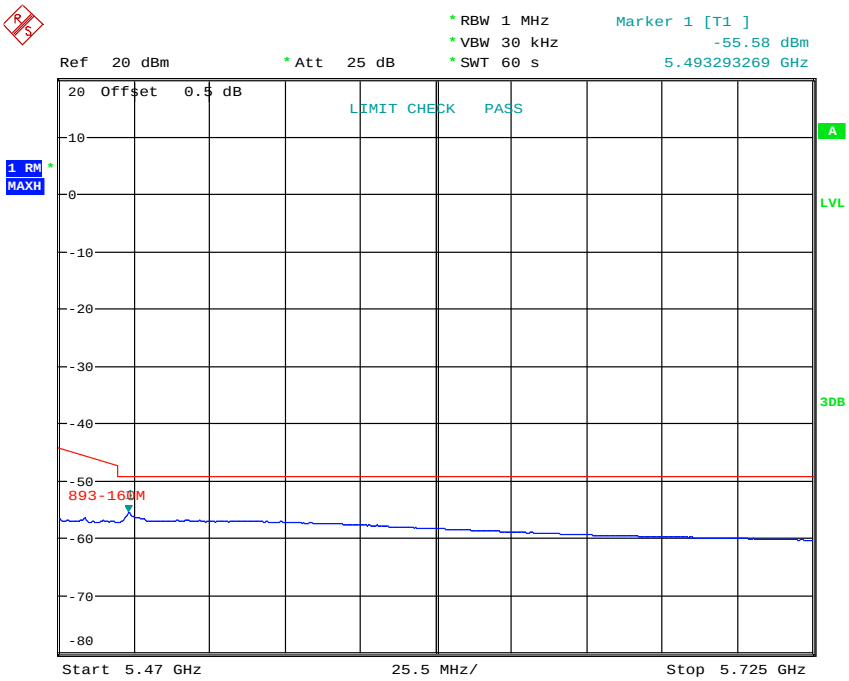
Date: 8.APR.2022 13:07:04

802.11 ac160 Middle-1



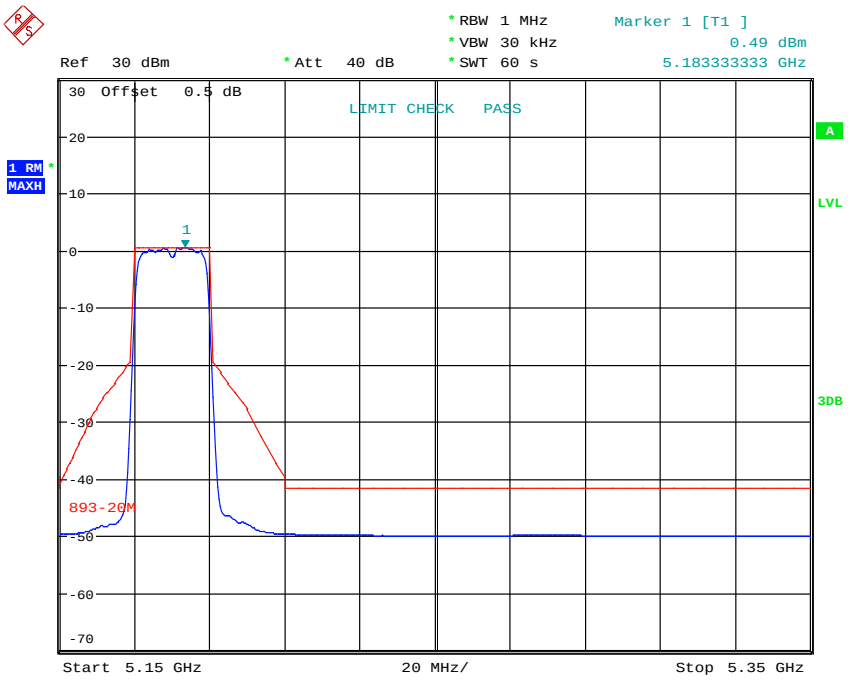
Date: 8.APR.2022 14:36:57

802.11 ac160 Middle-2



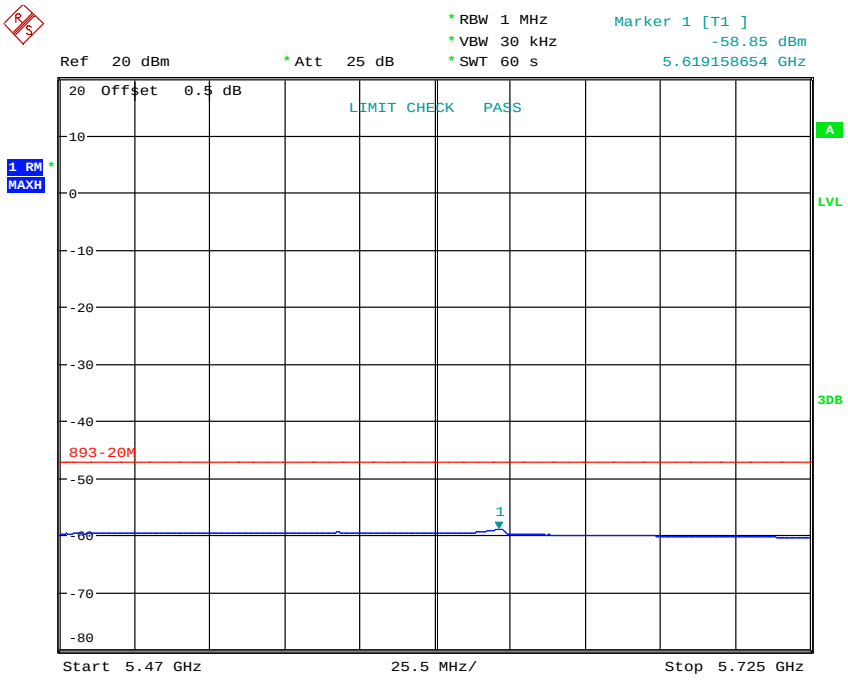
Date: 8.APR.2022 14:38:28

802.11 ax20 Low-1



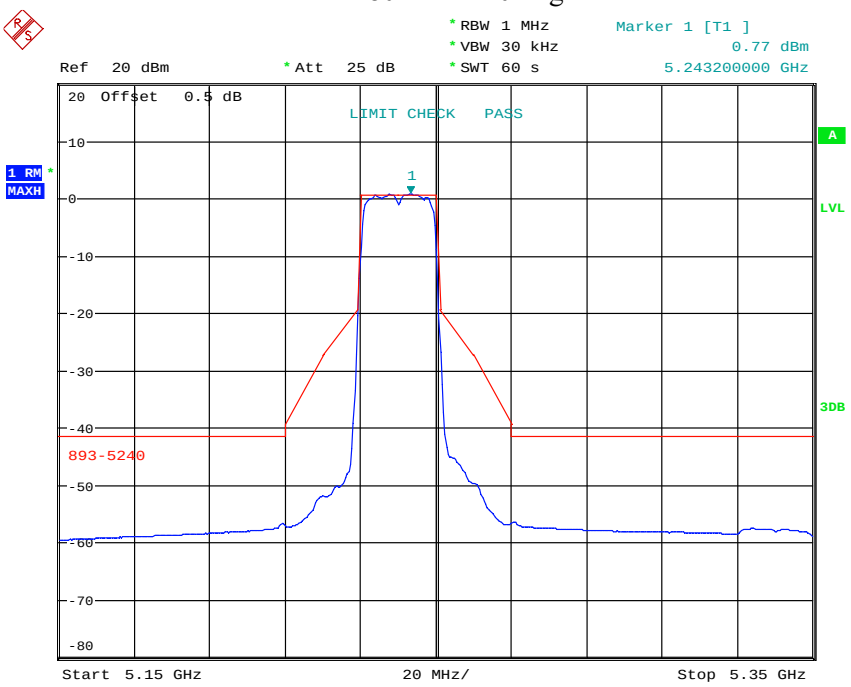
Date: 7.APR.2022 15:46:14

802.11 ax20 Low-2



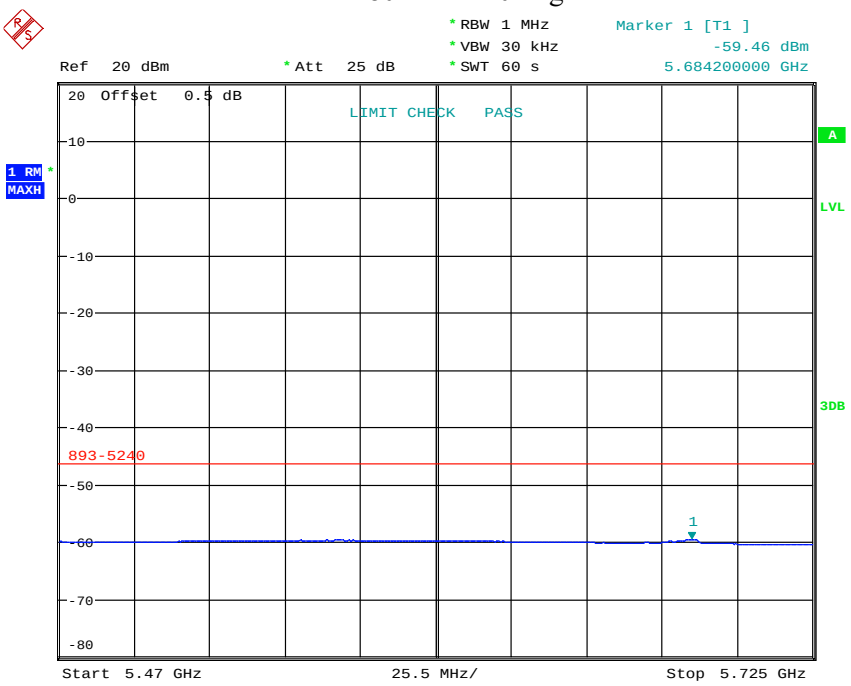
Date: 7.APR.2022 21:27:01

802.11 ax20 High-1



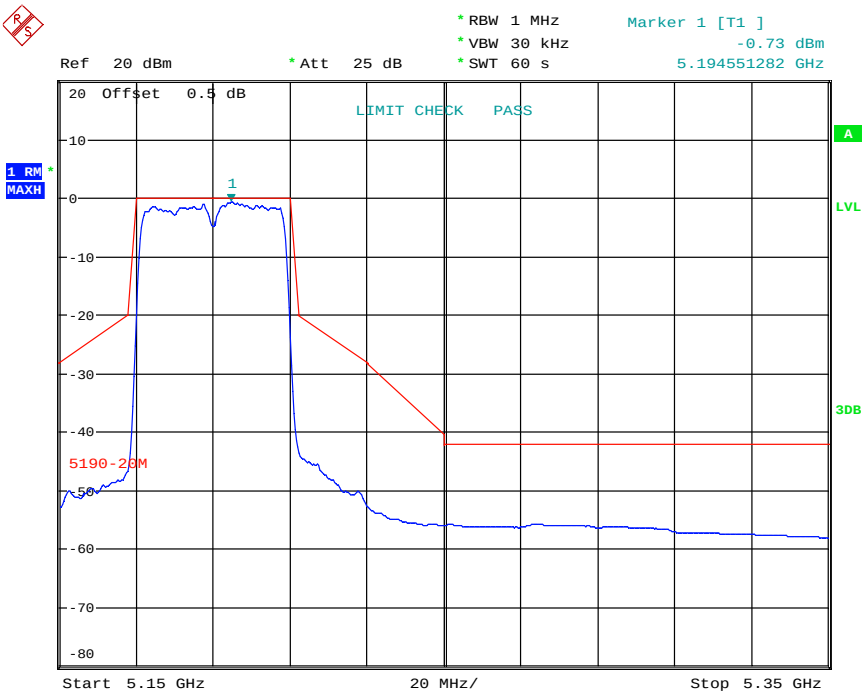
Date: 8.APR.2022 09:30:54

802.11 ax20 High-2



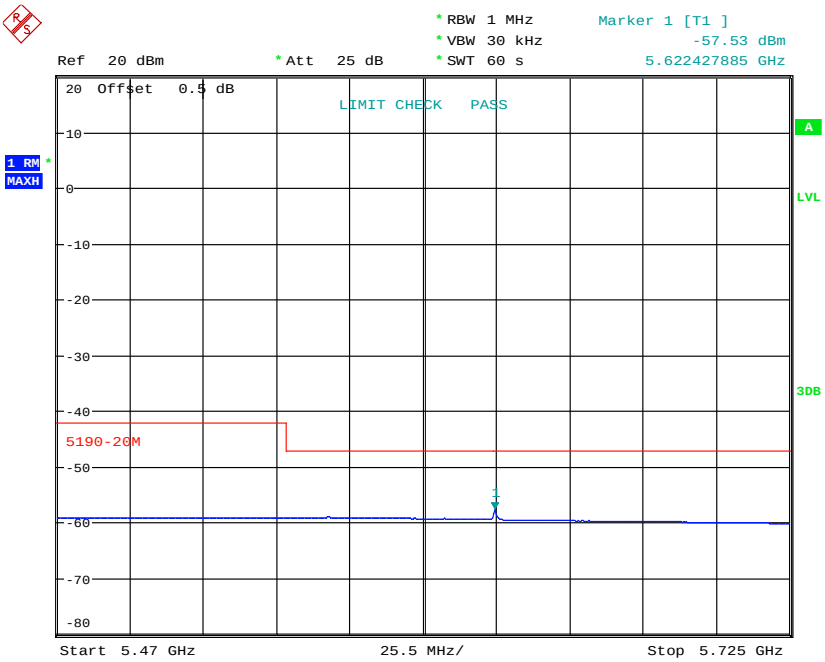
Date: 8.APR.2022 09:32:38

802.11 ax40 Low-1



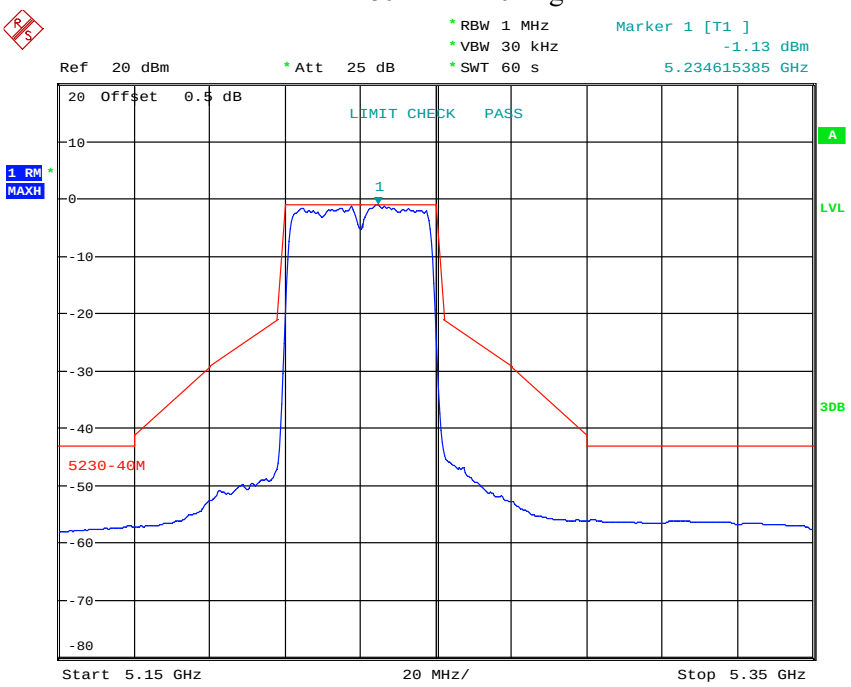
Date: 7.APR.2022 19:59:27

802.11 ax40 Low-2



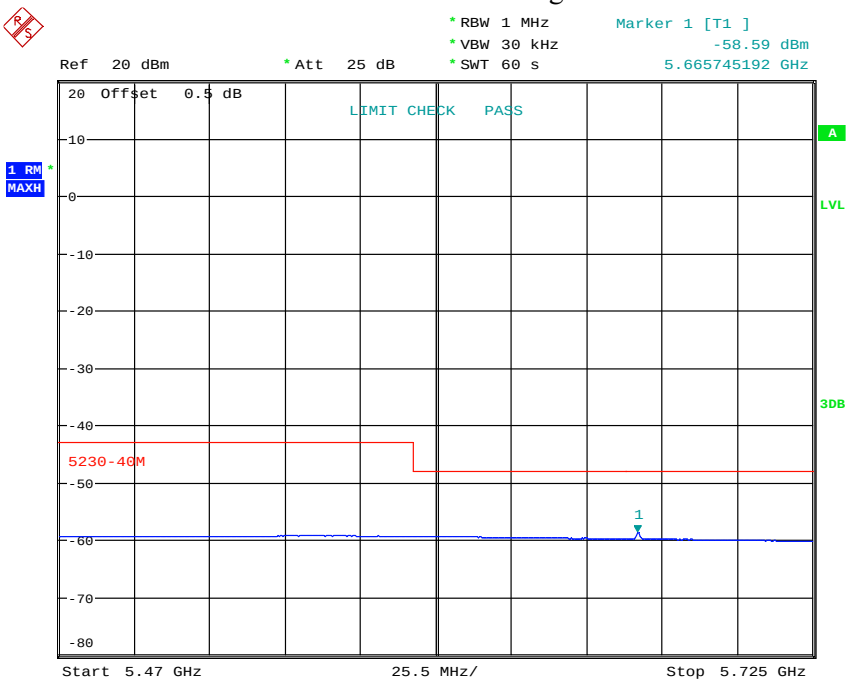
Date: 7.APR.2022 20:01:49

802.11 ax40 High-1



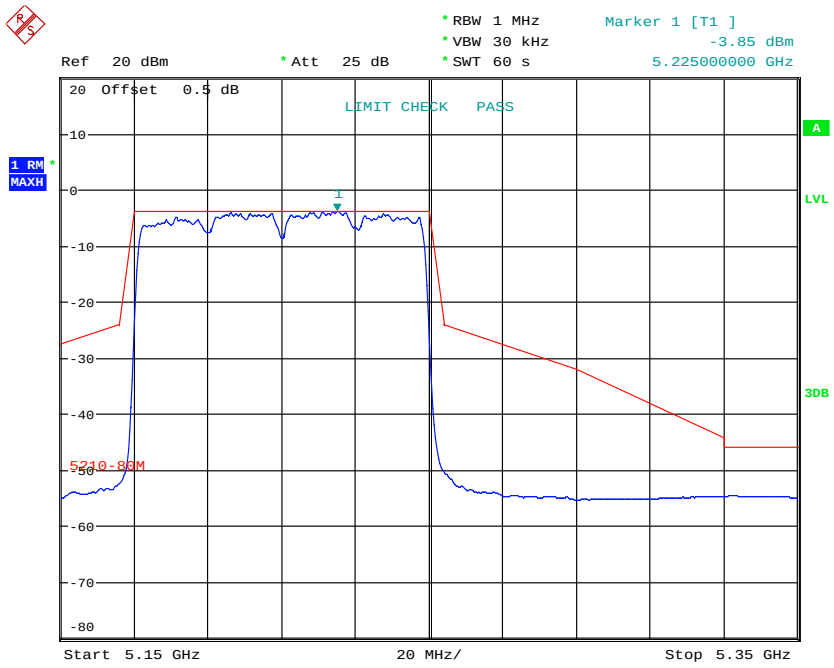
Date: 8.APR.2022 11:14:31

802.11 ax40 High-2



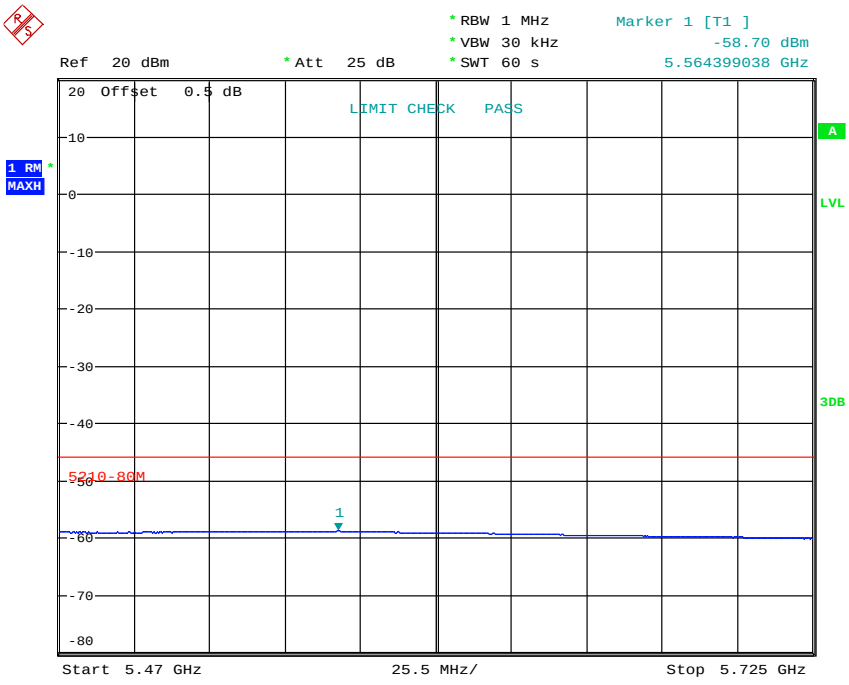
Date: 8.APR.2022 11:05:46

802.11 ax80 Middle-1



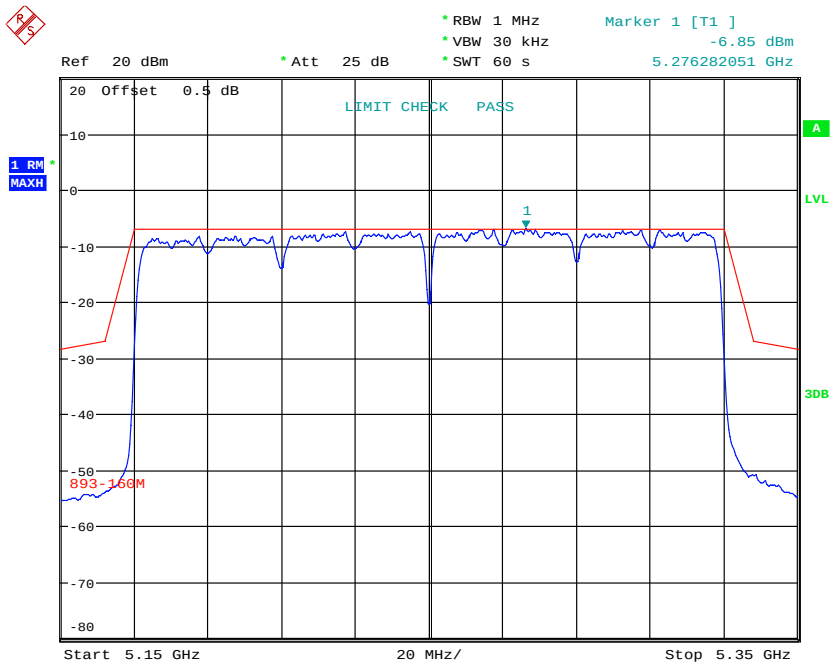
Date: 8.APR.2022 13:09:46

802.11 ax80 Middle-2



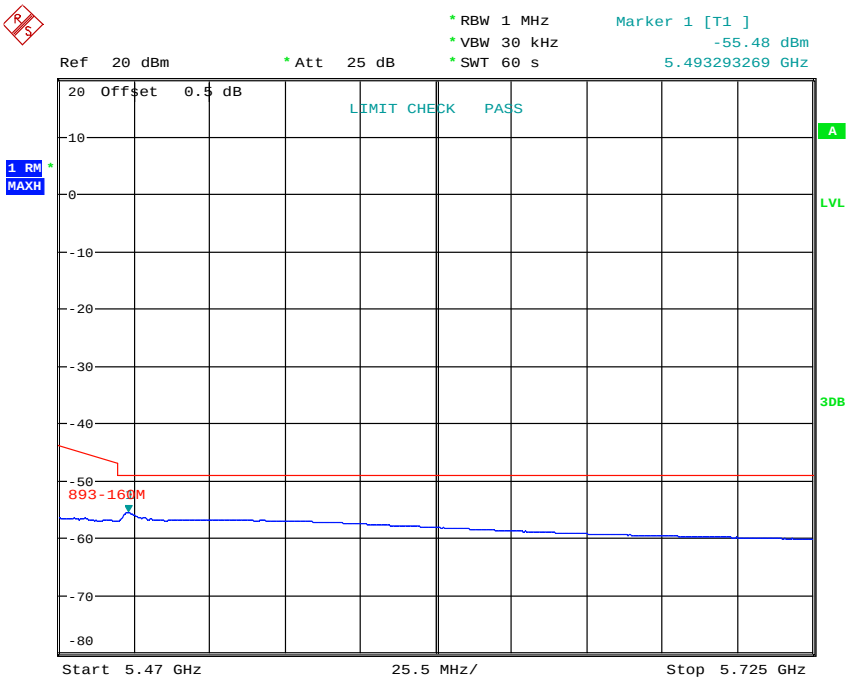
Date: 8.APR.2022 13:12:02

802.11 ax160 Middle-1



Date: 8.APR.2022 14:33:03

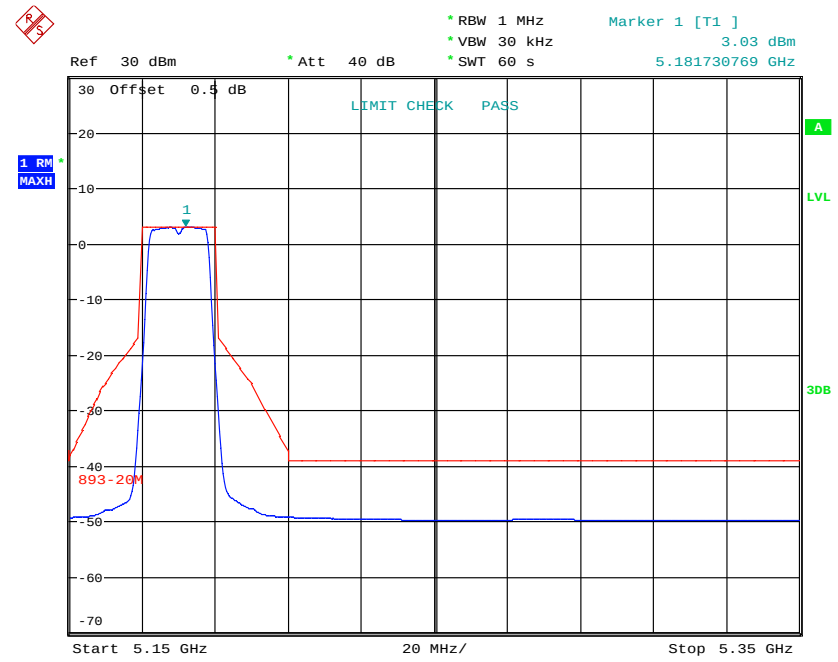
802.11 ax160 Middle-2



Date: 8.APR.2022 14:34:40

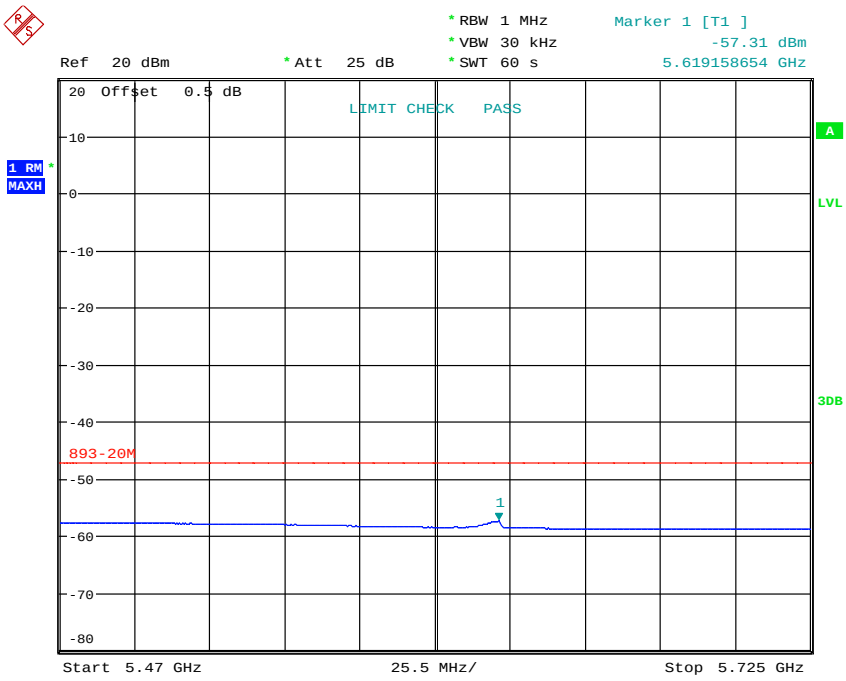
Chain 1:

802.11 a -1



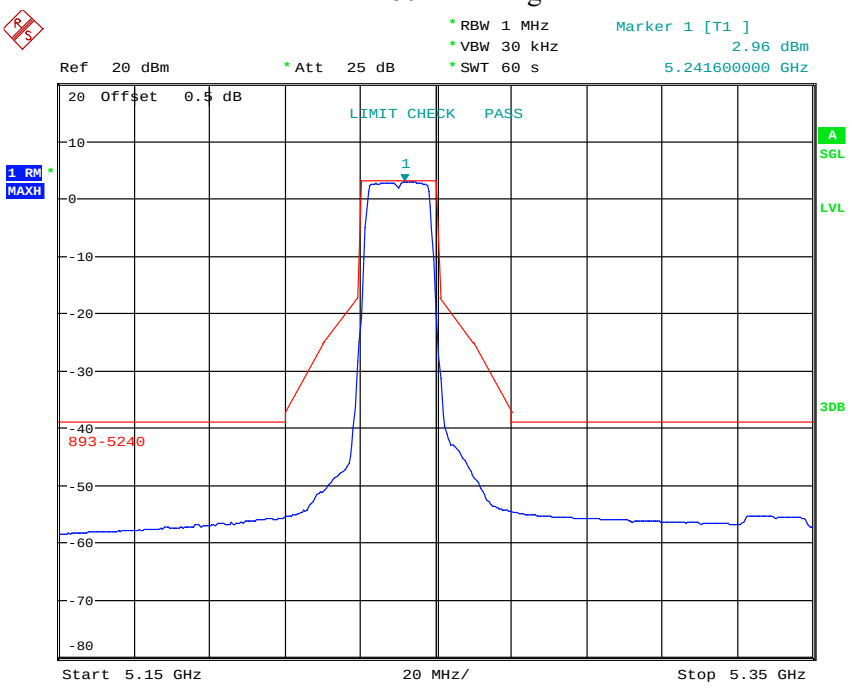
Date: 7.APR.2022 15:14:59

802.11 a -2



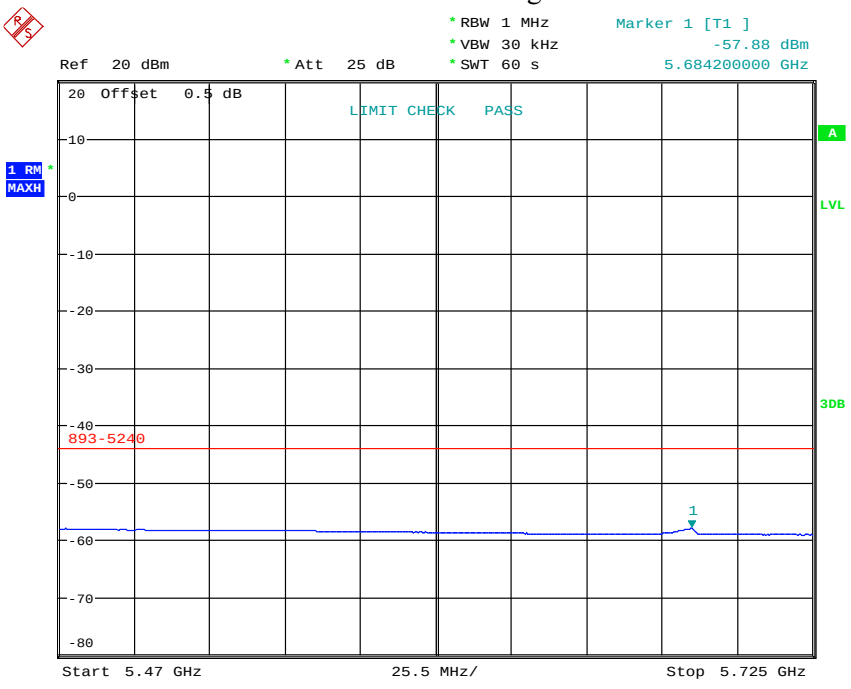
Date: 7.APR.2022 21:33:35

802.11 a High-1



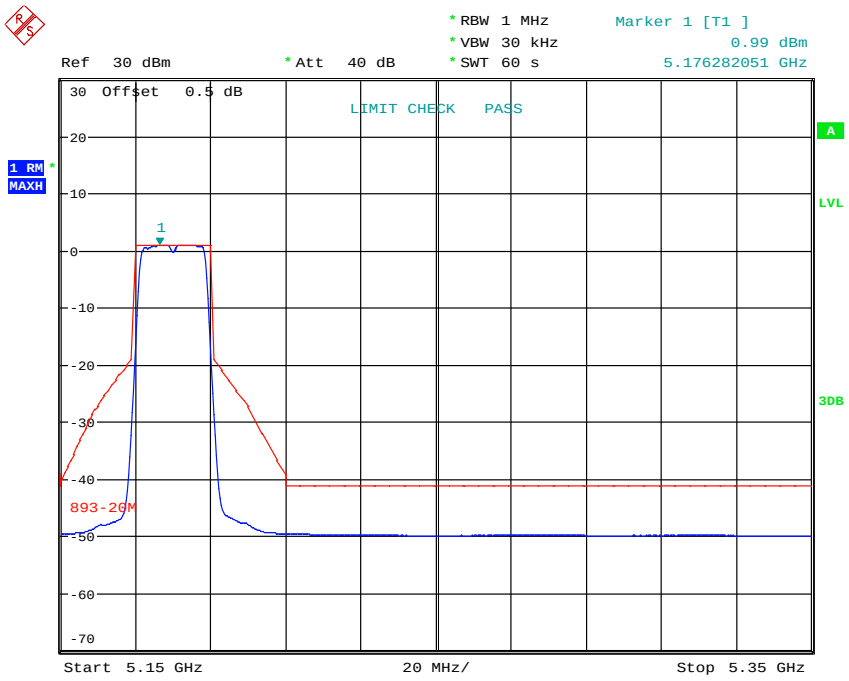
Date: 8.APR.2022 08:45:40

802.11 a High-2



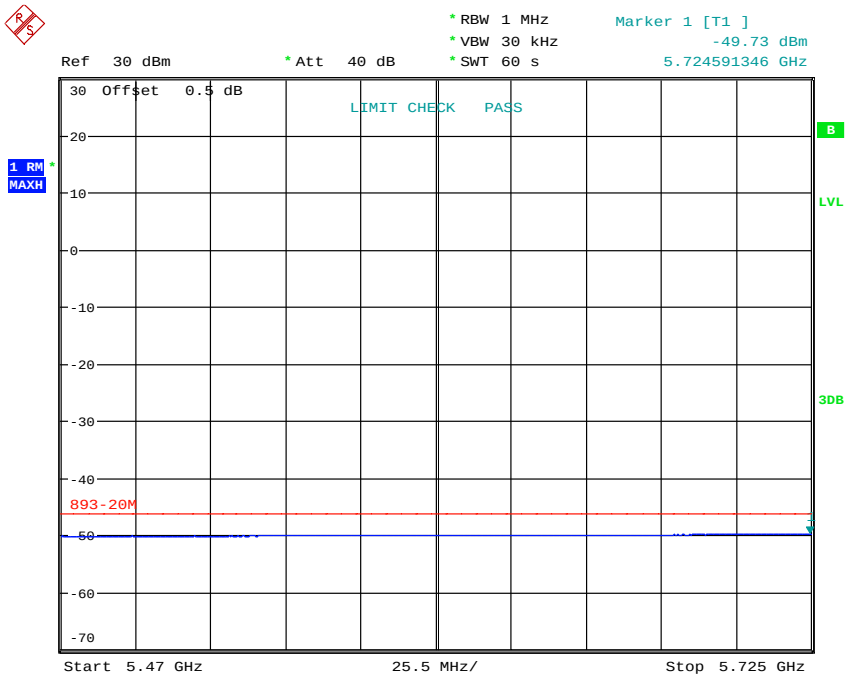
Date: 8.APR.2022 08:48:30

802.11 n20 Low-1



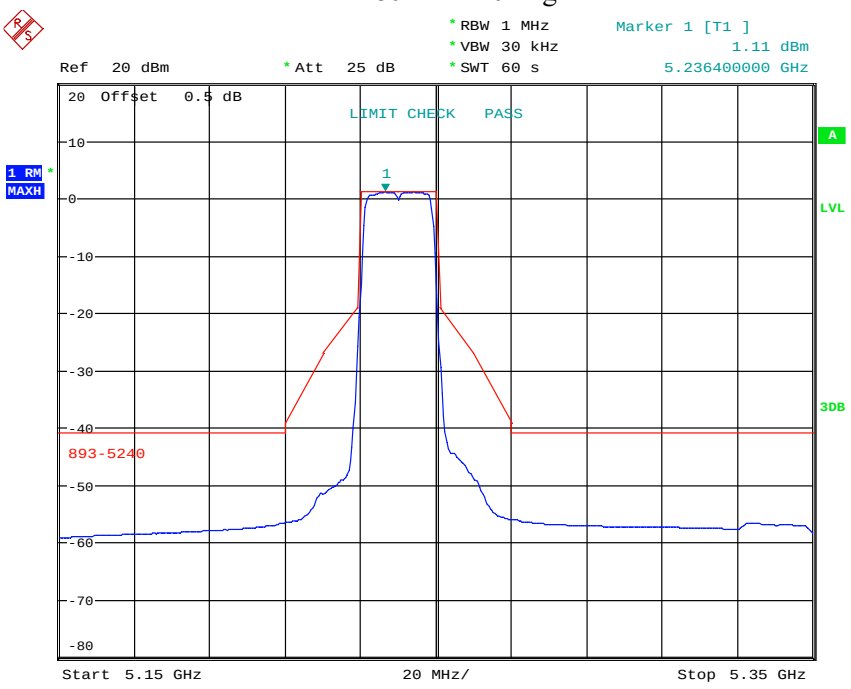
Date: 7.APR.2022 14:30:26

802.11 n20 Low-2



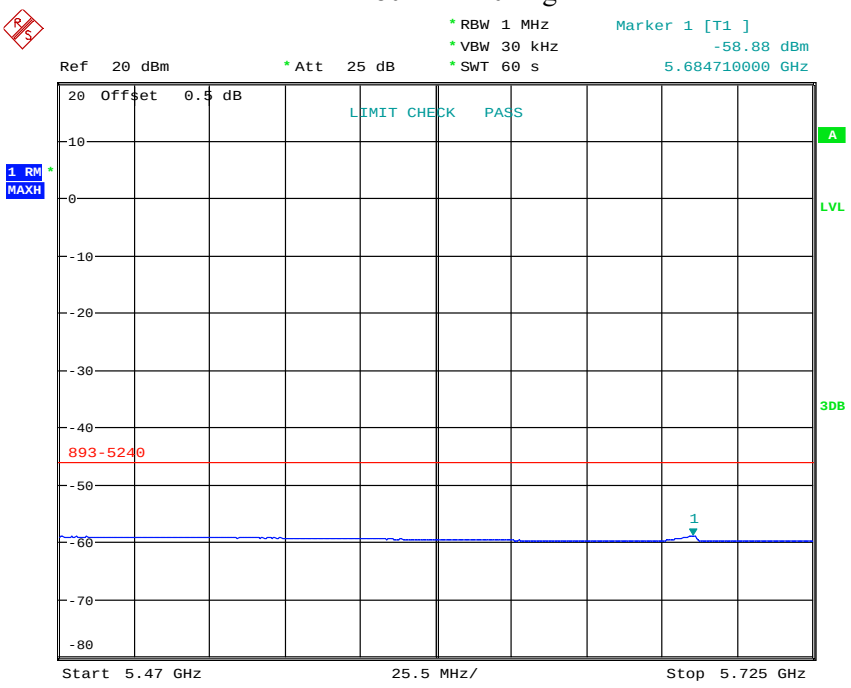
Date: 7.APR.2022 15:05:25

802.11 n20 High-1



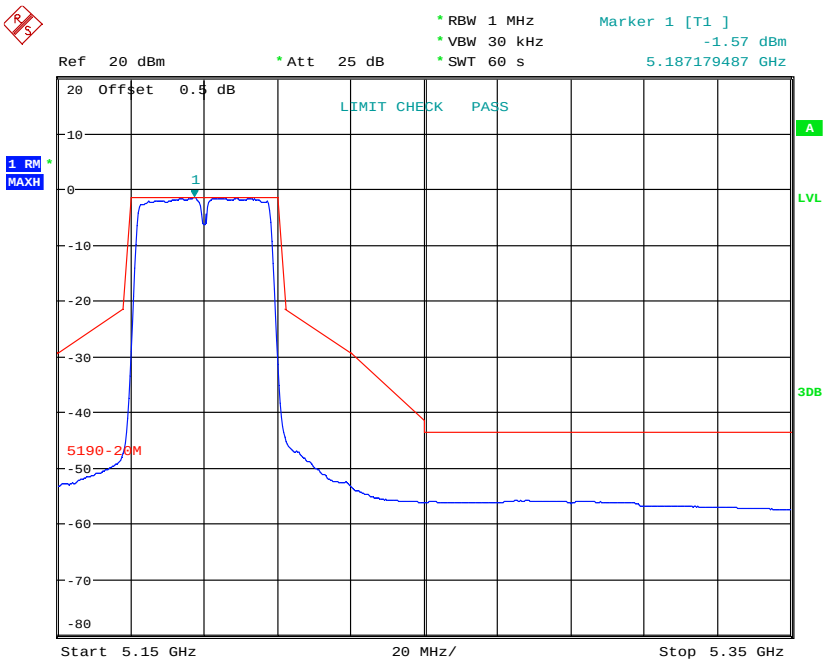
Date: 8.APR.2022 08:52:07

802.11 n20 High-2



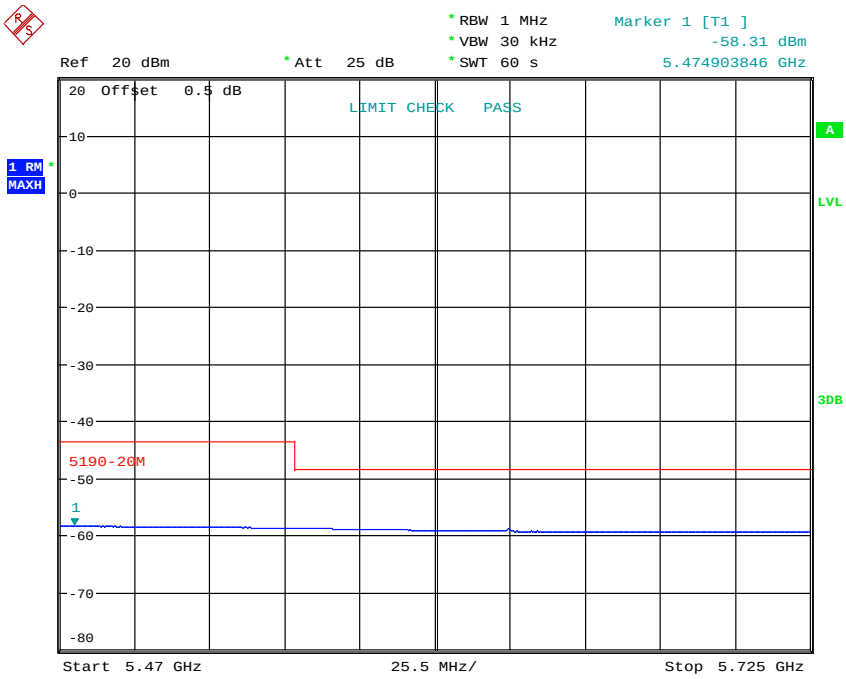
Date: 8.APR.2022 08:53:46

802.11 n40 Low-1



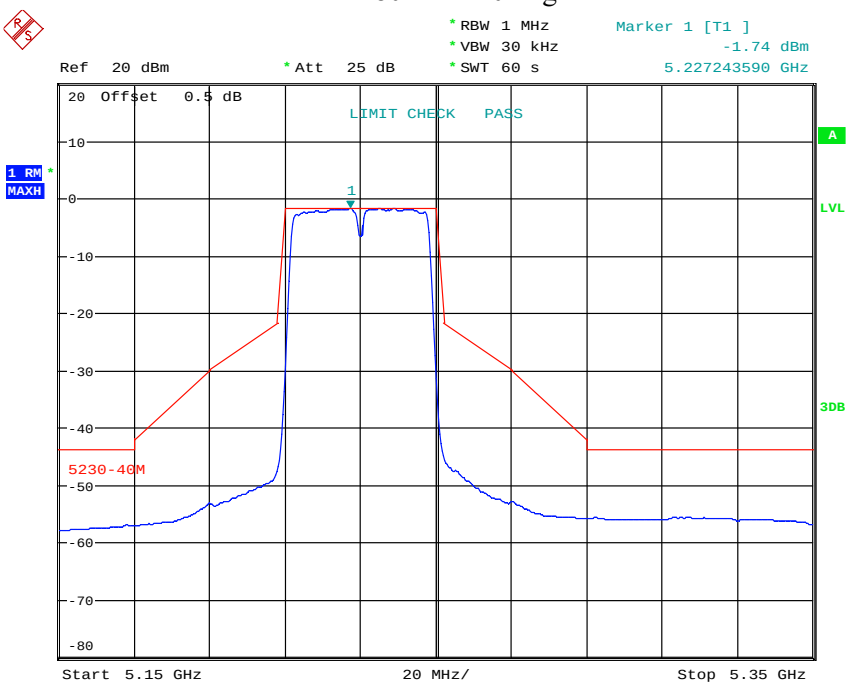
Date: 7.APR.2022 19:39:10

802.11 n40 Low-2



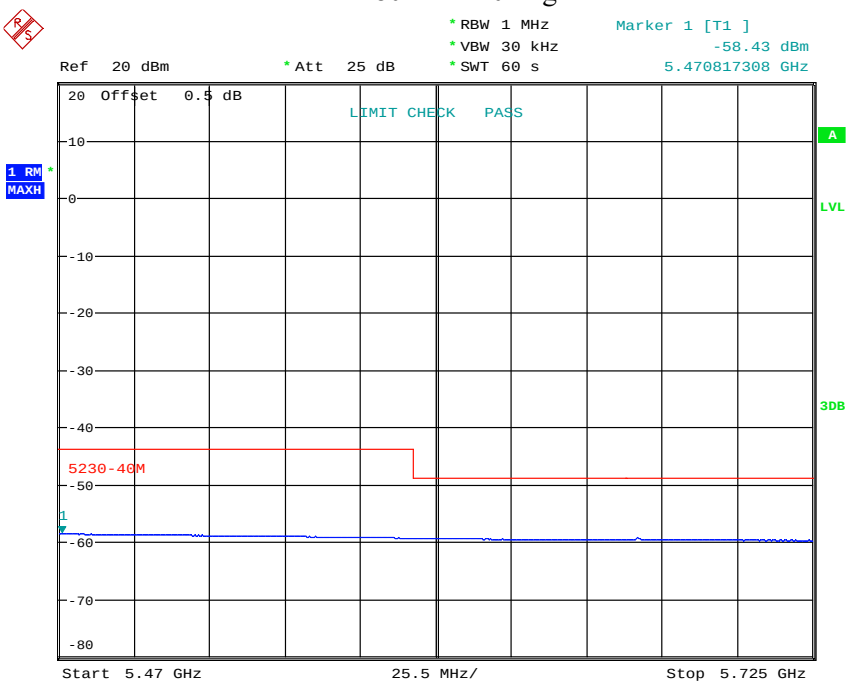
Date: 7.APR.2022 19:43:11

802.11 n40 High-1



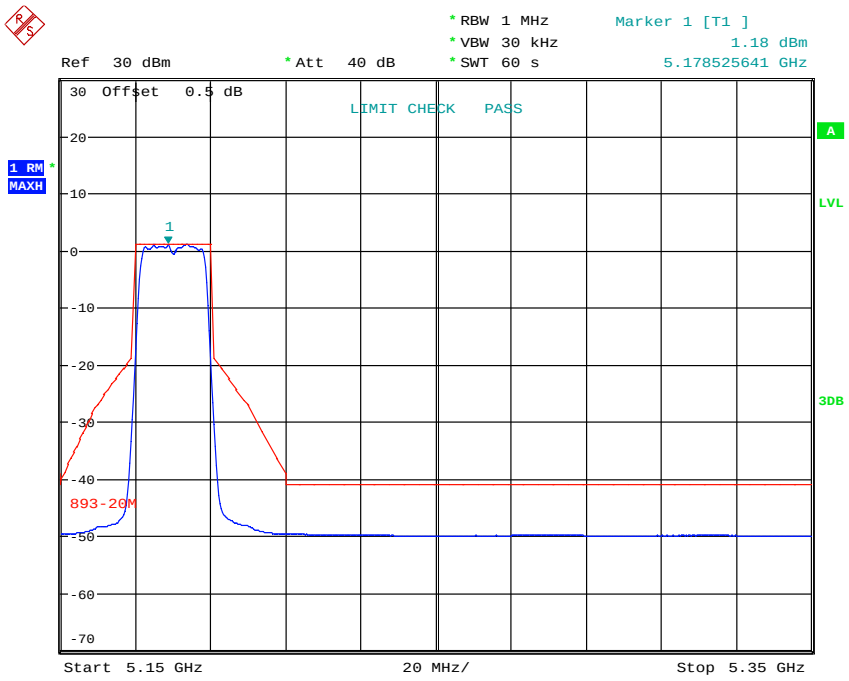
Date: 8.APR.2022 10:48:46

802.11 n40 High-2



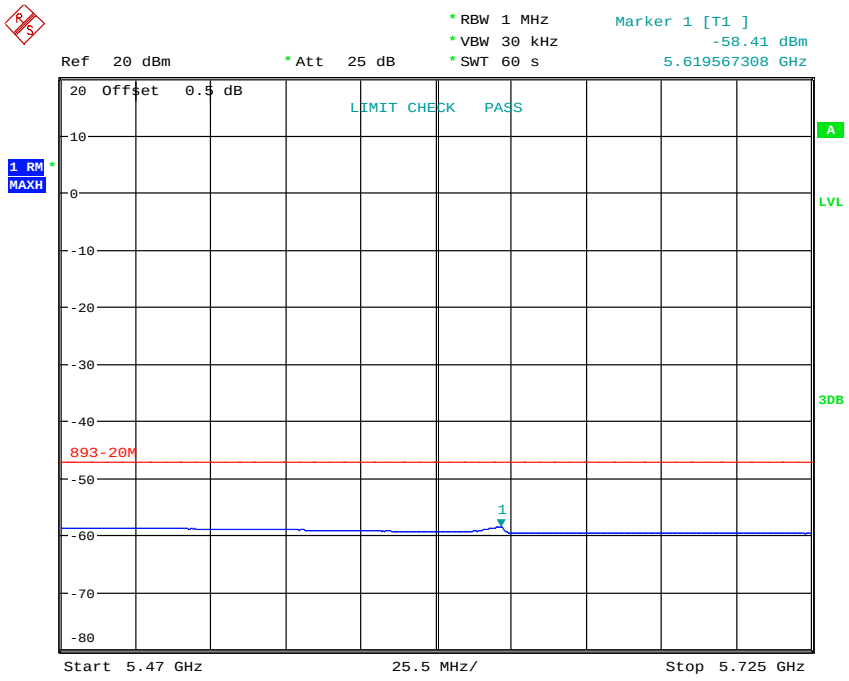
Date: 8.APR.2022 10:50:49

802.11 ac20 Low-1



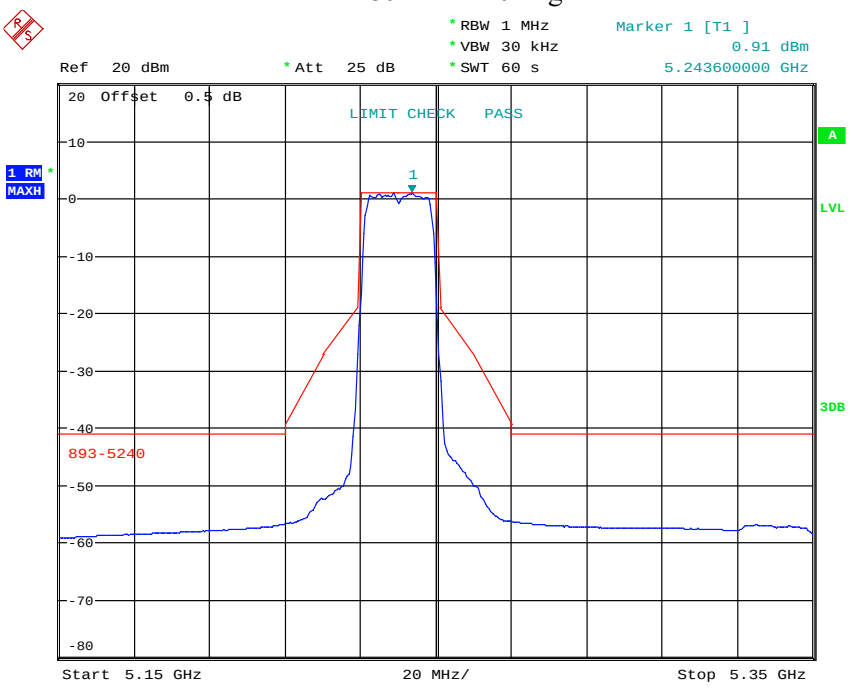
Date: 7.APR.2022 15:34:21

802.11 ac20 Low-2



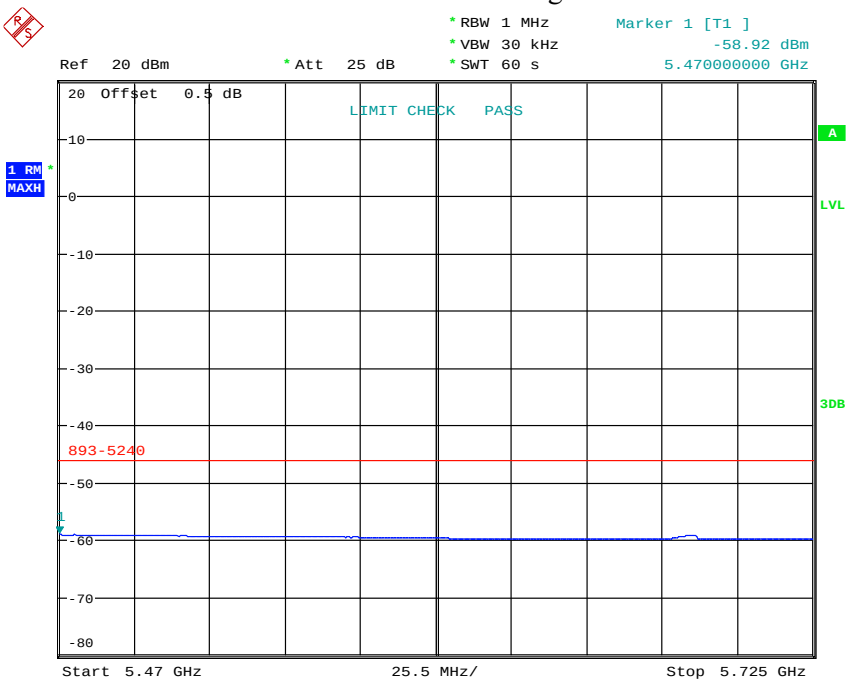
Date: 7.APR.2022 21:31:32

802.11 ac20 High-1



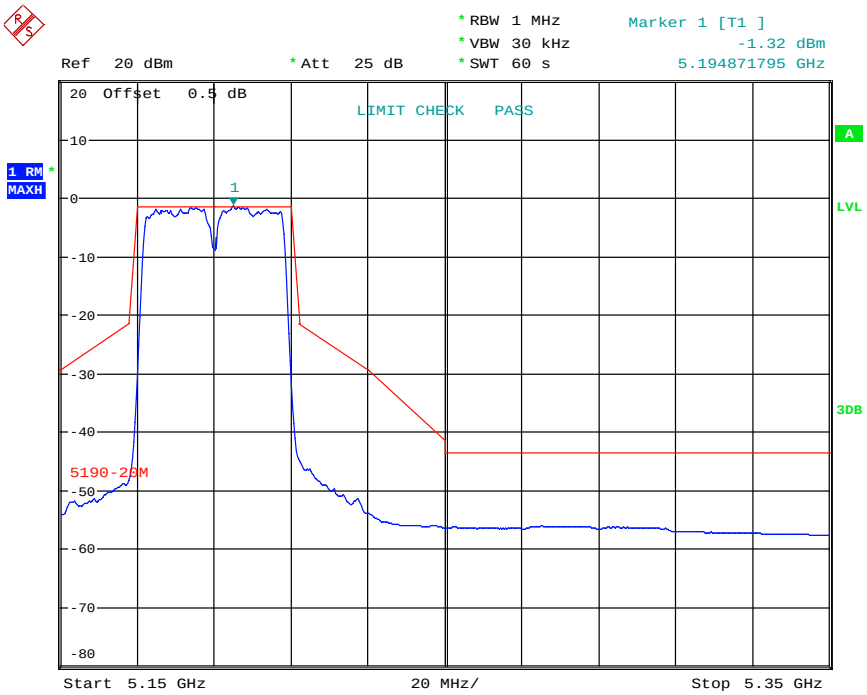
Date: 8.APR.2022 09:12:18

802.11 ac20 High-2



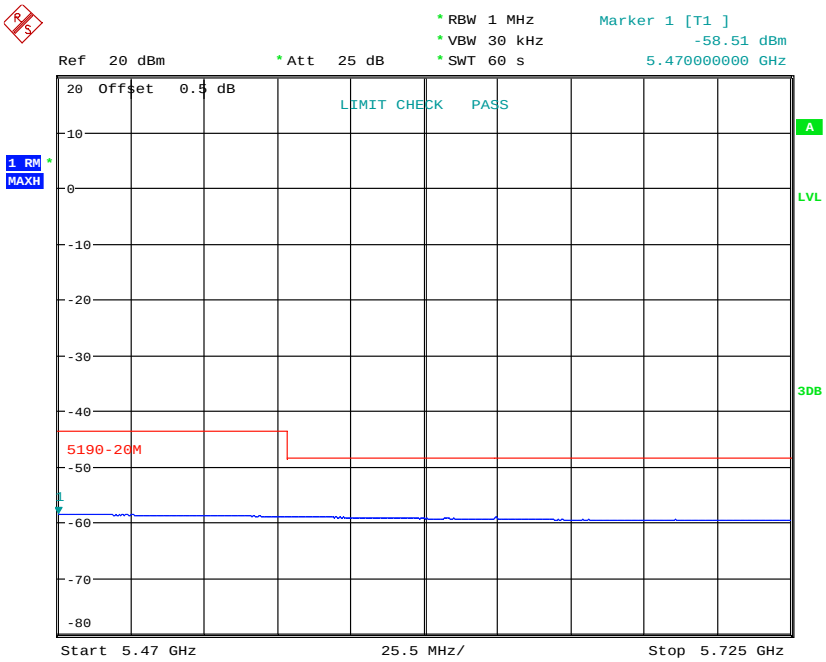
Date: 8.APR.2022 09:14:22

802.11 ac40 Low-1



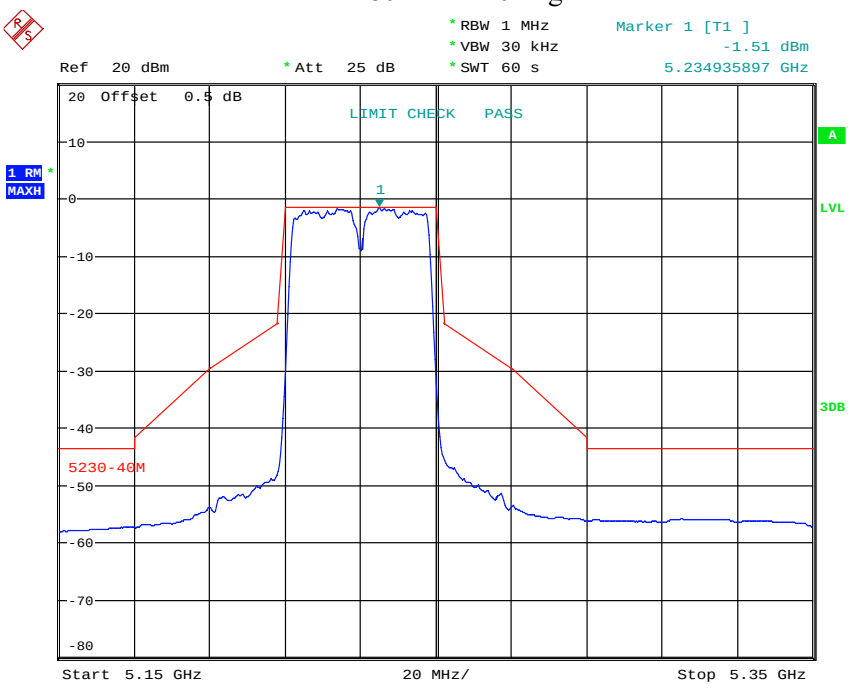
Date: 7.APR.2022 19:46:26

802.11 ac40 Low-2



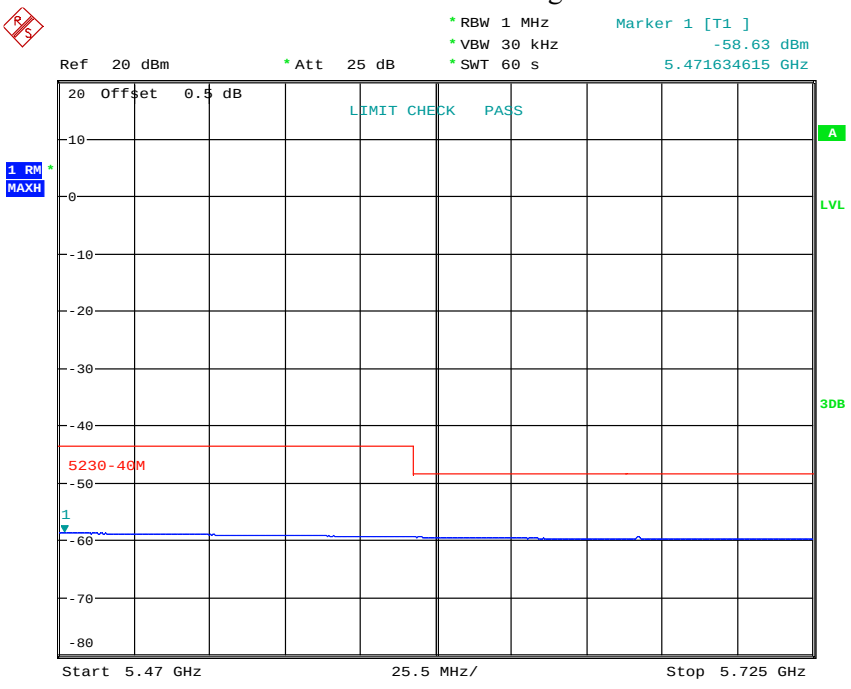
Date: 7.APR.2022 19:48:25

802.11 ac40 High-1



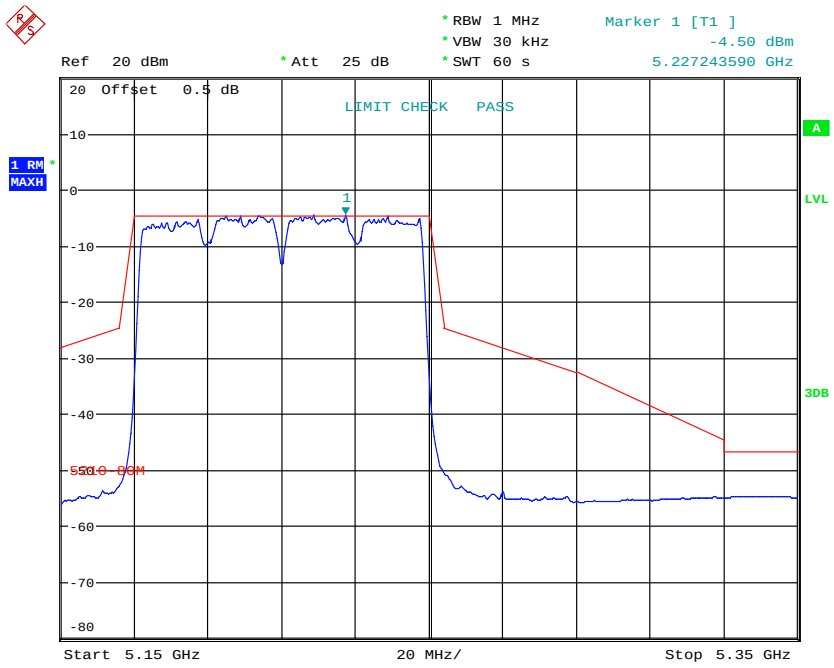
Date: 8.APR.2022 10:54:10

802.11 ac40 High-2



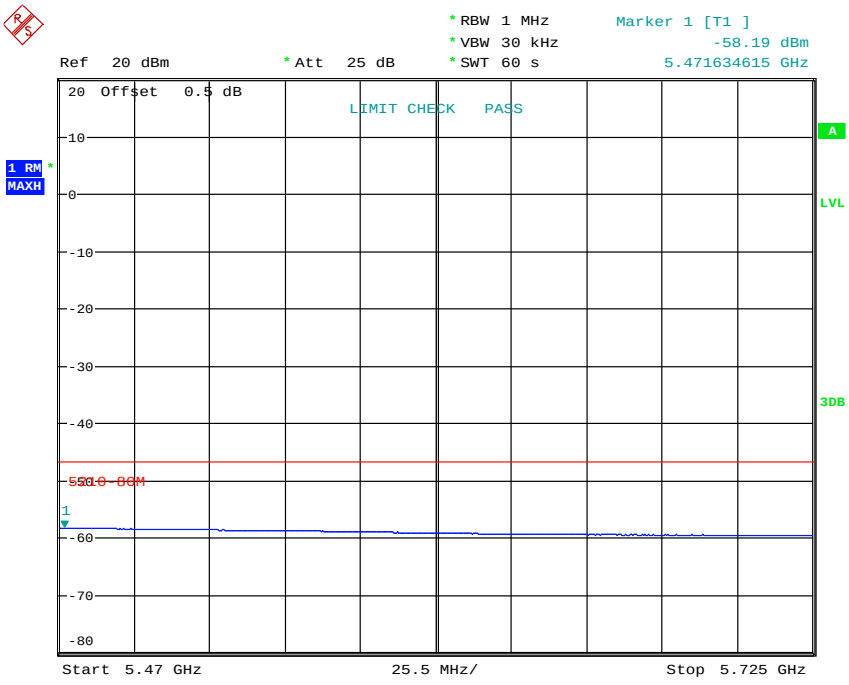
Date: 8.APR.2022 10:56:09

802.11 ac80 Middle-1



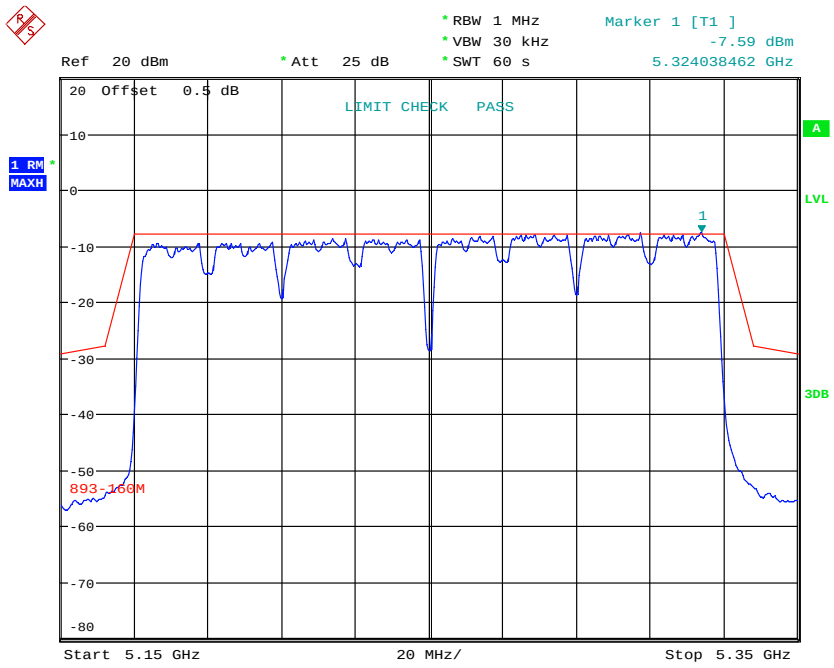
Date: 8.APR.2022 11:55:01

802.11 ac80 Middle-2



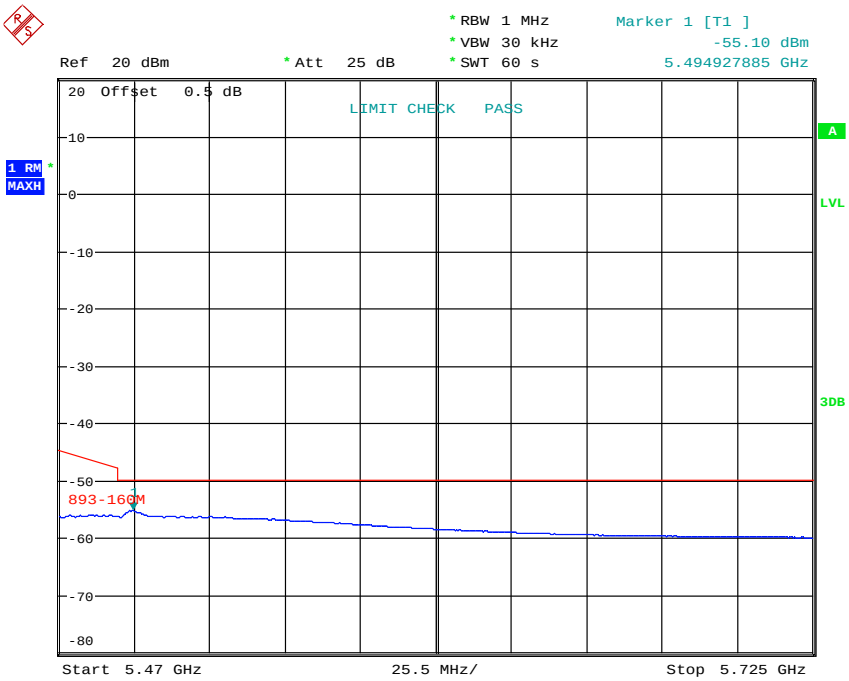
Date: 8.APR.2022 11:56:29

802.11 ac160 Middle-1



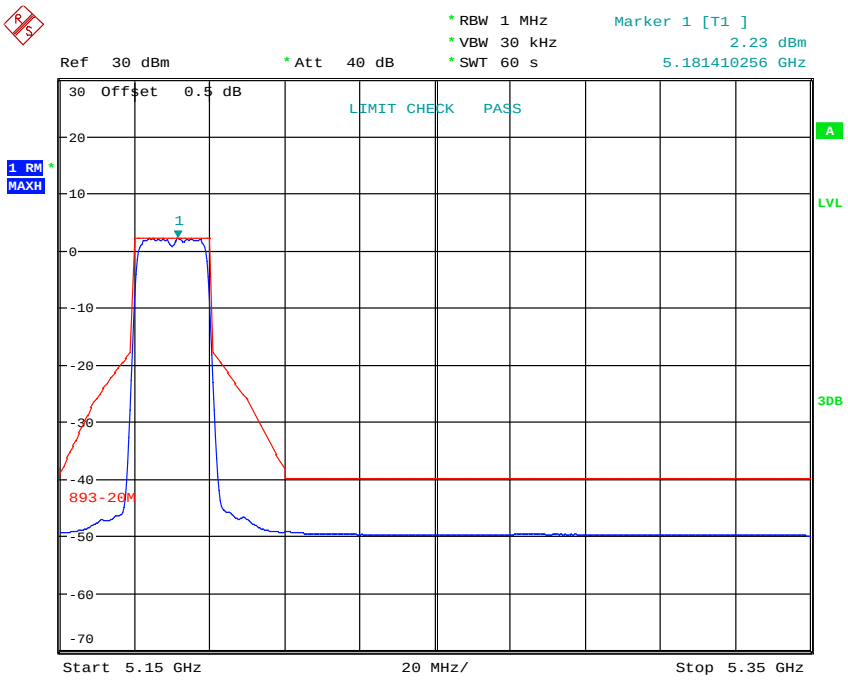
Date: 8.APR.2022 14:40:58

802.11 ac160 Middle-2



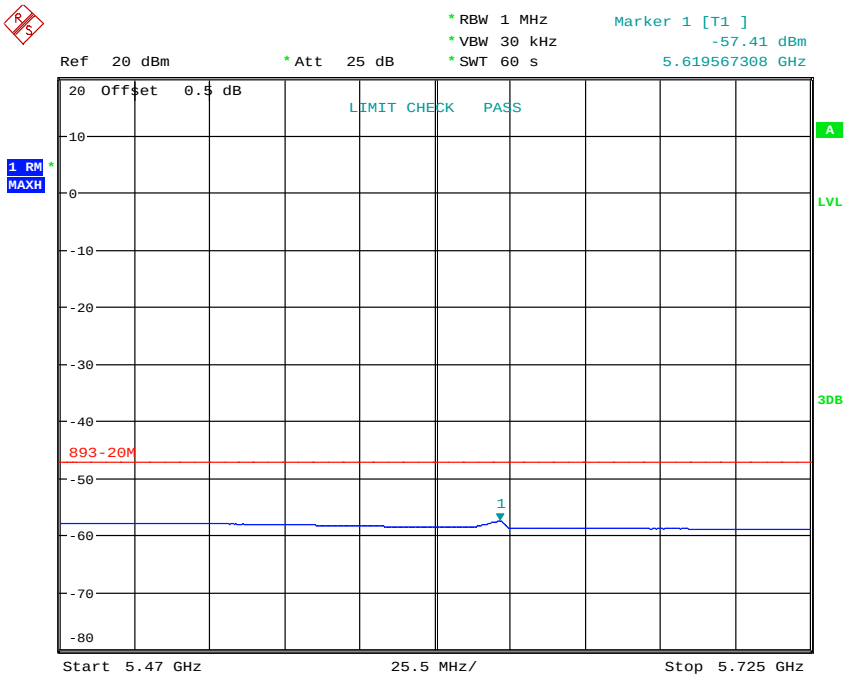
Date: 8.APR.2022 14:42:25

802.11 ax20 Low-1



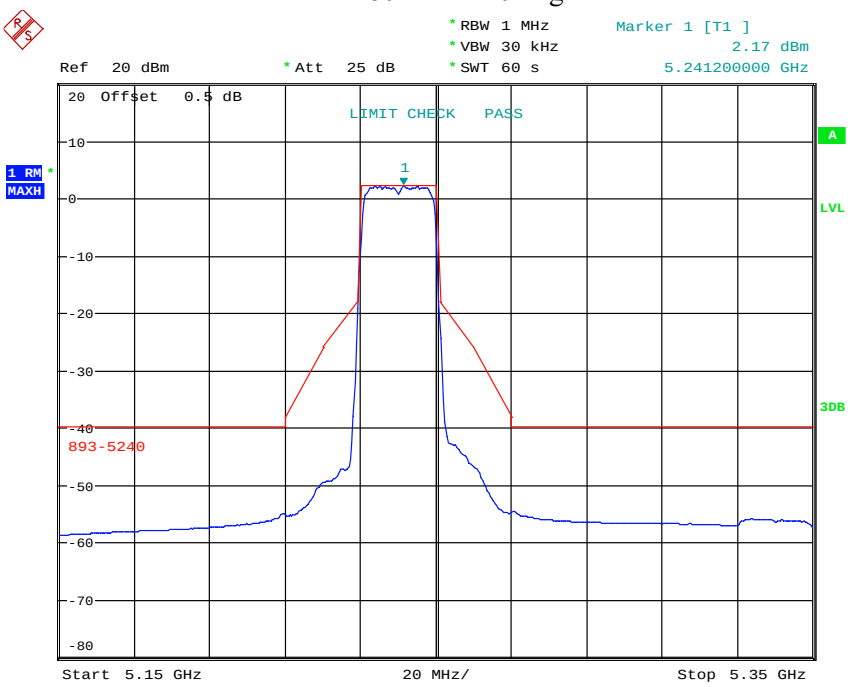
Date: 7.APR.2022 15:40:24

802.11 ax20 Low-2



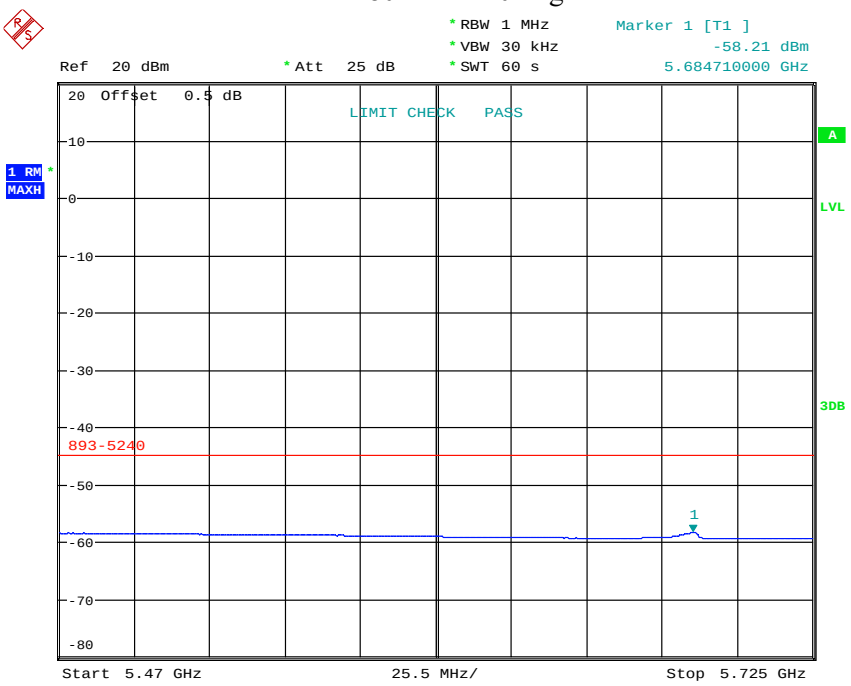
Date: 7.APR.2022 21:25:09

802.11 ax20 High-1



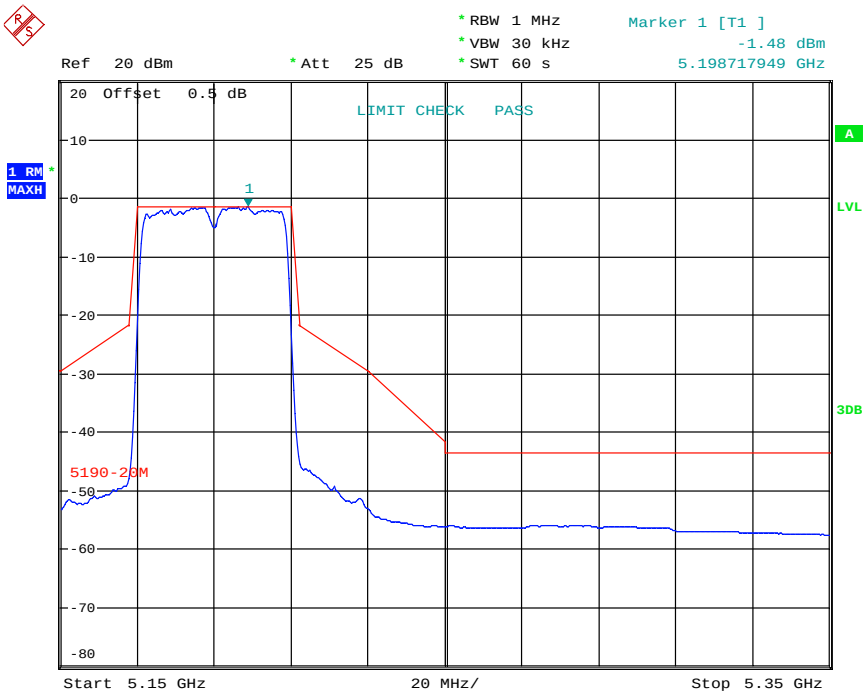
Date: 8.APR.2022 09:20:48

802.11 ax20 High-2



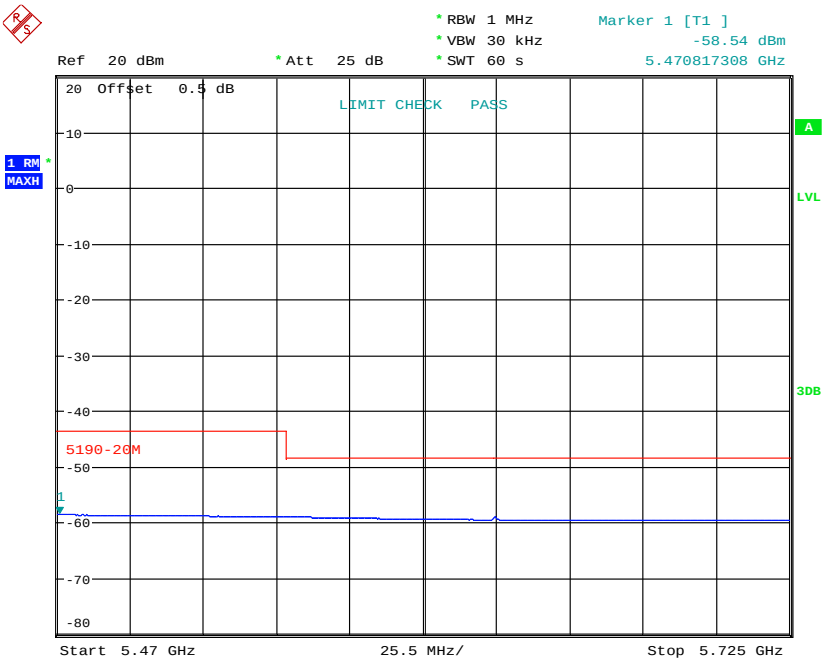
Date: 8.APR.2022 09:22:33

802.11 ax40 Low-1



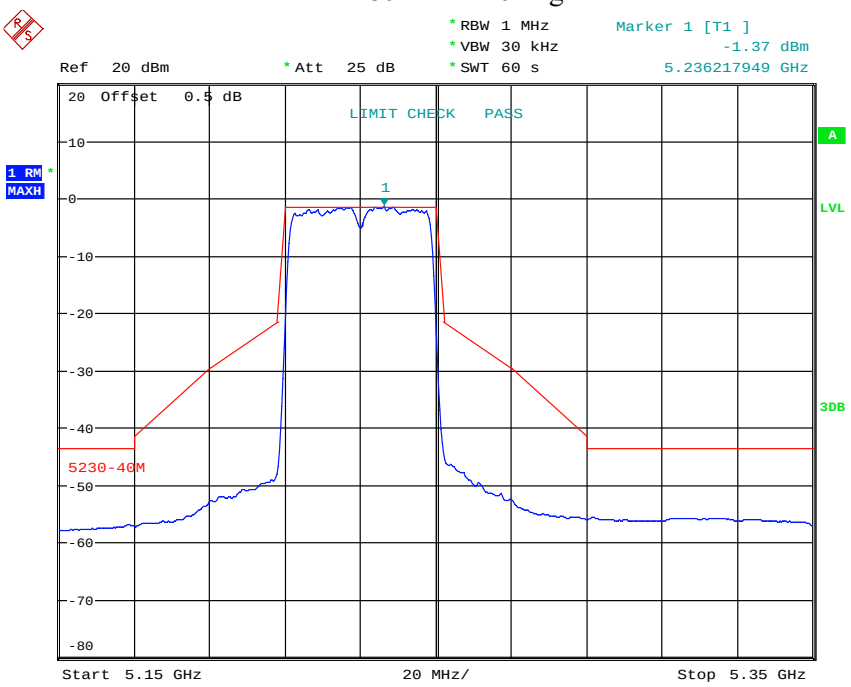
Date: 7.APR.2022 20:07:12

802.11 ax40 Low-2



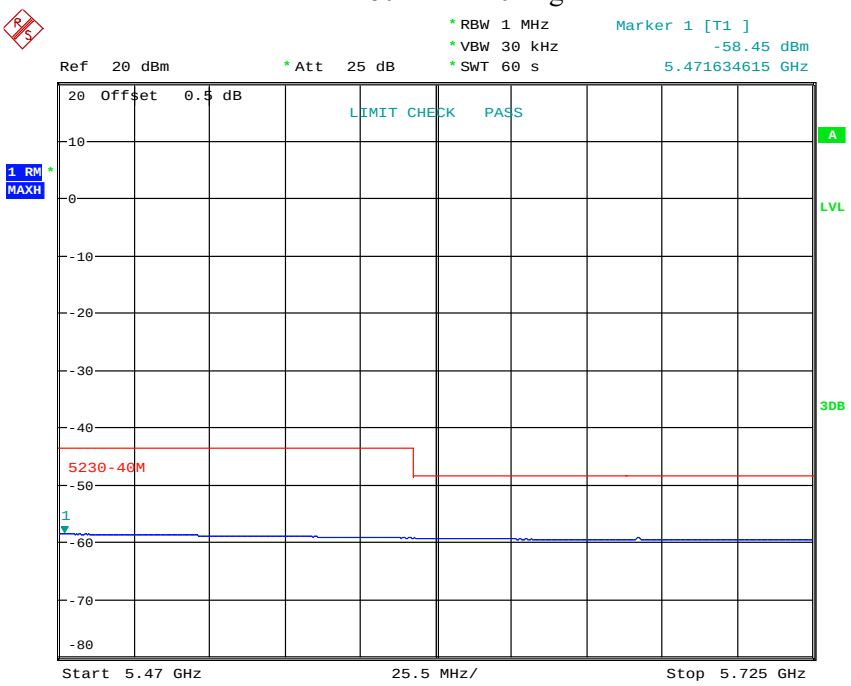
Date: 7.APR.2022 20:09:52

802.11 ax40 High-1



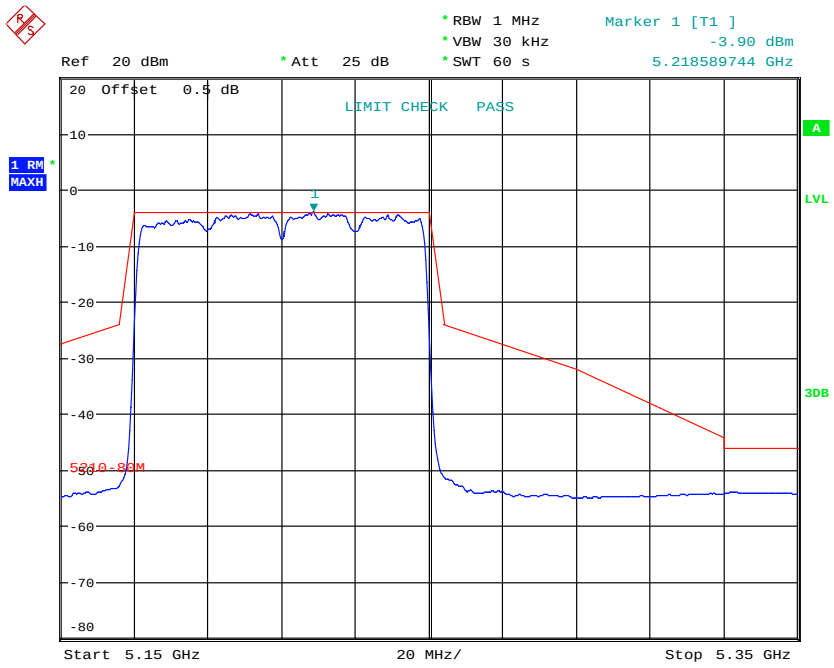
Date: 8.APR.2022 11:08:59

802.11 ax40 High-2



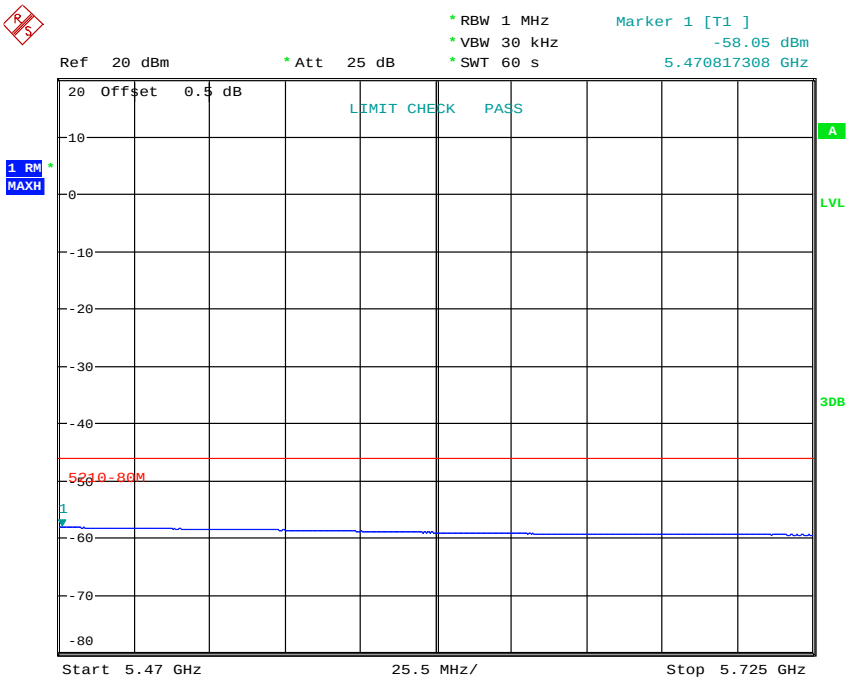
Date: 8.APR.2022 11:10:32

802.11 ax80 Middle-1



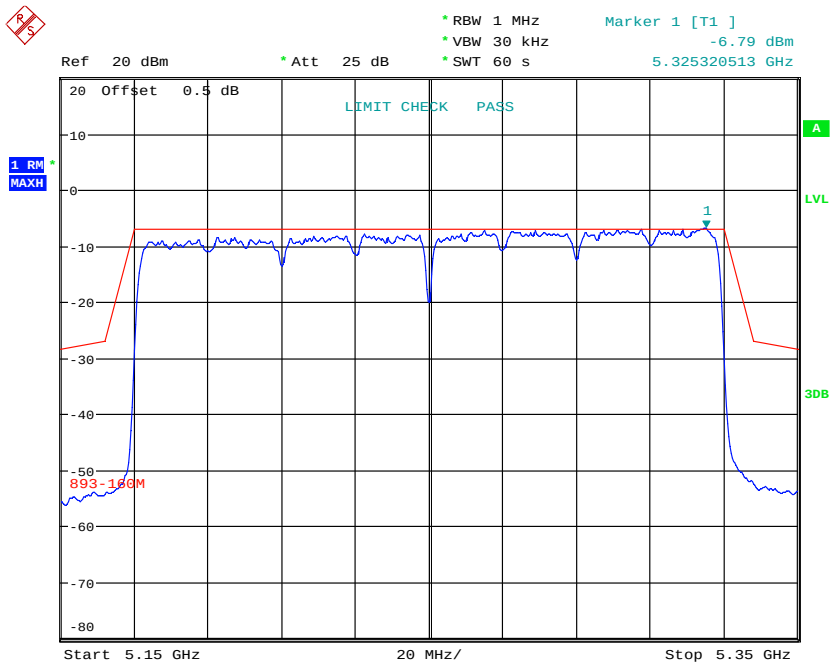
Date: 8.APR.2022 13:14:24

802.11 ax80 Middle-2



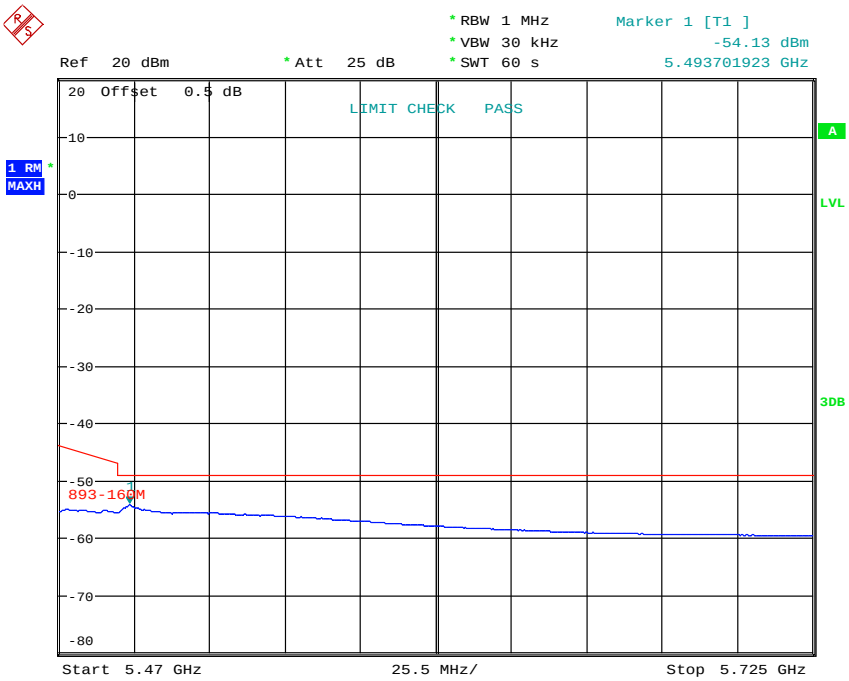
Date: 8.APR.2022 13:16:09

802.11 ax160 Middle-1



Date: 8.APR.2022 14:28:22

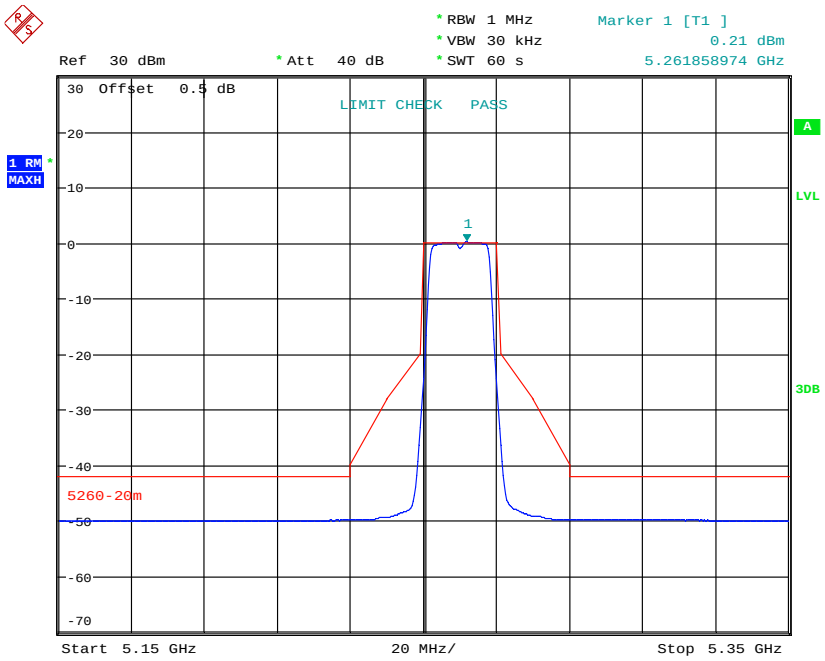
802.11 ax160 Middle-2



Date: 8.APR.2022 14:30:26

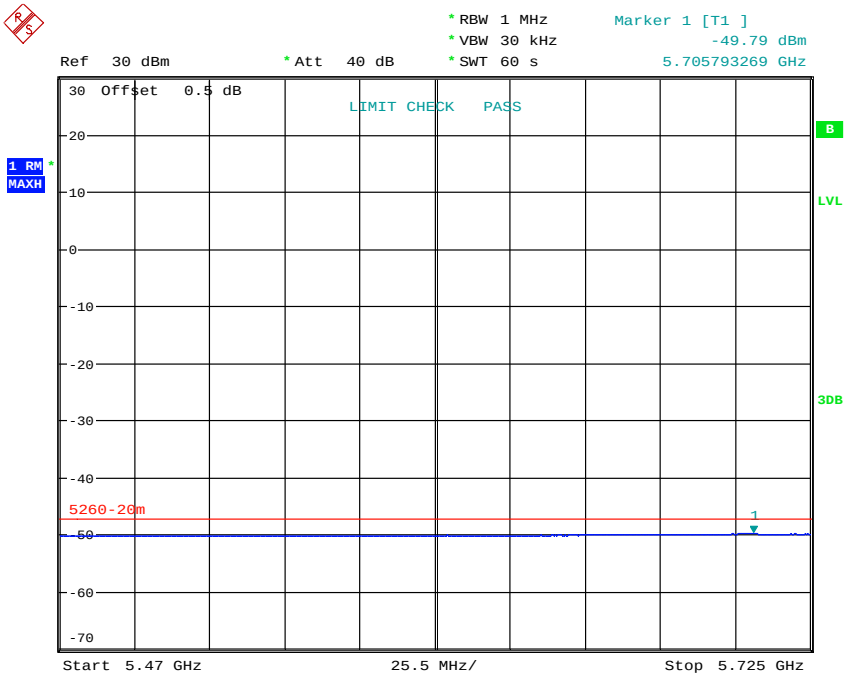
5250-5350MHz
Chain 0

802.11 a -1



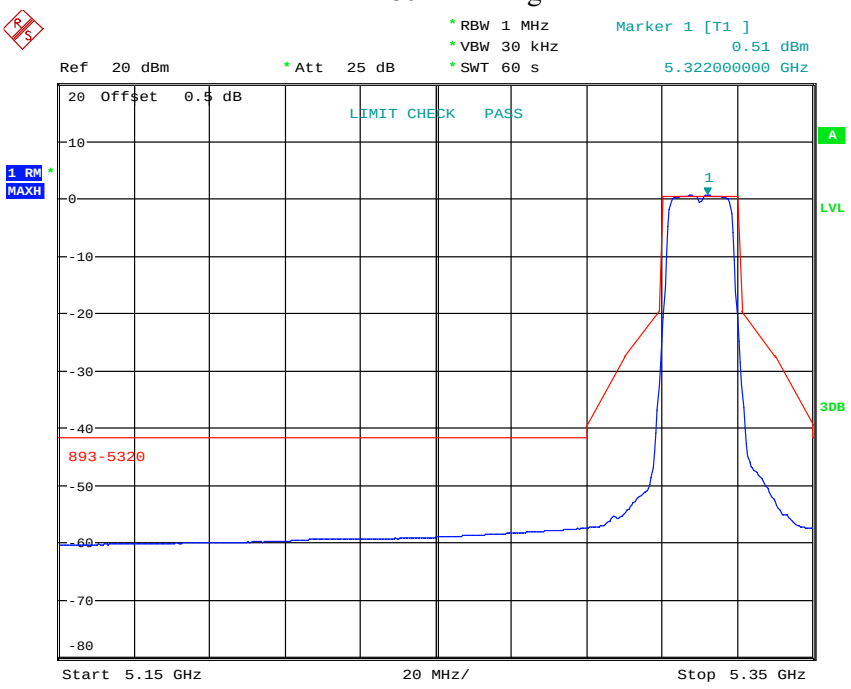
Date: 7.APR.2022 17:40:28

802.11 a -2



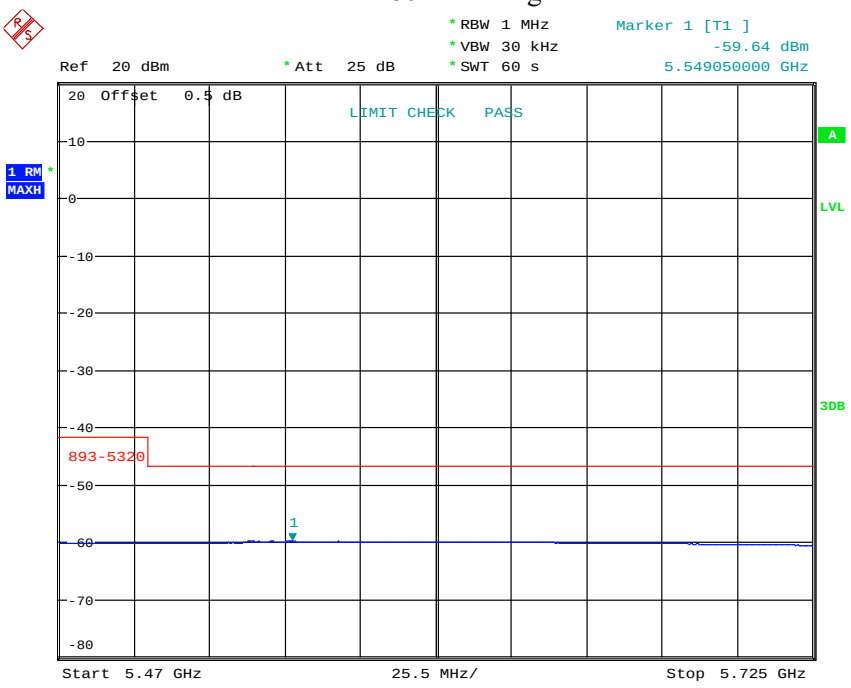
Date: 7.APR.2022 17:30:42

802.11 a High-1



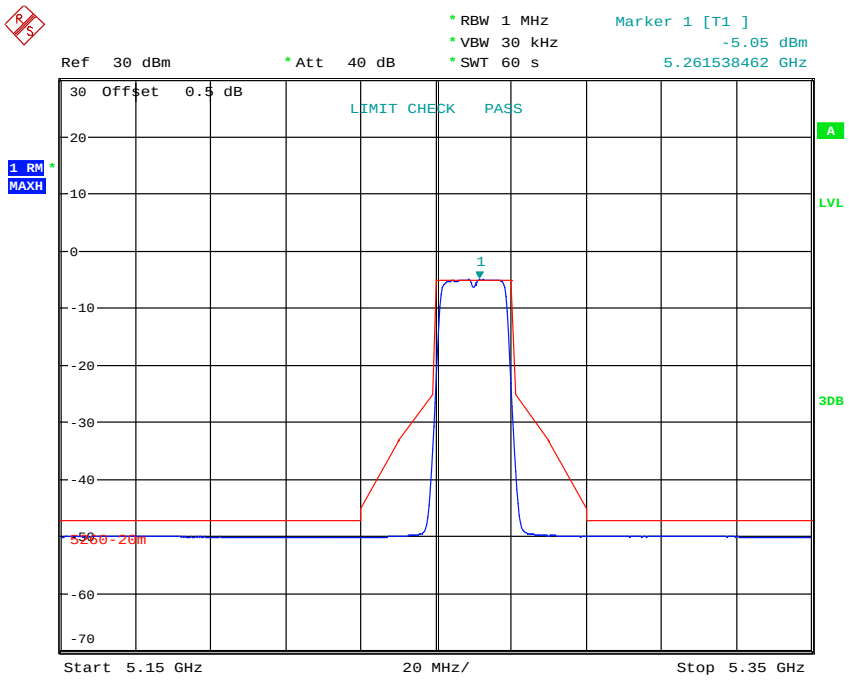
Date: 8.APR.2022 09:43:34

802.11 a High-2



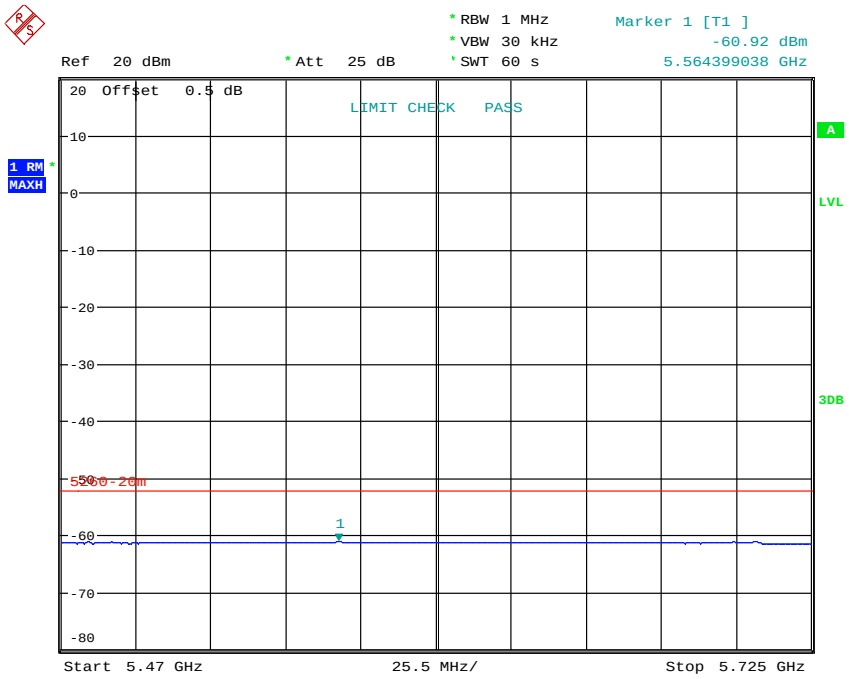
Date: 8.APR.2022 09:49:12

802.11 n20 Low-1



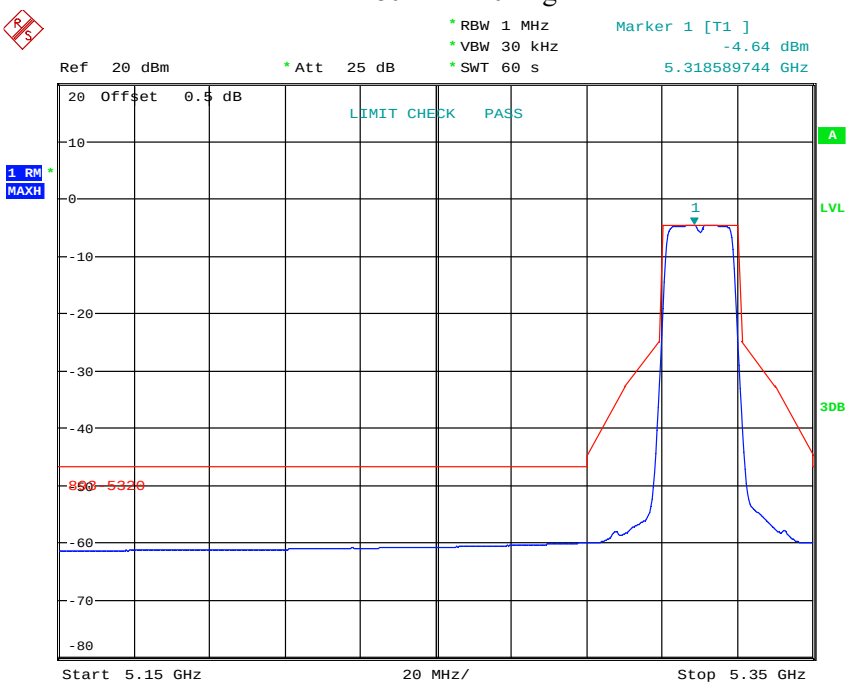
Date: 7.APR.2022 17:44:47

802.11 n20 Low-2



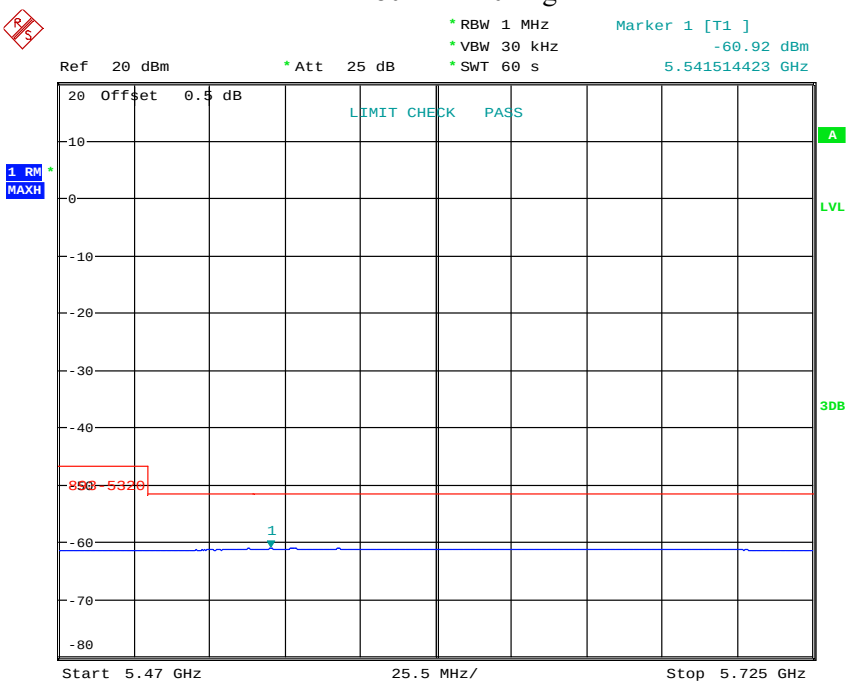
Date: 7.APR.2022 17:51:24

802.11 n20 High-1



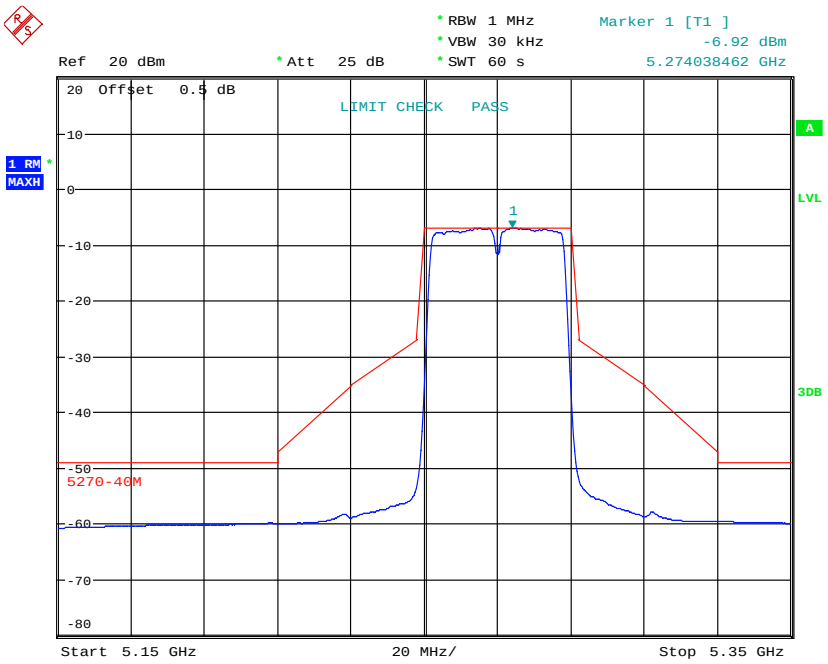
Date: 8.APR.2022 10:13:31

802.11 n20 High-2



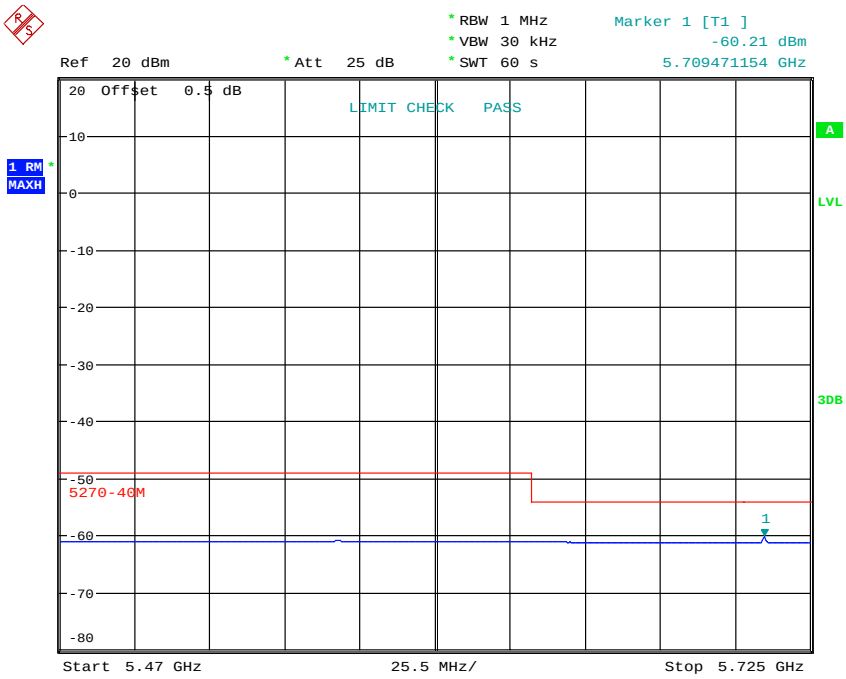
Date: 8.APR.2022 10:15:17

802.11 n40 Low-1



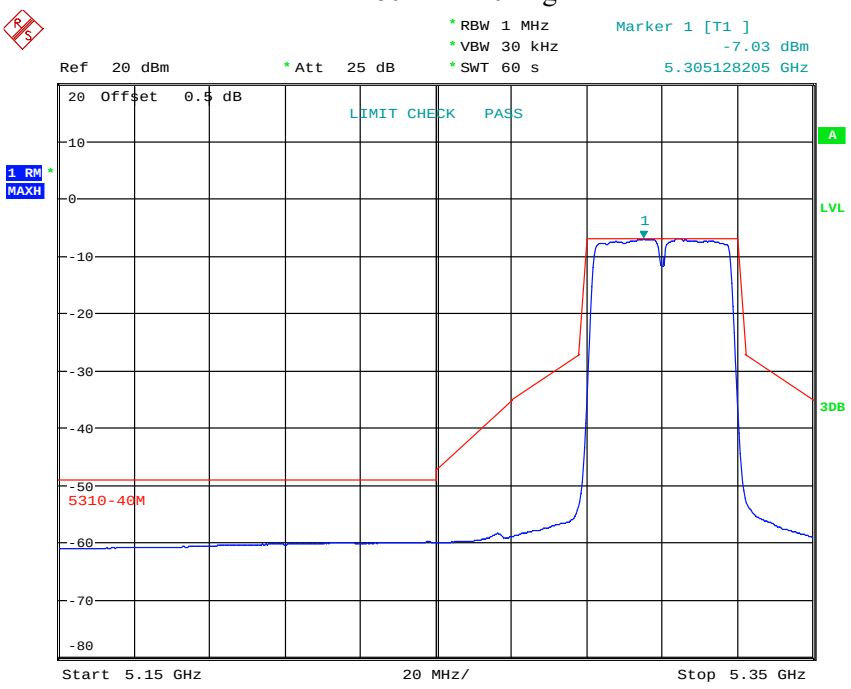
Date: 7.APR.2022 20:31:37

802.11 n40 Low-2



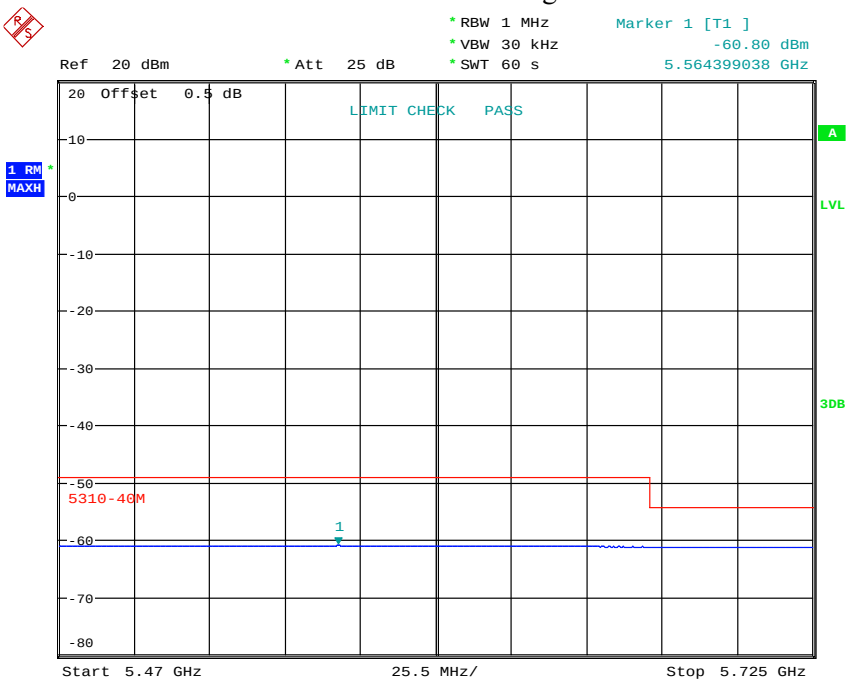
Date: 7.APR.2022 20:33:15

802.11 n40 High-1



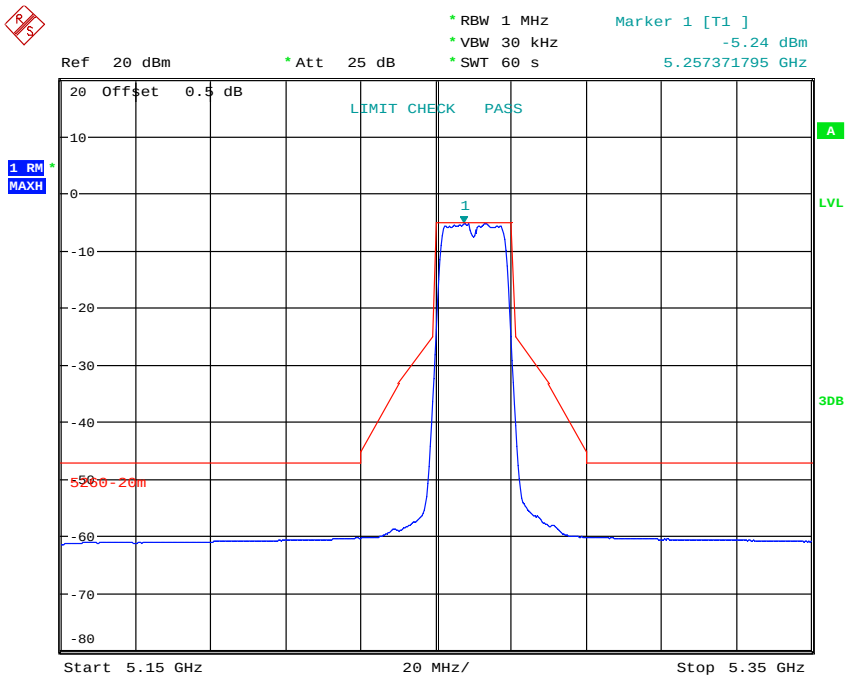
Date: 8.APR.2022 11:21:48

802.11 n40 High-2



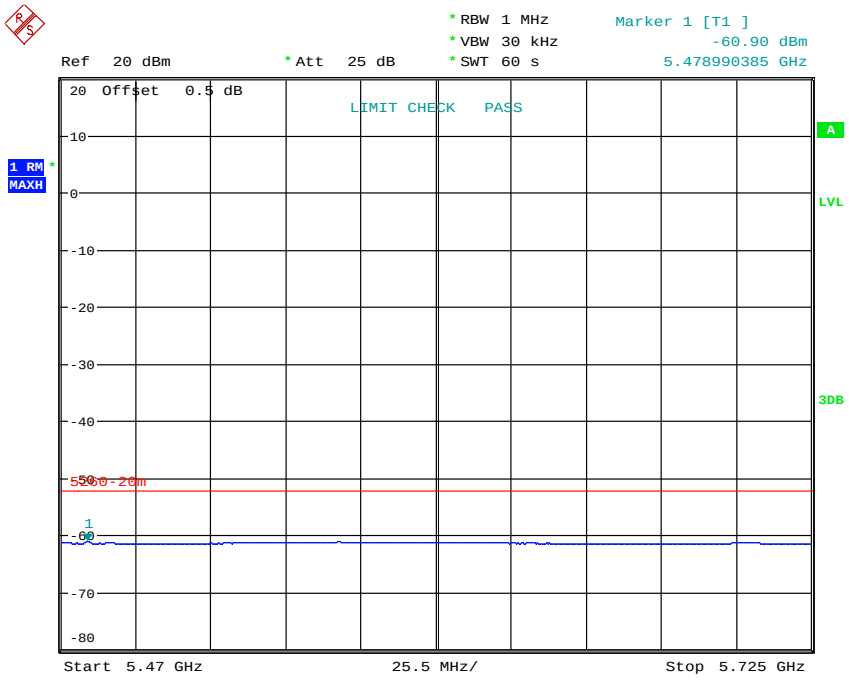
Date: 8.APR.2022 11:24:18

802.11 ac20 Low-1



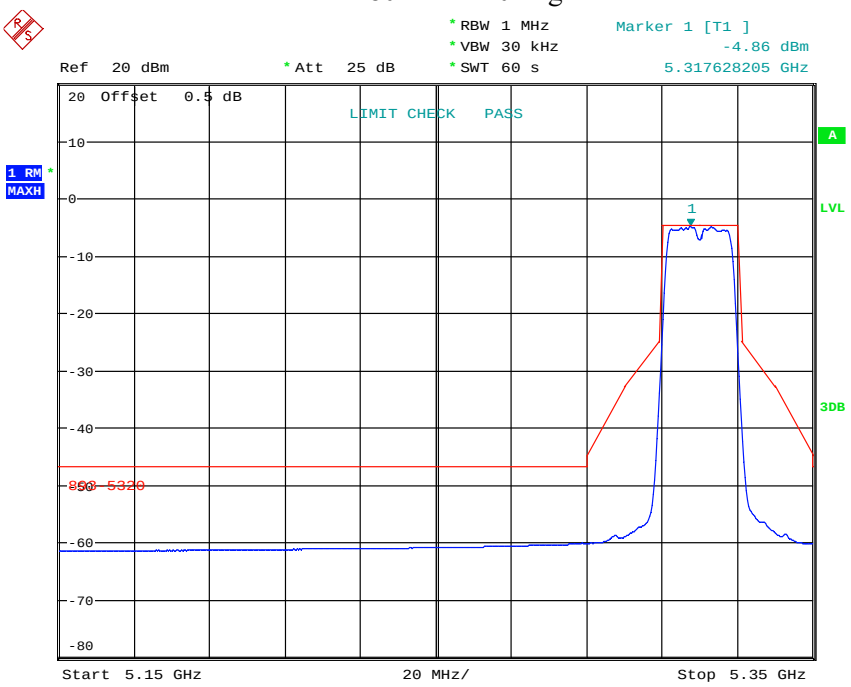
Date: 7.APR.2022 18:21:37

802.11 ac20 Low-2



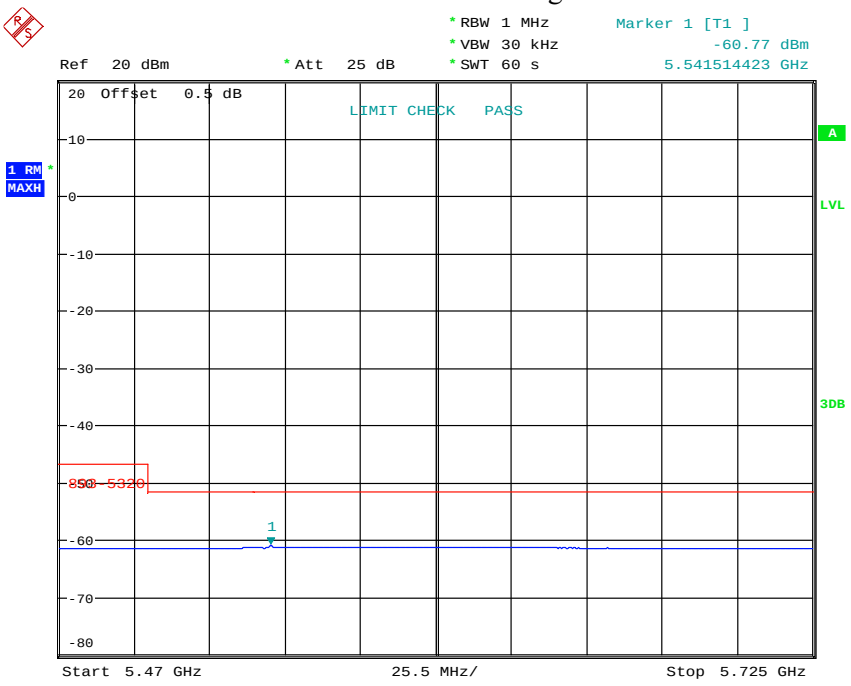
Date: 7.APR.2022 18:24:36

802.11 ac20 High-1



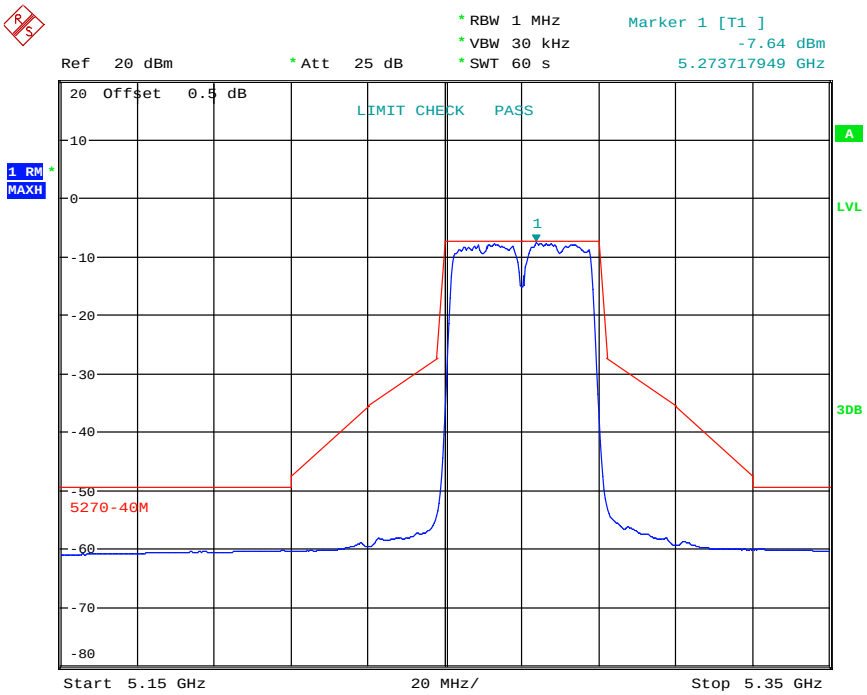
Date: 8.APR.2022 10:17:11

802.11 ac20 High-2



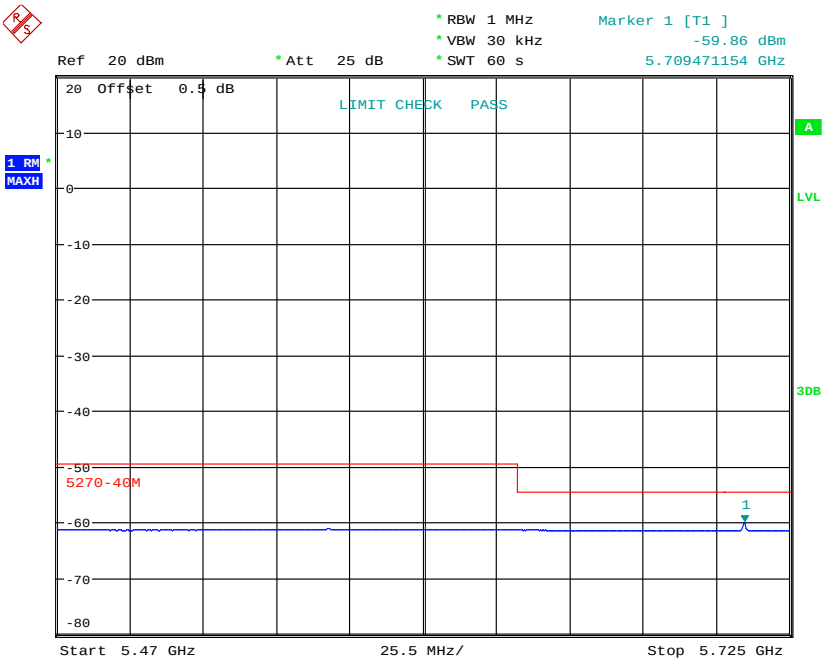
Date: 8.APR.2022 10:19:24

802.11 ac40 Low-1



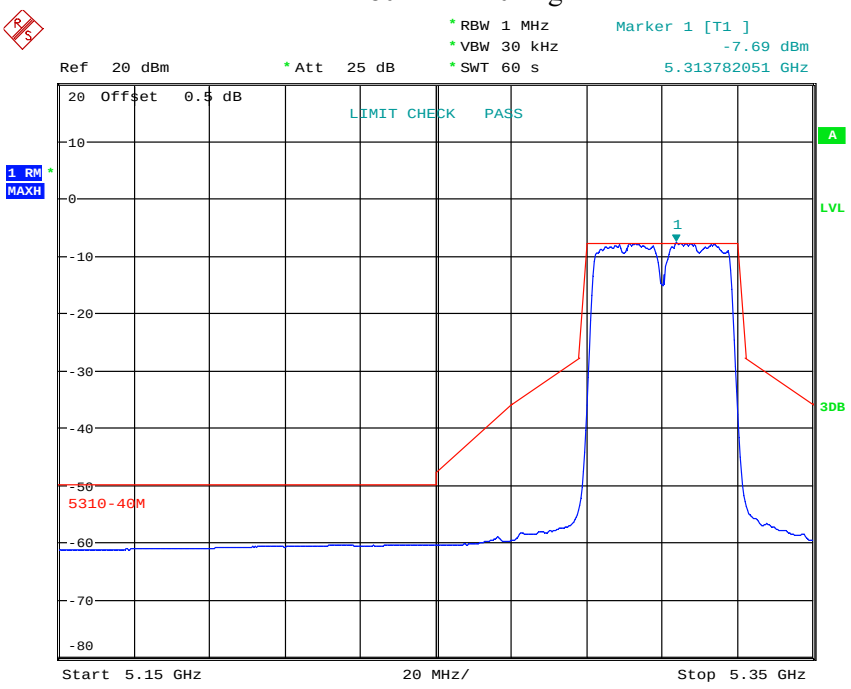
Date: 7.APR.2022 20:35:48

802.11 ac40 Low-2



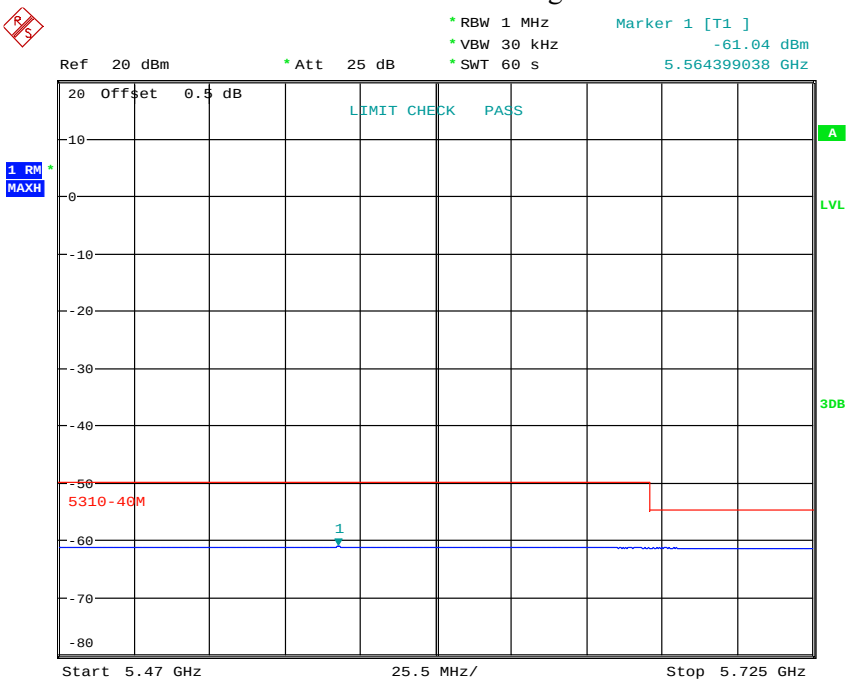
Date: 7.APR.2022 20:37:15

802.11 ac40 High-1



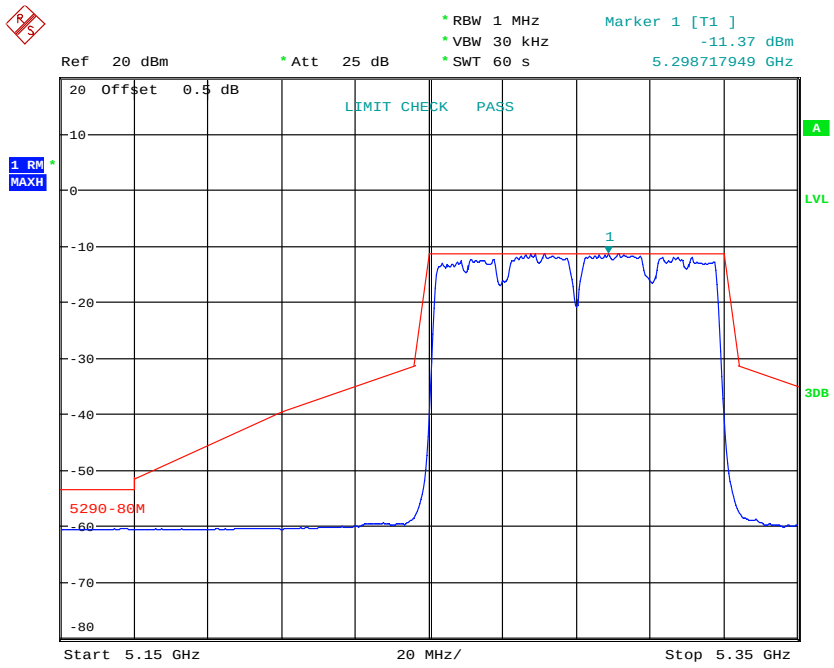
Date: 8.APR.2022 11:37:57

802.11 ac40 High-2



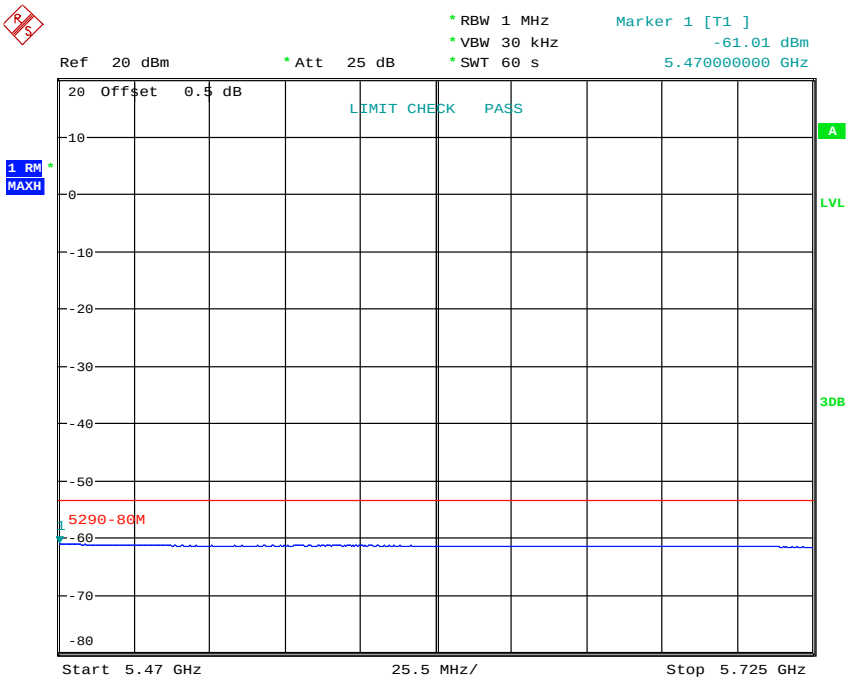
Date: 8.APR.2022 11:40:04

802.11 ac80 Middle-1



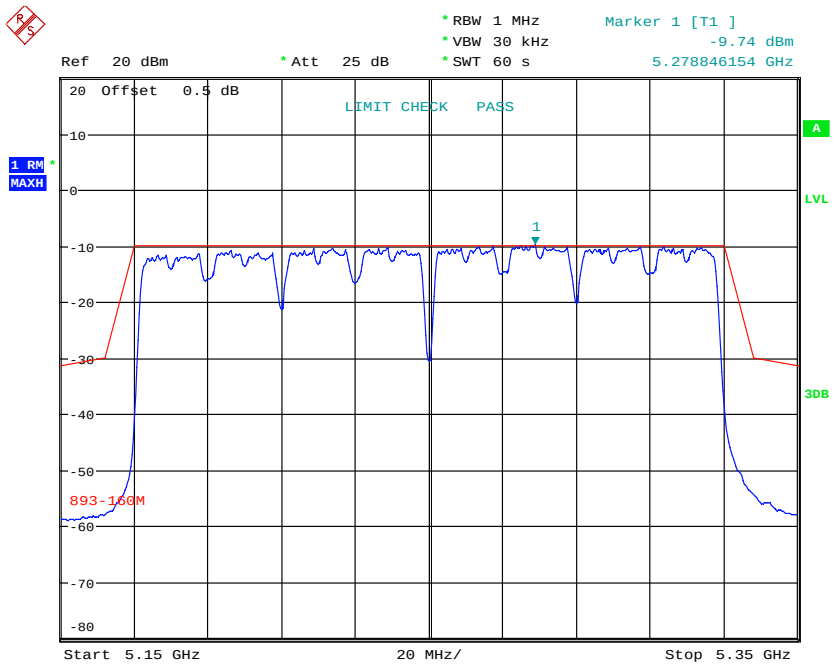
Date: 8.APR.2022 13:31:55

802.11 ac80 Middle-2



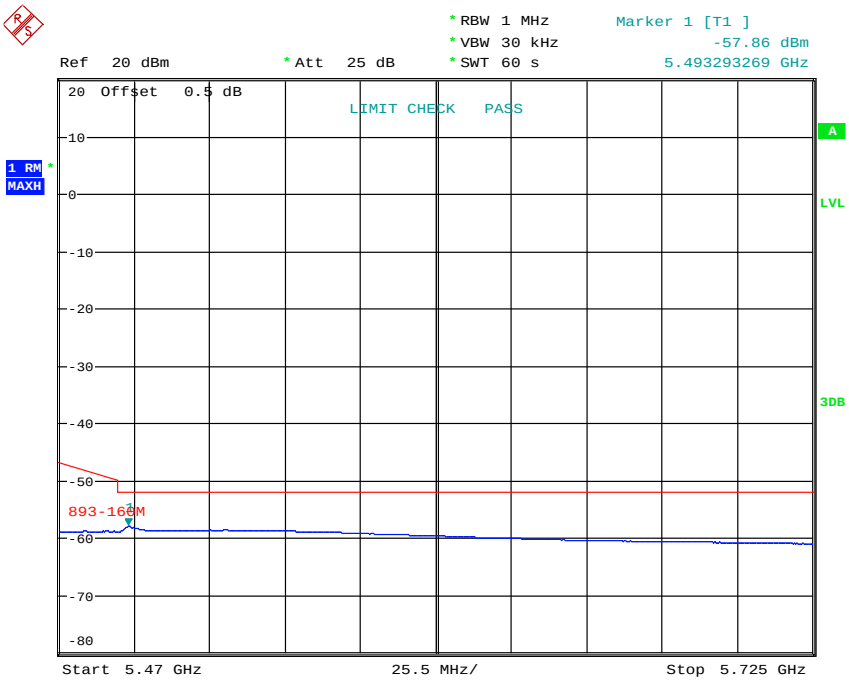
Date: 8.APR.2022 13:29:26

802.11 ac160 Middle-1



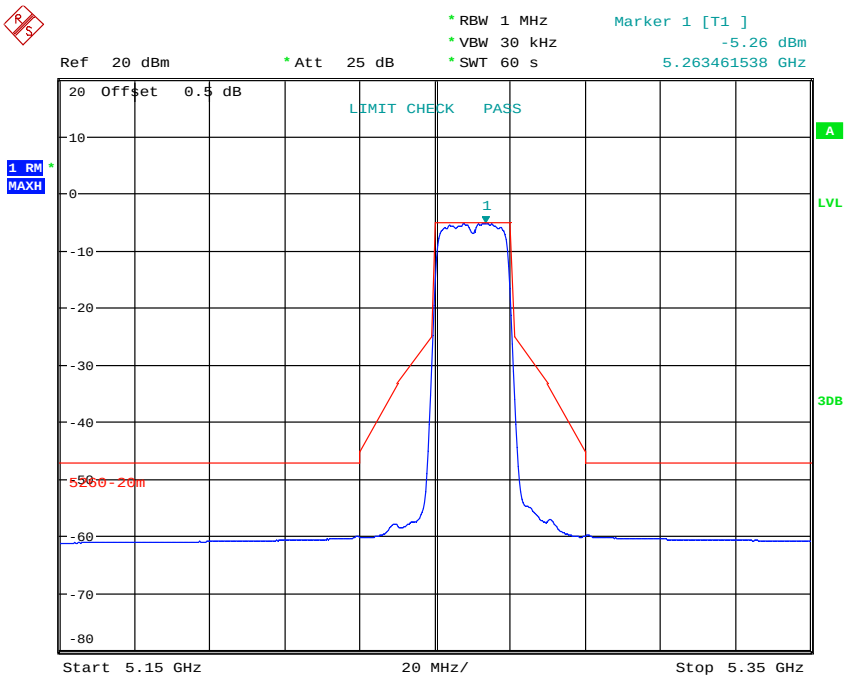
Date: 8.APR.2022 14:06:48

802.11 ac160 Middle-2



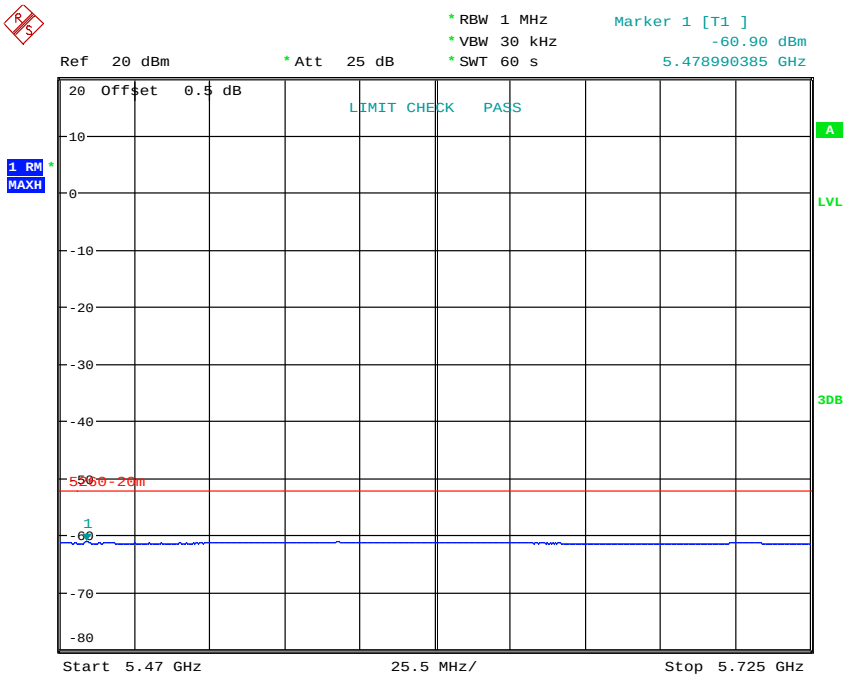
Date: 8.APR.2022 14:09:34

802.11 ax20 Low-1



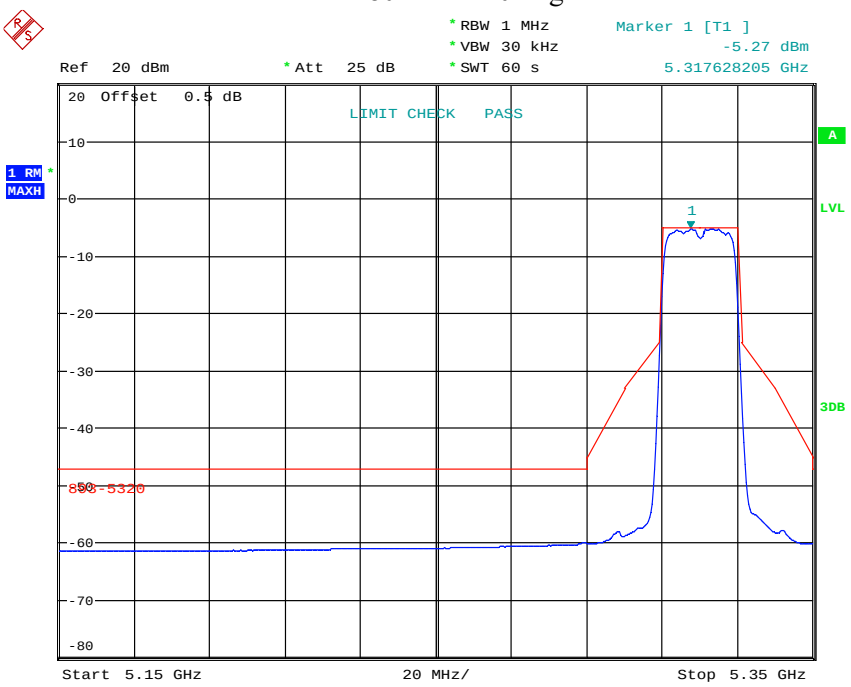
Date: 7.APR.2022 18:07:36

802.11 ax20 Low-2



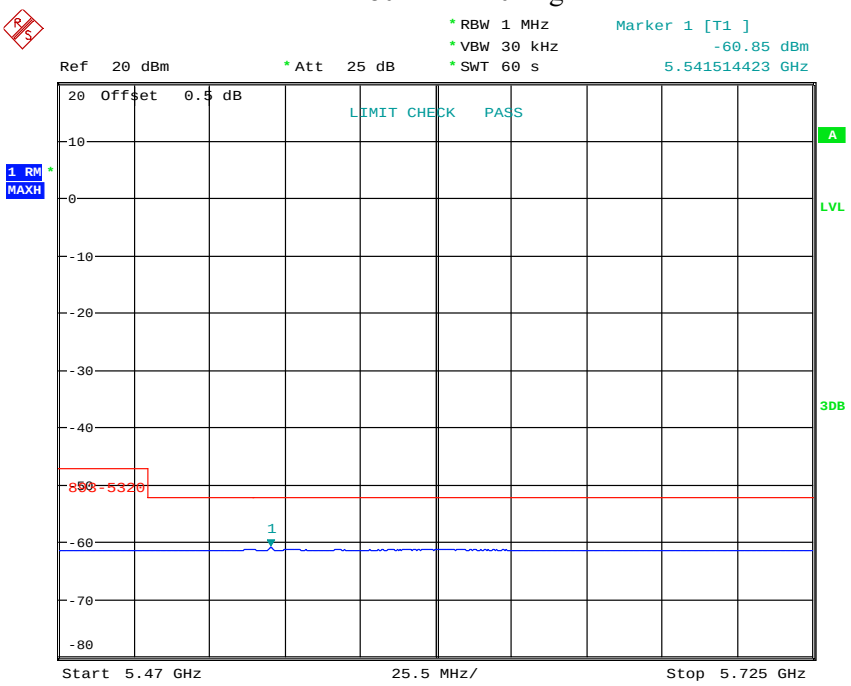
Date: 7.APR.2022 18:09:27

802.11 ax20 High-1



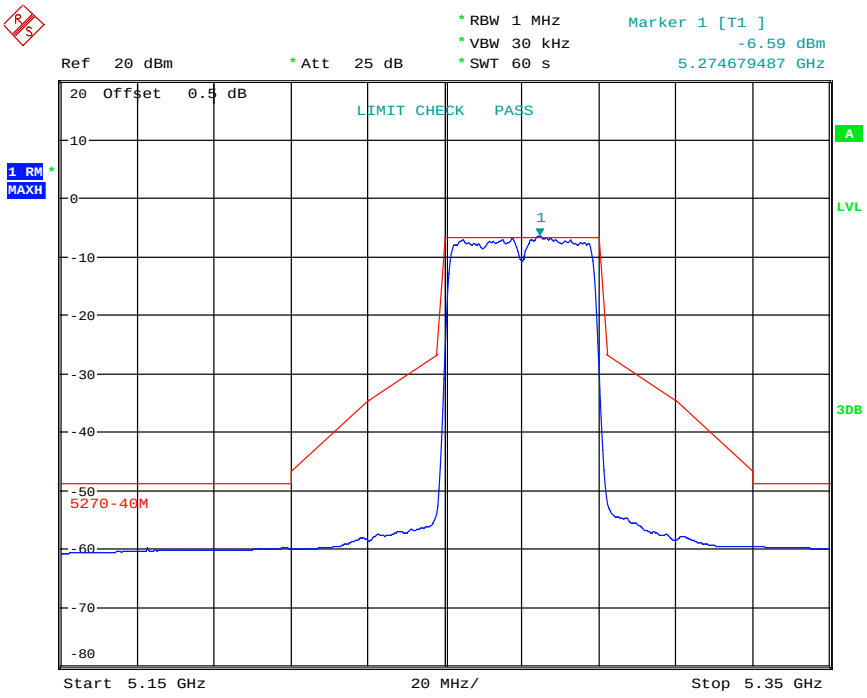
Date: 8.APR.2022 10:30:45

802.11 ax20 High-2



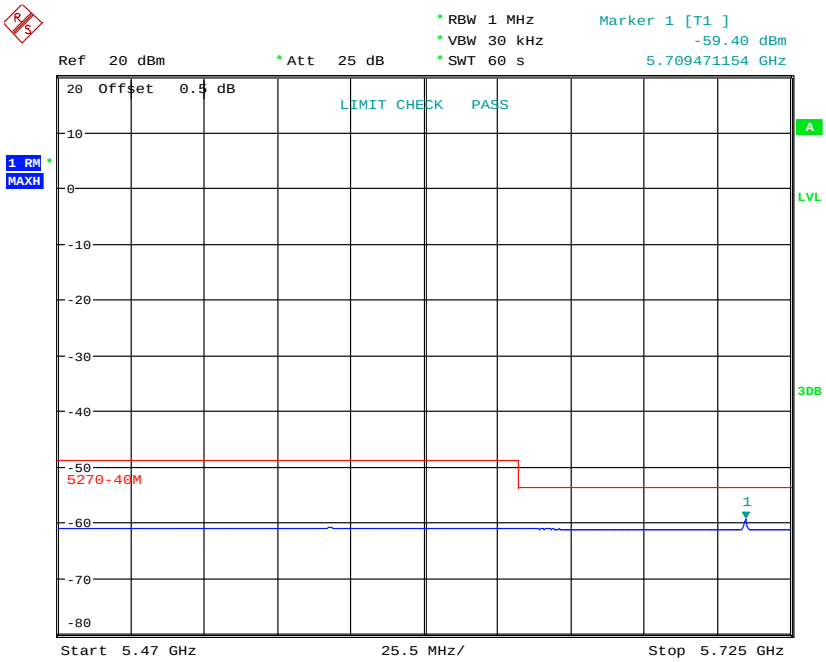
Date: 8.APR.2022 10:33:12

802.11 ax40 Low-1



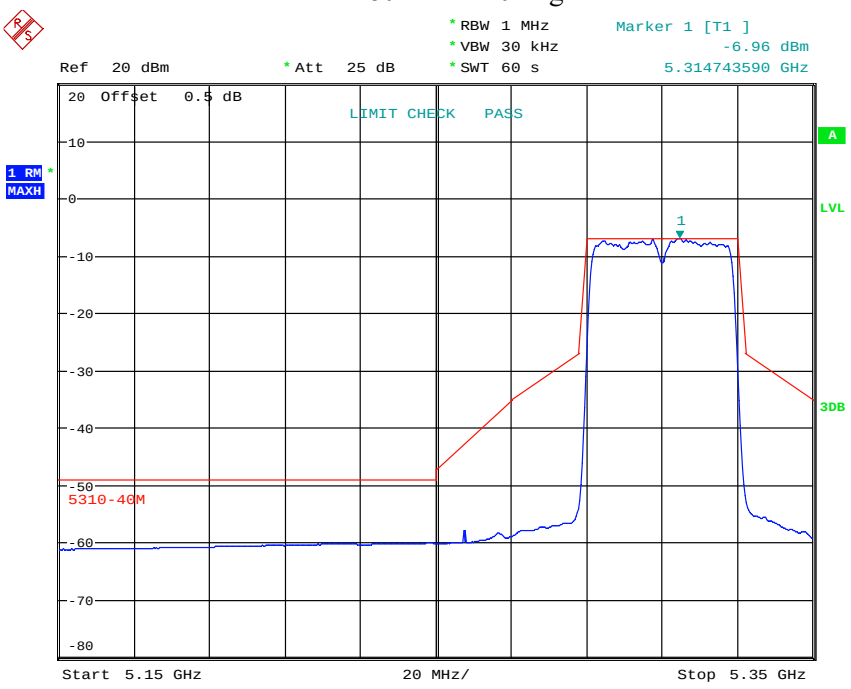
Date: 7.APR.2022 20:52:19

802.11 ax40 Low-2



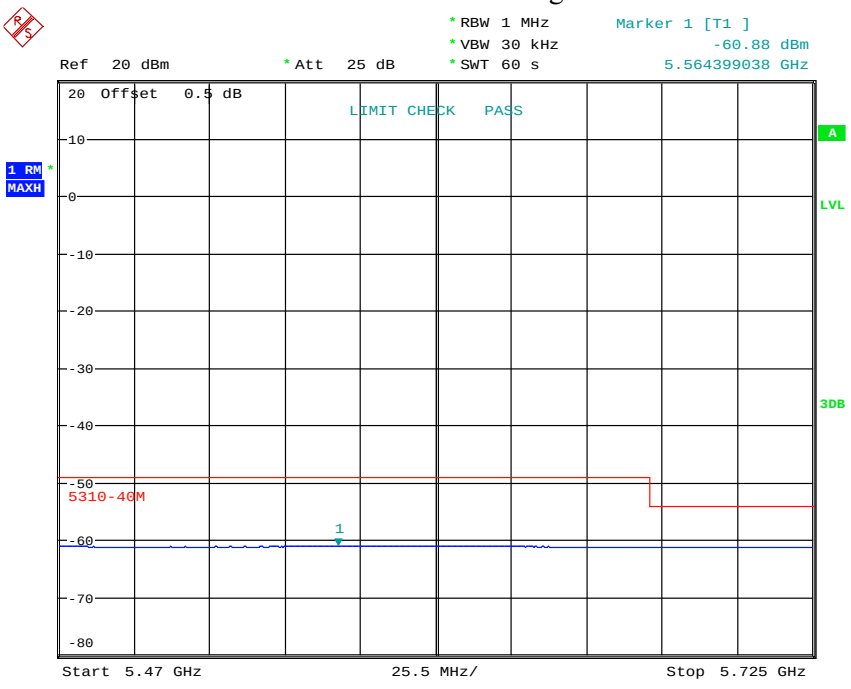
Date: 7.APR.2022 20:54:16

802.11 ax40 High-1



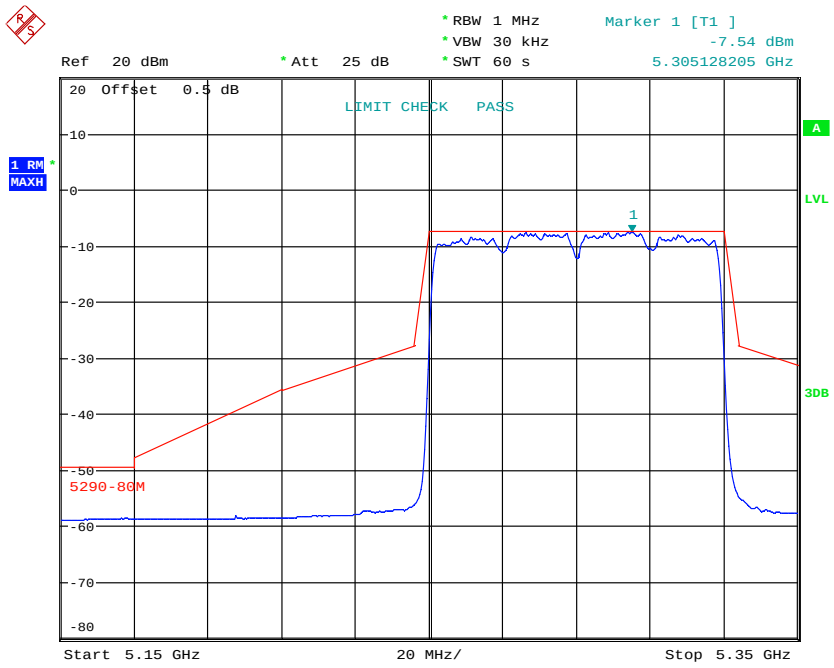
Date: 8.APR.2022 11:42:31

802.11 ax40 High-2



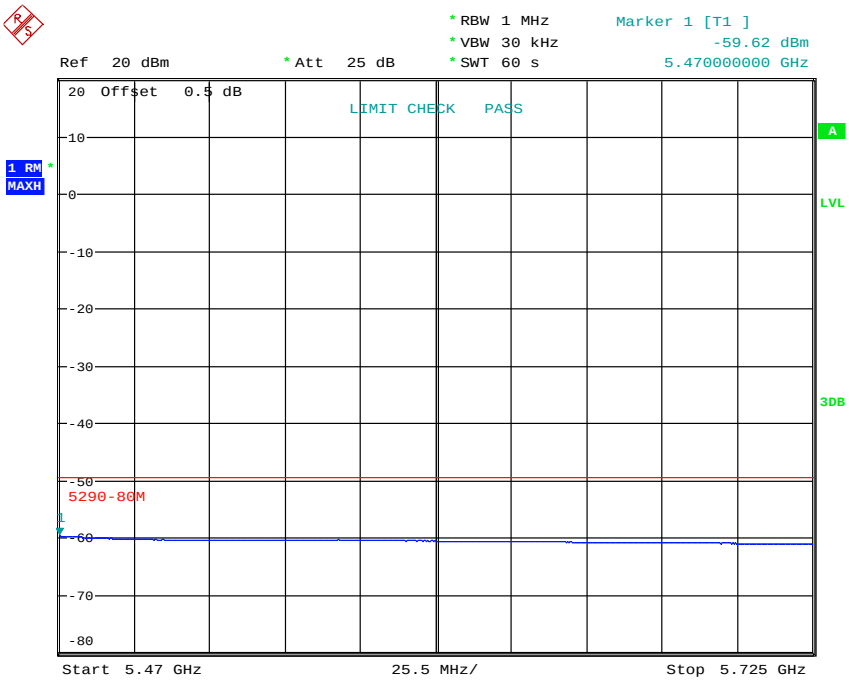
Date: 8.APR.2022 11:43:55

802.11 ax80 Middle-1



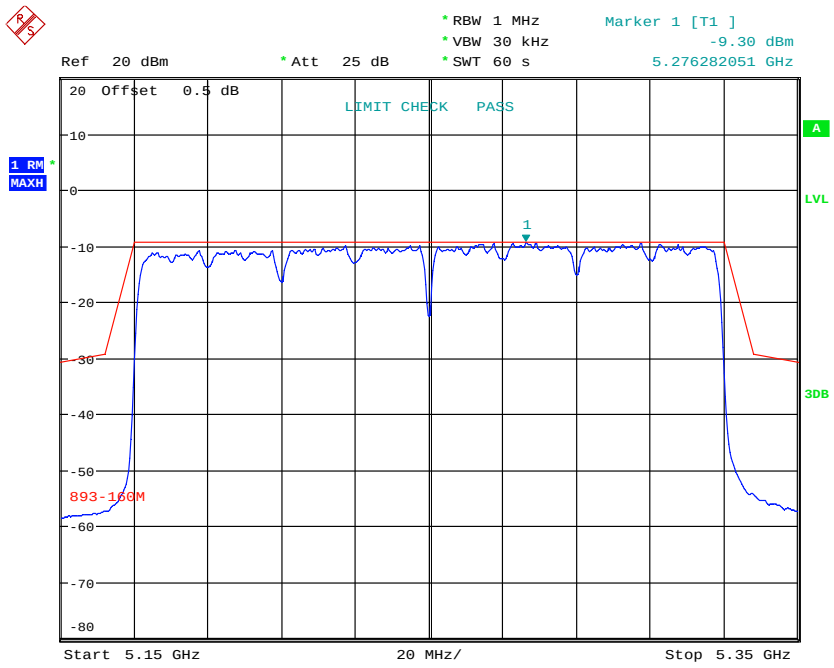
Date: 8.APR.2022 13:34:56

802.11 ax80 Middle-2



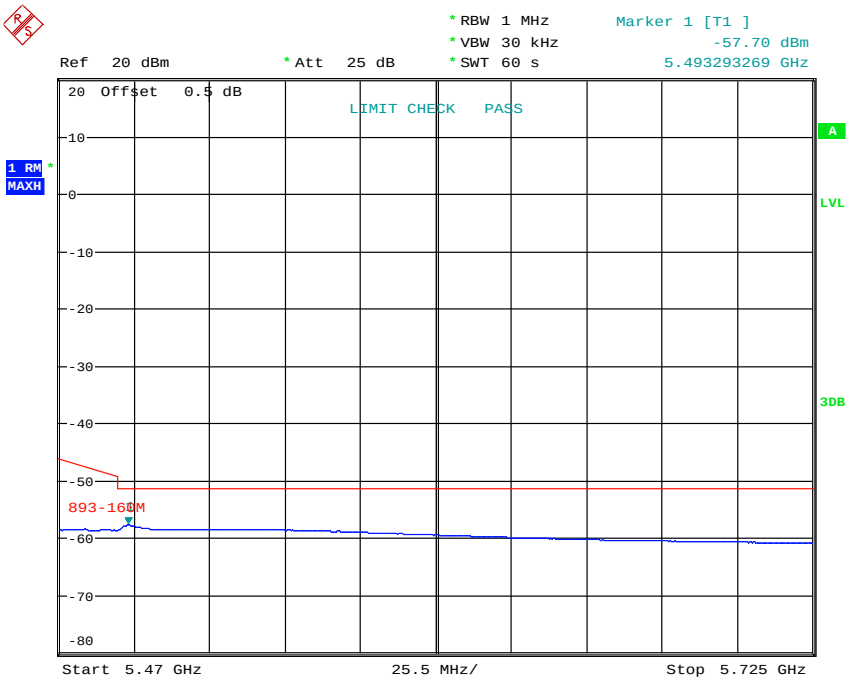
Date: 8.APR.2022 13:36:21

802.11 ax160 Middle-1



Date: 8.APR.2022 14:13:12

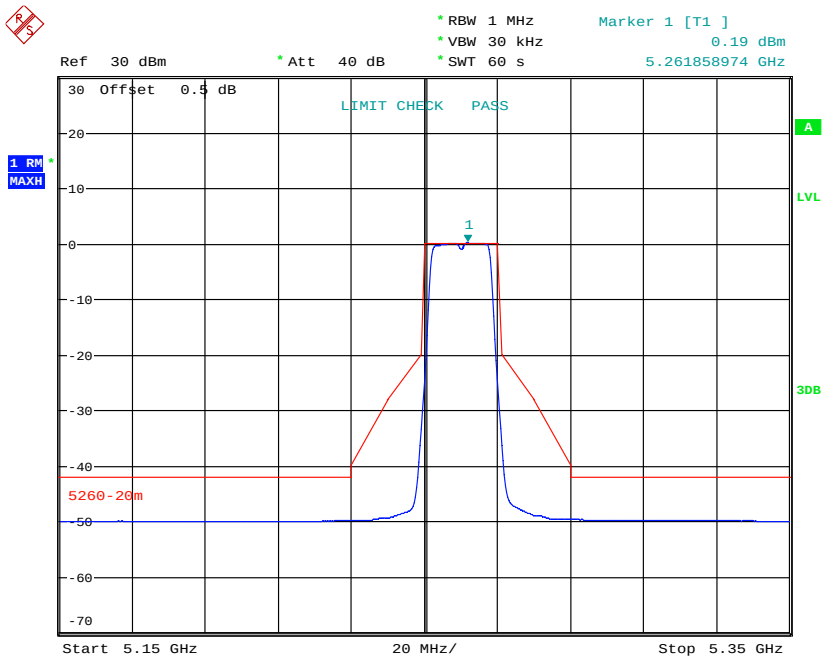
802.11 ax160 Middle-2



Date: 8.APR.2022 14:15:24

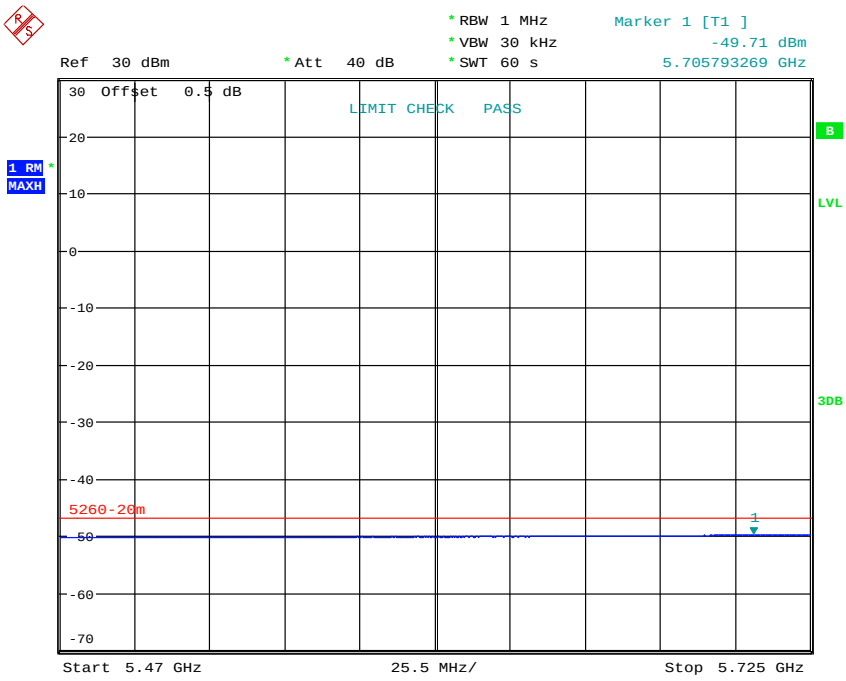
Chain 1:

802.11 a -1



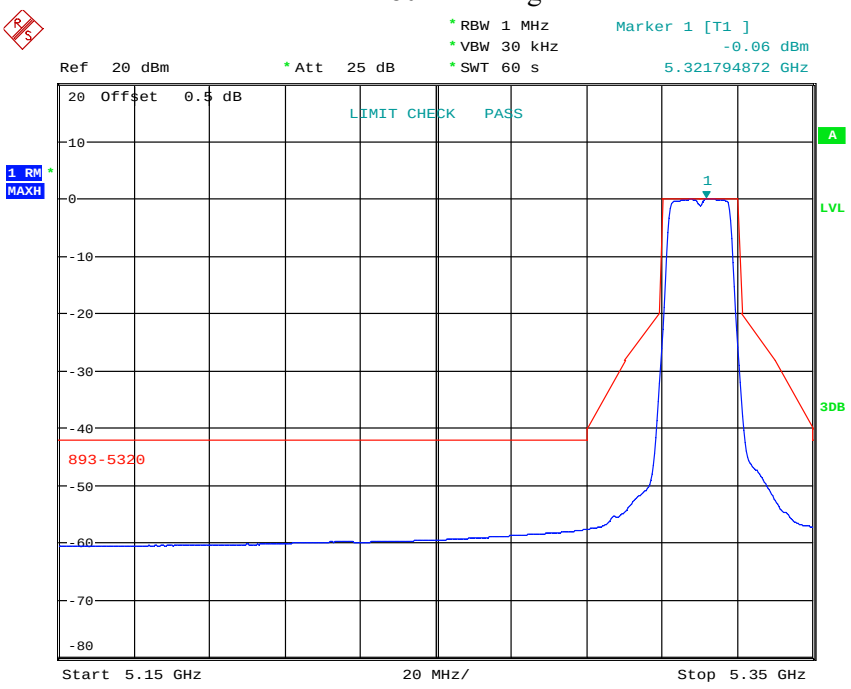
Date: 7.APR.2022 17:38:34

802.11 a -2



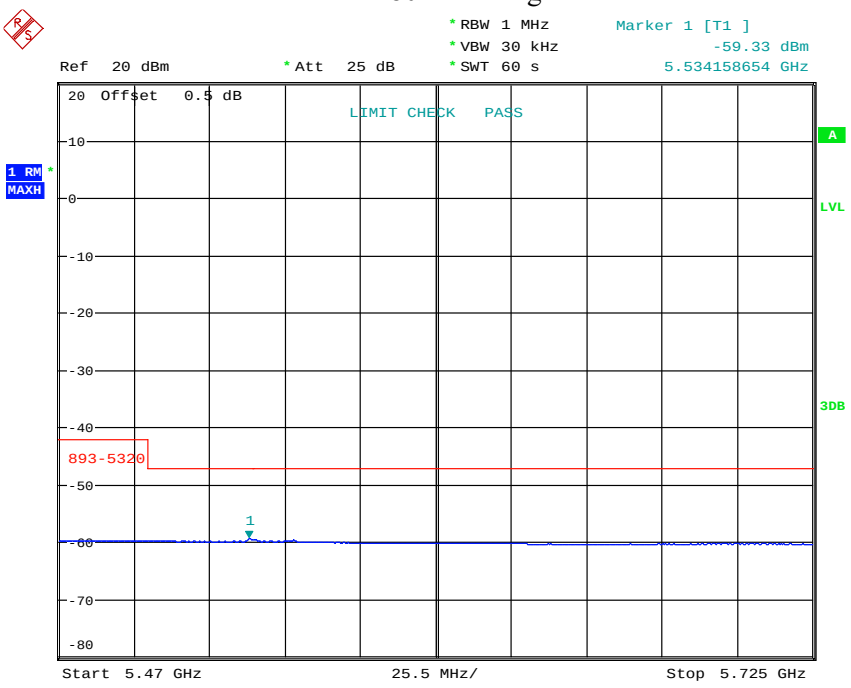
Date: 7.APR.2022 17:35:20

802.11 a High-1



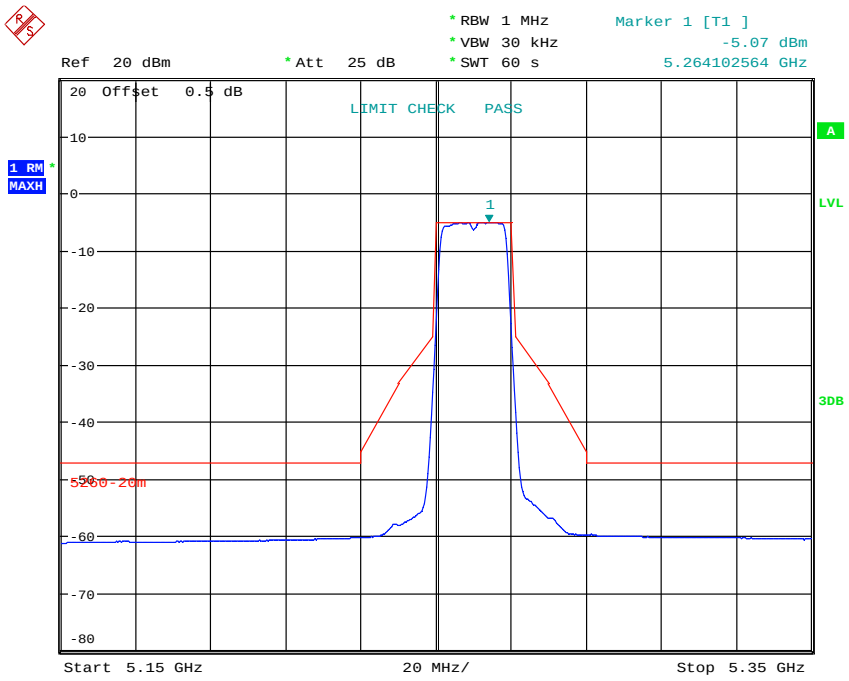
Date: 8.APR.2022 10:02:39

802.11 a High-2



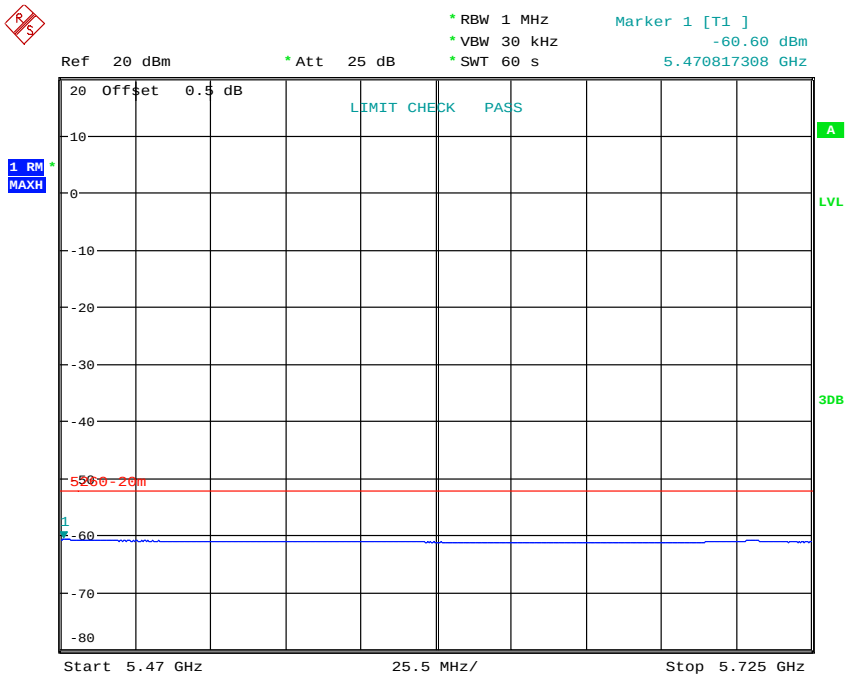
Date: 8.APR.2022 10:04:20

802.11 n20 Low-1



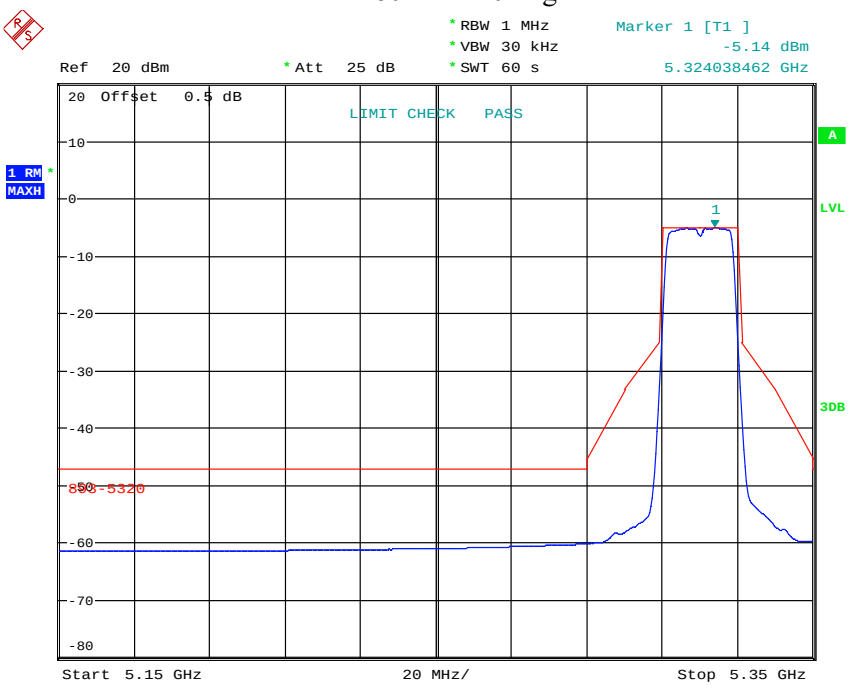
Date: 7.APR.2022 17:54:11

802.11 n20 Low-2



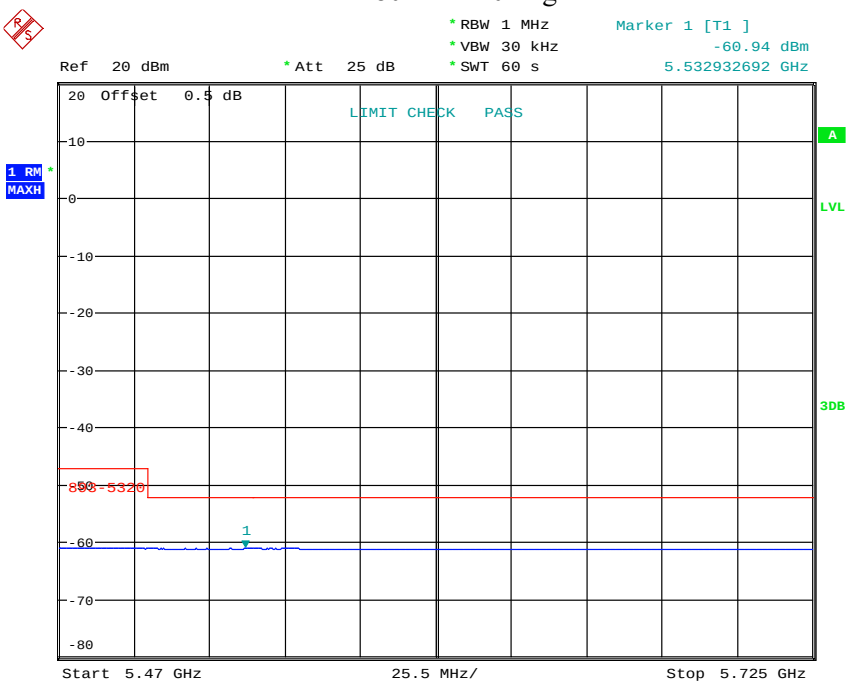
Date: 7.APR.2022 18:28:31

802.11 n20 High-1



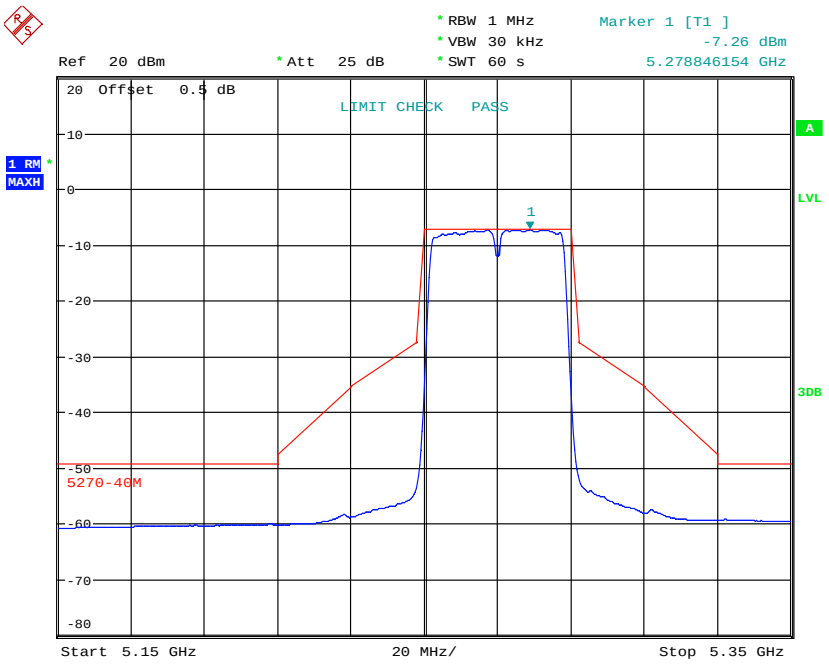
Date: 8.APR.2022 10:07:58

802.11 n20 High-2



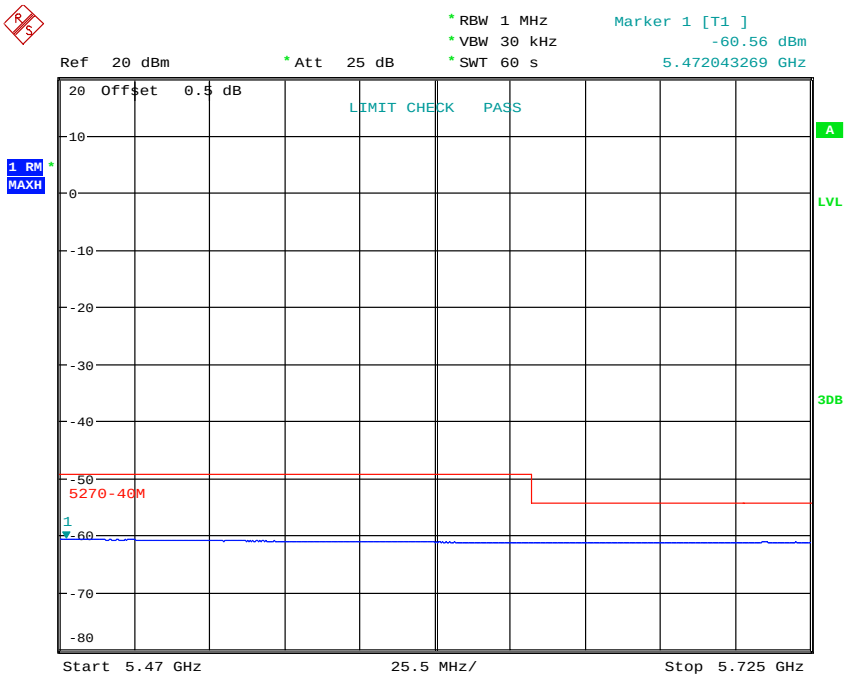
Date: 8.APR.2022 10:10:16

802.11 n40 Low-1



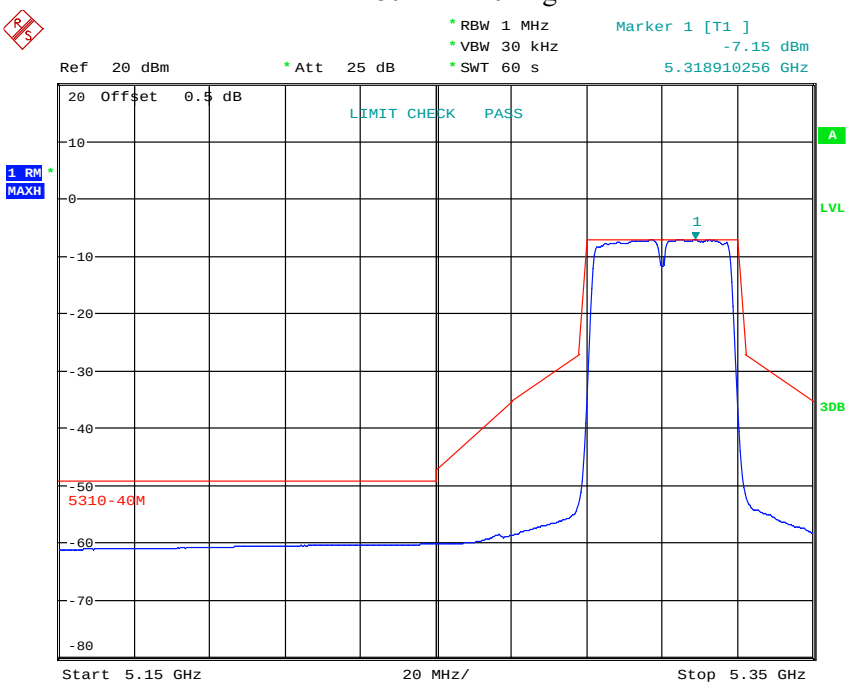
Date: 7.APR.2022 20:22:26

802.11 n40 Low-2



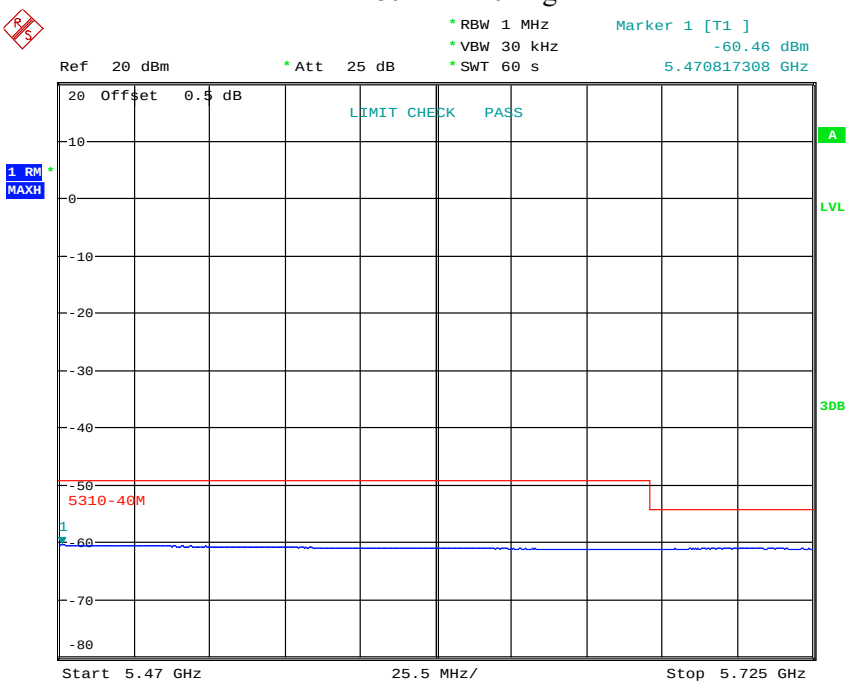
Date: 7.APR.2022 20:27:56

802.11 n40 High-1



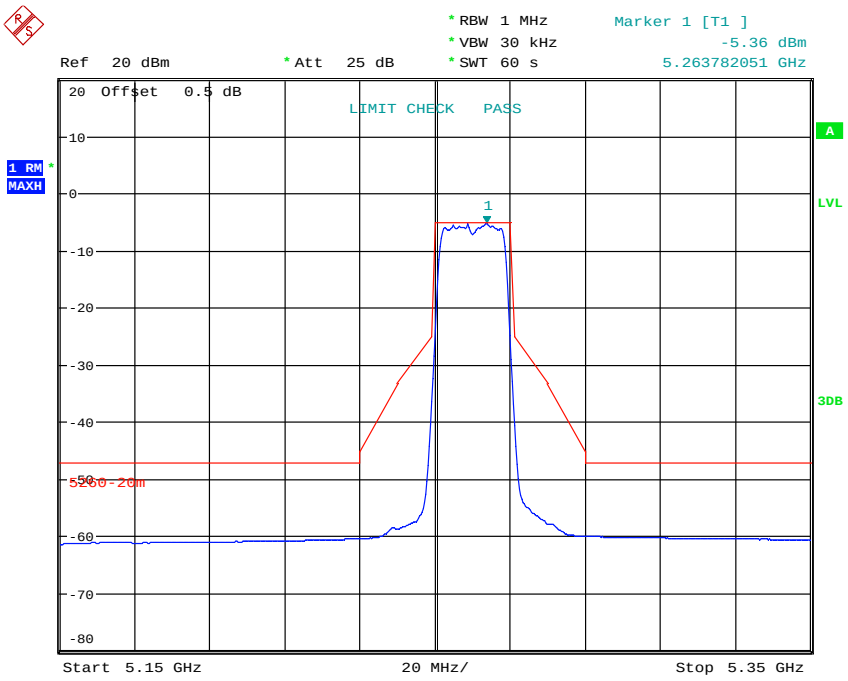
Date: 8.APR.2022 11:26:58

802.11 n40 High-2



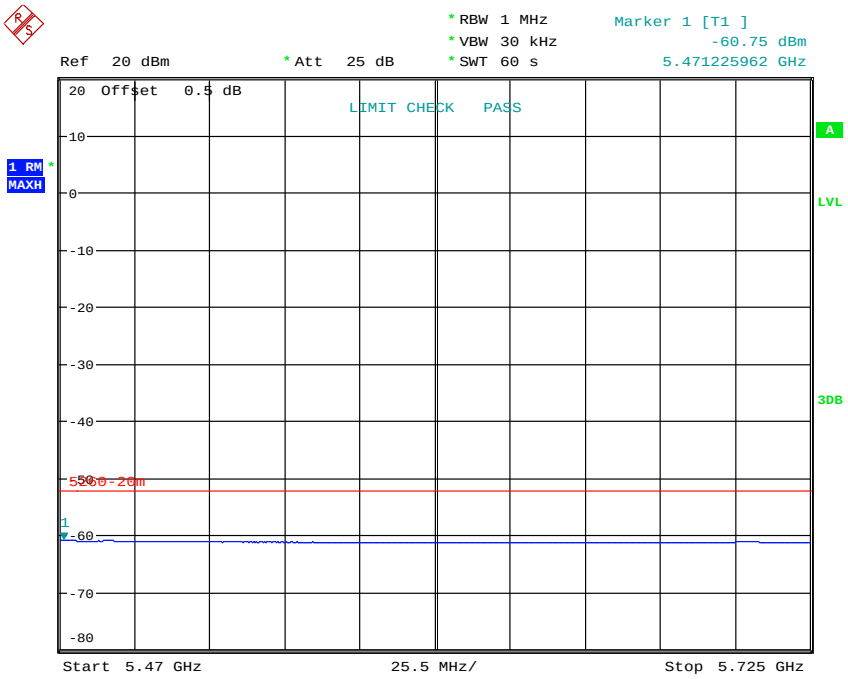
Date: 8.APR.2022 11:28:44

802.11 ac20 Low-1



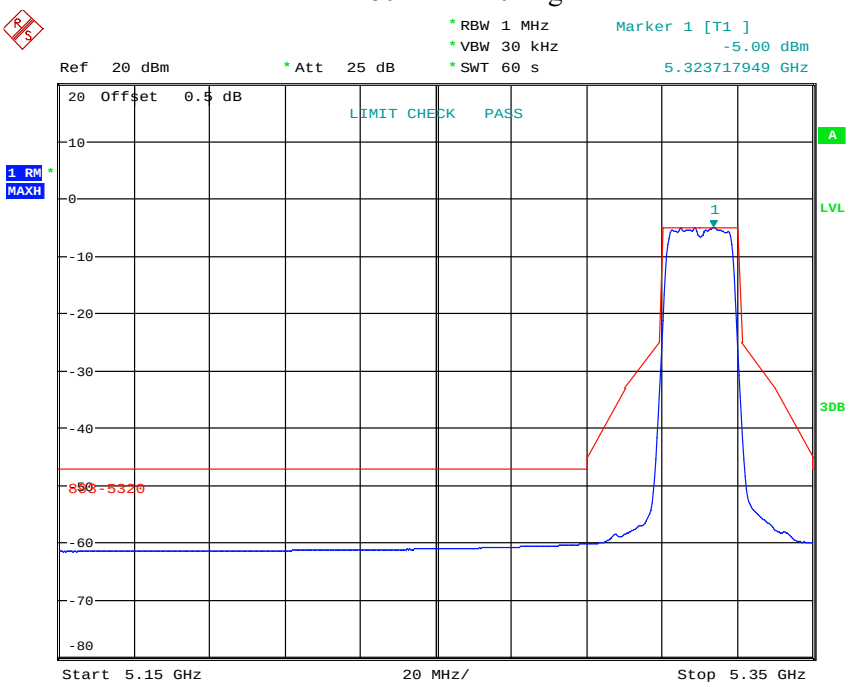
Date: 7.APR.2022 20:59:32

802.11 ac20 Low-2



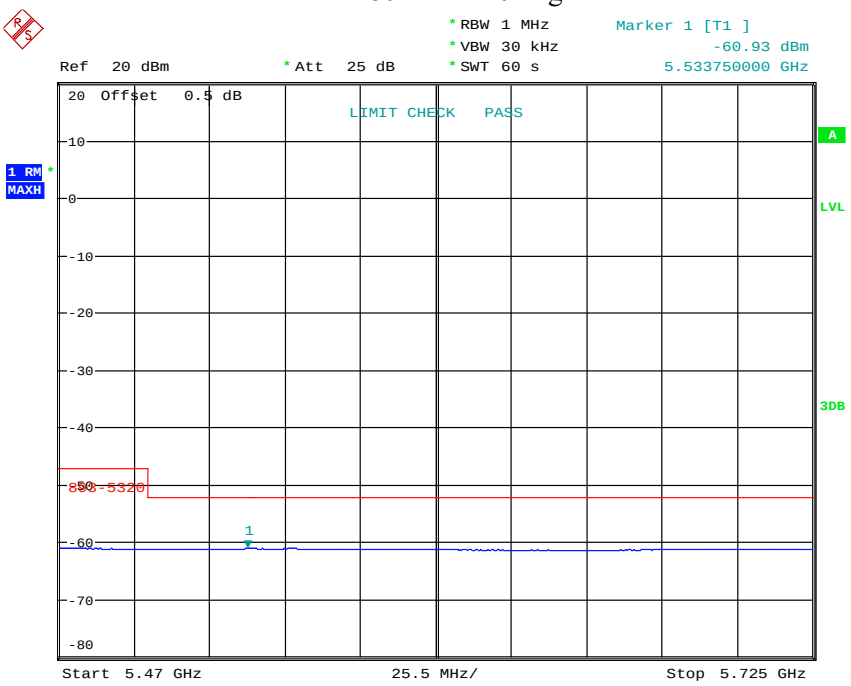
Date: 7.APR.2022 18:19:27

802.11 ac20 High-1



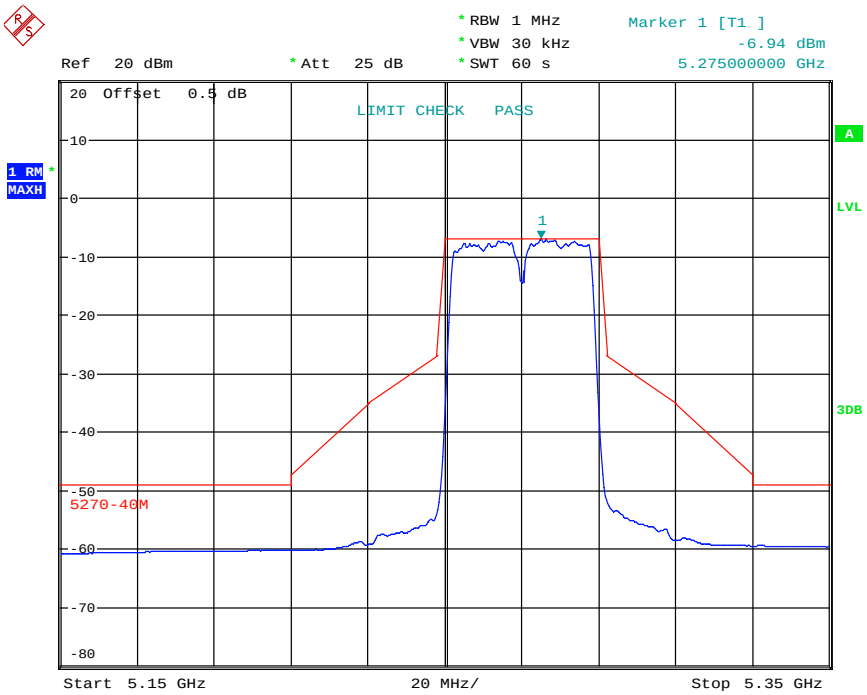
Date: 8.APR.2022 10:22:16

802.11 ac20 High-2



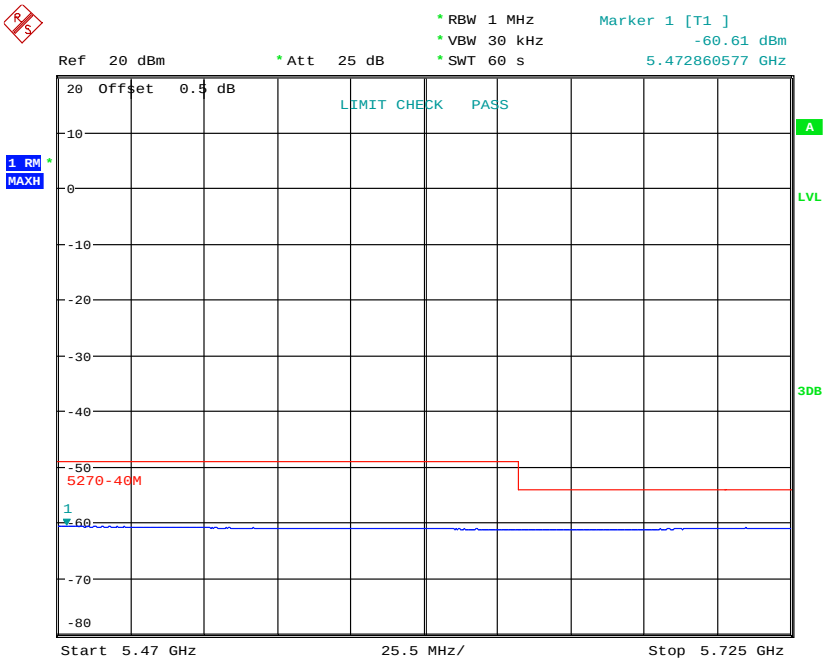
Date: 8.APR.2022 10:24:02

802.11 ac40 Low-1



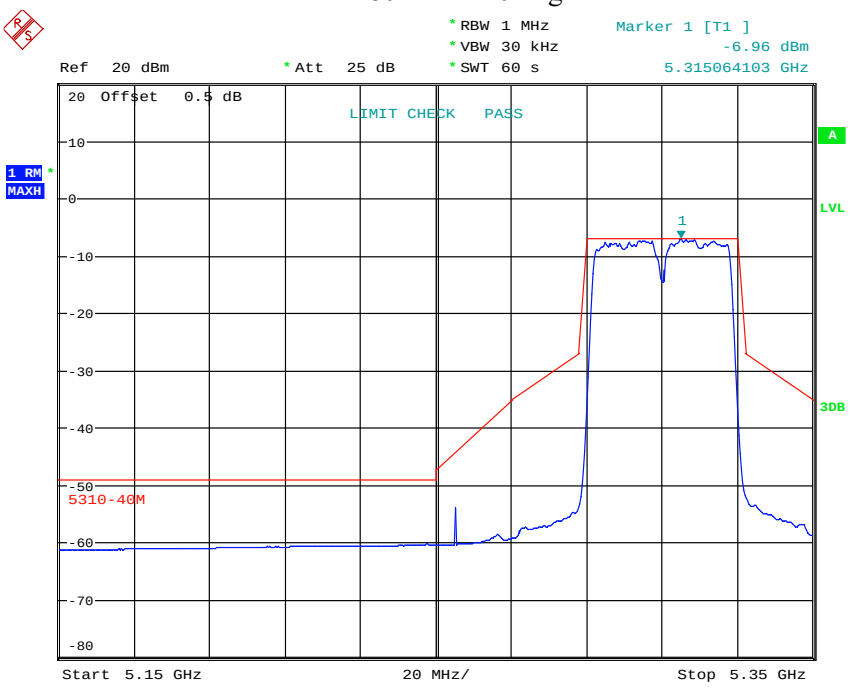
Date: 7.APR.2022 20:41:29

802.11 ac40 Low-2



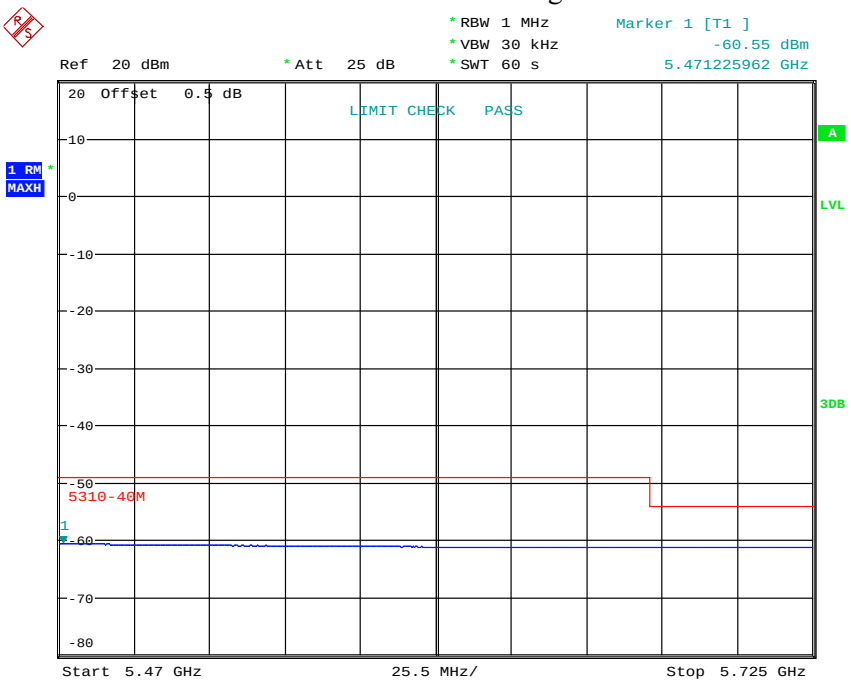
Date: 7.APR.2022 20:43:54

802.11 ac40 High-1



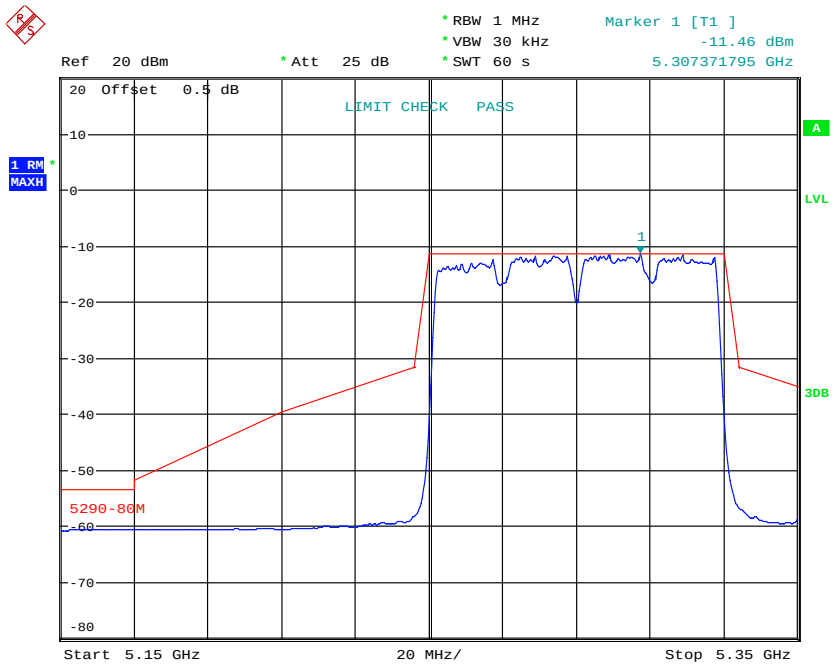
Date: 8.APR.2022 11:32:46

802.11 ac40 High-2



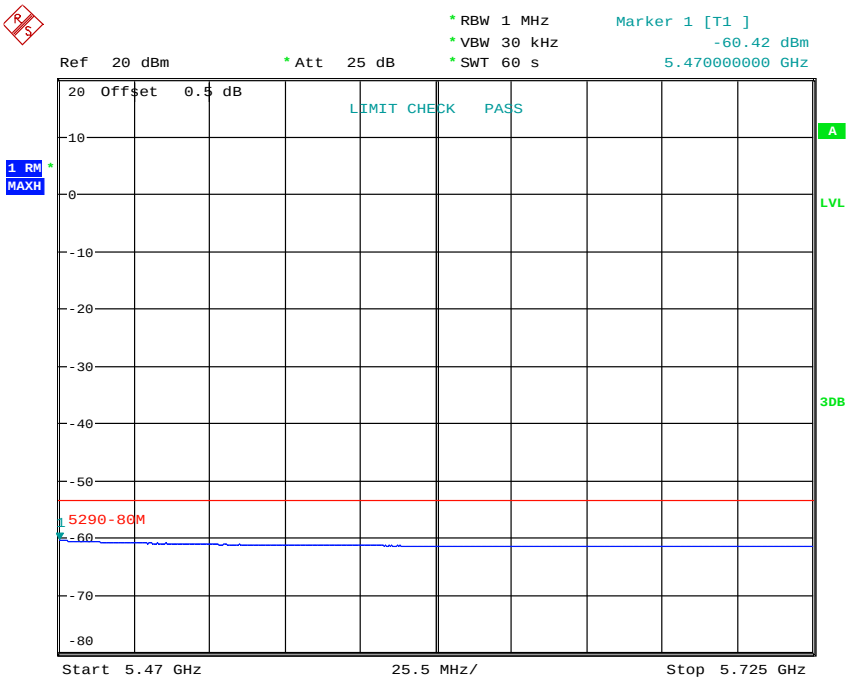
Date: 8.APR.2022 11:34:40

802.11 ac80 Middle-1



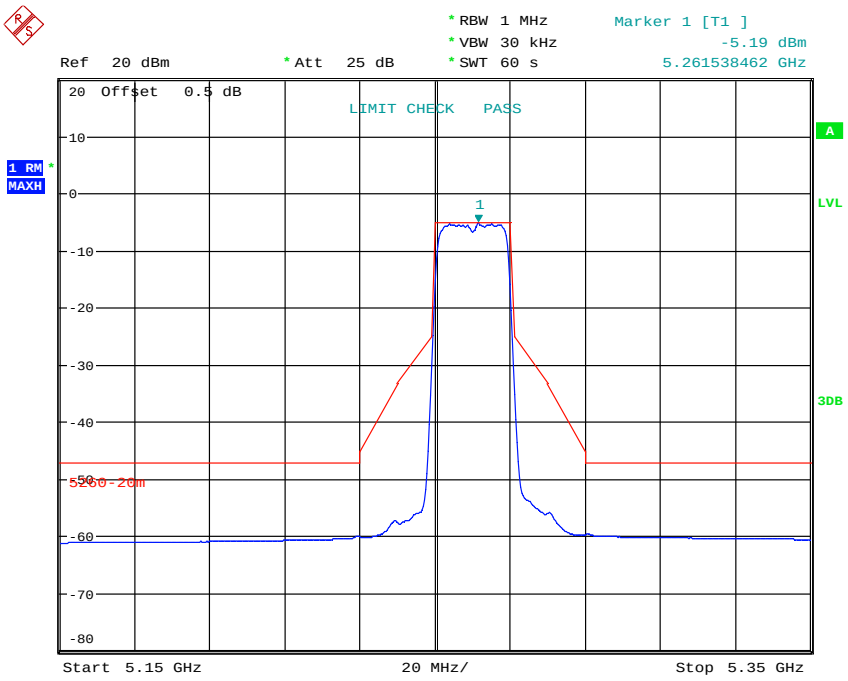
Date: 8.APR.2022 13:23:59

802.11 ac80 Middle-2



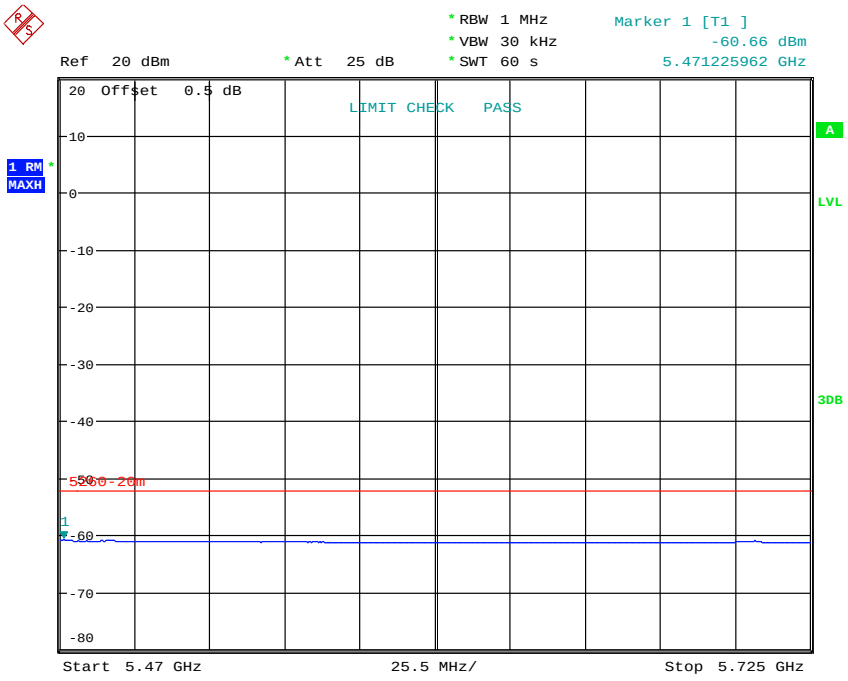
Date: 8.APR.2022 13:25:26

802.11 ax20 Low-1



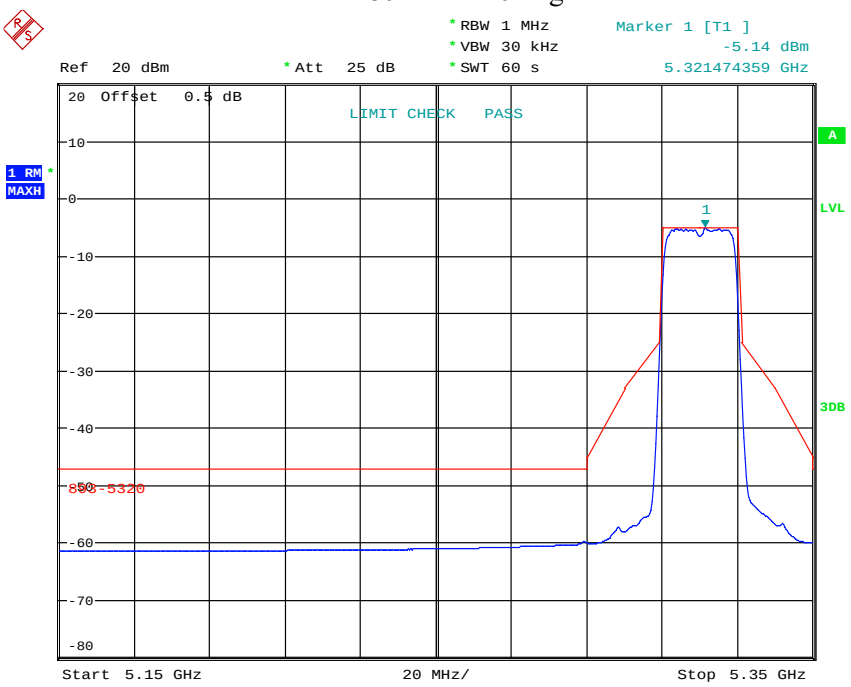
Date: 7.APR.2022 18:11:34

802.11 ax20 Low-2



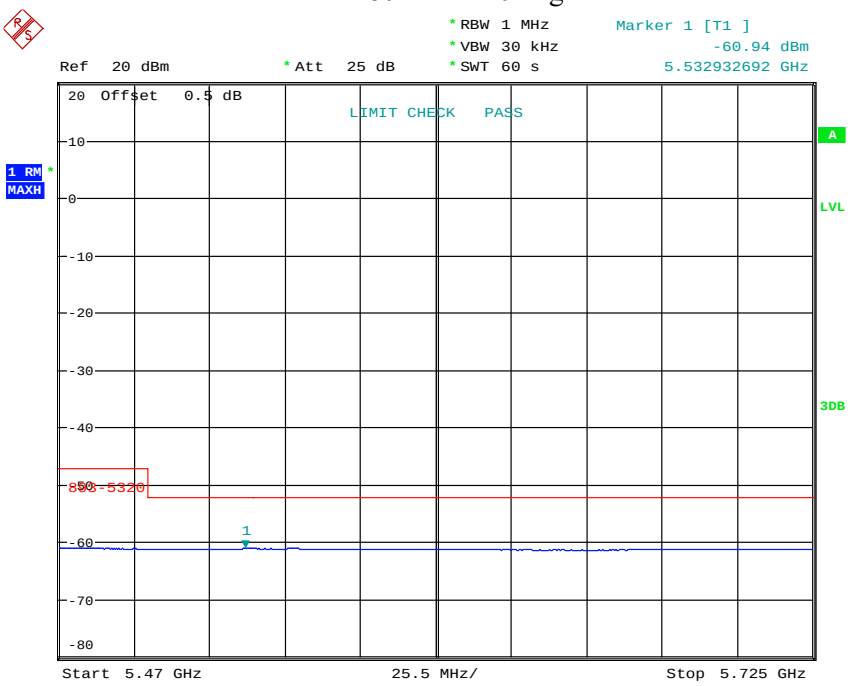
Date: 7.APR.2022 18:13:56

802.11 ax20 High-1



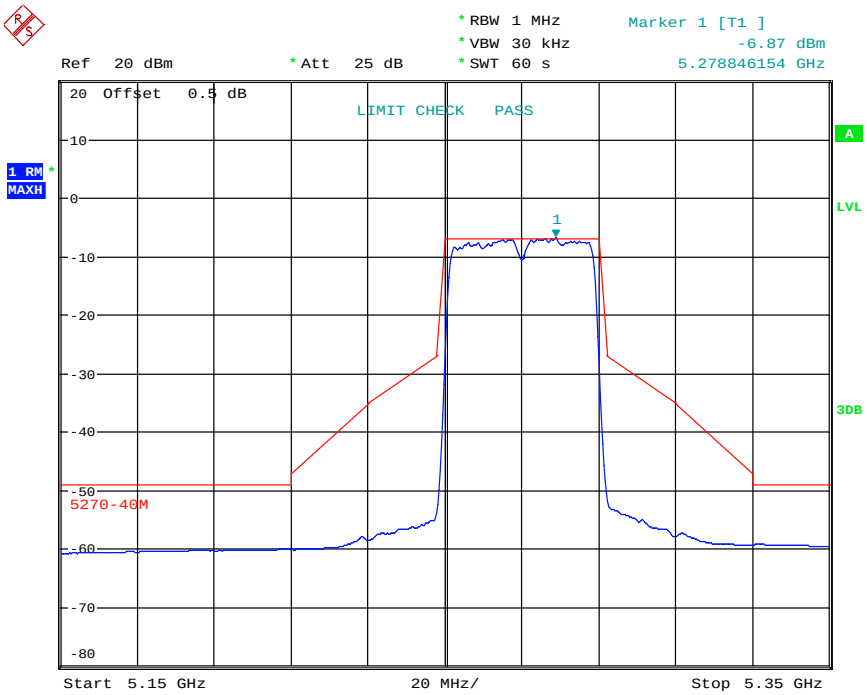
Date: 8.APR.2022 10:26:59

802.11 ax20 High-2



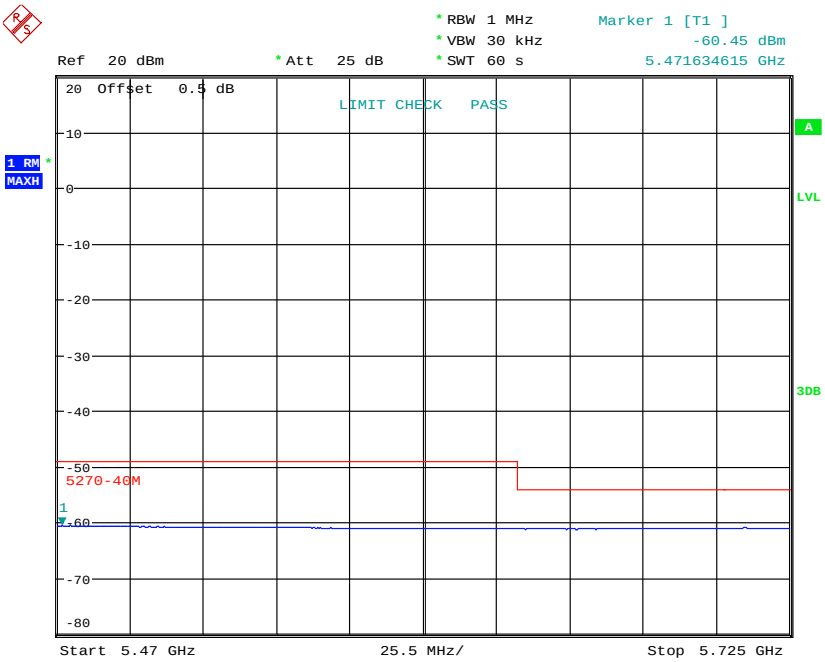
Date: 8.APR.2022 10:28:30

802.11 ax40 Low-1



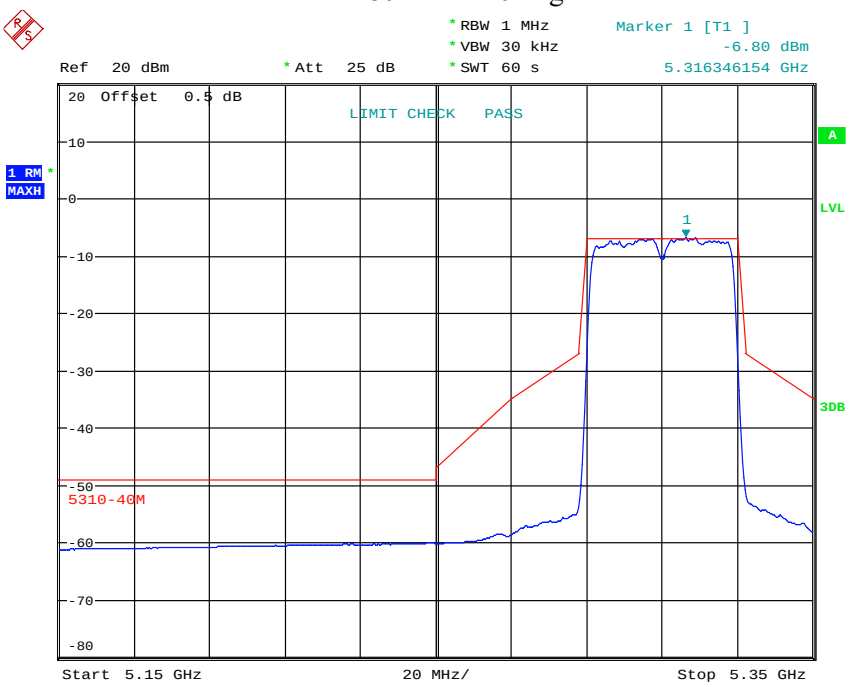
Date: 7.APR.2022 20:47:14

802.11 ax40 Low-2



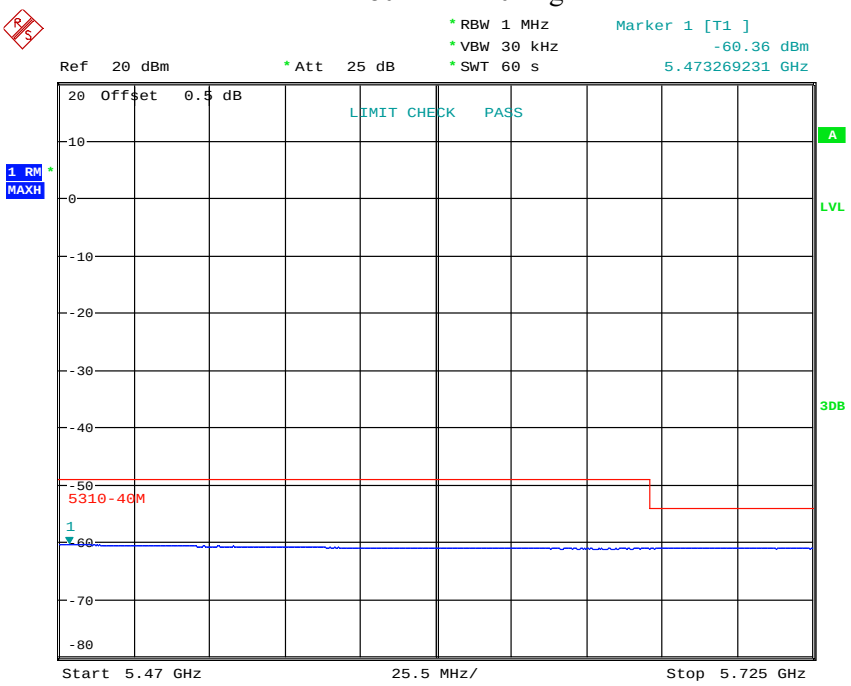
Date: 7.APR.2022 20:49:18

802.11 ax40 High-1



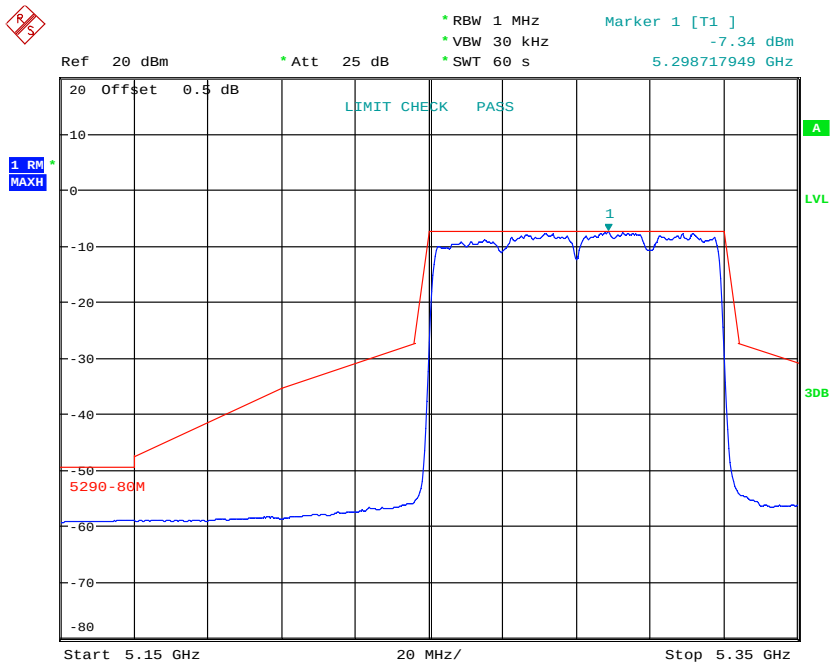
Date: 8.APR.2022 11:46:32

802.11 ax40 High-2



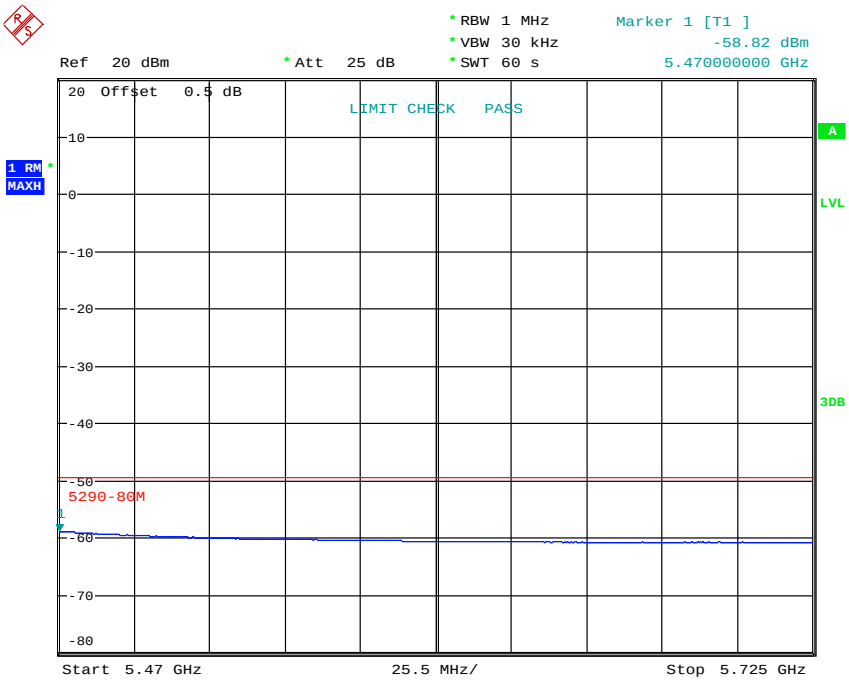
Date: 8.APR.2022 11:47:53

802.11 ax80 Middle-1



Date: 8.APR.2022 13:38:57

802.11 ax80 Middle-2



Date: 8.APR.2022 13:40:42

6 – RECEIVER SPURIOUS EMISSIONS

Definition

Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode.

Limit

The spurious emissions of the receiver shall not exceed the limits given in table 5.

In case of equipment with antenna connectors, these limits apply to emissions at the antenna port (conducted). For emissions radiated by the cabinet or emissions radiated by integral antenna equipment (without antenna connectors), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz.

Table 5: Spurious radiated emission limits

Frequency range	Maximum power	Measurement bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 26 GHz	-47 dBm	1 MHz

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.7

Test Data

Test Result: *Compliant. Pre-scan all modes, worst case please refer to following tables.*

802.11 a_ Chain 0 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1740.00	H	38.82	-65.10	10.92	0.72	-54.90	-47.00	7.90
2070.00	V	37.14	-65.27	11.58	1.11	-54.80	-47.00	7.80
89.24	H	48.79	-61.98	0.00	0.19	-62.17	-57.00	5.17
61.60	V	51.57	-53.95	-9.45	0.17	-63.57	-57.00	6.57

802.11 a_ Chain 0 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2140.00	H	36.78	-65.20	11.16	1.12	-55.16	-47.00	8.16
1940.00	V	37.82	-65.34	11.88	1.06	-54.52	-47.00	7.52
89.25	H	48.89	-61.89	0.00	0.19	-62.08	-57.00	5.08
61.02	V	52.21	-53.24	-9.76	0.17	-63.17	-57.00	6.17

802.11 a_ Chain 1 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1980.00	H	36.32	-66.51	11.96	1.11	-55.66	-47.00	8.66
2090.00	V	37.05	-65.13	11.46	1.10	-54.77	-47.00	7.77
88.89	H	47.85	-62.80	0.00	0.19	-62.99	-57.00	5.99
60.25	V	48.58	-56.77	-10.17	0.17	-67.11	-57.00	10.11

802.11 a_ Chain 1 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2310.00	H	37.24	-64.94	11.31	1.24	-54.87	-47.00	7.87
2260.00	V	36.76	-65.17	11.04	1.19	-55.32	-47.00	8.32
87.41	H	48.57	-61.54	0.00	0.19	-61.73	-57.00	4.73
64.15	V	49.63	-56.20	-8.10	0.17	-64.47	-57.00	7.47

802.11 a_ Chain 0 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2340.00	H	36.56	-65.71	11.64	1.25	-55.32	-47.00	8.32
2240.00	V	36.47	-65.40	10.96	1.18	-55.62	-47.00	8.62
88.96	H	47.88	-62.79	0.00	0.19	-62.98	-57.00	5.98
63.24	V	48.66	-57.06	-8.58	0.17	-65.81	-57.00	8.81

802.11 a_ Chain 0 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2560.00	H	37.02	-65.95	13.16	1.28	-54.07	-47.00	7.07
1950.00	V	38.14	-65.04	11.90	1.08	-54.22	-47.00	7.22
88.74	H	48.51	-62.08	0.00	0.19	-62.27	-57.00	5.27
60.14	V	49.63	-55.71	-10.23	0.17	-66.11	-57.00	9.11

802.11 a_ Chain 1 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2130.00	H	36.58	-65.42	11.22	1.11	-55.31	-47.00	8.31
1720.00	V	36.36	-68.04	10.86	0.74	-57.92	-47.00	10.92
87.41	H	48.23	-61.88	0.00	0.19	-62.07	-57.00	5.07
59.63	V	49.66	-55.28	-10.47	0.17	-65.92	-57.00	8.92

802.11 a_ Chain 1 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1890.00	H	37.84	-65.13	11.73	0.99	-54.39	-47.00	7.39
2510.00	V	36.79	-66.15	13.11	1.25	-54.29	-47.00	7.29
86.47	H	49.85	-59.92	0.00	0.19	-60.11	-57.00	3.11
58.48	V	50.22	-53.55	-11.00	0.17	-64.72	-57.00	7.72

802.11 n20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2530.00	H	36.74	-66.19	13.13	1.26	-54.32	-47.00	7.32
1630.00	V	38.55	-66.40	10.31	0.70	-56.79	-47.00	9.79
85.96	H	47.96	-61.62	0.00	0.19	-61.81	-57.00	4.81
60.69	V	48.51	-56.89	-9.93	0.17	-66.99	-57.00	9.99

802.11 n20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2110.00	H	37.22	-64.82	11.34	1.10	-54.58	-47.00	7.58
2240.00	V	36.87	-65.00	10.96	1.18	-55.22	-47.00	8.22
87.94	H	48.77	-61.53	0.00	0.19	-61.72	-57.00	4.72
59.85	V	49.88	-55.29	-10.37	0.17	-65.83	-57.00	8.83

802.11 n20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2320.00	H	37.11	-65.10	11.42	1.24	-54.92	-47.00	7.92
2630.00	V	36.23	-66.70	13.17	1.29	-54.82	-47.00	7.82
86.35	H	48.88	-60.84	0.00	0.19	-61.03	-57.00	4.03
60.24	V	49.63	-55.72	-10.17	0.17	-66.06	-57.00	9.06

802.11 n20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2540.00	H	36.54	-66.40	13.14	1.27	-54.53	-47.00	7.53
1870.00	V	37.16	-66.49	11.59	0.92	-55.82	-47.00	8.82
87.48	H	49.52	-60.61	0.00	0.19	-60.80	-57.00	3.80
63.21	V	50.14	-55.57	-8.60	0.17	-64.34	-57.00	7.34

802.11 n40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2330.00	H	36.82	-65.42	11.53	1.25	-55.14	-47.00	8.14
2170.00	V	37.06	-64.78	10.98	1.13	-54.93	-47.00	7.93
88.41	H	48.55	-61.92	0.00	0.19	-62.11	-57.00	5.11
62.25	V	49.25	-56.35	-9.11	0.17	-65.63	-57.00	8.63

802.11 n40 **5230 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2120.00	H	37.06	-64.96	11.28	1.11	-54.79	-47.00	7.79
1960.00	V	38.13	-65.06	11.92	1.09	-54.23	-47.00	7.23
88.24	H	49.85	-60.56	0.00	0.19	-60.75	-57.00	3.75
60.14	V	50.14	-55.20	-10.23	0.17	-65.60	-57.00	8.60

802.11 n40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2170.00	H	36.88	-65.03	10.98	1.13	-55.18	-47.00	8.18
1680.00	V	36.89	-67.58	10.66	0.74	-57.66	-47.00	10.66
87.58	H	49.63	-60.54	0.00	0.19	-60.73	-57.00	3.73
62.57	V	48.93	-56.71	-8.94	0.17	-65.82	-57.00	8.82

802.11 n40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2110.00	H	37.14	-64.90	11.34	1.10	-54.66	-47.00	7.66
1680.00	V	38.23	-66.24	10.66	0.74	-56.32	-47.00	9.32
88.96	H	50.12	-60.55	0.00	0.19	-60.74	-57.00	3.74
61.11	V	51.33	-54.13	-9.71	0.17	-64.01	-57.00	7.01

802.11 ac20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2510.00	H	36.84	-66.07	13.11	1.25	-54.21	-47.00	7.21
1870.00	V	37.79	-65.86	11.59	0.92	-55.19	-47.00	8.19
88.33	H	47.22	-63.22	0.00	0.19	-63.41	-57.00	6.41
57.44	V	48.63	-54.09	-11.48	0.18	-65.75	-57.00	8.75

802.11 ac20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2210.00	H	36.58	-65.30	10.84	1.15	-55.61	-47.00	8.61
2630.00	V	36.19	-66.74	13.17	1.29	-54.86	-47.00	7.86
85.58	H	48.21	-61.23	0.00	0.19	-61.42	-57.00	4.42
60.18	V	49.74	-55.60	-10.20	0.17	-65.97	-57.00	8.97

802.11 ac20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2160.00	H	37.06	-64.87	11.04	1.12	-54.95	-47.00	7.95
1740.00	V	38.56	-65.96	10.92	0.72	-55.76	-47.00	8.76
86.47	H	47.14	-62.63	0.00	0.19	-62.82	-57.00	5.82
63.60	V	48.44	-57.32	-8.39	0.17	-65.88	-57.00	8.88

802.11 ac20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2130.00	H	37.02	-64.98	11.22	1.11	-54.87	-47.00	7.87
2320.00	V	36.56	-65.61	11.42	1.24	-55.43	-47.00	8.43
89.65	H	47.28	-63.64	0.00	0.19	-63.83	-57.00	6.83
60.41	V	49.36	-56.01	-10.08	0.17	-66.26	-57.00	9.26

802.11 ac40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2322.00	H	36.77	-65.45	11.44	1.24	-55.25	-47.00	8.25
2150.00	V	36.42	-65.49	11.10	1.12	-55.51	-47.00	8.51
88.78	H	48.25	-62.36	0.00	0.19	-62.55	-57.00	5.55
64.44	V	49.63	-56.24	-7.95	0.17	-64.36	-57.00	7.36

802.11 ac40 **5230 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2120.00	H	37.22	-64.80	11.28	1.11	-54.63	-47.00	7.63
2530.00	V	36.58	-66.44	13.13	1.26	-54.57	-47.00	7.57
87.48	H	49.98	-60.15	0.00	0.19	-60.34	-57.00	3.34
60.20	V	50.24	-55.10	-10.19	0.17	-65.46	-57.00	8.46

802.11 ac40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2130.00	H	36.87	-65.13	11.22	1.11	-55.02	-47.00	8.02
1930.00	V	37.25	-65.90	11.86	1.05	-55.09	-47.00	8.09
84.48	H	47.41	-61.63	0.00	0.18	-61.81	-57.00	4.81
58.78	V	48.69	-55.39	-10.86	0.17	-66.42	-57.00	9.42

802.11 ac40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2020.00	H	36.57	-66.11	11.88	1.12	-55.35	-47.00	8.35
2310.00	V	36.49	-65.62	11.31	1.24	-55.55	-47.00	8.55
87.96	H	48.55	-61.76	0.00	0.19	-61.95	-57.00	4.95
59.93	V	50.28	-54.97	-10.33	0.17	-65.47	-57.00	8.47

802.11 ac80 **5210 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1560.00	H	38.04	-66.68	9.86	0.95	-57.77	-47.00	10.77
2140.00	V	37.26	-64.68	11.16	1.12	-54.64	-47.00	7.64
89.66	H	46.88	-64.05	0.00	0.19	-64.24	-57.00	7.24
60.63	V	49.78	-55.62	-9.97	0.17	-65.76	-57.00	8.76

802.11 ac80 **5290 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2050.00	H	37.36	-65.09	11.70	1.12	-54.51	-47.00	7.51
2201.00	V	36.58	-65.17	10.80	1.14	-55.51	-47.00	8.51
87.88	H	47.99	-62.29	0.00	0.19	-62.48	-57.00	5.48
61.40	V	50.36	-55.13	-9.56	0.17	-64.86	-57.00	7.86

802.11 ac160 **5250 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2360.00	H	36.72	-65.62	11.86	1.27	-55.03	-47.00	8.03
1780.00	V	37.91	-66.86	11.04	0.69	-56.51	-47.00	9.51
86.36	H	48.41	-61.31	0.00	0.19	-61.50	-57.00	4.50
63.35	V	51.88	-53.85	-8.52	0.17	-62.54	-57.00	5.54

802.11 ax20 **5180 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2620.00	H	36.54	-66.26	13.18	1.30	-54.38	-47.00	7.38
2150.00	V	36.73	-65.18	11.10	1.12	-55.20	-47.00	8.20
85.41	H	47.18	-62.20	0.00	0.19	-62.39	-57.00	5.39
60.85	V	50.42	-55.00	-9.85	0.17	-65.02	-57.00	8.02

802.11 ax20 **5240 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2720.00	H	36.14	-65.76	13.10	1.27	-53.93	-47.00	6.93
2180.00	V	36.42	-65.39	10.92	1.13	-55.60	-47.00	8.60
86.64	H	48.65	-61.18	0.00	0.19	-61.37	-57.00	4.37
59.87	V	52.22	-52.97	-10.36	0.17	-63.50	-57.00	6.50

802.11 ax20 **5260 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1690.00	H	37.09	-66.69	10.73	0.74	-56.70	-47.00	9.70
2050.00	V	36.78	-65.87	11.70	1.12	-55.29	-47.00	8.29
86.37	H	47.32	-62.41	0.00	0.19	-62.60	-57.00	5.60
59.86	V	50.24	-54.94	-10.36	0.17	-65.47	-57.00	8.47

802.11 ax20 **5320 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2370.00	H	36.47	-65.90	11.97	1.27	-55.20	-47.00	8.20
2140.00	V	36.69	-65.25	11.16	1.12	-55.21	-47.00	8.21
84.55	H	48.11	-60.96	0.00	0.18	-61.14	-57.00	4.14
60.36	V	51.85	-53.51	-10.11	0.17	-63.79	-57.00	6.79

802.11 ax40 **5190 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2260.00	H	36.49	-65.54	11.04	1.19	-55.69	-47.00	8.69
2180.00	V	36.20	-65.61	10.92	1.13	-55.82	-47.00	8.82
85.22	H	46.96	-62.35	0.00	0.19	-62.54	-57.00	5.54
61.34	V	48.75	-56.73	-9.59	0.17	-66.49	-57.00	9.49

802.11 ax40 **5230 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1750.00	H	36.69	-67.30	10.95	0.72	-57.07	-47.00	10.07
1960.00	V	37.77	-65.42	11.92	1.09	-54.59	-47.00	7.59
88.23	H	47.79	-62.62	0.00	0.19	-62.81	-57.00	5.81
60.28	V	50.77	-54.58	-10.15	0.17	-64.90	-57.00	7.90

802.11 ax40 **5270 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2520.00	H	36.53	-66.39	13.12	1.25	-54.52	-47.00	7.52
2230.00	V	36.45	-65.39	10.92	1.17	-55.64	-47.00	8.64
88.35	H	47.34	-63.11	0.00	0.19	-63.30	-57.00	6.30
61.54	V	52.22	-53.29	-9.48	0.17	-62.94	-57.00	5.94

802.11 ax40 **5310 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
2610.00	H	36.28	-66.62	13.19	1.30	-54.73	-47.00	7.73
2510.00	V	36.53	-66.41	13.11	1.25	-54.55	-47.00	7.55
88.42	H	48.99	-61.48	0.00	0.19	-61.67	-57.00	4.67
60.34	V	53.33	-52.03	-10.12	0.17	-62.32	-57.00	5.32

802.11 ax80 **5210 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1880.00	H	37.89	-65.22	11.66	0.95	-54.51	-47.00	7.51
2170.00	V	36.75	-65.09	10.98	1.13	-55.24	-47.00	8.24
88.25	H	48.24	-62.17	0.00	0.19	-62.36	-57.00	5.36
61.45	V	52.96	-52.54	-9.53	0.17	-62.24	-57.00	5.24

802.11 ax80 **5290 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1640.00	H	37.51	-66.75	10.38	0.71	-57.08	-47.00	10.08
1970.00	V	37.26	-65.94	11.94	1.10	-55.10	-47.00	8.10
88.59	H	49.25	-61.29	0.00	0.19	-61.48	-57.00	4.48
60.56	V	53.74	-51.65	-10.00	0.17	-61.82	-57.00	4.82

802.11 ax160 **5250 MHz**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
1589.00	H	37.93	-66.73	10.03	0.75	-57.45	-47.00	10.45
2350.00	V	36.26	-66.10	11.75	1.26	-55.61	-47.00	8.61
88.91	H	49.66	-60.99	0.00	0.19	-61.18	-57.00	4.18
61.28	V	54.12	-51.36	-9.62	0.17	-61.15	-57.00	4.15

Note 1:The unit of antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz.
Note 2:
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

7 - DYNAMIC FREQUENCY SELECTION (DFS)

Applicable Standard

An RLAN shall employ a Dynamic Frequency Selection (DFS) function to:
• detect interference from radar systems (radar detection) and to avoid co-channel operation with these systems;
• provide on aggregate a near-uniform loading of the spectrum (Uniform Spreading).
The DFS function as described in the present document is not tested for its ability to detect frequency hopping radar signals.
Whilst the DFS function described in this clause defines conditions under which the equipment may transmit, transmissions are allowed providing they are not prohibited by the Adaptivity requirement in clause 4.2.7.

Limit

According to ETSI EN 301 893 V2.1.1 (2017-05)
§4.2.6.2.2.2&§4.2.6.2.3.2&§4.2.6.2.4.2&§4.2.6.2.5.2&§4.2.6.2.6.2&§4.2.6.2.7.2&

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.8

Test Data

Compliant: Please refer to DFS report.

8 – ADAPTIVITY

Applicable Standard

Adaptivity (Channel Access Mechanism) is an automatic mechanism by which a device limits its transmissions and gains access to an Operating Channel.

§4.2.7.3.1 Frame Based Equipment:

Frame Based Equipment shall implement a Listen Before Talk (LBT) based Channel Access Mechanism to detect the presence of other RLAN transmissions on an Operating Channel.

§4.2.7.3.2 Load Based Equipment:

Load based Equipment shall implement a Listen Before Talk (LBT) based Channel Access Mechanism to detect the presence of other RLAN transmissions on an Operating Channel.

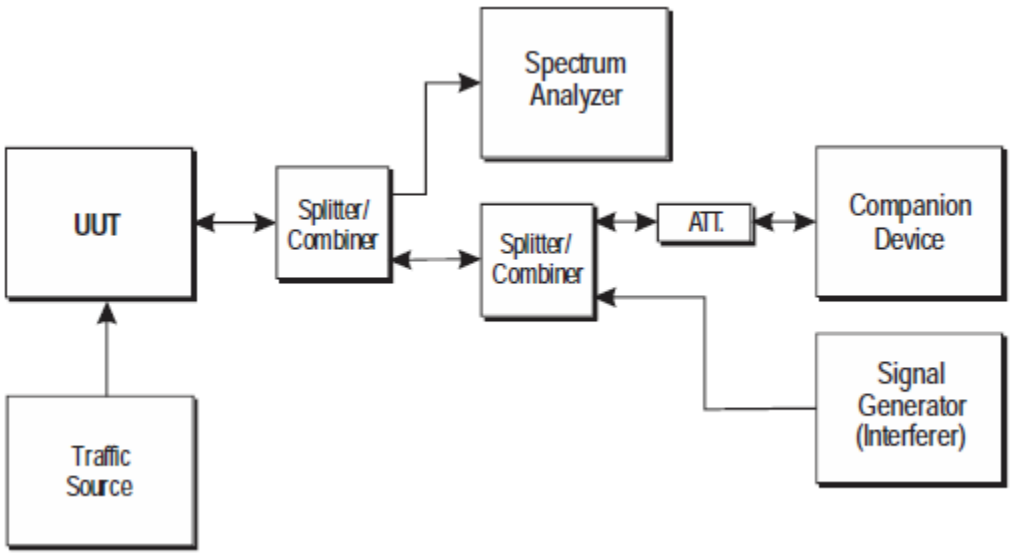
Limit

According to ETSI EN 301 893 V2.1.1 (2017-05) §4.2.7.3.1&§4.2.7.3.2

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.9

Block Diagram of Test Setup



Test Data

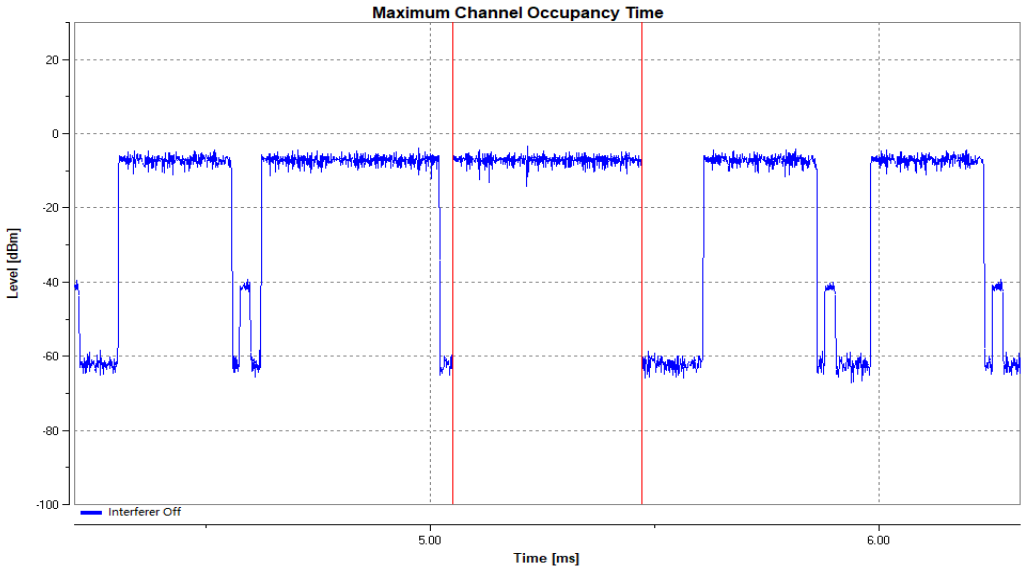
Test Result: *Compliant. Please refer to following tables(Testing was performed with Chain 0).*

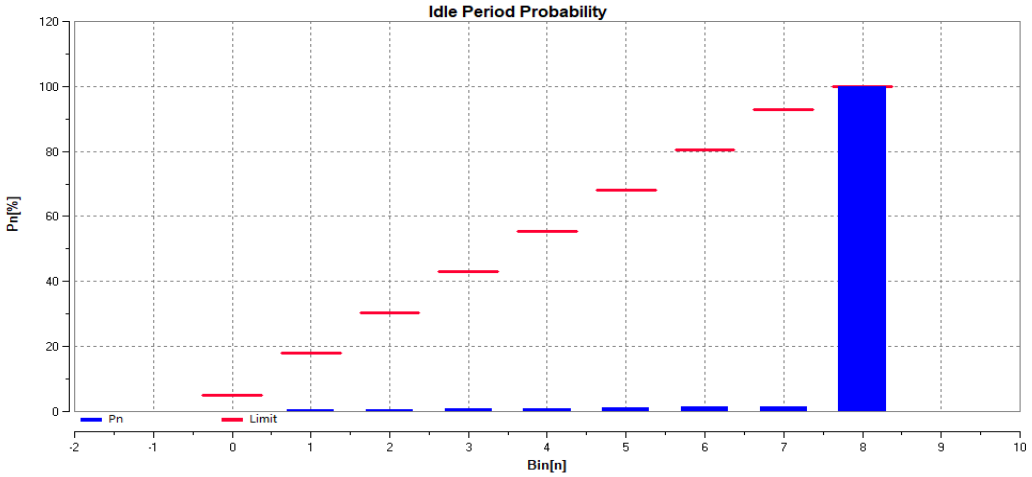
TestMode	Frequency[MHz]	Priority Class	Max. COT [ms]	Limit [ms]	Min.Idle Time[ms]	Limit [ms]	Idle Period probability	Verdict
11A	5180	3	0.421	6.000	0.029	0.027	See the graph	PASS
11N40SISO	5190	3	2.785	6.000	0.029	0.027	See the graph	PASS

TestMode	Frequency[MHz]	Interference Type	Add interference Time [ms]	Interference Level [dBm/MHz]	Max. Short Control number [n]	Limit [n]	Max. Short Control Time [ms]	Limit [ms]	Verdict
11A	5180	AWGN	2100	-75.00	0	50	0.00	2.5	PASS
		OFDM	2100	-75.00	2	50	1.30	2.5	PASS
		LTE	2100	-75.00	2	50	0.90	2.5	PASS
11N40 SISO	5190	AWGN	2100	-75.00	0	50	0.00	2.5	PASS

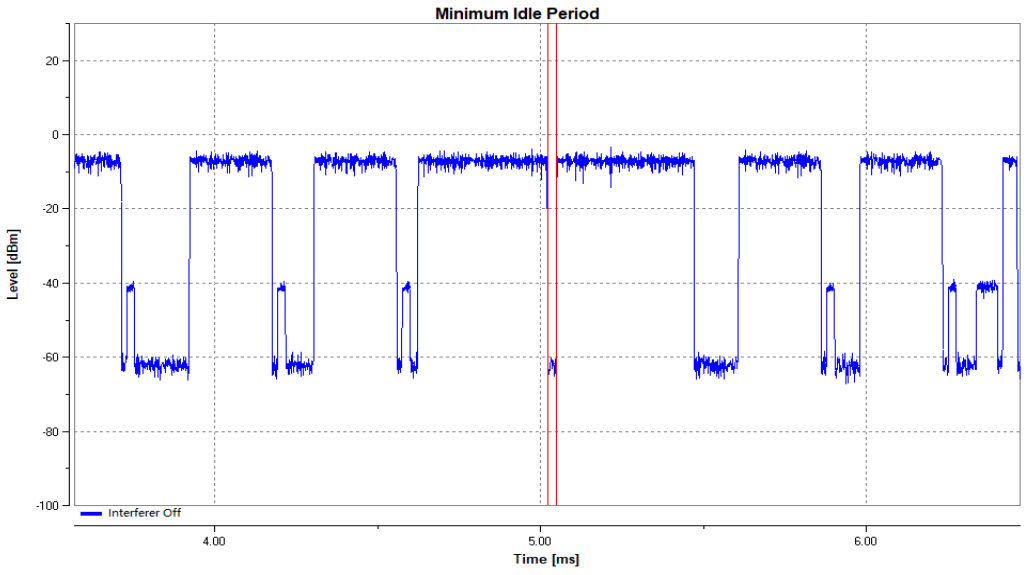
Please refer to following plots:

11A_Ant1_5180

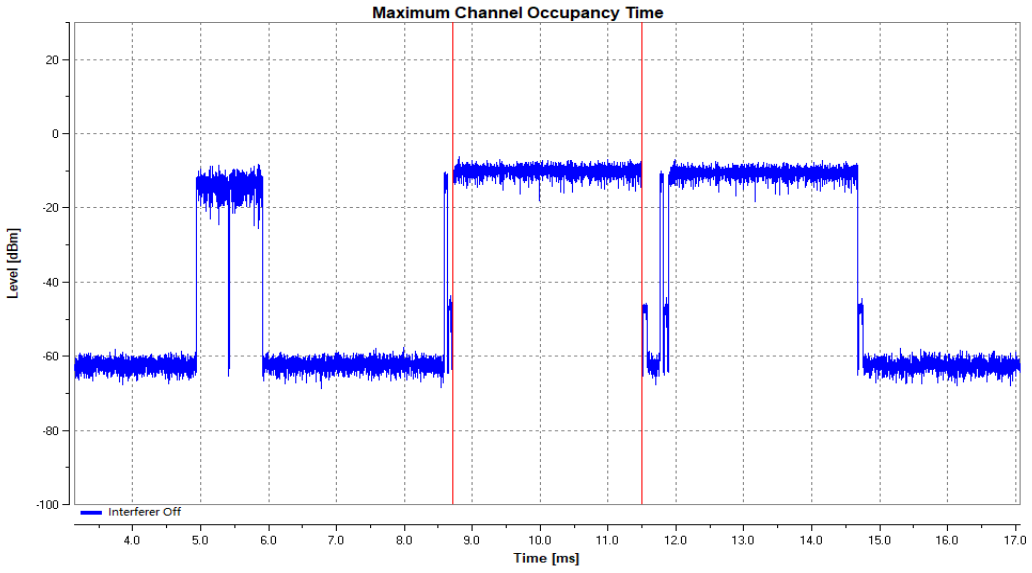


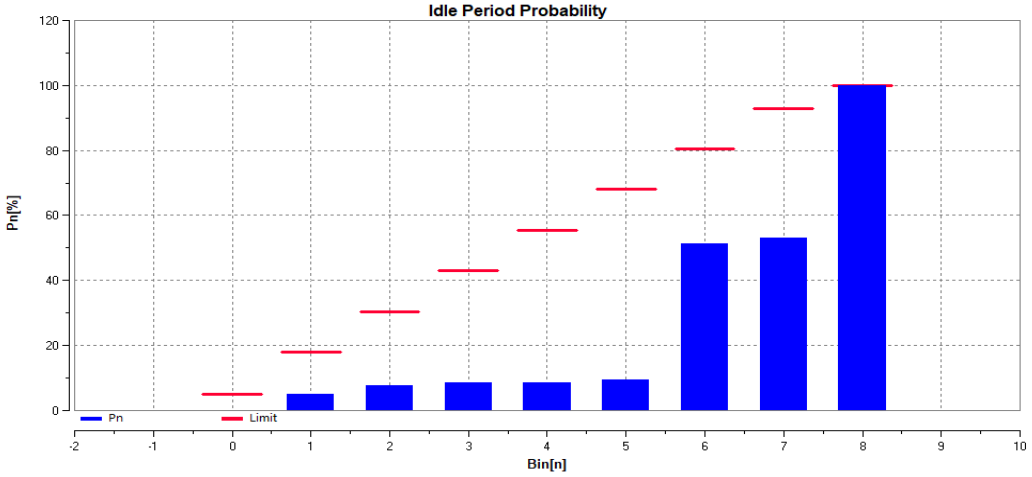


n	0	1	2	3	4	5	6	7	8
B[n]	0	3	0	1	0	2	2	0	511
P[n]	0	0.58	0.58	0.77	0.77	1.16	1.54	1.54	100
Limit	5	18	30.5	43	55.5	68	80.5	93	100

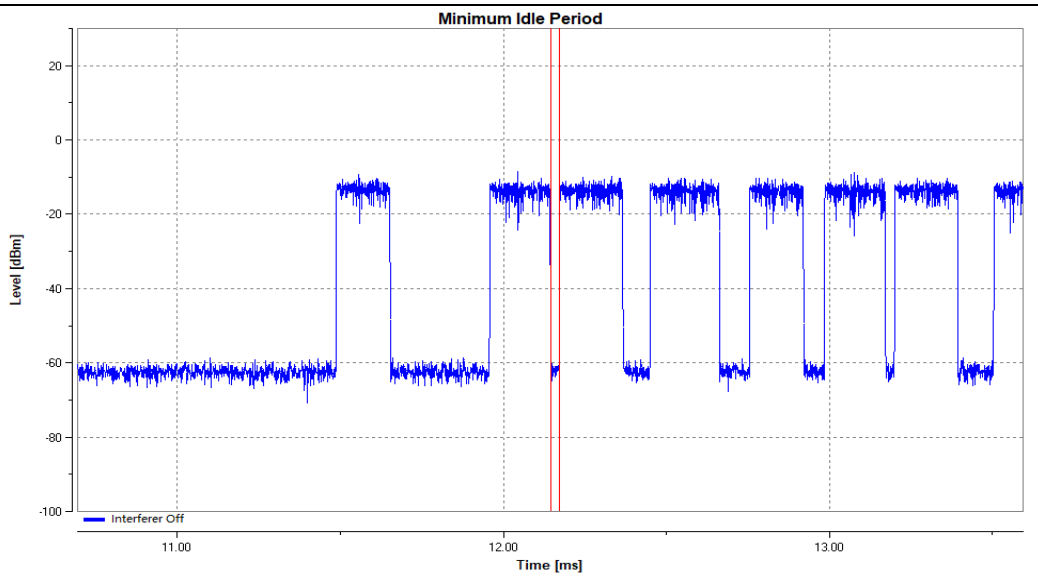


11N40SISO_Ant1_5190

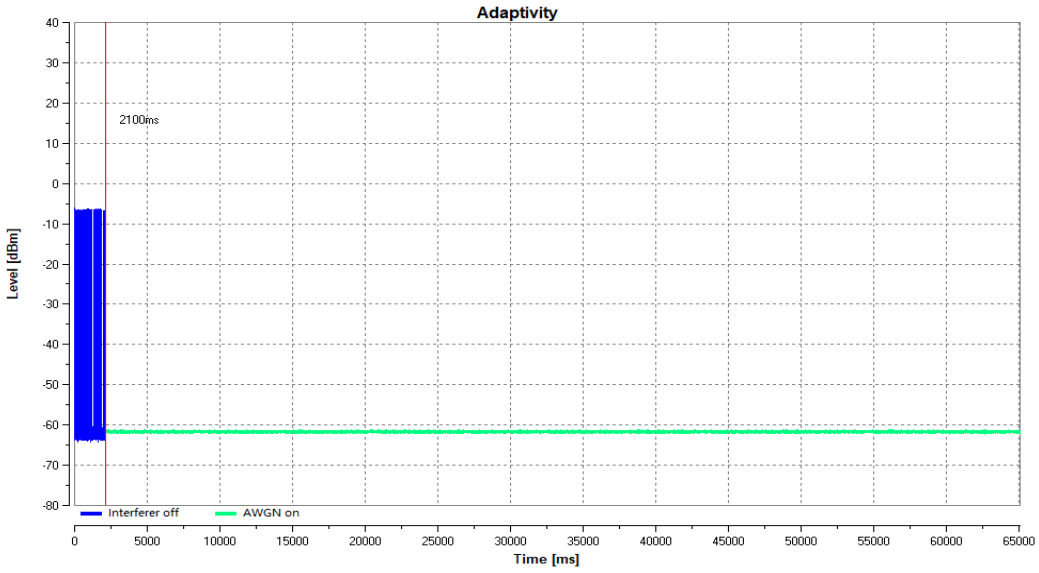


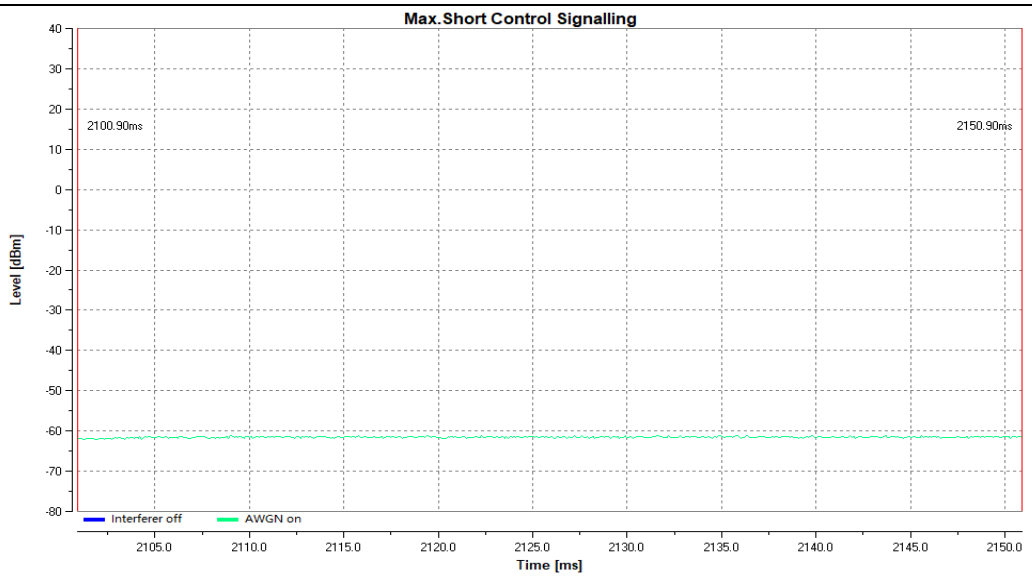


n	0	1	2	3	4	5	6	7	8
B[n]	0	6	3	1	0	1	49	2	55
P[n]	0	5.13	7.69	8.55	8.55	9.4	51.28	52.99	100
Limit	5	18	30.5	43	55.5	68	80.5	93	100

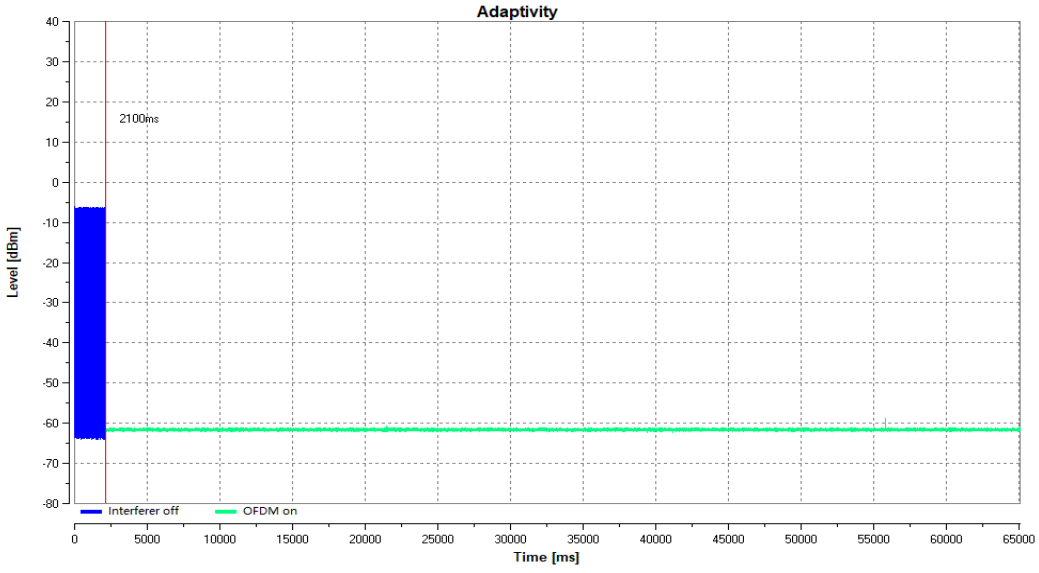


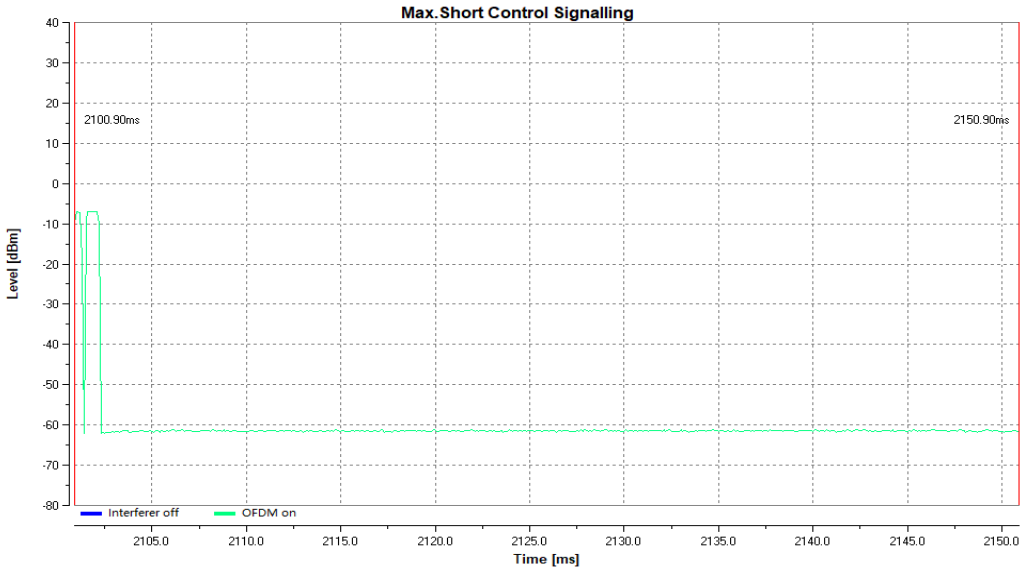
11A_Ant1_5180 AWGN



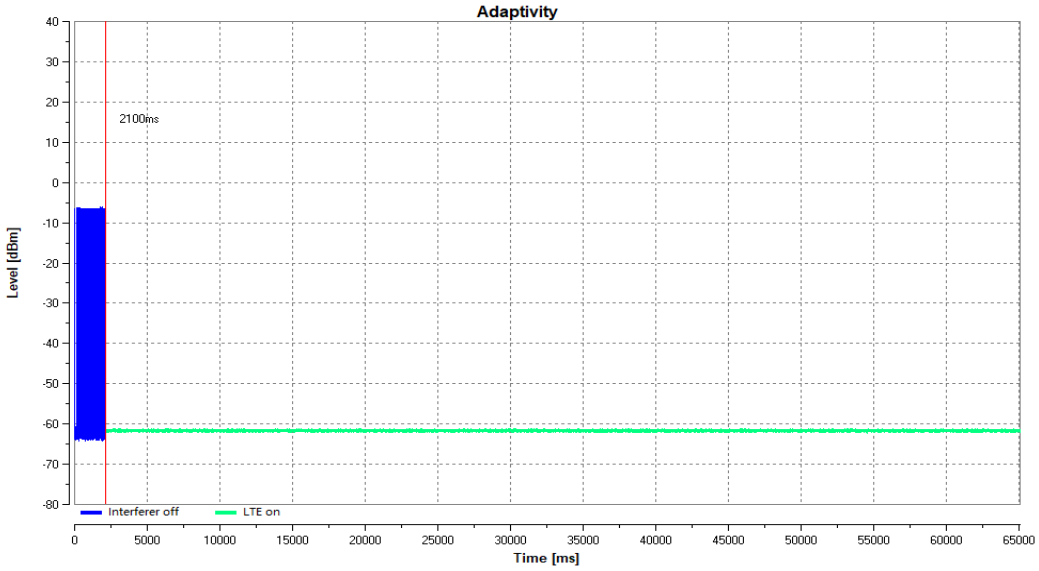


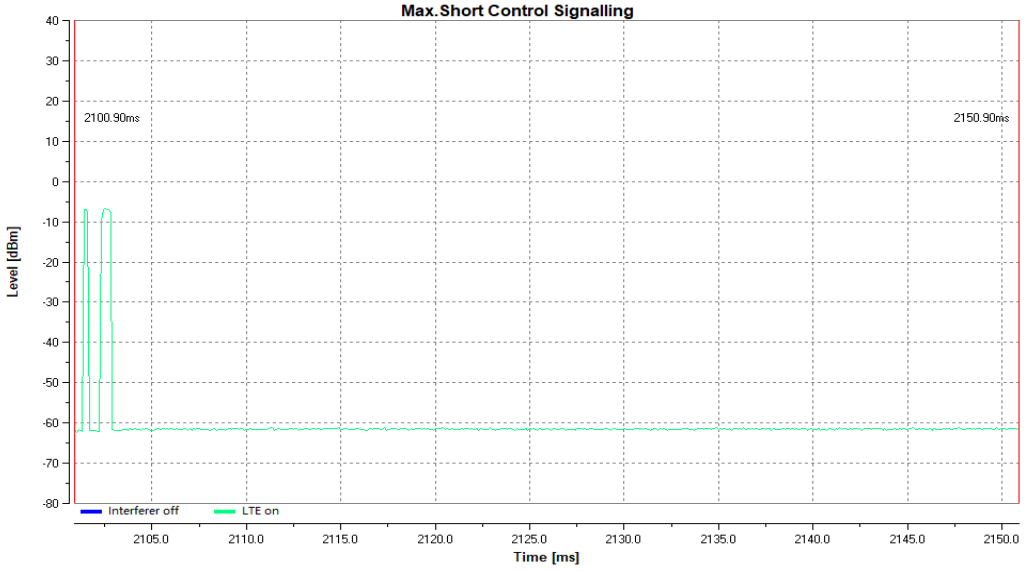
11A_Ant1_5180 OFDM

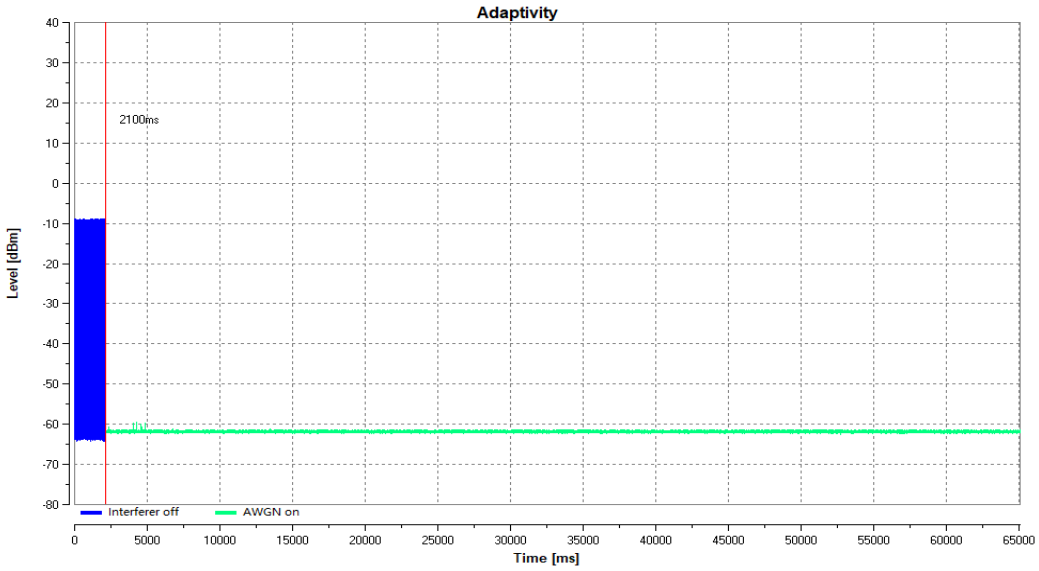
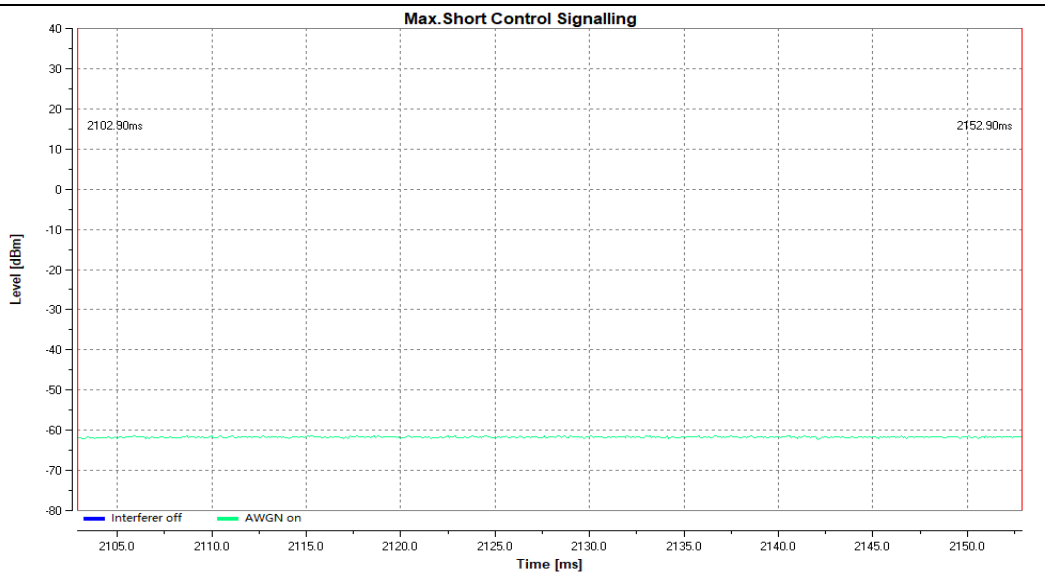




11A_Ant1_5180 LTE





11N40SISO_Ant1_5190 AWGN



9 – RECEIVER BLOCKING

Applicable Standard

Receiver blocking is a measure of the capability of the equipment to receive a wanted signal on its operating channel without exceeding a given degradation due to the presence of an unwanted input signal (blocking signal) on frequencies other than those of the operating bands provided in table 1.

Limit

The minimum performance criterion shall be a PER of less than or equal to 10 %. The manufacturer may declare alternative performance criteria as long as that is appropriate for the intended use of the equipment

While maintaining the minimum performance criteria as defined in clause 4.2.8.3, the blocking levels at specified frequency offsets shall be equal to or greater than the limits defined in table 9.

Table 9: Receiver Blocking parameters

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)		Type of blocking signal
		Master or Slave with radar detection (see table D.2, note 2)	Slave without radar detection (see table D.2, note 2)	
Pmin + 6 dB	5 100	-53	-59	Continuous Wave
Pmin + 6 dB	4 900 5 000 5 975	-47	-53	Continuous Wave
NOTE 1: P_{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal. NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain.				

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §5.4.10

Block Diagram of Test Setup

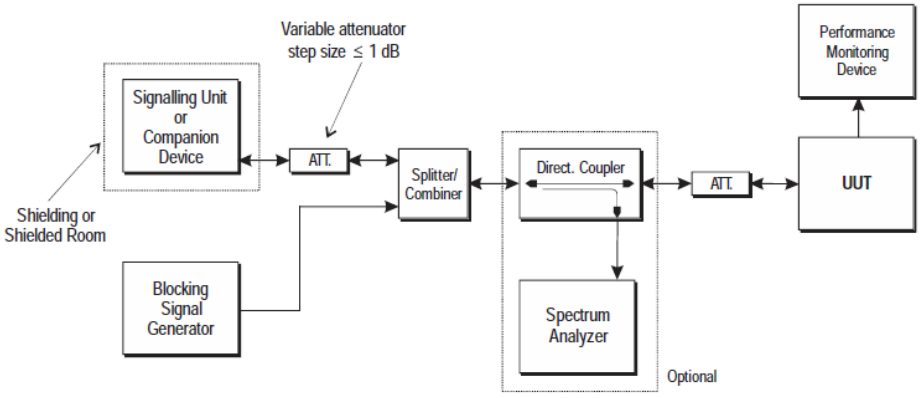


Figure 14: Test Set-up for receiver blocking

Test Data

Test Result: *Compliant. Please refer to following tables.*

Test Mode	Pmin (dBm)	Wanted signal Power from companion device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)	Max Blocking Signal Power (dBm)	PER (%)	Limit (%)
802.11 a (5180 MHz)	-94	-88	5100	-53	-20	1.32	≤ 10
			4900	-47	-15	1.24	
			5000	-47	-20	1.21	
			5975	-47	-15	1.36	

Note: CMW500 was used to monitor the PER, and the worst case as below.

10 –USER ACCESS RESTRICTIONS

Definition

User Access Restrictions are constraints implemented in the RLAN device to restrict access of the user to any hardware and/or software settings of the equipment, including software replacement(s), which may impact (directly or indirectly) the compliance of the equipment with the requirements in the present document.

The user should be understood as the end user, the operator or any person not responsible for the compliance of the equipment against the requirements in the present document.

Requirement

The equipment shall be so constructed that settings (hardware and/or software) related to DFS shall not be accessible to the user if changing those settings result in the equipment no longer being compliant with the DFS requirements in clause 4.2.6.

The above requirement includes the prevention of indirect access to any setting that impacts DFS. The following is a non-exhaustive list of examples of such indirect access.

Test Procedure

According to ETSI EN 301 893 V2.1.1 (2017-05) §4.2.9

Test Data

Compliant: Please refer to the product information declared by the manufacturer.

11 –GEO-LOCATION CAPABILITY

Definition

Geo-location capability is a feature of the RLAN device to determine its location at installation, at reinstallation and at each power up of the equipment, with the purpose to configure itself according to the regulatory requirements applicable at the location where it operates.

The geo-location capability may be present in the equipment or in an external device (temporary) associated with the equipment operating at the same geographic location during the initial power up of the equipment. The geographic location may also be available in equipment already installed and operating at the same geographic location.

Requirements

The geographic location determined by the equipment as defined in clause 4.2.10.2 shall not be accessible to the user. If the equipment cannot determine the geographic location, it shall operate in a mode compliant with the requirements applicable in any of the geographic locations where the equipment is intended to operate.

Test Procedure

The manufacturer shall declare whether the equipment complies with the requirements above.

Test Data

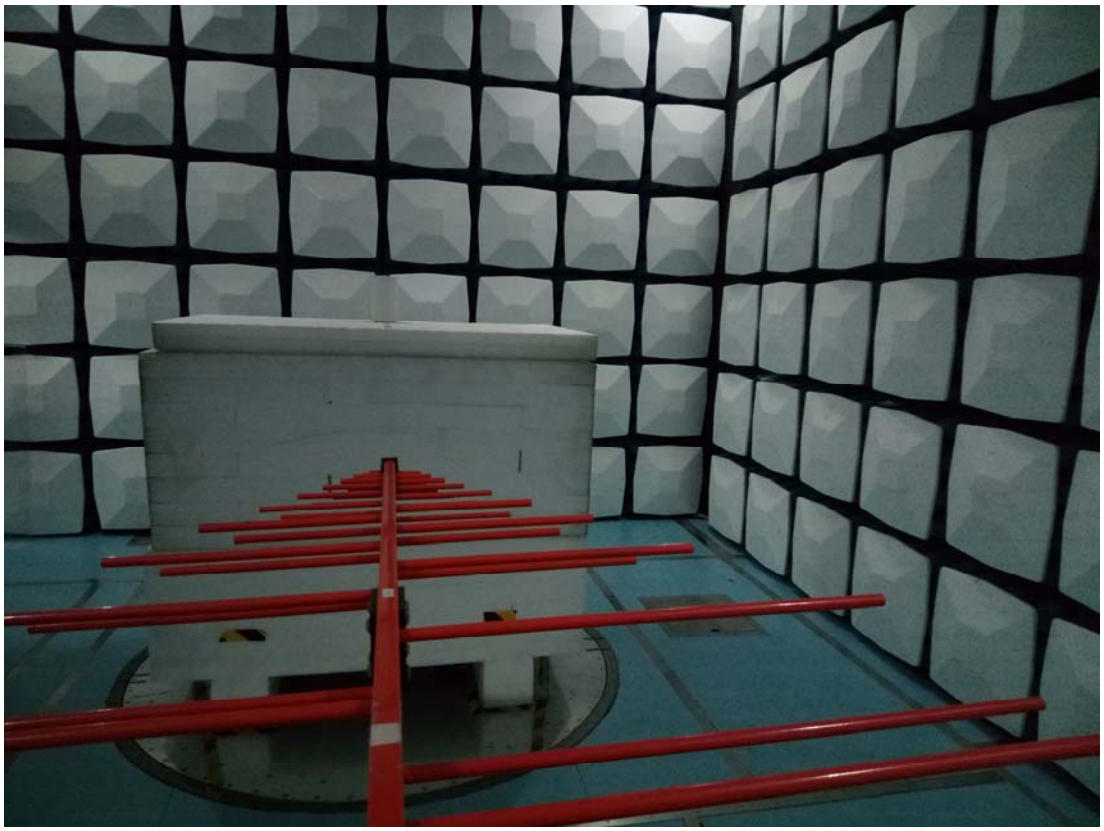
Not applicable: The device without this function which was declared by the manufacturer.

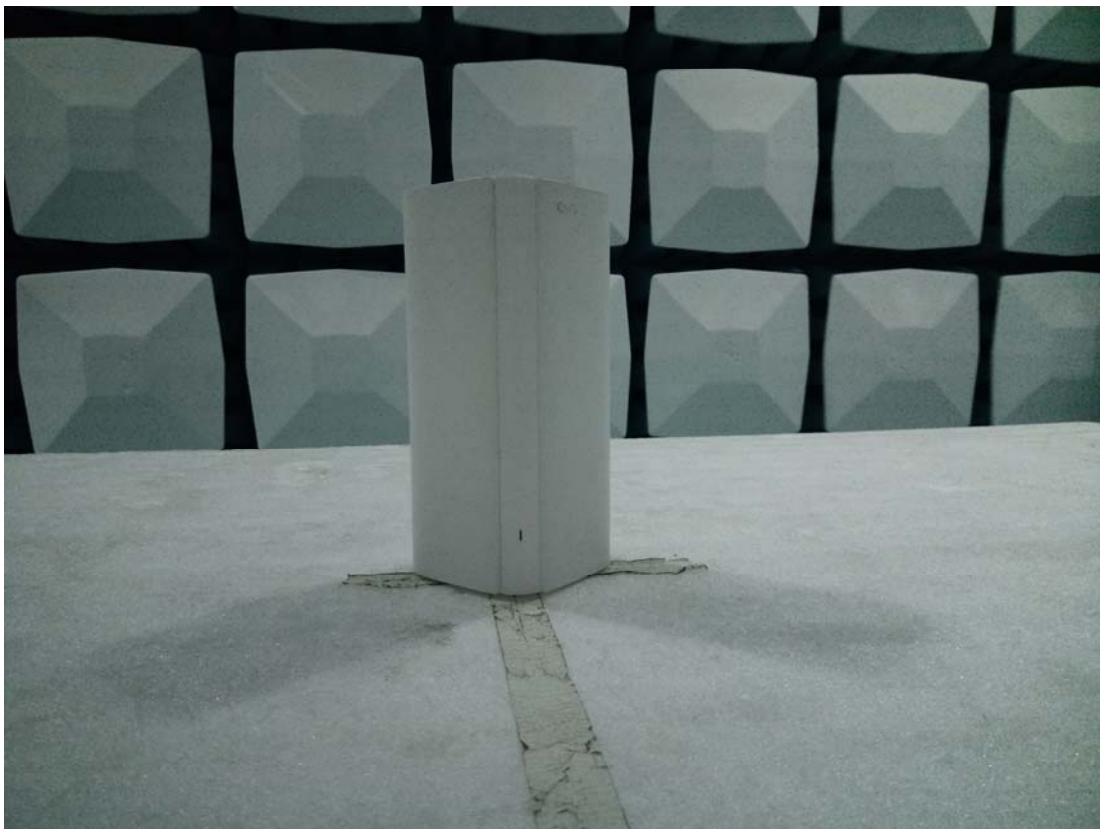
EXHIBIT A – EUT PHOTOGRAPHS

For photos in this section, please refer to report No.: DG2220216-04699E-02 EXHIBIT A..

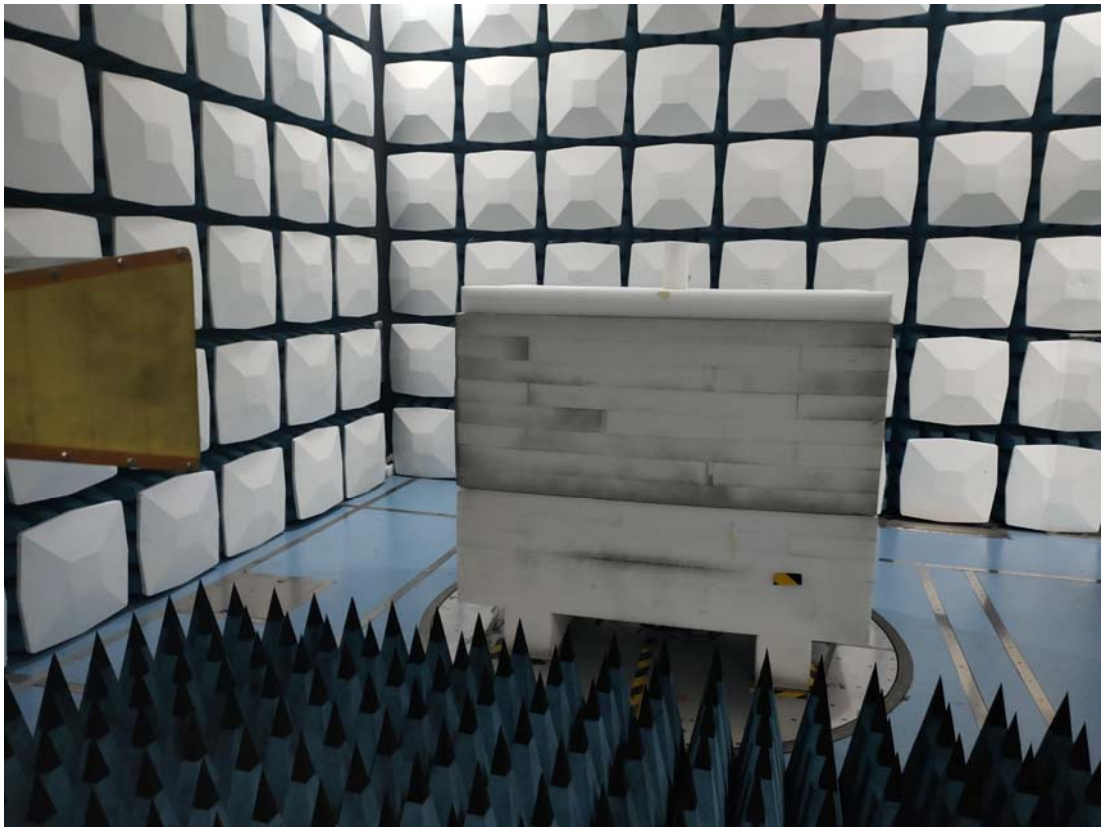
EXHIBIT B – TEST SET UP PHOTOGRAPHS

Radiated Emission Below 1GHz View





Radiated Emission Above 1GHz View



DECLARATION OF SIMILARITY LETTER

SHENZHEN TENDA TECHNOLOGY CO., LTD.
ADD: 6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
TEL: 86-755-27657098 FAX: 866-755-27657178
E-mail:cert@tenda.cn

DECLARATION OF SIMILARITY

Date: 2022-02-16

Dear Sir or Madam:

We, SHENZHEN TENDA TECHNOLOGY CO., LTD.hereby declare that the product:AX3000 Whole Home Mesh Wi-Fi 6 System, model:MX12,EX12,EM12 is electrically identical with the model:Mesh12X by BACL(Dongguan) with the same electromagnetic emissions and which was tested electromagnetic compatibility characteristics.

A description of the differences between those models and that are declared similar are as follows:

They are the same product, and just the different of the model name , the rest are the same.

Please contact me should there be need for any additional clarification or information.

Shen Yue

Best Regards,

Signature:
Printed Name: Shen Yue
Title: Engineer

*******END OF REPORT*******